



INSTALLATION AND OPERATOR'S MANUAL

READ THIS MANUAL BEFORE INSTALLING OR USING YOUR LEGACY STOVES FURNACE



COAL STOKER FURNACE
Model: VF2500/VF2500 Plus

⚠ WARNING	
	HOT SURFACES

Please read this entire manual before you install or use your new furnace. Retain these instructions for future reference.

Failure to follow these instructions may result in property damage, bodily injury, or even death.

Approved for use in the US.
If this Legacy Stoves™ product is not installed correctly, a house fire may result.

For your safety, follow installation directions precisely. Contact local building or fire officials about restrictions and inspection requirements for your area. Contact your local authority (such as the municipal building department, fire department, fire prevention bureau, etc.) To determine the need for a permit. Do not install in a mobile home.

Keep chimney and chimney connectors clean and in good condition.

LEGACY STOVES, A DIVISION OF:
 ALTERNATE HEATING SYSTEMS
 2393 LITTLE EGYPT RD
 HARRISONVILLE, PA 17228
 717-987-0099
 WWW.LEGACYSTOVES.COM
 EMAIL:SUPPORT@LEGACYSTOVES.COM

Record Model and Serial Number Below:

Model:
Serial Number:
Date of Purchase:

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Introduction

Thank you for purchasing a Legacy Stoves™ hot air furnace. Whether you're heating a room or heating your whole house, you've made the right choice. Please read this entire instruction manual before attempting to install or operate your new furnace. If

you have further questions regarding your new heating appliance, contact your Legacy Stoves™ dealer. Follow these instructions and you will have many years of warmth and comfort enjoying your new furnace.

Safety Considerations

With the exception of removing ashes, the bottom door should be kept closed. Never install a Legacy Stoves furnace to a chimney with a history of down drafts.

KEEP CHILDREN AWAY – MAY CAUSE SERIOUS BURNS.

CAUTION: ALL SURFACES OF FURNACE ARE HOT. DO NOT TOUCH. KEEP CHILDREN AWAY. SERIOUS BURNS WILL RESULT IF TOUCHED. THIS IS A HEAT PRODUCING APPLIANCE.

FUEL/FIRING WARNINGS -

DANGER! RISK OF FIRE OR EXPLOSION! DO NOT USE CHEMICALS OR FLUIDS TO START OR “FRESHEN UP” A FIRE. SEVERE BODY BURNS OR A FIRE IN YOUR HOME COULD RESULT. DO NOT BURN GARBAGE, GASOLINE, THINNERS, DRAIN OR ENGINE OIL, KEROSENE, OR FUEL OIL, ETC. AN EXPLOSION, A HOUSE FIRE OR PERSONAL INJURY COULD RESULT. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE FURNACE WHILE IN USE.

CAUTION! NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR “FRESHEN UP” A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE HEATER WHILE IT IS IN USE.

WARNING: DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS APPLIANCE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.

CAUTION! FAILURE TO FOLLOW THE INSTALLATION INSTRUCTIONS IN THIS MANUAL, OR USING MAKESHIFT COMPROMISES DURING INSTALLATION MAY RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH!

DO NOT USE CHEMICALS OR FLUIDS TO START A FIRE!

DO NOT BURN GARBAGE OR FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPHTHA, OR ENGINE OIL!

HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS.

WHEN INSTALLING IN A TIGHTLY CONSTRUCTED HOME, A SOURCE OF FRESH AIR TO THE ROOM MAY BE NECESSARY FOR PROPER OPERATION OF THIS APPLIANCE.

APPLIANCE PLACEMENT: THE VF2500 MUST BE INSTALLED ON A NON-COMBUSTIBLE FLOOR. THE NON-COMBUSTIBLE FLOOR MUST ALSO EXTEND A MINIMUM OF 18” IN FRONT OF THE FIREBOX DOOR, AND 8” TO THE SIDES. MAINTAIN A MINIMUM OF 18” OF CLEARANCE TO COMBUSTIBLE WALLS, 24” TO THE CEILING AND KEEP COMBUSTIBLE MATERIALS A MINIMUM OF 36” AWAY FROM IN FRONT OF THE APPLIANCE.

THIS UNIT MUST BE CONNECTED TO A CHIMNEY CAPABLE OF PROVIDING A -.06 MINIMUM DRAFT.

WARNING: IF THE CHIMNEY HAS NO DRAFT, COAL GASES MAY ESCAPE FROM THE UNIT AND STOVE PIPE. THESE GASES ARE TOXIC AND CAN BE FATAL. IT IS RECOMMENDED THAT A CO DETECTOR BE INSTALLED TO WARN OF THIS CONDITION.

NEVER SLEEP IN THE SAME ROOM WITH ANY COAL BURNING HEATER!

REFER TO MARKINGS ON THE APPLIANCE FOR ADDITIONAL INFORMATION.

Additional Warnings and Notices

Carbon Monoxide (CO) Awareness

Carbon monoxide, referred to as CO, is a colorless, odorless gas that is produced during combustion of coal and other fuels. CO fumes are toxic and can be fatal. Even though this furnace is designed to be as safe as possible, it is important that you install a CO detector. This is true for oil, gas, or wood as well. CO is not specifically heavier or lighter than air.

Therefore, it is best to install the detector at table top level rather than on the ceiling like a smoke detector.

CO detectors are very sensitive and may sound an alarm for fumes other than CO or CO from sources other than the furnace such as car or lawn mower exhaust. If the alarm sounds

1. Increase ventilation by opening windows or doors.
2. Make sure the furnace doors are closed and latched.
3. Check furnace for normal operation.
4. Check for false alarm.
5. Have all occupants exit the building until the cause for the alarm is discovered and/or remedied.

This appliance is also approved for installation into a shop.

NEVER SLEEP IN THE SAME ROOM WITH ANY COAL BURNING HEATER!

Note: Freshly delivered coal is typically watered down to minimize dust when loading and unloading. Wet rice coal does not flow as well as damp or dry coal, and may bind or bridge in the hopper. We do not recommend loading your hopper with wet coal. If you must burn wet coal, the feed rate will likely need increased, in order to get the same size fire. As the wet coal in the hopper dries out, the feed rate will need decreased to avoid over-feeding. Using wet coal, in an emergency, will likely not damage your furnace as long as it is hot and burning at the time. The damage is caused when the hopper has wet coal in it when the furnace is cold. This will cause rust and corrosion which is considered neglect and will not be covered by the product warranty.

Note: Always empty the hopper when not burning for more than a week. When left standing for long periods with wet coal, the pusher block will rust and corrode, causing it to seize. If the stoker is then turned "on", damage to the pusher assembly and feed motor will result. This will be considered neglect and will void the warranty on those parts. Always check to see if moving parts are free before using if the unit has not been burned for a period of time. This can best be determined by shaking the adjuster rod.

Chimneys and Venting

Technical Aspects of Chimney Performance

A device called a manometer is used in measuring the technical performance of a chimney. A manometer is an instrument used for measuring the pressure of liquids and gases. Draft is measured by checking for a negative pressure, compared to the ambient atmospheric pressure. An analog manometer consists of a glass tube filled with a liquid and mounted in front of a measuring scale against which the liquid level can be measured. If a manometer were connected to a leak-free chimney with a leak-free connection, then the draft in the chimney should exert enough pressure (or pull) against the water in the manometer to cause it to move at least $-.06$ inches in the tube. For units to be operated on coal, limit maximum draft to $-.10$ inches of water column. Use of a barometric damper may be required.

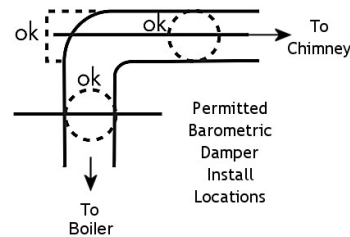


Dwyer Manometer

To measure the draft, drill a hole in the connector pipe and attach a draft meter or manometer. The normal operating reading is to be taken after a minimum 30 minute burn. The draft reading is best taken 18" up from the center of the flue outlet, in the connector pipe. Drill a hole in the pipe for the meter tube, and fill it with a screw or silicone when done with the test. First, check the draft above the barometric damper (if installed). Then check it below the barometric damper and make your damper adjustment to where it opens to prevent the draft from going higher than $-.10$ inches of water column. If the chimney is incapable of supplying the required draft, it will need to be improved. See the section on Common Chimney Problems for more information.

Barometric Damper

A barometric damper is a device that allows room air to enter the chimney, bypassing the air intake on the heater. A heater and chimney combination that drafts well will occasionally produce more draft than is desired. Excessive draft can lead to burning out of control and excessive heat production. It will also lead to reduced efficiency, as more heat will end up going up the chimney. A barometric damper is used on a coal fired heater to limit maximum draft to $-.10$ column inches. The barometric damper needs to be the same diameter as the stove collar. It is to be installed in the chimney connecting pipe as shown below, utilizing a Tee in the stove pipe.



It is important to check the chimney draft when the seasons change to ensure draft settings are correct. Changes may be needed when transitioning from winter heating to summer heating (domestic water heating). The amount of draft will change from one season to the next. It is not uncommon to add a draft inducer in warmer seasons to maintain the recommended $-.06$ to $-.10$ inches of water column.



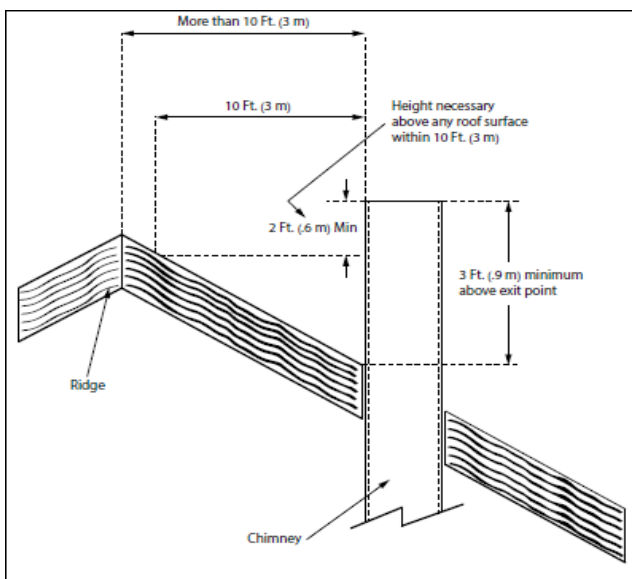
Barometric Damper

When you measure the draft, it is best if the furnace has been operating with sufficient time for the furnace and chimney to warm up. Burning for at least thirty minutes will provide for this. The draft reading is best taken 18" up from the center of the flue outlet, in the connector pipe. Drill a hole in the pipe for the meter tube, and fill it with a screw or silicone when done with the test.

Venting Guidelines

Your Legacy Stoves hot-air furnace must be vented to it's own separate flue. This must be a lined "Class A" chimney. If the chimney is a listed manufactured chimney, it is not to be less than 6 inches in diameter for the VF2500/VF2500 Plus. The chimney must be capable of providing a draft reading of at least **-06" water column on a draft meter, in order to function properly.**

The minimum recommended height for solid fuel chimneys is 16 feet from the furnace collar. The chimney must be two feet higher than anything within ten feet. It also must extend three feet above the point where it intersects or exits the roof line.



The three foot, two foot, ten foot rule

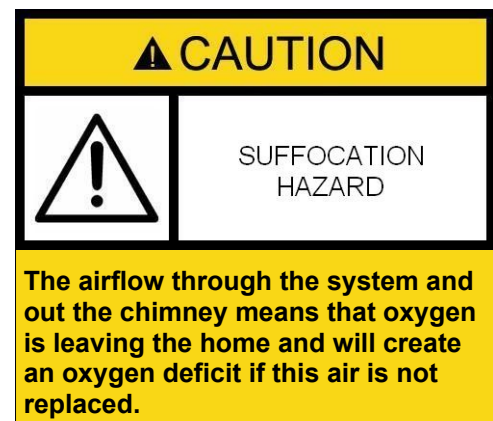
In order to have a properly operating solid fuel heating system, the chimney must be capable of providing the necessary draft. The minimum required draft is -.06 inches of water column (WC). This must be measured using a draft gauge. If the chimney cannot supply this constant draft, the furnace will not operate properly. A barometric damper may be used and properly adjusted to compensate for excessive draft only.

Combustion Air (Make Up Air)

The airflow through the system and out the chimney means that oxygen is leaving the home and will create an oxygen deficit if this air is not replaced. Adequate combustion air is critical for the performance of your heater. There is usually sufficient leakage in older homes to provide for this, but in well-insulated homes it may be necessary to provide additional outside air into the home. Combustion air can be provided with a duct to the outside. A louvered vent can also be used.

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.



Types of Chimneys

The chimney is one of the most important, yet most neglected and misunderstood portions of any solid fuel burning heater installation. Where an existing chimney is used, it must be large enough to provide a draft adequate for removing gaseous products of combustion.

From NFPA 211 2013:

1. The cross-sectional area of the chimney system must not be less than that of the flue collar.

2. Chimney systems which are completely internal below the roof line must be no more than three times the cross-sectional area of the flue collar ($28.3 \text{ in}^2 \times 3 = 84.8 \text{ in}^2$).
3. Chimney systems which are exposed to the exterior on one or more sides below the roof line must be no more than two times the cross-sectional area of the flue collar ($28.3 \text{ in}^2 \times 2 = 56.5 \text{ in}^2$).

THE STOVE MUST BE CONNECTED TO ITS OWN CHIMNEY. DO NOT CONNECT THIS FURNACE TO A CHIMNEY FLUE SERVING ANOTHER HEATING DEVICE.

MANUAL DAMPERS OR "HEAT SAVERS" MUST NEVER BE INSTALLED IN THE FLUE PIPE. IMPROPER OPERATION COULD RESULT IN DEATH.

CAUTION: THE CHIMNEY MUST BE A CLASS "A" CHIMNEY, IN GOOD OPERATING AND CLEAN CONDITION.

NOTE: THE USE OF ALUMINUM TYPE "B" GAS VENT FOR SOLID FUELS IS UNSAFE AND PROHIBITED BY THE NATIONAL FIRE PROTECTION AGENCY CODE.

There are three types of class "A" chimneys:

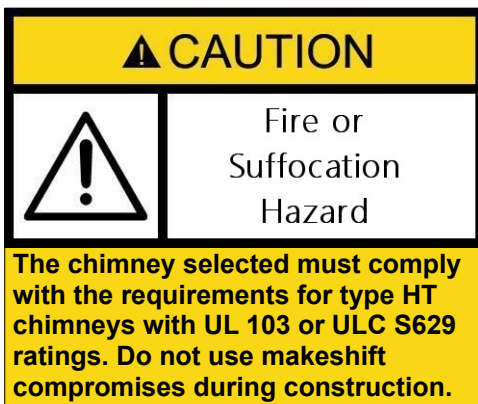
1. Masonry with tile liner, to include brick or stone. It must be supported on grade level foundation.
2. Insulated, manufactured chimney, listed or certified by a national test agency.
3. Triple-wall metal class "A" chimney, listed or certified by a national test agency.

If your masonry chimney has not been used for some time, have it inspected by a qualified person. If a listed or certified manufactured chimney is to be used, make certain it is installed in accordance with the manufacturer's instructions and all local and state codes.

Masonry Chimneys

If you plan on using a preexisting masonry chimney, have it thoroughly inspected and cleaned. Any faults which make the chimney unsafe and unusable must be repaired prior to use. These can include improper height, structural defects, blockages, inadequate clearance to combustibles, unsealed openings into other rooms of the house, signs of creosote or smoke leakage, a loose or absent clean-out door, or absence of a liner.

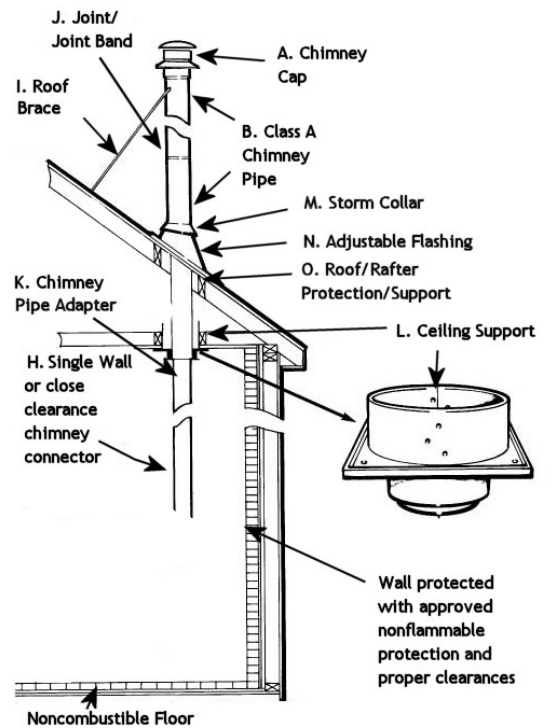
When connecting to a masonry chimney, several provisions are standard. First, whether the chimney connector is vented to the chimney through a thimble or a breech pipe, neither must pass beyond the inner surface of the chimney liner, and both must be firmly cemented in place with refractory cement. (A thimble is a masonry pipe which is inserted through the chimney wall, and is frequently the preferred method; a breech pipe is a piece of steel pipe used the same way.) In Canada, a breech pipe has ridges or protrusions to lock it firmly into the refractory cement. In either case, the chimney connector vents to the chimney through the thimble or breech pipe. See wall pass-through information in the section on stove pipe.



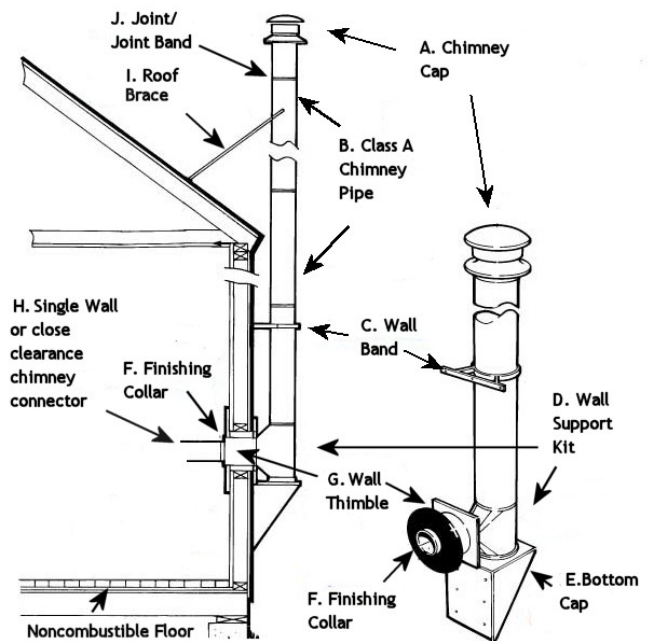
Prefabricated Chimneys

When venting your furnace using a prefabricated chimney, be sure to contact local building code authorities, and to follow the manufacturer's instructions exactly. Use only the manufacturer's parts; do not use makeshift installation techniques. All prefabricated chimneys must be tested to either the U.S. or Canadian high-temperature standards, UL 103 or ULC-629. Your manufactured chimney may contain more parts than is shown in the subsequent diagrams. Include all required items in your installation. A chimney cap (A) serves to keep rain and snow from entering the chimney. An approved Class A chimney (B) is required for the VF2500/VF2500 Plus furnaces. Wall Bands (C) must be deployed for support per manufacturer's recommendations. A manufacturer's Wall Support Kit (D) will contain required items for supporting the chimney. Such kits will cost less than individual items purchased separately. A Bottom Cap (E, location marked, but actual cap not shown) allows for cleaning. A Finishing Collar (F) provides inside wall protection. A Wall Thimble (G) provides for required clearance between the chimney pipe passing through a flammable wall. The Chimney Connector (H) must be approved single wall, or a low clearance pipe, installed with required clearances in place. A Roof Brace (I) is required for chimneys that extend more than a certain distance, as referenced by the manufacturer's instructions, from the roof. Manufactured chimneys may feature a built in "twist lock" at each joint, but a Joint Band (J) is still normally required to secure pipe at the joint. An approved Chimney Pipe Adapter (K) is required. A Ceiling Support (L) will provide structural support for the chimney and is typically part of a kit that includes items that maintain required clearances to flammables. A Storm Collar (M), and Adjustable Flashing (N) prevent water from entering the home by running down the outside of the chimney. Additional items or a kit (O) provide additional mounting support or fire protection to the roof joists or other roof components.

Inside Chimney



Outside Chimney



Common Chimney Problems

In order to have a properly operating heating system, the chimney needs to be capable of providing sufficient, but not excessive draft. The approach to improving draft in an existing chimney may include one or more of the following: raising chimney height, adding or changing the flue liner, or selecting a different style of cap to be placed on the top of the chimney. Reasons for insufficient draft include (but are not limited to) the following:

1. Leaking chimney - Air leaking in around a loose fitting cleanout door, joints or seams in connector pipe are not secured properly, cracks or other defects in masonry.
2. Chimney needs to be cleaned.

Note: Chimneys need regular maintenance and cleaning. If a chimney is not cleaned on a frequent basis, it will affect draft, as well as be a contributing factor to a potential chimney fire.

3. Improper chimney height - Chimney does not extend to a sufficient height above the roof line. (Remember the 3 ft.-2 ft.-10 ft. rule)
4. Obstructions in the chimney - Make sure the chimney has been cleaned. Different animals have been known to build nests in chimneys.
5. Trees or other topographical barriers - Trees that are taller than the house can cause the air currents to flow downward over the peak of the roof. This would lead to a down effect on the chimney. This can also be caused by adjacent buildings or structures. It could even be from a different peak on the same structure.
6. Improperly sized flue - Too small of a chimney is incapable of moving the volume of air necessary. Too large of a flue could have trouble warming up to create the necessary upward flow.
7. Chimney offsets - Offset chimneys should be avoided if possible. Not only can the offset affect draft, it is also a place for debris to collect over time.
8. Too many elbows - The flue connector has more than two elbows in it. Sometimes, depending on overall chimney performance, one elbow could be too many.

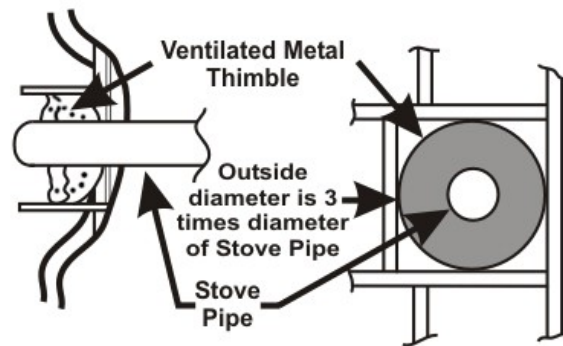
9. Vent sharing - No more than one heating appliance shall vent into a single flue.

If smoke is observed puffing out of the stove or connecting pipe, it is likely that there is an issue with draft. Review the above list for potential causes. If draft is excessive, review instructions on installing a barometric damper.

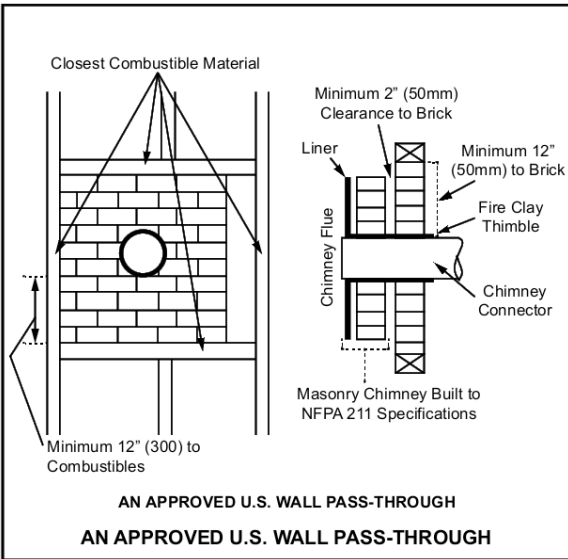
Chimney Connections

Chimney connectors shall not pass through an attic or roof space, closet or similar concealed space, or a floor or ceiling. Where passage through a wall, or partition of combustible construction is necessary, the installation shall conform to CAN/CSA-B365, Installation Code for Solid-Fuel-Burning Appliances and Equipment.

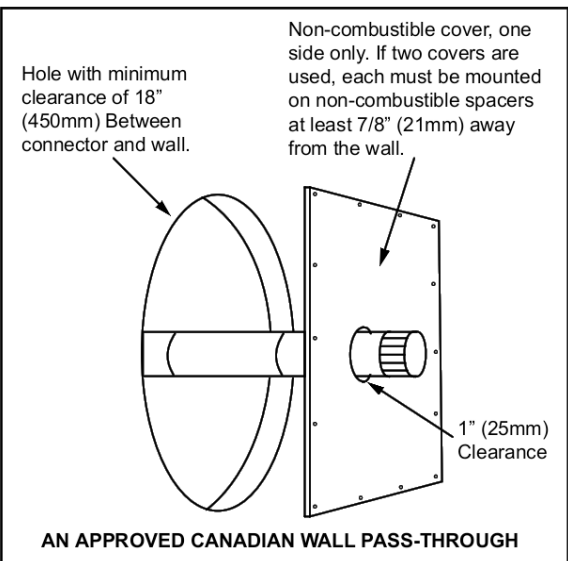
When connecting the flue pipe to the furnace, the first section should be installed inside the furnace collar. It should be secured to the collar with, at least, three screws or rivets. Do not pass the connector pipe through a wall or ceiling without first checking with your local codes. If allowed, use only approved pass-through methods.



Stove pipe passing through wall



U.S. Wall Pass-Through



Canadian Wall Pass-Through

Note: All horizontal runs of venting must have a minimum of 1/4 inch of rise per foot of length. Use no more than two 90° elbows in the connector.

A) Flue connecting pipe must be of black or stainless steel and not be less than 6 inches in diameter and of 24 gauge or heavier. It is recommended that overall flue connecting pipe length be kept to a minimum. Any horizontal runs must slope upward towards the chimney, with a minimum rise of 1/4 inch per foot. Use a minimum number of elbows, preferably no more than two, to make the chimney connection.

B) Connecting pipe joints are to be secured with screws (preferred) or pop rivets. Suggested location for fasteners is at the 12/4/8 o'clock positions. Refractory cement may be used at stove and chimney collar to secure these connections. Keep in mind that disassembly may be periodically needed, so that the chimney and connecting pipe may be cleaned and inspected.

C) Masonry Chimney Connections - A minimum of 12 inches of solid masonry is required around a 5/8 inch thimble if the pipe passes through a combustible wall. It is also acceptable to use a UL listed prefabricated wall pass through. If such a pass through is used, all the components comprising a complete pass through kit must be included, as per manufacturer's recommendations.

D) Masonry Fireplace Chimney Connections - In some situations, a code compliant chimney originally used for a masonry fireplace may be used. The chimney must be lined with the needs of the heating appliance in mind, including minimum and maximum sizes. The lining will comply with one of the following:

- Clay flue lining complying with the requirements of ASTM C315 or equivalent.
- Listed chimney lining systems complying with UL 1777.
- Factory-built chimneys or chimney units listed for installation within masonry chimneys.
- Other approved materials that will resist corrosion, erosion, softening, or cracking from flue gases and condensate at temperatures up to 1,800° F. (982° C)

Insulated liners work best for maintaining good draft. In addition to the requirements found in the previous paragraphs, it is important to be aware that all clearances must be met, including those from the chimney connector to combustibles. Do not forget to include floor protection in your plans. (See Clearances and Floor Protection) Since many fireplaces have exposed wooden mantels and trim, pay special attention to the clearances necessary to these materials. If your fireplace chimney is behind a combustible wall, you must use an approved wall pass-through system to gain access to the masonry chimney. The chimney connector must enter the chimney at a place where it is lined, and the fireplace must be made inoperable. For example, you might remove the damper, replacing it with a secure, airtight, noncombustible seal (removable for inspection); this also satisfies the requirement that no room air must be allowed to enter the chimney.

CHIMNEY DRAFT MUST BE -0.06 TO -0.1 IN. WATER COLUMN ON A DRAFT METER, IN ORDER TO FUNCTION PROPERLY AND SAFELY.

What to Do if You Have a Problem

If you have a chimney fire:

1. Be sure everyone is out of the house.
2. Call the fire department.
3. Close the draft control on the ash door and make sure both doors on the furnace are closed and latched.
4. Do not put water on the fire, this will cause unnecessary damage to the furnace and flue.
5. Have the chimney inspected and repaired prior to building another fire.

Smoke puffs out of the furnace:

1. Check previous suggestions for insufficient draft.
2. Check draft control for proper operation.
3. Chimney may be too low. Increase height.
4. Add more fresh air to the room. Your home may be so tight that there is not enough oxygen getting to the fire.
5. Remember, open the draft control and crack the door open slightly before reloading or checking the fire.
6. Check the ashes. The ash pan and firebox may be overloaded with ashes.
7. Check the chimney cleanout door to ensure it closes properly.

Also see the troubleshooting section later in this manual.

WARNING - DO NOT CONNECT THIS UNIT TO A CHIMNEY SERVING ANOTHER APPLIANCE!

Furnace Installation

Your VF2500/2500PLUS furnace will radiate a good amount of heat. This heat can be dangerous if the furnace is improperly installed. It is very important to adhere to the clearances and restrictions listed below.



To ensure a safe installation, this furnace is to be installed by a qualified installer.

The sheet metal top and sides can be easily removed to reduce the chance of dents or scratches on the painted surfaces. To remove the sheet metal, first lift off the top section. Now, the sides can be removed by lifting up and out away from the furnace.

Locate the furnace as close to the chimney as possible while still maintaining the listed clearances. No more than 8 feet of furnace pipe should be used, including two or less 90° elbows. All horizontal runs of pipe should have a minimum 1/4 in. rise per foot. All furnace pipe must be 24 gauge or thicker.

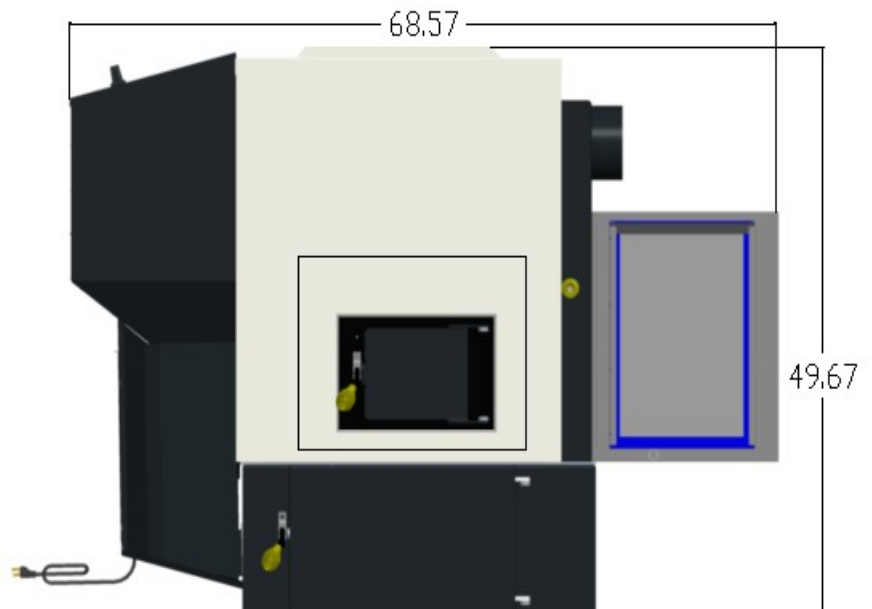
Re-install the sheet metal by sliding the groove on the bottom of each side panel over the steel lip on the furnace. The top sheet metal piece holds the sides in place.



LEFT SIDE VIEW



FRONT (DOOR SIDE) VIEW



Floor Protection

The furnace must stand on a noncombustible material such as brick, stone tile or concrete. The floor needs to be flat and must be able to support the furnace's weight, plus the weight of any attachments. NEVER place a furnace directly on a wood floor. If a noncombustible material is used under the furnace to protect a combustible floor, than this material must extend at least 12 inches beyond the base of the furnace in the rear and on the sides and at least 36 inches in front. Floor protection must also extend 2 inches beyond flue connecting pipe also. See the floor protection chart and diagram that follows for installation guidelines.

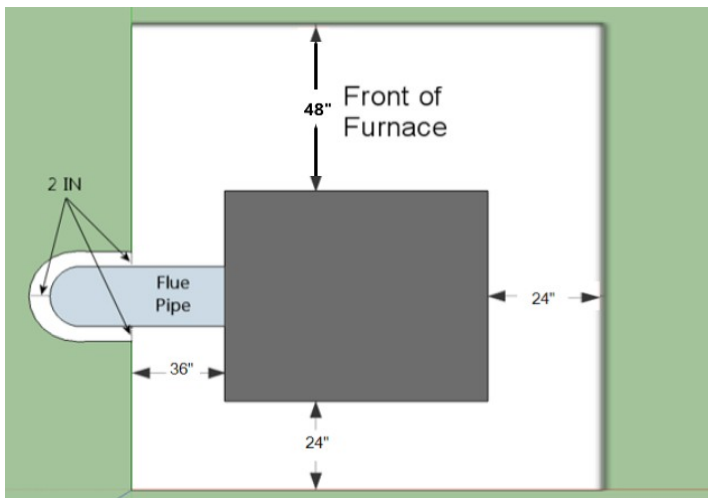


Figure 1: Floor Protection Diagram

CAUTION! DO NOT INSTALL IN A SLEEPING ROOM! DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE!

CAUTION! THIS FURNACE MUST NOT BE INSTALLED CLOSER THAN 30 INCHES AT THE SIDES AND 36 INCHES FROM THE FRONT TO COMBUSTIBLE MATERIALS. THE UNIT MAY ONLY BE INSTALLED ON A NON-COMBUSTIBLE FLOOR SURFACE SUCH AS CONCRETE FLOOR OR CONCRETE PAD ON DIRT FLOOR. THE HOT AIR PLENUM MUST BE A MINIMUM OF 2 INCHES FROM THE CEILING OR OTHER COMBUSTIBLES ABOVE THE PLENUM.

Clearances

Listed Clearances	
Front	48 Inches
Sides	24 Inches
Rear	36 Inches
Top	24 Inches
From Plenum Top	2 Inches

The furnace must be installed in an area dedicated to it and its related equipment. Review the following checklist:

- ✓ Furnace area must be partitioned or separated from any living area of a residence.
- ✓ The room must have a constant fresh air supply to assure proper combustion of the fuel as well as ventilation of any by-products of combustion.
- ✓ The room should have good lighting, with a source of emergency lighting as well.
- ✓ An electrical disconnect should be present at point of entrance to the furnace room.
- ✓ Walls and ceiling must be of fire rated construction. Consult code requirements.

⚠ WARNING



SUFFOCATION
HAZARD

Ventilation Fans in the furnace room must not create negative pressure. Doing so will create an unsafe condition and negatively impact furnace performance.

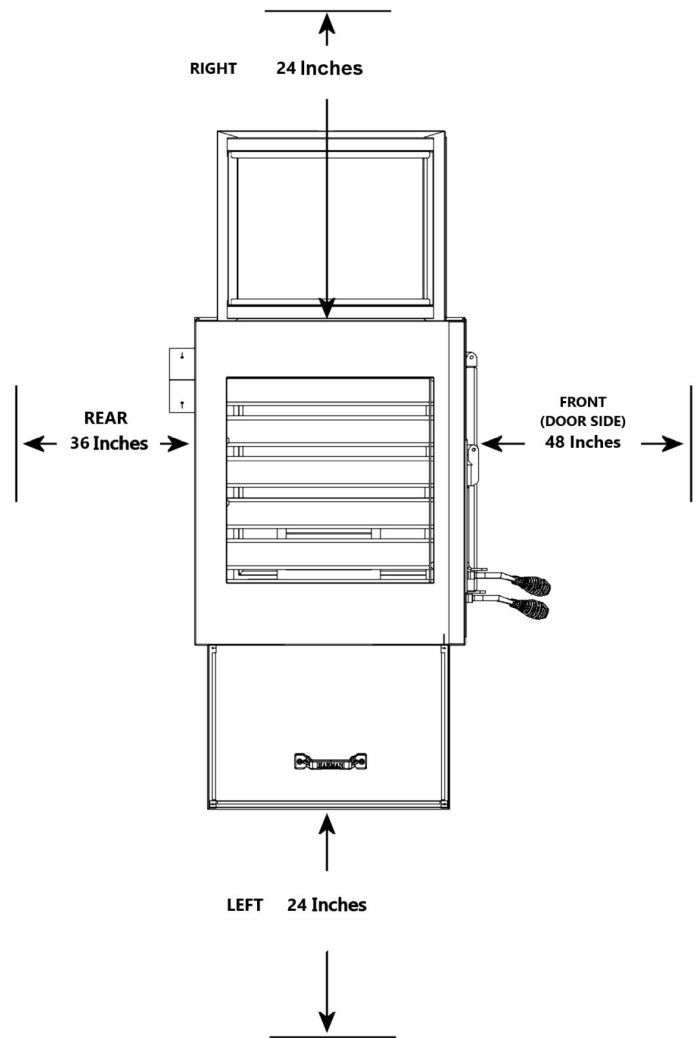


Figure 2: Clearance to Combustibles Diagram

Rigging and Positioning

Do not attempt to move or off-load the furnace without the aid of a crane or dolly. Most Legacy Stoves furnaces have a lifting lug in the center of the top. Once on the floor level where it will be installed the unit may be rolled on pipe or may be moved by means of a pallet jack. The furnace must be placed on a concrete slab or other rigid pad of non-combustible material with sufficient strength to adequately support the furnace including any attachments, and be positioned as closely as possible to the chimney. The smoke pipe must pitch continually upward toward the chimney and be as straight as possible. Level the furnace after it has been positioned.

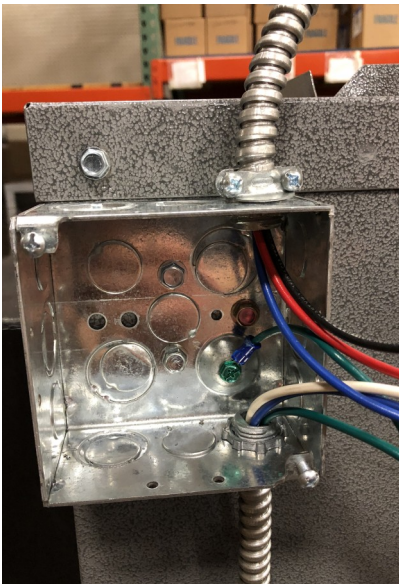
Assembly and Wiring

Furnace Electrical Assembly

It is your responsibility to follow all local and state codes for wiring and installation.

After your furnace is positioned with plenum and flue installed within the clearances listed for your specific furnace and in accordance with local and state codes you can install the wiring. We recommend a licensed electrician install all electrical components.

If not already done so from the factory, install the 4×4 junction box on the left side of the furnace, the junction box can be found packaged in the feeder/control cabinet. The 4×4 junction box is to be mounted on the sheet-metal 1 1/2" from top of furnace and flush with the rear corner of the sheet-metal. (see pic.) Use three self-tapers to screw the control box to the sheet metal (see pic.) use the three holes on the right of the control box.



BE EXTREMELY CAREFUL NOT TO DAMAGE OR NICK WIRES WHEN INSTALLING THE CONTROL BOX. DO NOT USE DAMAGED WIRES!!

If you do damage a wire call your dealer and have it replaced before powering the furnace. **WARNING! USE ONLY 105°C RATED WIRE!** Secure the conduit with four straps.



Fan/Limit Switch

Drill a 7/8" hole in the center of your plenum 12" to 18" above the top of the furnace. Insert the fan/limit switch and screw it to the plenum.

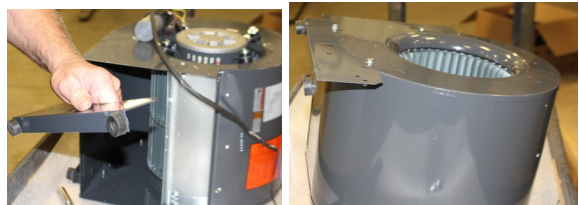
Caution! BE EXTREMELY CAREFUL NOT TO DAMAGE WIRING.

Warning!! Do not use damaged wires.

WARNING! Use only 105°C rated wire.

Mounting the Blower and Filter-Box

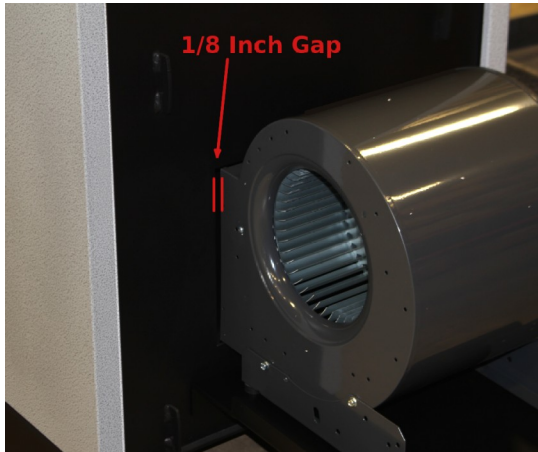
Install the blower support brackets onto the blower along with the 4 rubber feet. All hardware, brackets, etc. for the blower will be found in the carton with the blower.



Installing Rubber Feet on Fan

Install the large blower mounting plate first. With the large flat surface facing up, secure it to the lower back portion of the furnace using the 2- 3/8" lock washers and nuts that are supplied.

Position the blower on the mounting plate, centered behind the inlet hole and allow approximately 1/8 in. space between the rear of the furnace and the blower outlet. **NOTE:** The blower does not get bolted down to the mounting plate. It simply rests there on the rubber feet.



Positioning Blower on Fan Mounting Plate

Now place the filter box over the blower and mounting plate. Make sure the 7/8" hole on the filter box is on the **BOTTOM**. (see pic.)



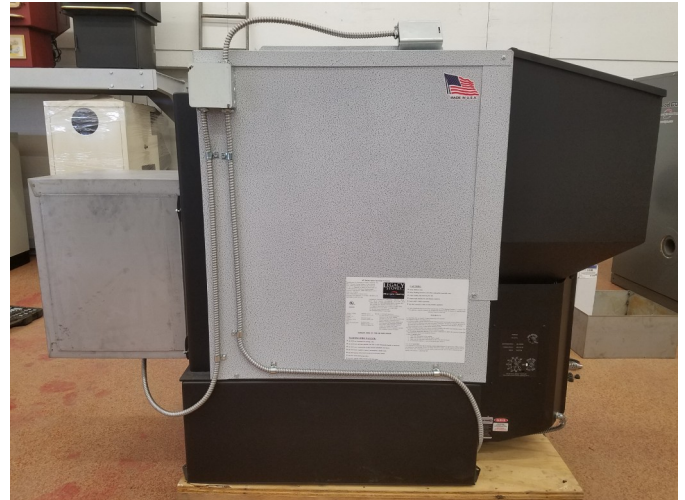
Use the four filter box mounting tabs with their screws to mount the filter box containing the distribution blower to the back of the VF2500. The filter box should rest on the ledge of the base.

Once the filter box and with blower is mounted to furnace connect the supplied conduit to the 4x4 control and the other end to the 7/8" hole on the bottom of the filter box. Secure the conduit with two conduit straps.

In the control box- connect the Red wire to the other Red wire; connect the White wire to the other white wires; connect the green wire to ground. In the filter box- connect the red wire to the Black motor wire; connect the white wire to the purple motor wire; connect the green wire to the other green wire and connect both to the blower motor ground screw.

Next install the filter rail to the same side being used for inlet air. Slide 20x20x1 air filter into filter rail.

Install the block off jacket to the opposite side using the supplied self drilling screws.



Supply Power

When wiring on furnace is complete 120v 15amp service from breaker box to the Black (L1), White (Neutral), Green (Ground) wires in the 4x4 control box. You **MUST HAVE EMERGENCY DISCONNECT**.

Furnace Operation

Fuel Specifications

The VF2500 and VF2500 Plus are designed for use with rice size Anthracite coal Only. Anthracite is also known as "hard coal". It is mined almost exclusively in the Pennsylvania, USA. It contains a high percentage of fixed carbon and burns very cleanly with no visible smoke.

The post-mining process involves breaking the large lumps of anthracite into smaller pieces. In the breaking process, the coal is sifted and sorted by different sized screens. Rice size is defined as the coal that has a maximum size of 3/8" and a minimum size of 3/16". Occasionally, pieces will be just a bit outside of this range. You will also have a small percentage of fines, which is coal that has been turned to powder through the process of handling.

Most coal suppliers wash the coal and/or wet it for delivery, to keep the dust minimized. However, the coal must be dry when loading it in the stove.

Therefore, it is highly recommended that you purchase your coal well ahead of the heating season, to allow it time to dry. Coal, whether in bags or in bulk, should be stored in a dry area.

FUEL SHOULD BE STORED IN A DRY PLACE, PREFERABLY INDOORS. KEEP FUEL OUTSIDE THE INSTALLATION CLEARANCE AREA. ALSO, KEEP FUEL AWAY FROM ALL MAINTENANCE ACCESS AREAS.

WARNING! NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR "FRESHEN UP" A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE HEATER WHILE IN USE.

BURN ANTHRACITE COAL ONLY

CAUTION: APPROVED FOR USE WITH COAL ONLY. THE USE OF ANY OTHER FUEL, EXCEPT FOR THE PURPOSE OF IGNITING THE COAL, WILL VOID THE PRODUCT WARRANTY AND MAY CAUSE DAMAGE TO THE APPLIANCE AND/OR YOUR HOME.

The Super Magnum's ESP control will maintain an output level to fit your temperature demands. There are two modes of operation; "Stove Temp" mode, where the control will maintain a specified constant temperature, regardless of the surrounding environment temperature conditions, or "Room Temp" mode, where the control will adjust the rate of burn to meet a specified room temperature setting. Regardless of the mode selected, operation is controlled by both, exhaust temperature being reported by the ESP (Exhaust Sensing Probe), and the microprocessor circuit board.

We'll discuss these control devices and their functions now.

ESP (Exhaust Sensing Probe)

The ESP is a tiny thermistor located in the exhaust stream. The probe changes its thermal resistance based on minute changes in temperature, which is monitored by the circuit board and used to determine the need for changes in the burn rate to meet the temperature demand.



Circuit Board

The circuit board contains a microprocessor with the ability to make adjustments based on both measured temperatures and demand temperature. It also contains built-in self-diagnostic capabilities to assist in troubleshooting abnormal operation.

Operational Control Panel

The following diagram illustrates and describes the controls.

Status Light Error Messages

Power Light
Indicates power to the control.

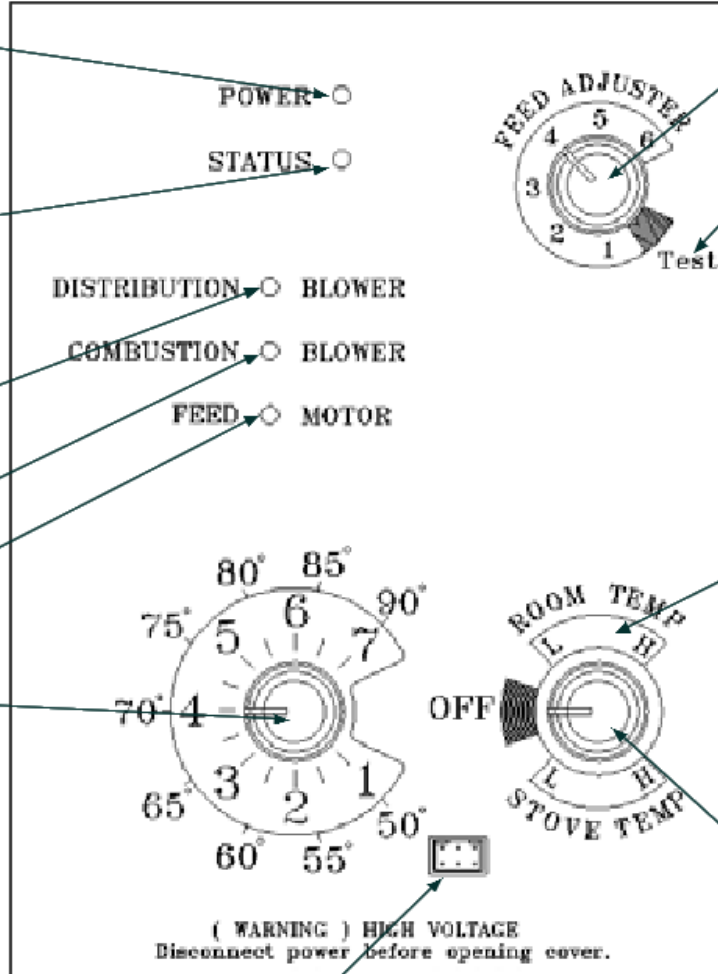
Status Light
Will be lit in either stove or room temp mode when pointer is not within off position band except after normal shut down. Blinks to indicate errors listed below.

Indicates power to the distribution blower.

Indicates power to the combustion blower

Indicates power to the feed motor.

Temperature Dial;
Allows you to adjust the room temperature in Room Temp Mode using the outer scale marked in degrees Fahrenheit. It also allows you to adjust the stove temperature while in Stove Temp Mode using the inner scale marked from 1 to 7.



Dealer Diagnostic Port
For dealer maintenance only. Requires special DDM monitor supplied to dealers exclusively.

Circuit Board Dipswitches

Feed adjuster
Sets the maximum feed rate

Test
Runs all motors at full speed for one minute to check operation. After two minutes the stove will go to minimum burn and the blowers will alternate from high to low every minute to remind you that you are still in "Test Mode".

Distribution Blower speed adjustment range.
L = low
H = high
Variable speed anywhere between L and H; although as the stove temp. goes up, so does the low end of the scale.

Mode Selector
Allows you to choose between Room Temp Mode, Stove Temp Mode, or OFF. Also allows you to vary the distribution blower speed by turning the knob to the high or low side of each mode.

3-Blinks: Indicates that the ESP has gone out of range too many times. Could be an indicator of build up of ash, etc. in the flue pipe or heat exchange. Perform a Manual Reset.

4-Blinks: Indicates that the room sensor circuit is not complete. May mean a poor connection or short in the sensor wire. (Will only occur in "Room Temp" mode.)

Manual Reset: Turn the mode selector to "OFF", and disconnect power for a second. Restore power and return to original setting.

On the face of the circuit board, there is a block of 8 switches. These "ON-OFF" switches are used to set the times and temperatures for the different models of stove. For this model, switches numbered 5, 7 and 8 should be on, with the rest of them off. **NEVER ADJUST THESE SWITCHES YOURSELF, AS SERIOUS ISSUES COULD DEVELOP.** Also know that if there is a need to replace an ESP probe, a switch change may also be needed. It is strongly recommended to have a trained service representative make any repairs to the appliance.



Feed Rate Adjustment

The Circuit board runs on a one minute timer cycle. The board is programmed to regulate what is needed for the next minute to maintain or achieve the desired temperature. When you set the feed adjuster dial, you are setting the maximum amount of each one minute cycle allocated to feed time. Less time may actually be used, based on programming in the circuit board, and temperature measurements. For instance, a number 4 setting on the feed adjuster will allow a maximum of 40 seconds per minute of feed. If the room temperature is satisfied, with only feeding 20 seconds, then that is all the circuit board will run the feeder. For most circumstances, the number 4 setting is adequate. Nevertheless, fuel quality may dictate a higher or lower setting. If you see unburned or burning coal being pushed off of the grate during a high demand period, the feed rate is set too high. Ideally, you'll want to see about an inch of ashes in front of the burning coal during a peak demand period. Setting the feed rate too low may not allow the demand temperature to be met. Keeping the setting at 4 or above will work with most batches of coal. Allow a minimum of one hour between adjustments.

Note: Since the circuit board is feeding as needed, only adjust the feed rate while maximum demand is occurring. (Stove Temp Mode, with a temp dial setting of 7 will create maximum demand.)

Mode Selection

Room-Temp mode is the ideal mode of operation if you wish to maintain a comfortable temperature in the room. As the outdoor temperature fluctuates, the VF2500 will adjust the feed rate to maintain the desired temperature setting in the room. For best results, be sure the room sensor is located outside of any drafty areas and not positioned on the floor or near an exterior wall.

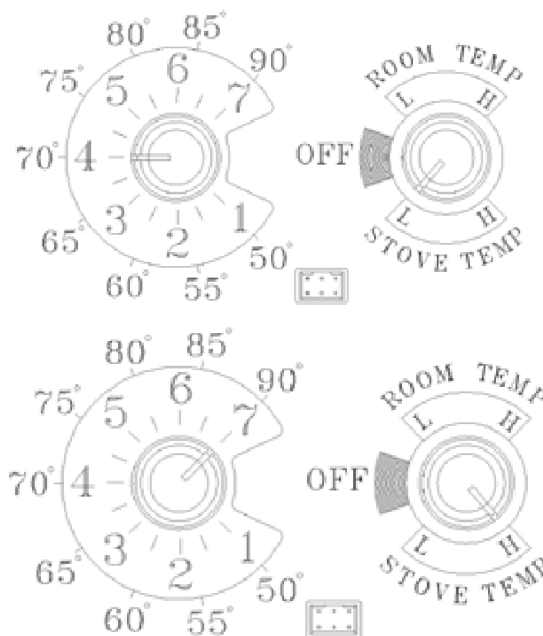
Stove-Temp mode is considered more of a manual method of operation. The stove will run at a constant heat output, regardless of outside air temperature. Note that on the coldest days, your indoor heated space will be cooler than on the warmer days. The chief benefit of this mode of operation is that you'll be able to know more precisely how long a hopper full of coal will last, because the consumption is going to stay relatively constant.

Temperature Dial

The temperature dial is a dual purpose dial. In Room-Temp mode, you select the room temperature you want the stove to maintain at the room sensor probe. This is marked in Fahrenheit scale from 50 to 90 degrees. In Stove-Temp mode, you select a temperature setting based on the #1 - 7 with 1 being a minimum burn and 7 being a maximum burn rate.

Blower Speed Adjustment

The mode selector is also marked with a L to H scale, in each mode. This is a variable speed control for the distribution blower. L is the low setting, and H is the high setting. It is important to note that the blower will not come on until the ESP reaches a high enough temperature to ensure that cold air is not being blown out into the room. Also, the speed of the blower, when set on lower speeds, will automatically increase as the temperature of the stove increases.



KEEP HOPPER LID, ASH PAN, AND FIRE VIEWING DOORS CLOSED WHILE IN OPERATION. MAINTAIN ALL DOOR SEALS AND GASKETS IN GOOD CONDITION. REPLACE GASKETS WHEN NECESSARY USING PARTS OBTAINED THROUGH YOUR LEGACY STOVES™ DEALER.

BURNING WITH ONE OR MORE OF THE UNIT DOORS OPEN WILL LEAD TO OVERFIRING WHICH COULD DAMAGE THE APPLIANCE, CHIMNEY, OR CONNECTOR, OR COULD CAUSE A HOUSE FIRE.

Firing the VF2500/VF2500 Plus

Before Your First Fire

- Be sure the appliance is installed properly and that all safety requirements have been met. Pay particular attention to the clearances to combustibles, floor protection and the venting instructions.
- Test your smoke detector(s) and CO detector(s) to the specifications of the manufacturer.
- Double check that the ash pan and internal firebox are empty.
- Be sure to read this entire manual.

WARNING! NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR "FRESHEN UP " A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE HEATER WHILE IN USE.

Starting Your First Fire

With the mode selector in the "OFF" position, and the Feed Adjuster NOT on "Test", plug the power cord into a properly grounded receptacle.

1. Fill the hopper with DRY coal.
2. Place some coal on the burn grate, filling the valley in the back.
3. Turn the mode selector dial to the desired mode. If Room Temp is selected, be sure to turn the temperature dial above the current room temperature.
4. Fill the rest of the grates with a mixture of wood pellets, and rice coal.
5. Light the pellets with a torch, and close the door.

Only after the ESP temperature increases, will the feeder start operating to increase the fire size.

WARNING! NEVER APPLY STARTING GEL TO THE STARTING MIXTURE WITHOUT THE COMBUSTION BLOWER OPERATING.

Slide Baffle Operation

Positioning of the Slide Baffle will be determined by your circumstances. Simply keep in mind that closing the baffle means that flue gases travel a longer path, allowing for more heat to be extracted. Opening the baffle does the opposite, allowing more heat to go out through the chimney. If you are just starting up (particularly with a cold chimney), or if temperatures are mild, or you otherwise have issues with draft, you may want to open the baffle partly or completely to allow more heat to escape. When draft measures close to the minimum (-.06 inches water column), allowing more heat into the flue will improve draft, since draft is partly an effect produced by temperature differences between warm gases in the chimney and the outside air.



Slide Baffle Closed (Use when draft is good)



Slide Baffle Open

Use When:

- Starting a fire
- Draft is low
- Chimney is cold

DANGER!
COAL GAS CAN ACCUMULATE!!
ESPECIALLY DIRECTLY AFTER UNIT IS
SHUT DOWN AND STILL HOT. HOLD
THE ACCESS DOOR OPEN 1/4" FOR 1
MIN. BEFORE OPENING COMPLETELY.

Note: If backup power is provided by a generator, always operate the generator well outside the home to avoid carbon monoxide in the home.

Fire Characteristics

After lighting the fire, it will go through a few different stages of appearance. First, because of the wood pellets mixed in, you'll see mostly tall yellow flames. As the wood pellets burn away, and some coal begins to ignite, your yellow flames will shorten and mix with blue flames. After the wood pellets are gone and the coal is the only thing burning, you'll see mostly blue flames, which can be invisible in a brightly lit area. As the fire settles in, you'll have about a two inch band of hot burning coals running across the grates. With a maximum temperature demand, the ideal feed rate setting will put this band approximately 1-2 inches back from the end of the grates. Allow at least an hour of burn time between adjustments to the feed rate.

Operation During a Power Failure

Without electrical power for more than 15min the fire will go out. Directly after unit is turned off and still hot. Hold the Access Door open 1/4" for 1 min. before opening completely.

Backup power may be used to power the combustion controls, and hot air distribution. This is the best option for providing continued heating during an extended outage. Whatever means are used, it is important that the distribution system works to guard against overheating. Backup power must be provided in a way that satisfies local code requirements and prevents back-feeding of electricity into the power grid.

Restarting a Fire

To restart the fire, with a metal scraper dump the ash and partially burned coal into the ash pan, and refill the coal pot with fresh coal/pellet mixture. Now turn the Room Temp/Stove Temp dial to the 9 o'clock position (OFF position). Then return it to its previous setting. Now you may restart the a fire as prescribed in the "Starting your First Fire" section.

Maintenance

Ash Removal

With each hopper of coal that is burned, approximately one ash pan full of ashes must be removed. Failure to remove ashes will result in a blocked grate and the fire will not burn properly. Remember, the ash pan will be hot, so always wear protective gloves.

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 locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

Weekly:

The small tray in the side of the stoker should be removed and emptied.

Every 3 months:

The grate “clean-out” slide should be opened and re-closed.

In the “closed” position, be sure the “grate clean-out” plate slide is straight across.

The easiest way to handle this slide is through the ash door with a poker inserted into the hole at the end. The purpose of this operation is to let any ash build-up, under the grate, fall into the ash tub.

This operation can be performed while the unit is burning. However, you should first lower the thermostat to lower the furnace temperature and be sure you are wearing protective gloves.

The operation can also be performed when the unit is not burning by lifting the grate inserts out and removing the ash with a vacuum cleaner.

Remove baffle slide and remove fly ash.

Annually:

The end of the heating season is the best time to perform annual maintenance. Rust and corrosion can form much faster in the high humidity of summer, so cleaning your VF2500 will prevent those damages.

1. Remove all coal from the hopper
2. Remove all ashes

3. Remove and clean flue pipe
4. Check chimney and clean if necessary
5. Remove hopper and check for rust at bottom edges. If rust is found, remove it with a file or sandpaper then paint the area with spray paint available at your Legacy Stoves dealer.
6. Check the feeder for rust and corrosion where the hopper fits into it.
7. Check pusher block to be sure it moves freely. This can best be done by shaking the adjuster rod. If it does not move freely, it should be removed and cleaned. Also remove any rust or corrosion from the area where the pusher block slides and spray with WD-40 or other rust preventing spray. To remove pusher block call Legacy Stoves to receive instructions.

WARNING- Risk Of Fire:

- DO NOT operate with fuel loading or ash removal doors open.
- DO NOT store fuel or other combustible material within specified installation clearance areas.
- INSPECT and clean chimney flue system and chimney connectors regularly.
- DO NOT operate with flue draft exceeding -.1 in of water column

Hopper Maintenance

Always empty the hopper when not burning for more than a week.

Pusher Block Maintenance

When left standing for long periods with wet coal, the pusher block will rust and corrode, causing it to stop. If the stoker is then turned “on”, damage to the pusher assembly and feed motor will result. This will be considered neglect and will void the warranty on those parts. If the unit has not been burned for a period of time, always check to see if moving parts are free before using. This can best be determined by shaking the pusher arm.

WARNING! IT IS IMPORTANT THAT YOU INSTAL A CARBON MONOXIDE DETECTOR

Filter Installation and Replacement

The filter is located at the rear of the furnace at the top of the distribution blower housing. To replace or install the filter, remove the old filter by sliding it vertically out of the filter rail at the rear of the furnace. Insert a new filter into this same area, until it is flush on either side.

Legacy Stoves recommends a filter be chosen with a MERV rating of 5 – 12. MERV is an acronym for Minimum Efficiency Reporting Value. A higher rating indicates the filter will capture finer particles. Filters with higher ratings may result in less air-flow in your duct. Frequent replacement will help maintain efficient heating.

Note: It is recommended that this filter be replaced monthly during periods of use. Filter size is 14 X 20 X 1. Filters are to be UL Class 2 minimum and of like material. Testing was performed according to UL standard 900 and CAN-4-S111.

Note: The Bottom of the filter should rest on the bottom of the filter box.

CLEANING OF THE HEAT EXCHANGER, FLUE PIPE, CHIMNEY, AND DRAFT INDUCER IF USED, IS ESPECIALLY IMPORTANT AT THE END OF THE HEATING SEASON TO MINIMIZE CORROSION DURING THE SUMMER MONTHS CAUSED BY ACCUMULATED ASH.

DO NOT USE CHEMICALS OR FLUIDS TO START A FIRE.

DO NOT BURN GARBAGE, GASOLINE, NAPHTHA, ENGINE OIL, OR OTHER INAPPROPRIATE MATERIALS.

Doors

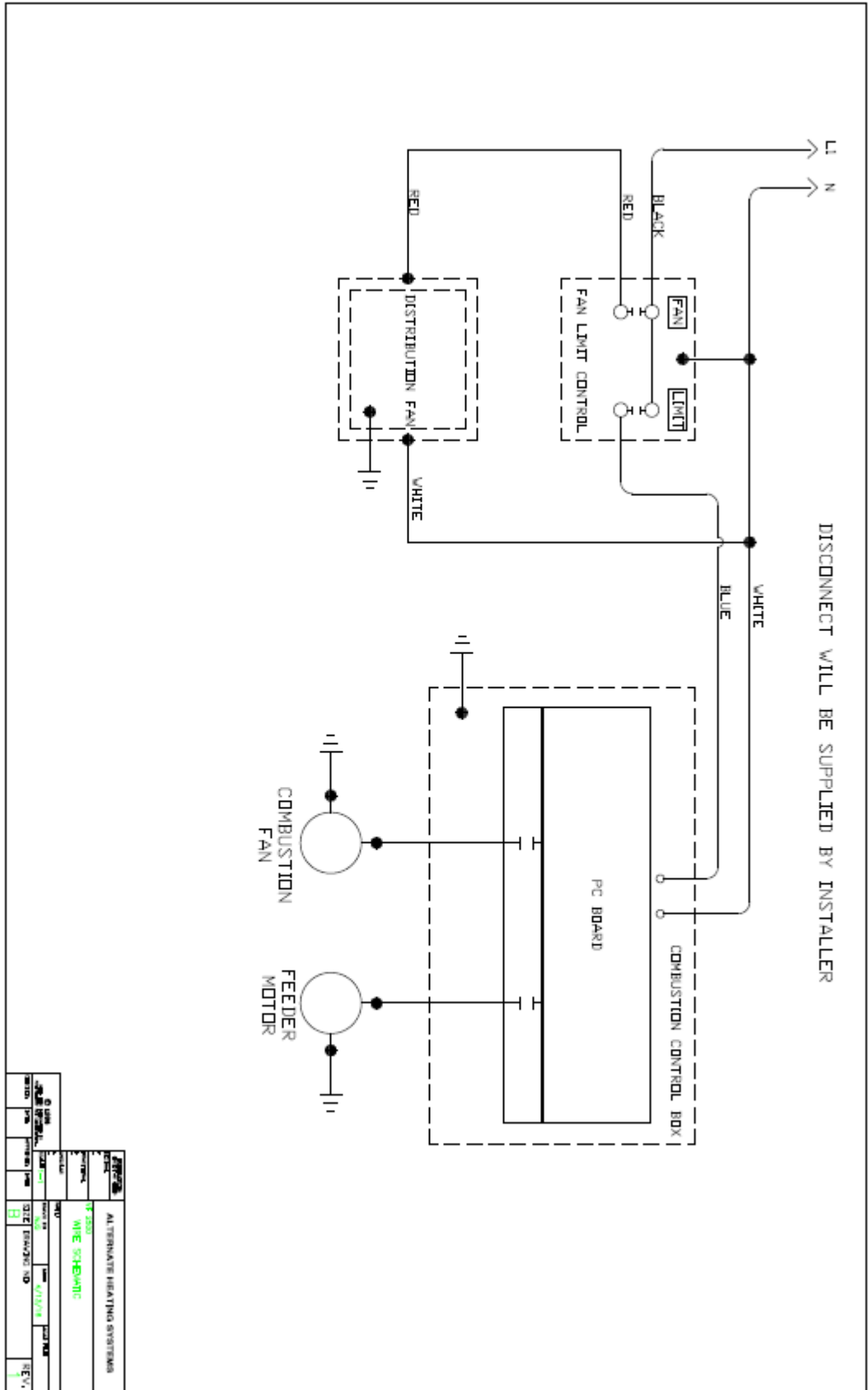
The door gaskets in both the loading/inspection and ash doors need to be checked every month while the stove is in use.

To replace the gaskets you will need to call you Legacy Stoves dealer to ensure you get the correct gasket. The loading/inspection door gasket comes with an adhesive backing while the ash door is held in place high temperature silicone.

THE CHIMNEY CONNECTOR AND CHIMNEY SHOULD BE INSPECTED AT LEAST TWICE MONTHLY DURING THE HEATING SEASON TO DETERMINE IF A CREOSOTE BUILDUP HAS OCCURRED.

CAUTION: INSPECT FLUE PIPES, JOINTS, AND SEALS REGULARLY TO ENSURE THAT SMOKE AND FLUE GASES ARE NOT DRAWING INTO THE DWELLING BY THE CIRCULATION SYSTEM.

Wiring Diagram



Troubleshooting

Feeding Problems

Wet Coal: Wet coal does not flow the same as dry coal, therefore; the feed rate will change with wet coal. If it is too wet, it may not feed at all. Wet coal can also cause a sulfur odor.

Wrong Size Coal: The Verti-Flow™ System is designed to burn rice coal (or buckwheat coal if rice is not available). Coal larger than buckwheat will not feed or burn properly.

Hopper Blocked: Sometimes wood, paper, or other foreign objects accidentally end up in your coal bin and can slow down or block the flow of coal. You may have to empty the hopper to find the blockage.

Pusher Out of Adjustment: This can happen when more than one person tend the stoker. One person does not tell the others what adjustments were made.

Gas Odor Problems

Gas Alarm Goes Off or Sulfur Odor Exists: A sulfur smell may be noticed when a door is opened during operation with wet or damp coal. This is normal. However, it is not recommended that wet coal be used or the doors be opened for more than a few seconds while burning to inspect the fire or remove ashes.

Lack of Draft or a Down Draft in the chimney: These will cause gases to escape from the unit. No unit will function properly without draft. Any draft problem should be corrected before use.

A draft inducer may be installed to increase draft in marginal situations. The installation should be performed by your dealer who is factory trained to correct any problems on initial start up. After proper installation, many years of trouble-free operation can be expected.

Stoker Control Troubleshooting

Problem: No motors or lights will turn on.

Solution:

1. Check AC power cord to the stoker control
2. Check the 3 amp fuse on the side panel of the stoker timer. (replace only with a 3 amp 3 ag slow blow fuse.)

Problem: Lights on the stoker control are on, but motors will not operate.

Solution: Check the AC power plugs from the motors (are they securely plugged into the correct outlet?)

Problem: One of the motors will not operate.

Solution: Check if the light above the receptacle is lit. Check the AC power plug from the motor (is it securely plugged into the correct outlet?)

Problem: The motors are cycling on and off, but not in the correct order.

Solution: Check the AC power plugs from the motors (are they securely plugged into the correct outlet?)

Problem: Coal feeder motor will not turn on.

Solution: Check if the red light is lit, if not, check if the feeder motor switch is turned on.

Duct Work

The figures below shows a typical duct system layout. Be sure the entire system is properly sized to provide the correct static pressure for optimum blower performance. After installation of your Legacy Stoves furnace the static pressure shall not exceed 0.25inWC in its plenum. This is checked by drilling a hole large enough to insert the tube of a manometer. All duct connections should be properly supported, fastened, and sealed to maximize air flow. Careful consideration is required for both, parallel or central, installations.

Proper ducting of the Cold Air Return and Warm Distribution Air is critical to ensure comfort throughout your home. Consult a local HVAC contractor for assistance with the design and installation of effective ducting.

Installing as a Central Furnace

The furnace may be installed as a central system with separate cold and warm air ducting. The warm-air supply-duct system must be constructed of materials with a minimum temperature rating of 250°F. The plenum installed to the furnaces must be constructed of metal. Do not use a plenum with an opening smaller than the warm-air exit of the furnace.

Installing as a Supplemental Furnace

The furnace may also be installed as a parallel system sharing the ducting of an existing central furnace. A supplemental furnace should only be installed on a furnace duct system and chimney that are in good operating condition. Your Legacy Stoves furnace may be installed as a supplemental furnace with any existing central furnace, but only in a parallel interconnection arrangement, and must be installed so that the supplemental furnace will have no affect on the central furnace and vice versa. Please read the entirety of this section and reference the figures below for correct installation procedure.

To install your Legacy Stoves furnace as a supplemental furnace it must be located upstream of the central furnace. The warm-air supply-duct system must be constructed of materials with a minimum temperature rating of 250°F. Do not use a plenum with an opening smaller than the warm-air exit of the furnace. Install back-draft dampers in each of the furnaces' plenum. Do not relocate or bypass any of the safety controls in the original (*gas, oil, electric*) furnace installation. Install the fan/limit control in accordance with the Assembly and Wiring section of this manual.

After installation verify the static pressure does not exceed the rated pressure (inWC) listed on the original furnace when measured with a manometer in its plenum below the back draft damper. Never operate both central and supplemental furnaces at the same time. Close the back-draft damper of the furnace that is not in use.

DO NOT USE DUCT ELBOWS HAVING AN INSIDE RADIUS OF LESS THAN 6 IN. (150 MM) ON THE (OIL, ELECTRIC, GAS) FURNACES.

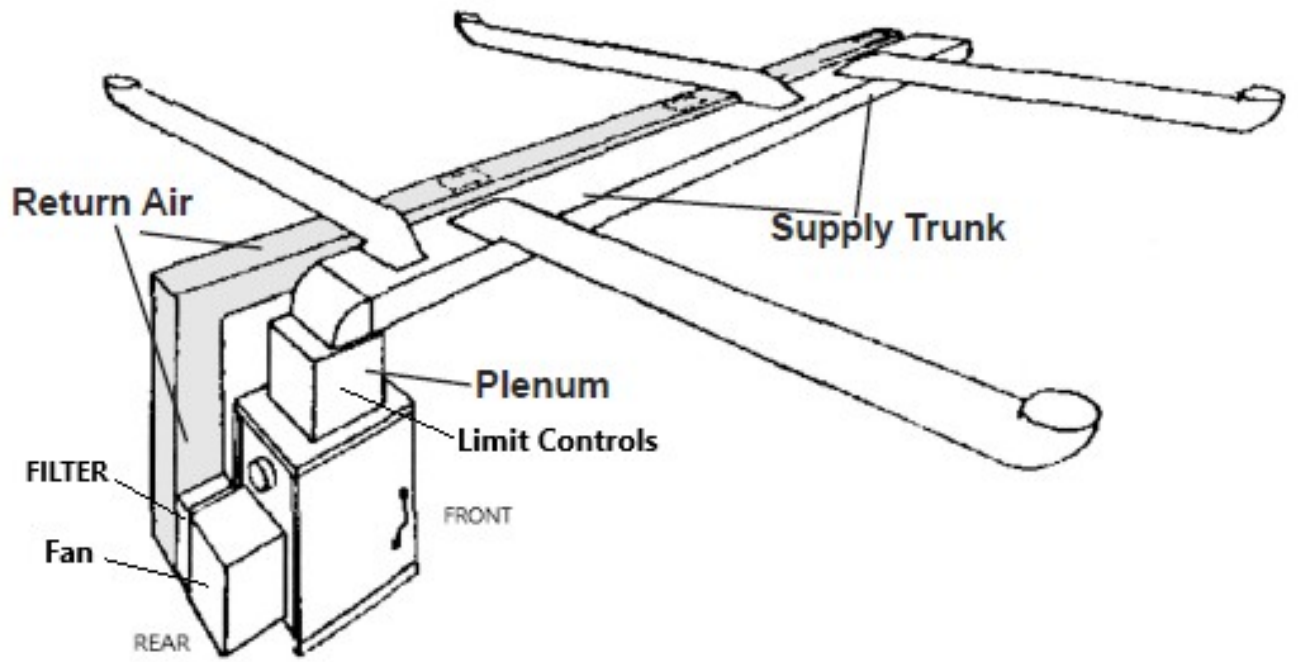
DO NOT CONNECT TO A DOWN-FLOW FURNACE

DO NOT CONNECT DUCT-WORK SO THAT A REVERSE FLOW IS POSSIBLE

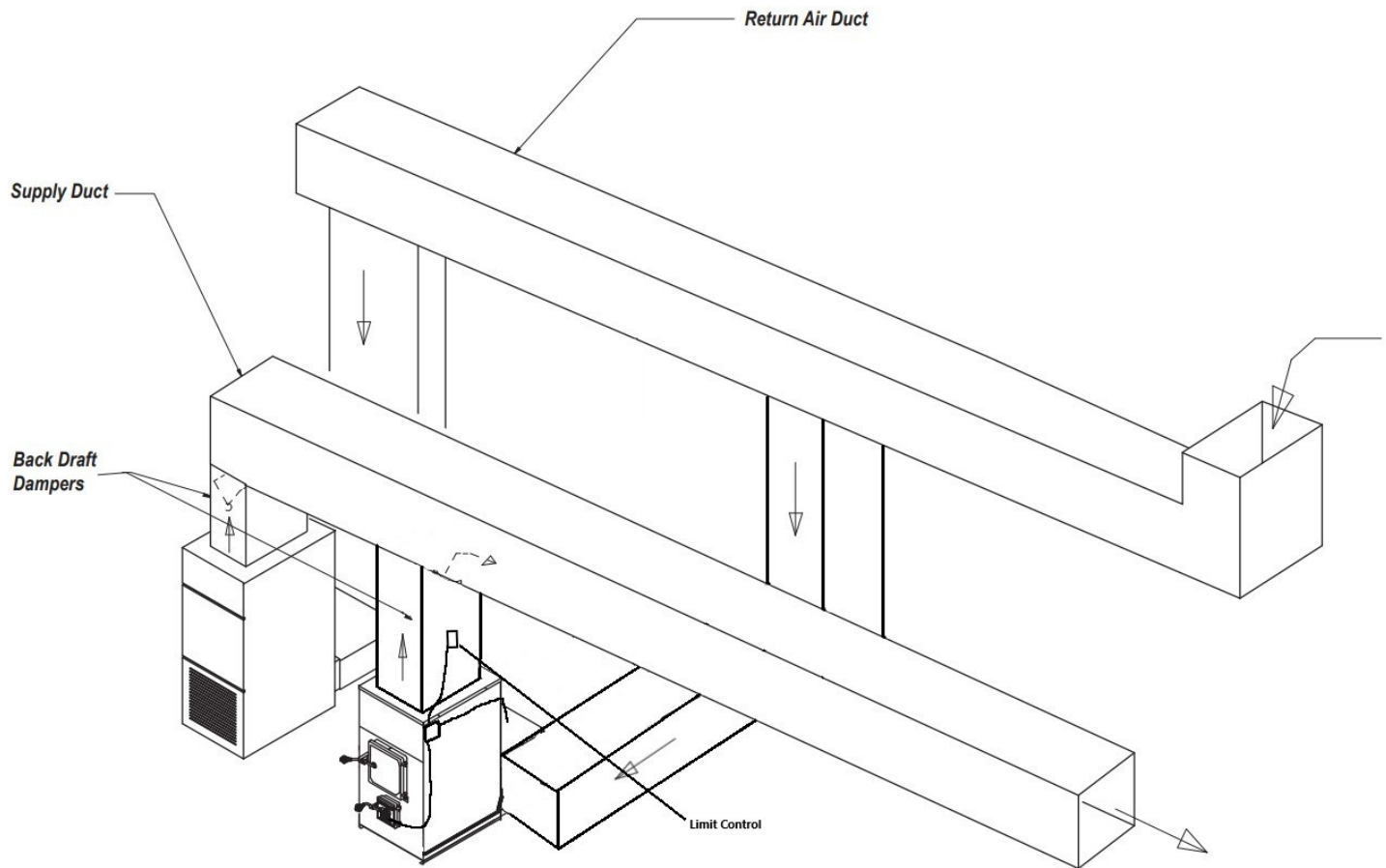
DO NOT RELOCATE OR BYPASS ANY OF THE SAFETY CONTROLS IN THE ORIGINAL (GAS, OIL, ELECTRIC) FURNACE INSTALLATION.

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.

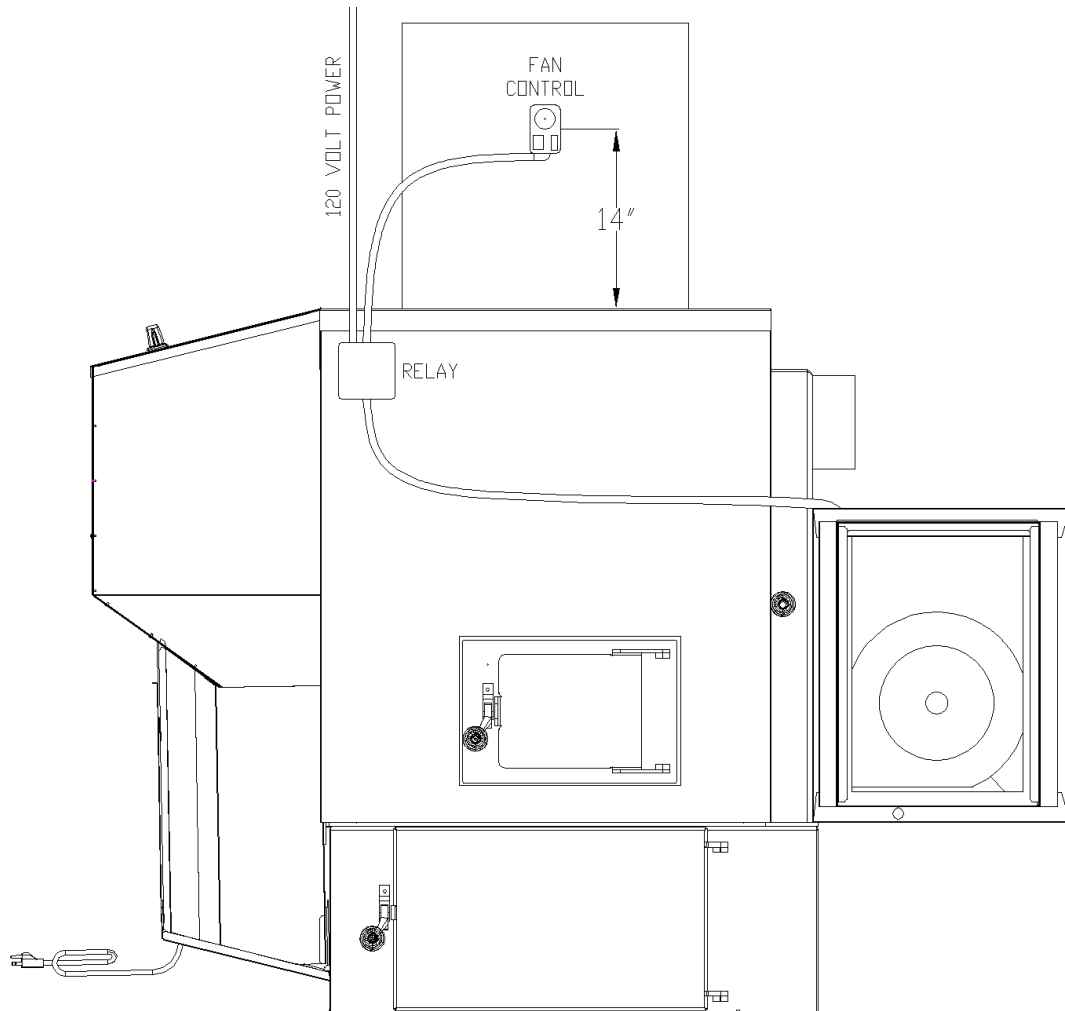
THE WARM-AIR SUPPLY OUTLET OF THE SUPPLEMENTARY FURNACE SHOULD NOT BE CONNECTED TO THE COLD-AIR RETURN INLET OF THE CENTRAL FURNACE BECAUSE A POSSIBILITY EXISTS OF COMPONENTS OF THE CENTRAL FURNACE OVERHEATING AND CAUSING THE CENTRAL FURNACE TO OPERATE OTHER THAN AS INTENDED.



Central Furnace Arrangement



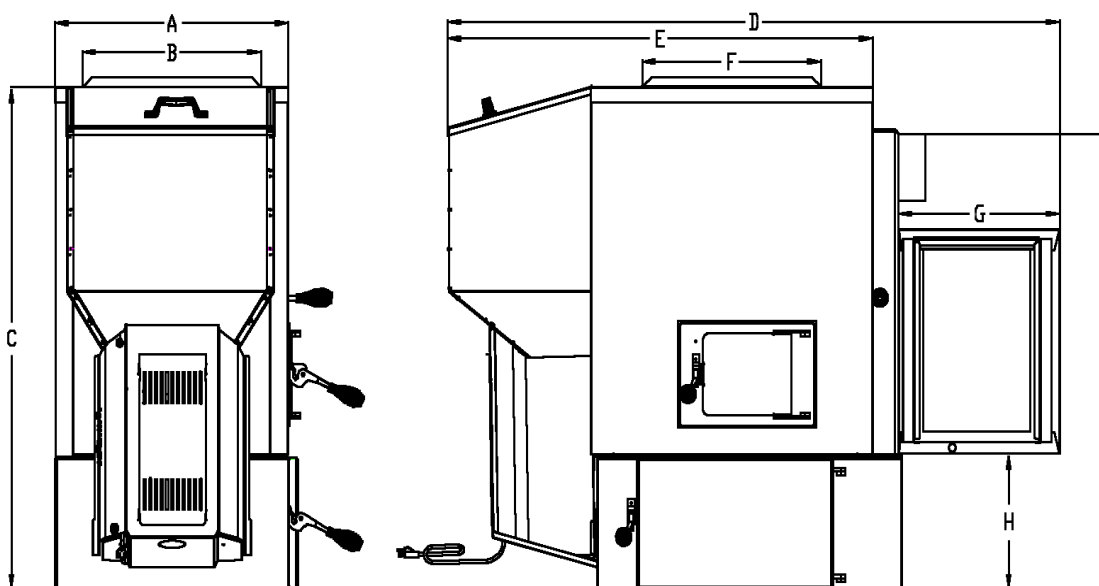
Supplemental (parallel) Furnace Arrangement



Control and Wiring Locations

Specifications

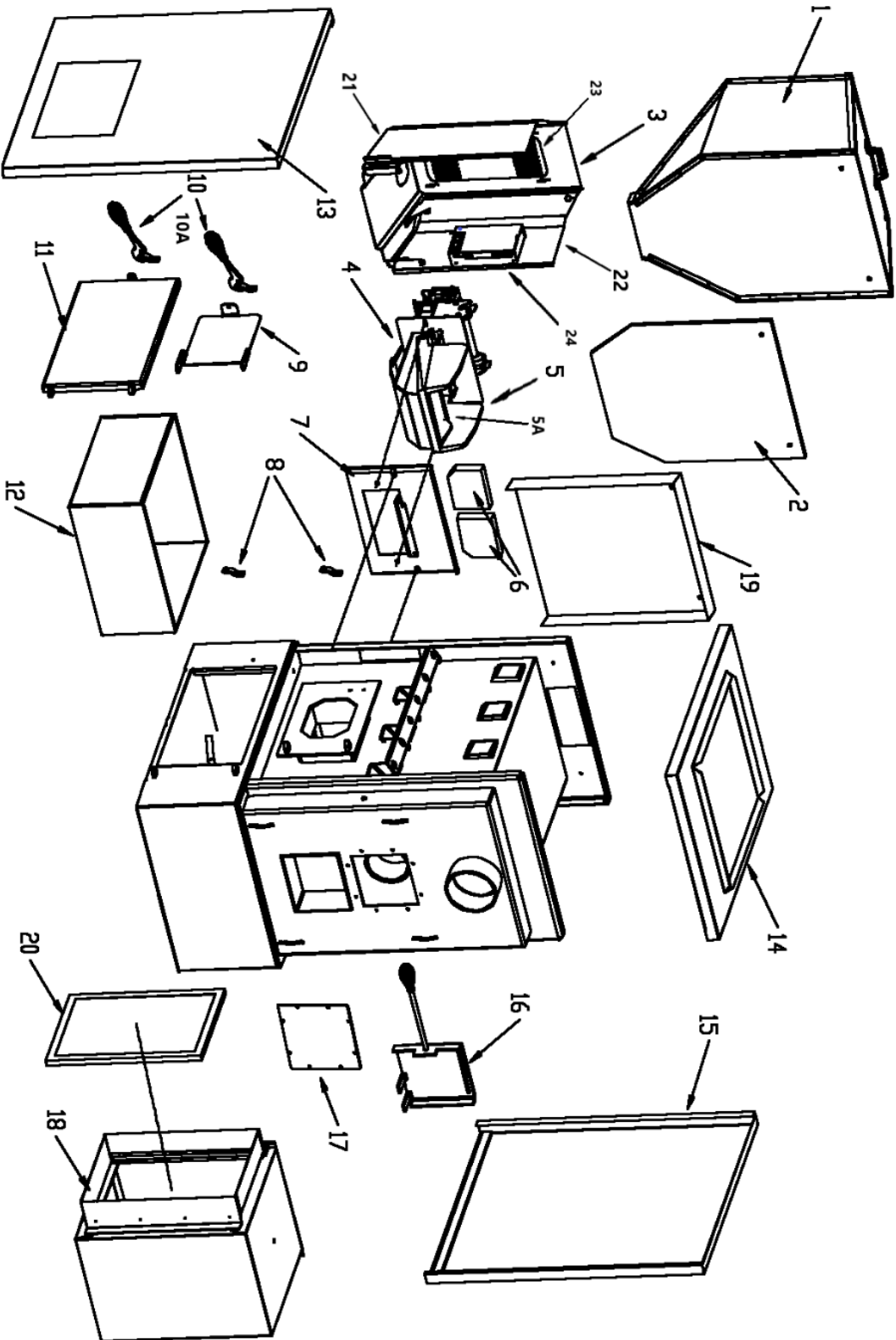
Description	VF2500	VF2500 plus
A. Width	26.5	26.5
B. Width of Plenum Opening (side to side),	20	20
C. Height	49	49
D. Length, Overall	69	69
E. Length, less Distribution Blower Housing	48	48
F. Length of Plenum Opening (front to back),	20	20
G. Length of Distribution Blower Housing	18.5	18.5
H. Height of Base	13	13
I. Height to top of Flue Collar	44.5	44.5
Flue Collar Size	6	6
BTU Input	90,000	130,000
Weight		
Filter Size	14×20×1	14×20×1
Clearance (Right Side, less Distribution Blower)	24	24
Clearance (Left Side)	24	24
Clearance (Front)	48	48
Clearance (Rear of Furnace)	36	36
Electrical Rating	115V/8A	115V/8



*All dimensions in inches, unless otherwise indicated.
 Specifications and design subject to change without notice.
 All specifications shown are approximate.

Parts List – VF2500

Exploded Parts Diagram



Index to Images on Following Page

Parts List

ITEM	DESCRIPTION	THICKNESS	MATERIAL	COATING	PART NUMBER
1	HOPPER	20 GA	GALVANNEAL	PAINT	1-10-40051
2	HOPPER HEAT SHIELD	1/4"	Ceramic board	NO COATING	23Wx24H
3	HOPPER SHIELD SUPPORT	16 GA	GALVANNEAL	PAINT	2-00-00530
4	FEEDER ASSEMBLY		STEEL	PAINT	1-10-02700
5	STOKER GRATE HOLDER		CAST	NO COATING	1-10-01000
5A	GRATE INSERT		CAST	NO COATING	4-00-00046D
6	FIRE BRICK	1 1/4" SPLIT BRICK	FIRE BRICK	NO COATING	1-00-00540
7	FEEDER ADAPTER FLANGE	3/16"	STEEL	PAINT	2-00-00152
8	DOOR LATCH	1/4"	STEEL	PAINT	2-00-00036
9	FIRE BOX DOOR	3/16"	STEEL	PAINT	2-00-00280
10	DOOR HANDLE		CAST	PAINT	4-00-00042P
10A	SPRING HANDLES		STEEL	CHROME	3-40-00086-3
11	ASH DOOR		STEEL	PAINT	1-10-02510
12	ASH PAN		GALVANNEAL	NO COATING	1-10-00100
13	RIGHT SHEET METAL	20 GA	GALVANNEAL	POWDER	2-00-00410
14	TOP SHEET METAL	20 GA	GALVANNEAL	POWDER	2-00-00412
15	LEFT SHEET METAL	20 GA	GALVANNEAL	POWDER	2-00-00411
16	SECCONDARY AIR SLIDE	1/4"	STEEL	PAINT	2-00-00525
17	SECCONDARY AIR COVER	3/16"	STEEL	PAINT	2-00-00523
18	FILTER BOX	20 GA	GALVANNEAL	NO COATING	1-10-3291A
19	FRONT SHIELD	20 GA	GALVANNEAL	POWDER	2-00-00529
20	FILTER	14 X 20 X 1			3-40-14201
21	REAR COVER RIGHT	20 GA	GALVANNEAL	PAINT	2-00-00532
22	REAR COVER LEFT	20 GA	GALVANNEAL	PAINT	2-00-00531
23	REAR COVER	20 GA	GALVANNEAL	PAINT	2-00-02745
24	CONTROL BOARD ASSEMBLY	20 GA	GALVANNEAL	PAINT	1-10-02742

Additional Ratings

Fuel:	Anthracite Coal, rice size
Heat output:	Model VF2500 - 90,000 Btu/Hr Model VF2500 Plus - 120,000 Btu/Hr
Maximum Draft at Flue Collar:	-.10 inch water column. UL DOC -.25
Electrical Rating:	120 VAC, 60 Hz, 9.0 A
Minimum Circuit Ampacity:	15A
Maximum Over-current Protective Device:	20A

Warranty



Alternate Heating Systems

LIFETIME LIMITED WARRANTY

Alternate Heating Systems, on behalf of its hearth brands ("AHS"), extends the following warranty for Legacy Stoves™ wood and/or coal hearth appliances that are purchased from an AHS Legacy Stoves authorized dealer.

WARRANTY COVERAGE:

AHS warrants to the original owner of the AHS Legacy Stoves appliance at the site of installation, and to any transferee taking ownership of the appliance at the site of installation within two years following the date of original purchase, that the AHS Legacy Stoves appliance will be free from defects in materials and workmanship at the time of manufacture. After installation, if covered components manufactured by AHS are found to be defective in materials or workmanship during the applicable warranty period, AHS will, at its option, repair or replace the covered components. AHS, at its own discretion, may fully discharge all of its obligations under such warranties by replacing the product itself or refunding the verified purchase price of the product itself. The maximum amount recoverable under this warranty is limited to the purchase price of the product. This warranty is subject to conditions, exclusions and limitations as described below.

WARRANTY PERIOD:

Warranty coverage begins on the date of original purchase. In the case of new home construction, warranty coverage begins on the date of first occupancy of the dwelling or six months after the sale of the product by an independent, authorized AHS Legacy Stoves dealer/ distributor, whichever occurs earlier. The warranty shall commence no later than 24 months following the date of product shipment from AHS Legacy Stoves, regardless of the installation or occupancy date. The warranty period for parts and labor for covered components is produced in the following table. The term "Limited Lifetime" in the table below is defined as: 10 years from the beginning date of warranty coverage for wood/coal and coal appliances. These time periods reflect the minimum expected useful lives of the designated components under normal operating conditions.

Warranty Period		AHS Manufactured Appliances and Venting			Components Covered
Parts	Labor	Coal and Wood	Coal	Venting	
1 Year		x	x	x	All parts and material except as covered by Conditions, Exclusions, and Limitations listed
2 years		x	x		Igniters, electronic components, and glass Factory-installed blowers
Limited Lifetime	3 years	x	x		Firebox and heat exchanger
90 Days		x	x	x	All replacement parts beyond warranty period

See conditions, exclusions, and limitations on next page

WARRANTY CONDITIONS:

This warranty only covers AHS appliances that are purchased through an AHS Legacy Stoves authorized dealer or distributor. A list of AHS Legacy Stoves authorized dealers is available on the AHS Legacy Stoves branded websites.

This warranty is only valid while the AHS appliance remains at the site of original installation.

This warranty is only valid in the country in which the AHS Legacy Stoves authorized dealer or distributor that sold the appliance resides.

Contact your installing dealer for warranty service. If the installing dealer is unable to provide necessary parts, contact the nearest AHS Legacy Stoves authorized dealer or supplier. Additional service fees may apply if you are seeking warranty service from a dealer other than the dealer from whom you originally purchased the product.

Check with your dealer in advance for any costs to you when arranging a warranty call. Travel and shipping charges for parts are not covered by this warranty.

WARRANTY EXCLUSIONS:

This warranty does not cover the following:

Changes in surface finishes as a result of normal use. As a heating appliance, some changes in color of interior and exterior surface finishes may occur. This is not a flaw and is not covered under warranty.

Damage to printed, plated, or enameled surfaces caused by fingerprints, accidents, misuse, scratches, melted items, or other external sources and residues left on the plated surfaces from the use of abrasive cleaners or polishes.

Repair or replacement of parts that are subject to normal wear and tear during the warranty period. These parts include: paint, wood, pellet and coal gaskets, firebricks, grates, flame guides, batteries and the discoloration of glass.

Minor expansion, contraction, or movement of certain parts causing noise. These conditions are normal and complaints related to this noise are not covered by this warranty.

Damages resulting from: (1) failure to install, operate, or maintain the appliance in accordance with the installation instructions, operating instructions, and listing agent identification label furnished with the appliance; (2) failure to install the appliance in accordance with local building codes; (3) shipping or improper handling; (4) improper operation, abuse, misuse, continued operation with damaged, corroded or failed components, accident, or improperly/ incorrectly performed repairs; (5) environmental conditions, inadequate ventilation, negative pressure, or drafting caused by tightly sealed constructions, insufficient make-up air supply, or handling devices such as exhaust fans or forced air furnaces or other such causes; (6) use of fuels other than those specified in the operating instructions; (7) installation or use of components not supplied with the appliance or any other components not expressly authorized and approved by AHS Legacy Stoves; (8) modification of the appliance not expressly authorized and approved by AHS in writing; and/or (9) interruptions or fluctuations of electrical power supply to the appliance.

Non-AHS venting components, hearth components or other accessories used in conjunction with the appliance.

Any part of a pre-existing fireplace system in which an insert is installed.

AHS's obligation under this warranty does not extend to the appliance's capability to heat the desired space. Information is provided to assist the consumer and the dealer in selecting the proper appliance for the application. Consideration must be given to appliance location and configuration, environmental conditions, insulation and air tightness of the structure.

This warranty is void if:

The appliance has been over-fired or operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals. Over-firing can be identified by, but not limited to, warped plates or tubes, rust colored cast iron, bubbling, cracking and discoloration of steel or enamel finishes.

The appliance is subjected to prolonged periods of dampness or condensation. There is any damage to the appliance or other components due to water or weather damage which is the result of, but not limited to, improper chimney or venting installation.

LIMITATIONS OF LIABILITY:

The owner's exclusive remedy and AHS's sole obligation under this warranty, under any other warranty, express or implied, or in contract, tort or otherwise, shall be limited to replacement, repair, or refund, as specified above. In no event will AHS be liable for any incidental or consequential damages caused by defects in the appliance. Some states do not allow exclusions or limitation of incidental or consequential damages, so these limitations may not apply to you. This warranty gives you specific rights; you may also have other rights, which vary from state to state. EXCEPT TO THE EXTENT PROVIDED BY LAW, AHS MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE.



**Advanced Design
Old Fashioned Values**

(Signature of Boxer)



Your premium quality hearth product designed and assembled
by the experienced and skilled members at Alternate Heating
Systems in Harrisonville, PA, USA.

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