

## **Model 91 Bay Heater**

### **Fireplace Insert & Freestanding**

#### **FEATURES**

#### **PREPARATION      INSTALLATION**

#### **OPERATION      MAINTENANCE      SAFETY**

Contact your insurance company for coverage and installation inspection

#### **SAFETY NOTICE**

If this heater is not properly installed, a house fire may result. For your safety, follow the installation directions. Contact local building or fire officials about restrictions and installation inspection requirements in your area.

This product is listed by Warnock-Hersey International, Inc. to the UL Standard No. 1482.

Manufactured by New Buck Corporation - Spruce Pine, NC 28777 - Revised 5/2001

Tested by ITS



PN-PI-9100660

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# SECTION I

The New Buck Corporation room heater Model 91 Bay is one of the safest and most efficient heating systems available when installed and operated as specified in these instructions and as stipulated on the operation and installation labels affixed to the unit. The unit is designed to burn wood fuel only.

Please read this entire manual before you install and use your new room heater. Failure to follow instructions may result in property damage, bodily injury, or even death.

Throughout the manual, you will see this symbol.  This indicates areas of importance regarding safety. Please make a special note of these areas.

Install and use only in accordance with the manufacturer's installation and operating instructions. Do not connect this unit to a chimney flue serving another appliance. This unit is not designed for installation into Mobile Home. This unit has been safety tested by ITS (Warnock-Hersey) to UL Standards 737 and 1482.

## ROOM HEATER FEATURES

Before attempting to install or operate your heater, it is a good idea to familiarize yourself with the features and operating controls of the unit.

## OPERATING CONTROLS

**WARNING:** Model 91 Bay Heater was not designed for fire grates.

1. **Bypass Damper:** The bypass damper control is located in the top center of the heater front just under the top. It is operated by pushing or pulling the rod. The damper is fully open when the handle is pulled out and fully closed when it is pushed in. The damper must be **OPEN** before the door is opened.
2. **Blower Control:** The blower control (Rheostat) is located on the side of the unit. The rheostat is used to vary the speed of the blower. It can be set at any position. It must be turned on to activate the automatic thermostat on the stove.
3. **Primary Air Controls:** The primary air intake draft controls are located at the left and right bottom side of the hearth. They are operated by moving the handle **out** to open (to allow air into the firebox) or **in** (to control or close off) the air into the firebox. Right side primary air and air wash control (3A). Left side, (3), also called shot gun air control, allows air to the center of the firebox of the stove.
4. **Warm Air Outlets:** Provides heat extraction from the top of the firebox.
5. **Baffles:** Directs air flow around the unit for maximum heat transfer.
6. **Air Inlet:** Allows cool air near the floor to be circulated through the blower and back into the warm air chamber of the heater.
7. **Door:** Provides an "airtight" feature. The door allows a much higher burning efficiency than can be obtained with an open firebox.
8. **Hearth Extension:** Offers protection from spilled ashes and cinders.
9. **Power Cord:** Provides electrical power to operate the blower.
10. **Catalyst:** Enables the unit to burn cleanly and efficiently.
11. **Catalyst Probe:** Probe is located to the right of the bypass damper rod. It is used to determine (catalyst) temperature.
12. **Automatic/Off/Manual Switch:** Located at the bottom right corner of stove. In the "Manual" position, the blower operates continuously. In the "Automatic" position, the blower is controlled by the internal thermostat which reacts to the temperature of the air between the stove walls. (Not the same as the temperature showing on the Catalyst Probe.)

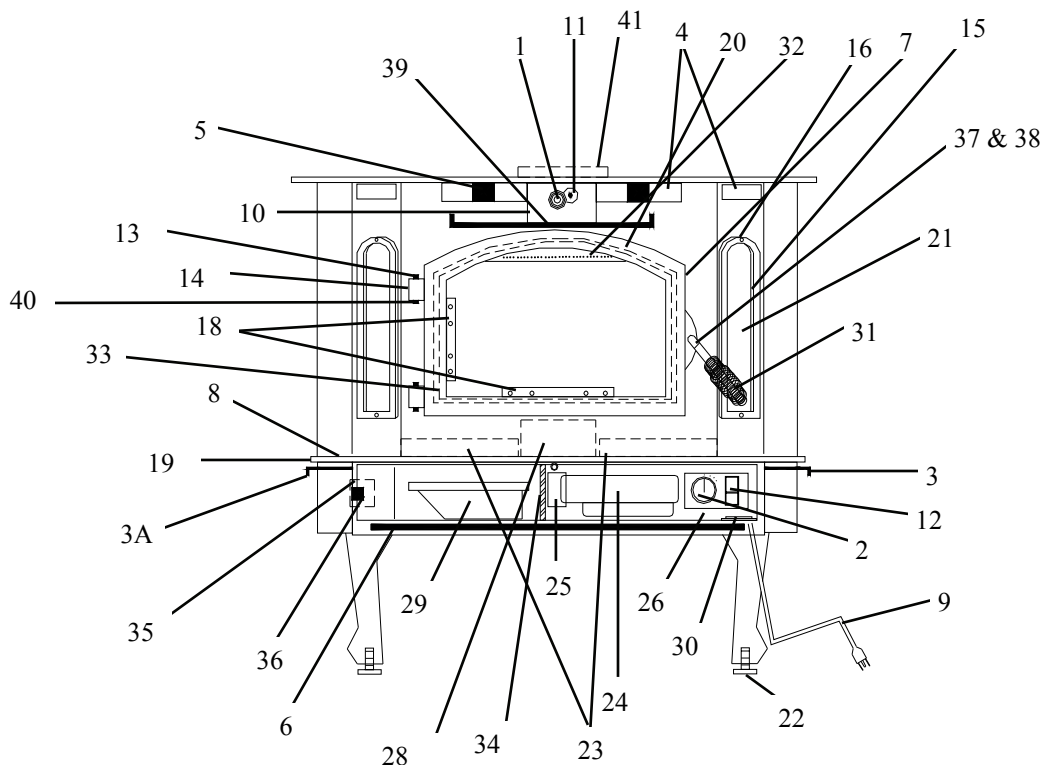
## SAFETY STANDARD COMPLIANCE

The Model 91 Bay catalytic solid fuel (wood) burning combination room heater/fireplace stove manufactured by New Buck Corporation complies with US 1482-1994 and UL 737-1995 for residential freestanding and masonry fireplace insert installations when constructed and installed in accordance with ITS approved documentation.

## EPA COMPLIANCE STATUS

This manual describes the installation and operation of the **New Buck Corporation Model 91 Bay** wood heater. These heaters meet the U.S. Environmental Protection Agency's Emission limits for wood heaters sold after July 1, 1992. Under specific test conditions this heater has been shown to deliver heat at rates ranging from approximately 10,000 to 54,500 BTU/hr for the Model 91 Bay.

## MODEL 91 WOOD STOVE IDENTIFICATION



- |  |                                       |
|--|---------------------------------------|
| 1. Bypass Damper & Brass Spring Handle             | 20. Door Gasket                       |
| 2. Blower Control (Rheostat)                       | 21. Side Glass                        |
| 3. Primary Air Control Air Wash Rod for Both Sides | 22. Leveling Screws                   |
| 3a. Shotgun Air Control                            | 23. Firebrick                         |
| 4. Warm Air Outlets                                | 24. Motor                             |
| 5. Baffles (Interior of Stove)                     | 25. Motor Mount Bracket               |
| 6. Air Inlet                                       | 26. Cover Door                        |
| 7. Door  | 27. Cover Door Screws                 |
| 8. Hearth Extension                                | 28. Shotgun Air Box                   |
| 9. Power Cord                                      | 29. Ash Pan                           |
| 10. Catalyst (Interior Firebox)                    | 30. Disc Thermostat                   |
| 11. Catalyst Probe                                 | 31. Door Handle & Brass Spring Handle |
| 12. Automatic / Off / Manual Switch                | 32. Air Wash Screen                   |
| 13. Brass Cap                                      | 33. Glass Gasket                      |
| 14. Hinge Block                                    | 34. Cover Door Hinge                  |
| 15. Brass Overlays                                 | 35. Magnet Holder                     |
| 16. Brass Overlay Mounting Screws                  | 36. Cover Door Magnet                 |
| 17. Door Glass & Logo                              | 37. Door Latch                        |
| 18. Glass Clips                                    | 38. Door Latch Screw                  |
| 19. Hearth Brass                                   | 39. Lower Heat Shield                 |
|  | 40. Hinge Pins                        |
|  | 41. 8" Flue Exit                      |

## CATALYST EQUIPPED

This wood heater contains a catalytic combustor, which needs periodic inspection and replacement for proper operation. It is against the law to operate this wood heater in a manner inconsistent with operating instructions in this manual or if the catalytic element is deactivated or removed.

## CATALYST WARRANTY

The combustor supplied with this heater is a set of (3) (2"x3-1/2"x6"x25" cells). Consult the catalytic combustor warranty also supplied with this heater. All warranty claims should be addressed to:

Applied Ceramics  
Customer Service Department  
P.O. Box 29664  
Atlanta, GA 30359  
770-448-6888

See enclosed catalyst warranty for instructions. New Buck Corporation does not handle catalyst replacements. Customer can order direct form Applied Ceramics.

## PROPER FUEL SELECTION

For best results, this heater is designed to burn (dry), natural wood. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods. Green or freshly cut hardwoods (wood with high moisture content) **will not** product the BTU's needed to heat your home. The result will be low temperature reading on the catalyst probe, thus low BTU output.

### DO NOT BURN:

- |                 |              |                  |          |
|-----------------|--------------|------------------|----------|
| 1) Treated Wood | 3) Garbage   | 5) Solvents      | 7) Trash |
| 2) Coal         | 4) Cardboard | 6) Colored Paper |          |

Burning treated wood, garbage, solvents, colored paper or trash may result in release of toxic fumes and may poison or render the catalytic combustor ineffective.

Burning coal, cardboard, or loose paper can produce soot, or large flakes of char or fly ash that can coat the combustor, causing smoke spillage into the room and rendering the combustor ineffective. (Not covered under warranty.)

## ACHIEVING CATALYTIC LIGHT-OFF

The temperature in the stove and the gases entering the combustor must be raised to between 700° F to 900° F for catalytic activity to be initiated. The temperature can be determined by the Catalyst Monitor Probe. During the start up of a cold stove a medium to high firing rate must be maintained for about 20 minutes. This can be achieved by starting the fire with dry kindling, paper, and small split wood. Have the Bypass Damper fully open (pulled out). This ensures that the stove, catalyst, and fuel are all stabilized at proper operating temperatures. Even though it is possible (and likely) to have gas temperatures reach 600° F within two to three minutes after a fire is started, if the fire is allowed to die down immediately it may go out or the combustor may stop working. Once the combustor starts working, heat generated in it by burning the smoke will keep it working.

## ACHIEVING CATALYTIC LIGHT-OFF WHEN REFUELING

During the refueling and rekindling of a cool fire, or a fire that has burned down to the charcoal phase, operate the stove at a medium to high firing rate for about 10 minutes to ensure that the catalyst reaches approximately 800° F.

## CATALYST MONITORING

It is important to periodically monitor the operation of the catalytic combustor to ensure that it is functioning properly, and to determine when it needs to be replaced. A non-functioning combustor will result in a loss of heating efficiency, and an increase in creosote and emissions. See Troubleshooting section for detailed instructions **BEFORE** attempting to remove catalyst.

This catalytic heater is equipped with the means to monitor catalyst operation. Properly functioning combustors typically maintain temperatures in excess of 1000° F. If catalyst temperatures are not in excess of 500° refer to Catalyst Troubleshooting section of this owner's manual.



### CAUTION AGAINST OVER-FIRING

Do Not Over-fire This Heater.

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

## ASH REMOVAL

Whenever ashes build up in the firebox and when the fire has burned down and cooled, remove excess ashes. Leave an ash bed approximately 1 inch deep on the firebox bottom to help maintain a hot charcoal bed. To remove ashes the dump is located at the left inner bottom. By lifting the dump door, place the ashes through the dump opening. The ashes fall directly into the ash pan. The ash pan is located at the left side under the hearth behind the cover door.

**NOTE:** Be sure to turn the room air blower off before removing ashes. Open cover door and slide ash pan out.

**NOTE:** Fueling and ash removal door (s) must remain closed when in operation.

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, away from all combustible materials, pending final disposal. The ashes should be retained in the closed container until all cinders have thoroughly cooled.

**NOTE:** Be sure to turn room air blower back on when job is completed.

**NOTE:** The room heater is not to be connected to any air distribution duct.

## CREOSOTE - FORMATION AND NEED FOR REMOVAL

When wood is burned slowly, it produces tar and other organic vapor, which combined with expelled moisture forms 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.

**NOTE: SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.**

## SECTION II

### MASONRY INSERT INSTALLATION INSTALLATION OPTIONS

This unit (appliance) may be installed into an all masonry fireplace, built in accordance with the Uniform Building Code and the National Fire Protection Association (NFPA 211).

**NOTE:** Check with local building officials for any permits required for installation of this stove and notify your insurance company before proceeding with installation.

A. At a minimum, a **starter pipe** reaching from the stove flue exit to the base of the existing code approved masonry chimney (flue-liner) and an airtight face seal.

B. **Direct connection:** In accordance with NFPA-211-9-4.5, **Connection to Masonry Fireplaces**. A solid fuel-burning appliance such as a stove or insert shall be permitted to use a masonry fireplace flue where the following conditions are met:

*Exception: Listed fireplace accessories shall be permitted to use a masonry fireplace flue.*

- 1) There is a connector that extends from the appliance to the flue liner.
- 2) The cross-sectional area of the flue is no more than three times the cross-sectional area of the flue collar of the appliance.
- 3) If the appliance vents directly through the chimney wall above the smoke chamber, there shall be a noncombustible seal below the entry point of the connector.
- 4) The installation shall be such that the chimney system can be inspected and cleaned.
- 5) Means shall be provided to prevent dilution of combustible products in the chimney flue with air from the habitable space.

C. It may be necessary to **positive connect** this unit to enhance the performance, if any of the following conditions exists:

- |                             |                 |   |
|-----------------------------|-----------------|---|
| 1) Poor Drawing Flue        | 3) Double Flues | 5) Stone Front Fireplace/ or damaged flue liner |
| 2) Oversized Flue (17" x 7) | 4) Ash Dump     | 6) Chimney that does not exceed 12'             |

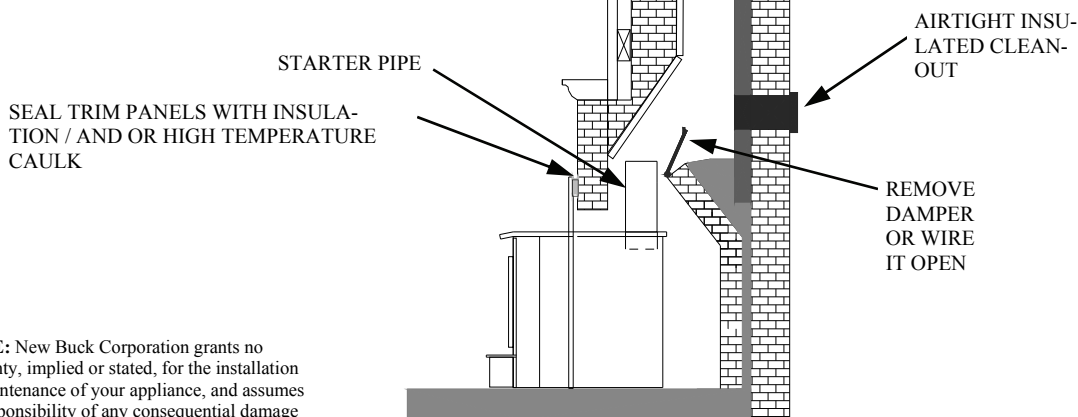
Check with your dealer if any of the above conditions exist, before installing your stove. Proper installation is critical to the performance of the Model 91.

Use Fireplace Kit PA FP91 for installation. An optional oversized fireplace kit is available for larger fireplaces. Check with dealer.

#### SAFETY NOTICE

**If this appliance is not properly installed, a house fire may result. For your safety, follow the installation directions. Contact local building or fire officials about restrictions and installation inspection requirements in your area.**

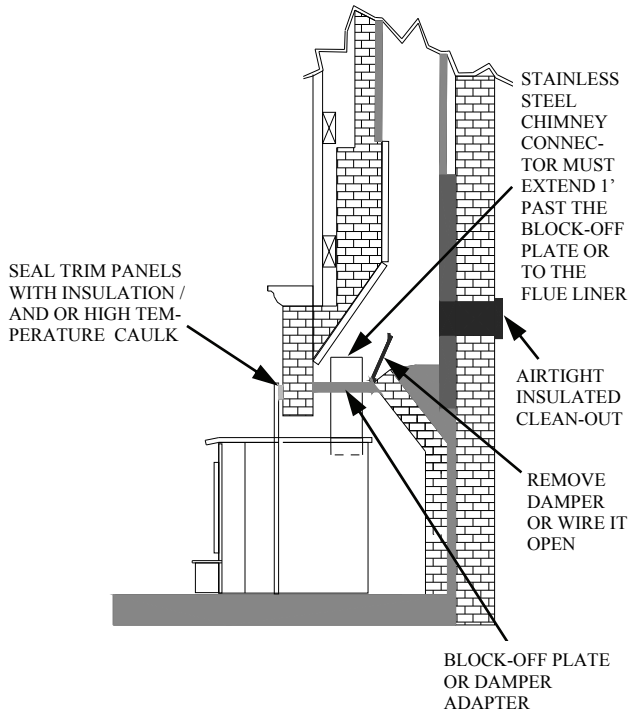
#### OPTION (A)



**NOTE:** New Buck Corporation grants no warranty, implied or stated, for the installation or maintenance of your appliance, and assumes no responsibility of any consequential damage

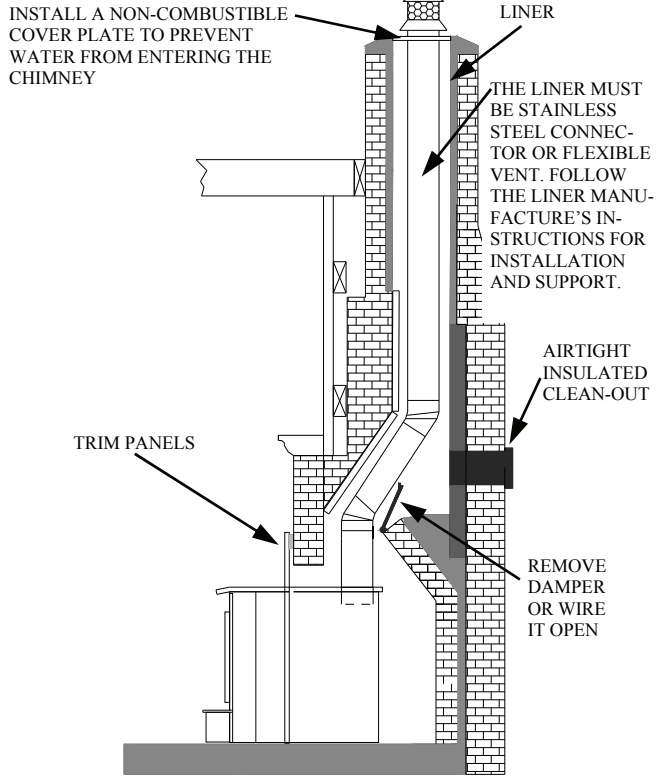
**OPTION (B)**

**NOTE:** Follow installation instruction with Direct Connection Kit. (Kit sold separately)



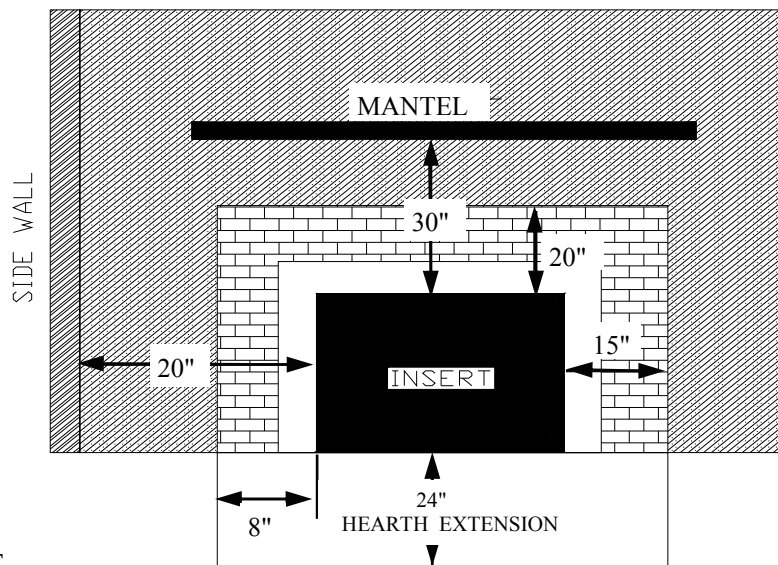
**OPTION (C)**

**NOTE:** Follow installation instruction with Positive Connection Kit. (Kit sold separately)



**INSTALLATION (Fireplace Insert)**

**Minimum Clearances to Combustible Materials (in inches)**



**FIGURE 1  
 FIREPLACE INSERT**

## MINIMUM CLEARANCES:

The Model 91 Bay Fireplace Insert is intended for installation in accordance with the standard for chimneys, fireplaces, vents, and solid-fuel burning appliances. **NFPA-211 Code:** **NOTE-**This model is not intended for installation into Zero Clearance or pre-fabricated fireplace.

1. The hearth must be of masonry construction and must extend a minimum of 24" in front of the firebox opening and a minimum of 8" to either side of the firebox opening.
2. Floor protector must be 3/8" minimum thickness non-combustible material or equivalent.
3. If your fireplace has wood trim above it, the wood trim must be at least 20" above the top of the unit and may be a maximum of 1/2" thick.
4. If your fireplace has a wood mantel, the mantel or mantel supports must be located at a height of 30" above the top

## REQUIRED FIREPLACE DIMENSIONS

Minimum fireplace dimensions:

	<b>Height Min.</b>	<b>Width Min.</b>	<b>Depth Min.</b>
Model 91 Bay	23 1/2"	31 3/4"	15 1/2"

## POSSIBLE TOOLS NEEDED FOR INSTALLATION

If you decide to install your own stove, there are several hand tools you may need to do the job. If you do not already have them, they are readily available at most hardware stores.

Caulking gun

Large adjustable wrench (may not be needed)

Drop cloths or newspapers

Vacuum cleaner or whisk broom

Flashlight

1 tube of RTV silicone, Code 103 or 106, or high temperature rubber cement rated between 450° F- 600° F.

7/32" drill bit and drill

Socket/Ratchet Set

Insulation (Provided in Trim Kit package)

## INSTALLATION PREPARATION

### Fireplace:

1. Locate furniture and other materials away from the front of the fireplace to allow free access to the fireplace.
2. Cover the hearth and adjacent floor areas with the drop cloths to protect from soiling or marring the surface.
3. Remove the existing fireplace damper plate.
4. Thoroughly clean the fireplace of ashes and soot.
5. Have your existing chimney inspected before inserting this unit. Some chimneys must be relined or replaced before they are safe to use.
6. Check the chimney and smoke chamber for excessive buildups of creosote or soot. Also, check for obstructions, such as bird's nests. If the chimney is excessively dirty, clean it, or have someone clean it professionally **BEFORE** installing or using the room heater.
7. If the fireplace has an ash dump or outside air provision, these must be sealed off with metal or tightly packed non-combustible insulation to prevent cold air from entering the fireplace chamber.

### Heater:

1. Inspect the unit for any obvious physical damage.
2. Check the primary air draft controls to ensure that they slide freely.
3. Check the operation of the damper control to ensure it will open and close properly.
4. Check the Manual/Automatic Switch to ensure that motor is working. \*Place switch in the "MANUAL" position. (Plug in stove.) You cannot check the motor in the "AUTOMATIC" position, unless a heat gun is used to heat the internal thermostat.

## POSITIONING THE HEATER

When positioning the heater, the following conditions **MUST** be met! (See Figure 2.)

1. The front of the damper opening must be positioned **BEHIND** the rear edge of the lintel to ensure proper draft. (See Figure 2.)
2. The vertical plane of the fireplace front must fall **BEHIND** the side panels of the unit. (In other words, it is possible to have the heater too far in as well as not far enough.)
3. Center the heater in the fireplace opening.

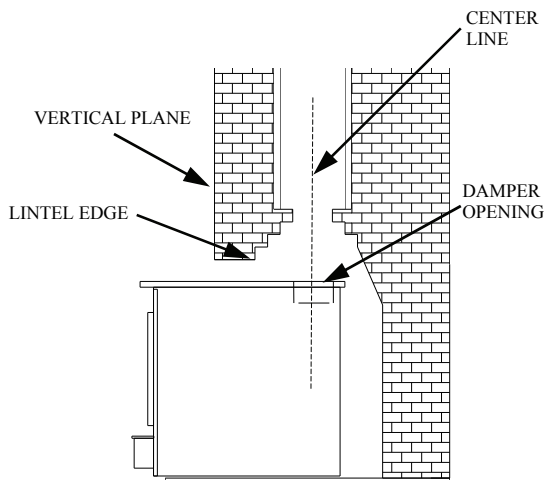


FIGURE 2 POSITIONING

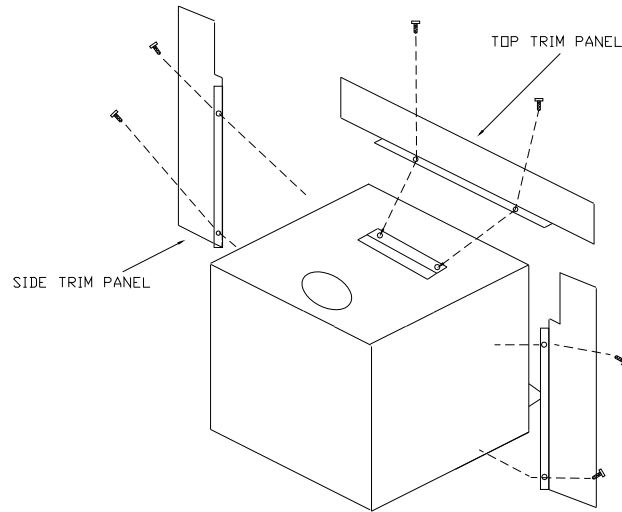


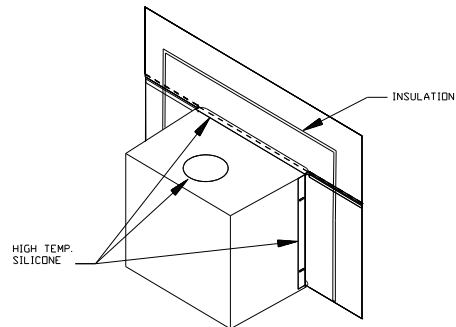
FIGURE 3 MOUNTING TRIM PANELS

## MOUNTING THE TRIM PANELS

After the unit is positioned, mark the mounting position of the trim panels as follows:

1. Set the side trim panels in place, flat against the face of the fireplace. Mark down the inside edge of the trim panel to make a vertical reference line. (See Figure 3.)
2. Set the top (long) trim panel in place on top of the unit. The panel should be flat against the outside face of the fireplace, and standing vertically. Mark along the lower edge of the trim panel with a pencil to make a reference line for mounting.
3. Slide the unit out of the fireplace far enough to work behind the trim panel reference lines.
4. Mount the side trim panels. (See Figure 3.)
  - a. Position the trim panel on the reference line.
  - b. Drill mounting holes in center of trim panel mounting brackets to allow for adjustment in and out if necessary.
  - c. Mount the trim panel using the self-tapping screws provided.
5. Place top panel back on reference mark. Take top trim panel mounting bracket supplied with unit. Position bracket so it overlaps rear lip of top trim panel. Drill mounting holes in top of stove using holes in bracket as guide. Tighten down screws.
6. Now, follow the installation procedures in the listed direct connect or positive connect kit you are using and

7. Slide the unit back into the fireplace. Check to be sure that the trim panels are properly positioned and lie flat against the front of the fireplace. If one or more of the panels is out of position, slide the unit out and reset by loosening the mounting screws and repositioning in the slot.
8. Reinstall the top trim panel by sliding the rear lip of the top trim panel underneath the front lip of the mounting bracket already secured to top of unit.  
**NOTE:** Mount the top trim panel so that it sits in front of the top of the side trim panels..
9. Obtain the brass trim kit provided with unit and slip over the top and sides of trim panels. (Top ends of brass may need to be trimmed to fit.)
10. Insure that the starter pipe or connector is properly secure in the stove flue exit, and aligned with the chimney flue.
11. Mount top trim panel by drilling mounting holes in center of trim panel mounting brackets, with top end side of top panel overlapping side panel.
12. Using insulation provided, peel and stick to back of panels overlapping fireplace dimensions by 1" on each side and top. (See Figure 3.)
13. Next using high heat silicone or furnace cement run heavy bead of caulking around where panels meet the stove. (See Figure 3.)
14. Slide the unit back into the fireplace. Check to be sure that the trim panels (and brass) are properly positioned and lie flat against the front of the fireplace. If panels are out of position, slide the unit out and reset by loosening the mounting screws and repositioning in the slot. With bar lift stove up in front. Place insulation across front and the surface of hearth or bottom of fireplace to make complete seal.
15. To check seal of panels, use candle flame and go around the entire area sealed by silicone and insulation. If flame leans toward inside of fireplace, add additional insulation. This ensures an airtight seal.

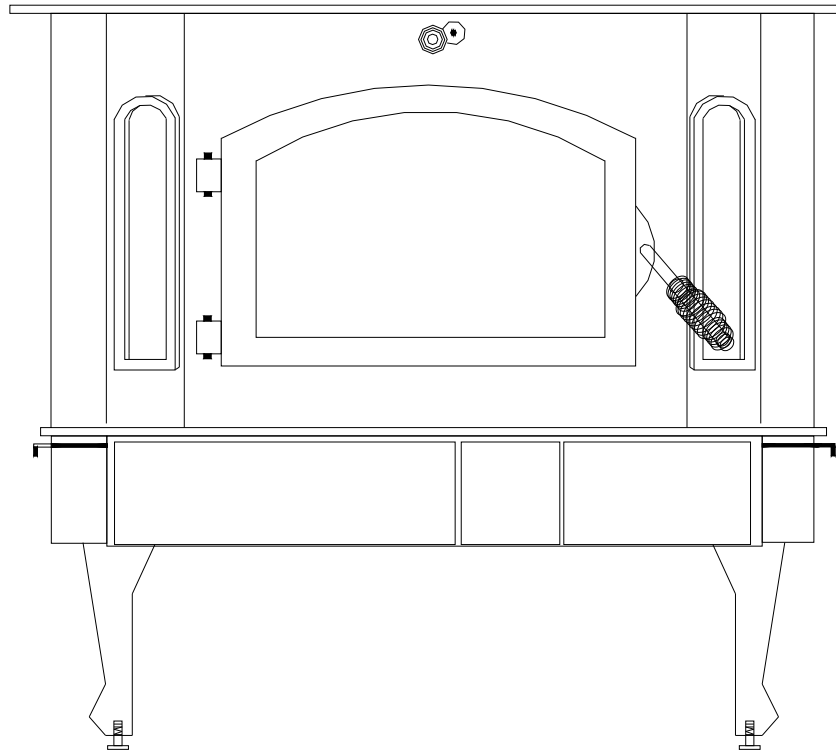


## FINAL CHECK

1. Recheck the specified clearances.
2. Remove all foreign material from the firebox area.
3. Open the primary air draft; shot-gun air draft, and damper bypass, make sure ash drawer is sealed properly.
4. Plug the power cord into a 115V AC outlet. Set switch to "Manual" and rheostat to "High" position to ensure motor operates properly.
5. Place 4 or 5 pieces of newspaper in the stove. Light paper and close the door. Ensure that the stove draws properly through the primary drafts.
6. Check for smoke leaks around the door.
7. Open the door (slowly) and check for smoke escaping from the front of the stove. Smoking usually indicates a defective or poorly positioned chimney. Some chimneys with a marginal draft can be preheated by lighting newspaper and holding it near the open damper with a poker or fire tong. Once the chimney heats up, a proper draft can usually be obtained.  
**NOTE:** A poor drafting chimney can lead to poor heater performance. This is not a defect of the heater, but with the chimney. Poor performance due to a poor drafting chimney is **NOT** a warranty problem. If a thorough review of the Troubleshooting Guide in the rear of the manual does not solve your problem, contact your dealer for assistance. If the homeowner installed the unit himself, there generally is a charge for dealer to service the stove and inspect the installation.
8. The unit is painted with a specially formulated high temperature paint that cures during the first two or three firings. **DO NOT BUILD A LARGE ROARING FIRE UNTIL THIS CURING IS COMPLETE OR THE HEATER FINISH MAY BE DAMAGED.** (Paint may blister or peel off. This is not covered by warranty.) You may notice a slight smoking effect and an odor of burning paint when you build the first fires. This is normal and is not a cause for alarm. In some cases these fumes will activate a smoke alarm. Opening a window near the unit will allow these fumes to escape.

## SECTION III

### RESIDENTIAL FREESTANDING ROOM HEATER INSTALLATION



### INSTALLATION PRECAUTION

Extensive field and laboratory testing has shown that catalytic stoves perform best as freestanding stoves when vented into a masonry chimney that include the following:

1. A rain cap is installed on the chimney.
2. Height of chimney is at least 15 feet high.
3. Location of chimney is interior. (Not on an outside wall)

Satisfactory results have been reported with installations other than listed above. However, draft problems are possible if a hot chimney is not maintained.

Use Leg Kit # FA FS2191 for Model 91



**CAUTION:** Do not connect this unit to a chimney flue serving another appliance.

## MODEL 91 BAY

### MINIMUM CLEARANCES

The New Buck Corporation Model 91 Bay must be installed in compliance with the instructions contained in this manual.

#### Clearance from combustible walls and ceilings. (Using single wall chimney connector)

The minimum lateral distance between any part of the room heater and combustible walls is shown in Figures 1 and 2.

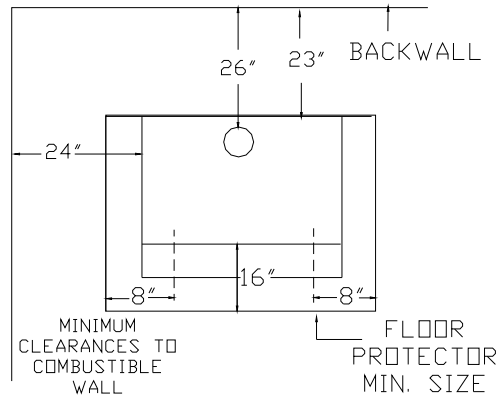


FIGURE 1

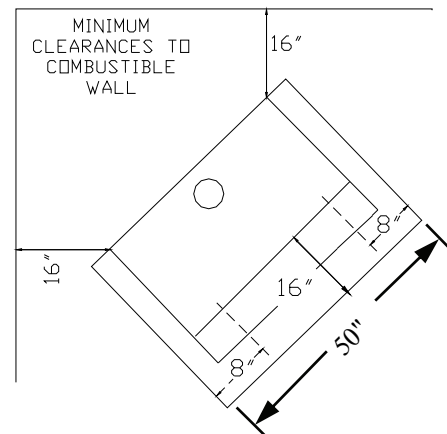


FIGURE 2

### FLOOR PROTECTION

If a freestanding model is to be installed on a combustible floor, a non-combustible pad must be placed below it to protect the floor from burning material from the stove. The pad must be 50 inches wide. **NOTE:** The floor must extend 16" from door opening in front of the stove, 8" from the door opening on each side, and should be under the chimney connector. Floor protector must be 3/8" in minimum thickness, non-combustible material or equivalent.

The unit must be positioned on the pad so that there is a minimum of 16" from the front of the door opening to the front of the pad, and a minimum of 8" measured horizontally from the sides of the fuel loading and ash removal openings to the sides of the pad.

**NOTE:** For clearance reductions using wall protectors, refer to the NFPA-211 Code.

### TOOLS FOR INSTALLATION

Drop Cloth  
Electric Drill with 7/32" drill bit  
1/2" - 9/16" combination wrench  
3/8" magnetic socket chuck adapter, 3/8" wrench (box or socket) or adjustable wrench  
Socket Set  
Tape Measure  
Pencil  
Level  
Screw Driver

## PREPARING THE STOVE FOR INSTALLATION

1. Inspect the unit for any obvious physical damage.
2. Plug the power cord into a **115V AC** outlet. Set switch to “Manual” and rheostat to “High” position to ensure motor operates properly. You cannot check the motor when the switch is in the “Off” or “Automatic” position, unless a heat gun is used to heat the internal thermostat.
3. Check the primary air draft controls to ensure that they operate freely.
4. Check the operation of the bypass damper control to ensure that it will open and close properly.
5. To attach legs, remove any items within firebox. Spread drop cloth on the floor behind the heater. Tilt the heater so that back is on the drop cloth. Attach legs to pre-drilled holes in bottom of heater. If using optional pedestal, mounting holes will need to be drilled.
6. Reposition the heater to the upright position.

## CHIMNEY

### Ceiling Exits:

The Model 91 Bay is designed for connection to: 1) Simpson Dura-Vent, 2) Security, 3) Selkirk Metal Bestos, 4) Metal Fab, 5) Air Jet, listed as 2100° pipe and parts.

“Follow chimney and chimney connector manufacturers instructions and local building codes for installation through combustible walls or ceilings.” This heater can only be installed freestanding by using one of the following requirements: 1) must use a brand of chimney pipe, as listed above, complying to the requirements for Type HT chimneys in the standard code for chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103 or 2) a code approved masonry chimney with a flue liner.

**CAUTION:** Certain installation types require the use of certain chimney types. Please follow these instructions exactly.

## DETERMINING THE CHIMNEY LOCATION

### A. Ceiling Exit (Using Single Wall Pipe and UL 103 HT type chimney system listed with manufacturer in this section of manual)

1. Suspend a plumb bob from the ceiling above the unit so that the weight is hanging in the center of the flue exit. (A small weight on a

string will serve as a plumb bob.) Mark the ceiling where the string is suspended to locate the center of the chimney.

2. After locating the center of the hole, install the ceiling support box, chimney, flashing, and rain cap per the chimney manufacturer’s instructions.
3. Connect the stove to the ceiling support box by using #24 ga. minimum blued or black steel chimney pipe. (DO NOT use galvanized pipe.) Each section should fit into the section below or into the opening on the stove, for drip-free operation. Secure each section together by using at least three (3) sheet metal screws or rivets.
4. You may secure chimney pipe to stove two (2) different ways.
  - a. With Optional NBC Cast Chimney Connector, See Figure 3.
  - b. Mounting clips attached to heater and chimney pipe, See Figure 7 on Page 15.

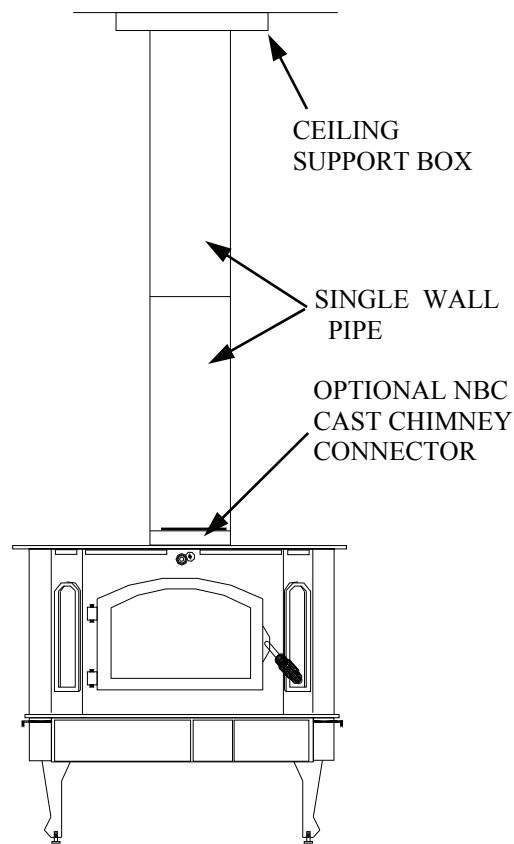


FIGURE 3

## CLOSE CLEARANCE INSTALLATIONS (in inches)

Close clearance installation is possible by using the following brands of black, double-wall chimney pipe. (See Figure 4 and Figure 5 for clearances.)

1. Simpson Dura-Vent double wall chimney connector "Type DVL" and 8" Simpson Dura-Vent 2100° HT "Type DP" chimney
2. 8" Security Type DL double wall connector and 8" Security Type "ASHT" High Temp Chimney.
3. 8" Selkirk Metal Bestos Model "DS" double wall connector-8" Selkirk Metal Bestos Model SSII type HT Chimney System.
4. 8" Metal Fab type "DW" double wall connector - 8" Metal Fab 2100° HT chimney.
5. 8" Air Jet

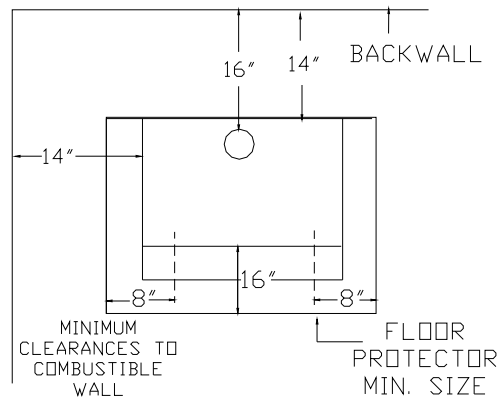


FIGURE 4

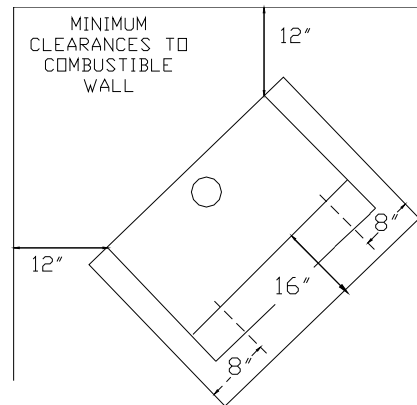


FIGURE 5

### TOOLS FOR INSTALLATION

Drop Cloth  
 Electric Drill with 3/32" drill bit  
 5/16" combination wrench  
 5/16" magnetic socket chuck adapter, 5/16" wrench (box or socket) or adjustable wrench  
 Pencil                      Socket Set  
 Level                        Tape Measure  
 Screw Driver

### Wall Exit into Metal Tee-Box (Using Single Wall Pipe)

1. Mark the plumb line on the wall directly behind the center of the heater. (See Figure 6.)

**NOTE:** When using #24 ga. min. blued or black steel pipe, maintain 18" between pipe and ceiling.

2. Place the vertical portion of the heater pipe and the elbow in position and project a point onto the plumb line level with the center of the elbow.

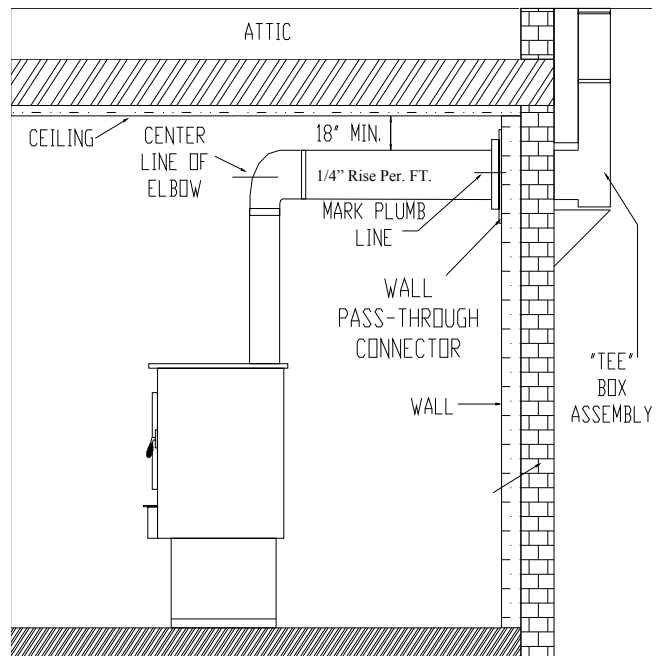


FIGURE 6

3. Measure up so there will be at least 1/4" rise per foot of horizontal connector pipe, maintaining clearances to the ceiling as noted in Figure 7. This will give you the center of the hole for the chimney penetration.
4. After locating the center of the penetration, install the tee-box and chimney as per the chimney manufacturer's specifications.
5. Connect the chimney pipe to the tee-box using #24 ga. minimum blued or black steel pipe. (DO NOT use galvanized pipe.) Each section should fit into the section below or into the opening on the stove, for drip-free operation. Secure each section together by using at least three (3) sheet metal screws or rivets.

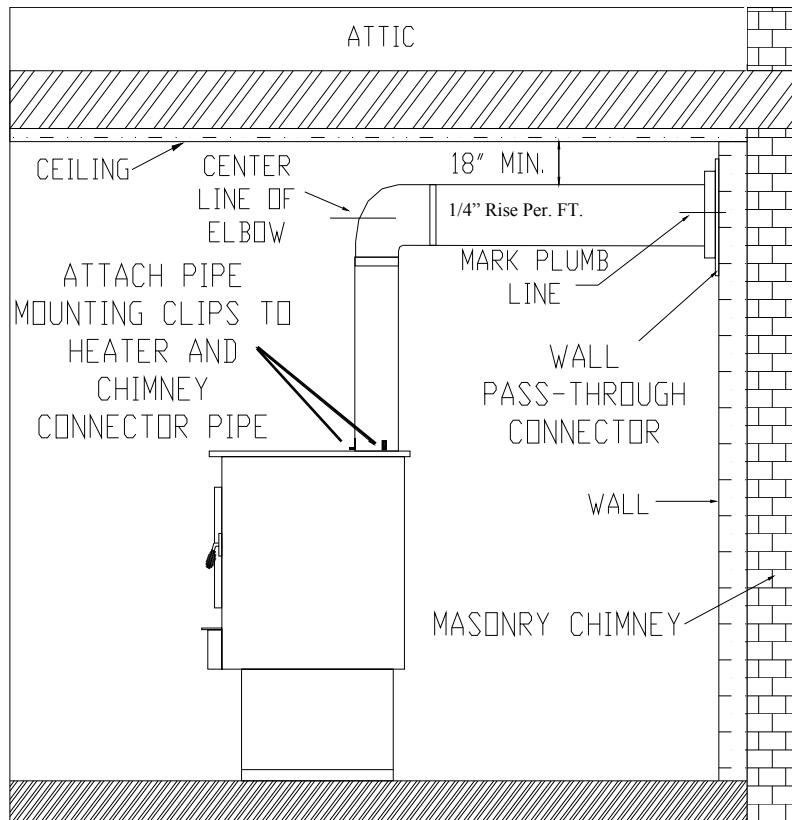


FIGURE 7

### Wall Exit Into Masonry (Using Single Wall Pipe)

1. Before connecting the Model 91 Bay to a masonry chimney, determine if the masonry fireplace wall pass-through connector

thimble meets the **NFPA-211** Code and local building codes and is a minimum of 18" from the ceiling. If the connector thimble does not meet these codes, the pass-through connector must be modified.

Connectors may pass through walls or partitions constructed of combustible material if the connector is:

- (a) either listed for wall pass-through or is routed through a device listed for wall pass-through and is installed in accordance with the conditions of the listing.
- (b) Selected or fabricated in accordance with the conditions and clearances as stated in **NFPA 211**-Code. Any unexposed metal that is used as part of a wall pass-through system and is exposed to flue gases shall be constructed of stainless steel or other equivalent material that will resist corrosion, softening, or cracking from flue gases at temperatures up to 1800° F.

In addition, a connector to a masonry chimney shall extend through the wall to the inner face or liner but not beyond, and shall be firmly cemented to masonry.

**EXCEPTION:** A thimble may be used to facilitate removal of the chimney connector for cleaning, in which case the thimble shall be permanently cemented in place with high temperature cement.

2. Once the through-the-wall thimble codes are met, simply connect the chimney pipe to the wall pass-through connector using #24 ga. minimum blued or black steel pipe as follows:
  - (a) Maintain 1/4" rise per foot (horizontal length) from the appliance to the chimney.
  - (b) Each section of pipe should fit into the section below or into the opening on the stove for drip-free operation.
  - (c) Secure each section to each other using at least three (3) sheet metal screws or rivets.

## Ceiling Exit - Close Clearance

1. Suspend a plumb bob from the ceiling above the unit so that the weight is hanging in the center of the flue exit. (A small weight on a string will serve as a plumb bob.) Mark the ceiling where the string is suspended to locate the center of the chimney hole.
2. After locating the center of the hole, install the ceiling support box, chimney, flashing, and rain.
3. Install Double Wall Connector and chimney system per manufacturer's written operating instructions. See manufacturer's list of tested pipes.

**CAUTION:** Because of the high efficiency and low flue gas temperature, freestanding catalytic heaters connected to masonry chimneys with oversized flue liners may encounter drafting problems. A positive flue liner (optional) may be necessary to help draft. A poor drafting chimney may result in poor performance from the Model 91. This is not a defect of the Model 91 but a defect in the chimney. This is not a warranty problem with the Model 91. Contact dealer for possible solutions for chimney.

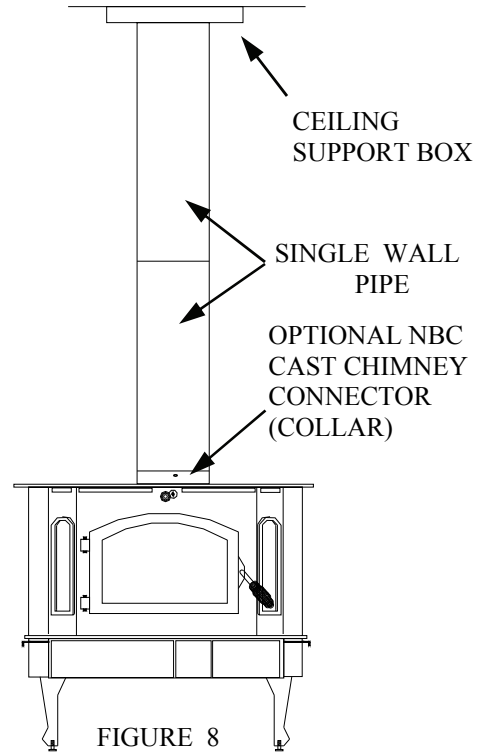
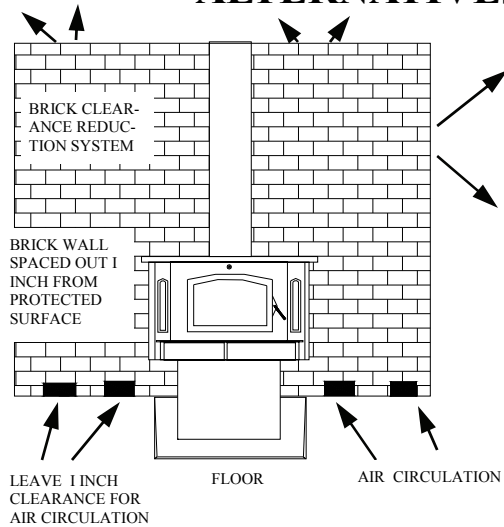


FIGURE 8

Example: The rear clearance for the Model 91 from page 12 is 18". (See Figure 1.) This clearance may be reduced by 50% to 9" by using either of the wall protection devices mentioned below.

## ALTERNATIVES FOR WALL PROTECTION



BRICK WALLS MAY BE ATTACHED TO COMBUSTIBLE WALLS USING WALL TIES IF BRICK IS USED. BE SURE FLOOR CAN WITHSTAND WEIGHT OF BRICK.

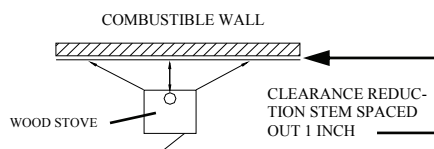
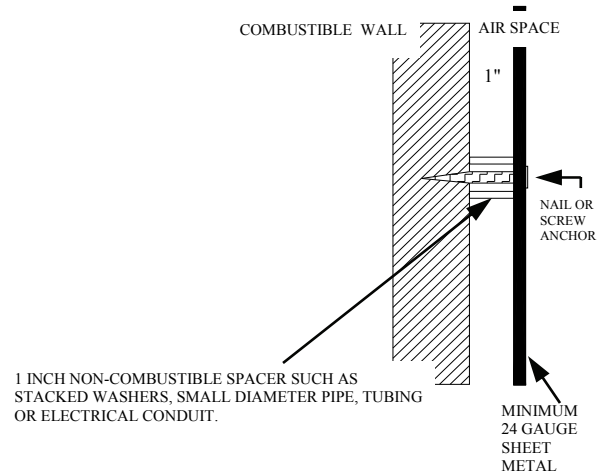
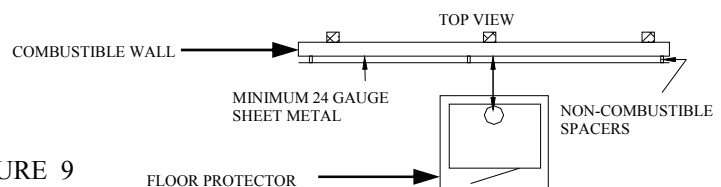


FIGURE 9



DO NOT USE FASTENERS DIRECTLY BEHIND CHIMNEY CONNECTOR OR STOVE.



### **Tested and Listed Wall Protector**

Clearances to combustibles may be reduced if a tested and listed wall protector is installed over a combustible surface when the following conditions exist:

1. A dead air space of 1" separates the listed and tested wall protector from the combustible surface.
2. The tested and listed wall protector extends from floor to ceiling with a 1" clearance for air circulation at both the floor and ceiling.
3. The 1" spacers (preferably ceramic rather than metal) must be located at the corners rather than behind the heater or the chimney connector.

### **Unlisted and Untested Wall Protector**

Wall protectors may be constructed of masonry, 24 gauge or thicker sheet metal, or non-combustible 1/2" thick insulation board. Conditions 2 and 3 above must be observed but the air space in condition 1 must be increased to 1 1/2".

## **FINAL CHECK**

1. Recheck the specified clearances.
2. Remove all foreign material from the firebox area.
3. Open the primary air draft; shot-gun air draft, and damper bypass. Make sure ash drawer is sealed properly.
4. Plug the power cord into a 115V AC outlet. Set switch to "Manual" and rheostat to "High" position to ensure motor operates properly.
5. Place 4 or 5 pieces of newspaper in the stove. Light paper and close the door. Ensure that the stove draws properly through the primary drafts.
6. Check for smoke leaks around the door.
7. Open the door (slowly) and check for smoke escaping from the front of the stove. Smoking usually indicates a defective or poorly positioned chimney. Some chimneys with a marginal draft can be preheated by lighting newspaper and holding it near the open damper with a poker or fire tong. Once the chimney heats up, a proper draft can usually be obtained.

**NOTE:** A poor drafting chimney can lead to poor heater performance. This is not a defect of the heater, but with the chimney. Poor performance due to a poor drafting chimney is **NOT** a warranty problem.

If a thorough review of the Troubleshooting Guide in the rear of the manual does not solve your problem, contact your dealer for assistance. If the homeowner installed the unit himself, there generally is a charge for dealer to service the stove and inspect the installation.

8. The unit is painted with a specially formulated high temperature paint that cures during the first two or three firings. **DO NOT BUILD A LARGE ROARING FIRE UNTIL THIS CURING IS COMPLETE OR THE HEATER FINISH MAY BE DAMAGED.** (Paint may blister or peel off. This is not covered by warranty.) You may notice a slight smoking effect and an odor of burning paint when you build the first fires. This is normal and is not a cause for alarm. In some cases these fumes will activate a smoke alarm. Opening a window near the unit will allow these fumes to escape.

## SECTION IV

### WOOD HEATER SAFETY

Certain safety hazards are inherent in any wood heater installation. You should be aware of these so that a safe and proper installation can be made.

1. **FAULTY CHIMNEY:** An older masonry chimney should be thoroughly checked to be sure there are no holes or weak spots which could allow sparks or hot gases to escape. If any of these are present, a positive liner should be installed before heater is installed.
2. **HEAT CONDUCTION:** Placing combustible materials too close to a heater or chimney can be a fire hazard.

By keeping these particular hazards in mind as you install and use your room heater you can ensure a safe, reliable installation.

The connector and/or chimney should be inspected at least once a month during the heating season to determine if a creosote buildup has occurred. Any buildup of soot should be removed to prevent the risk of a chimney fire. To remove chimney or chimney connector, remove screws and/or fasteners. Remove pipe and clean with a steel wire brush. Replace chimney or chimney connector and replace screws and/or fasteners.



**CAUTION:** NEVER use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or “freshen up” a fire in the heater. Keep all such liquids well away from the stove when it is in use. All fluids of this type give off volatile fumes and can **WILL EXPLODE!!** Don’t take a chance with the safety of your home and family.

**WARNING:** Hot while in operation. Keep children, clothing and furniture away from stove. Contact may cause skin burns.

### HELPFUL HINTS

**CURING THE PAINT ON YOUR HEATER:** During the first several firings, burn small fires to cure the paint and to prevent damage to the finish. It is a good idea to flip the toggle switch to “Manual” position during these first firings so the blower will run continuously. This will allow the paint to cure at a slower rate and creates a better overall finish.



**CAUTION:** Never remove ashes from your heater with the blower running.

### TIPS ON FIRE BURNING

**GREEN WOOD vs. SEASONED WOOD-**Green wood has a high moisture content, and therefore requires a hotter ignition temperature. Seasoned wood-cut at least one year before use-allows for a quicker, prolonged burn and more complete combustion.

**SPLIT WOOD vs. ROUND WOOD-**Split wood burns easier and more rapidly, whether it’s seasoned or green. If used after starting a fire, it should be packed tightly to achieve a longer burn.

Round wood burns longer, but requires more effort to start. Inserting a round piece over a bed of red coals with the damper and drafts open will help it catch fire. Round wood should be used to accomplish an all-night burn.

# SECTION V

## OPERATION

This section of the manual is to help you get maximum efficiency and maximum smoke (particulate) reduction from your heater. If you should experience any difficulty or have questions concerning your heater, contact your dealer for assistance.

Manufacturer's recommendation for peak performance and long catalyst life is to burn seasoned hardwood (wood dried 6-12 month) and place wood from front to back position in the heater.

Build a fire for maximum efficiency. This model burns wood and extracts heat so efficiently, a large fire is not necessary. A large fire not only wastes energy, it usually results in the home being too warm for comfort. The following steps will serve as a guide for operating your stove.

### GUIDE TO THE DIFFERENT BURNING QUALITIES OF WOOD

<b>Type of Wood</b>	<b>Ease of Starting</b>	<b>Coaling Qualities</b>	<b>Amount of Sparks</b>
Apple	Poor	Excellent	Few
Ash	Fair	Good	Few
Beech	Poor	Good	Few
Birch	Good	Excellent	Moderate
Cherry	Poor	Excellent	Few
Cedar	Excellent	Poor	Many
Elm	Fair	Good	Very Few
Hemlock	Good	Low	Many
Hickory	Fair	Excellent	Moderate
Locust	Poor	Excellent	Very Few
Maple	Poor	Excellent	Few
Oak	Poor	Excellent	Few
Pine	Excellent	Poor	Moderate

The Main Audubon Society recently charted the heat produced by a wood fire. They noted that the heat produced by a wood fire varies greatly with the kind of wood burned. Beech is considered the best wood for a fire. A cord of well-seasoned Beech will produce as much heat as 169 gallons of fuel oil; Sugar Maple and Red Oak produce as much heat as 166 gallons of fuel oil; followed by White Ash 154; American Elm 130; White Birch 124; and White Pine 94.

## BUILDING A FIRE:

1. Place the "Manual/Off/Automatic" switch in the "Automatic" (bottom) position for thermostat control operation. Turn rheostat knob clockwise (it will click from "Off" position to "On") so you can vary the speed of motor.
2. Open the door.
3. While looking inside firebox, operate the damper bypass plate in and out observing the movement. This should operate freely and close completely. Open the damper bypass.
4. Open the air controls on each side of stove (pull out).
5. Twist 4 or 5 pieces of non-colored newspaper in a roll and place on the floor of the firebox.
6. The Model 91 Bay is not designed for use with grates, andirons or other methods of supporting the fuel.
7. Lay several pieces of dry kindling on top of the newspaper.
8. Place three or four small pieces of firewood, 2-3" in diameter, on top of the kindling.
9. Light the newspaper, close and latch the door. Don't leave the fire unattended at this point. The draft should start quickly. If not, it may be necessary to preheat the chimney to get the draft started. To do this, open the door and add newspaper to the top rear of the wood. Light or let this paper ignite and allow to burn while holding the door slightly open. Do not leave the stove unattended with the door open! Once the draft has started, close and lock the door. A direct connect (option) usually solves this problem. Check with your dealer.
10. After embers and a coal bed have been established, load the heater with wood. **DO NOT BUILD A LARGE ROARING FIRE!** Initially, build 2-3 small fires in order to cure the paint on your stove.
11. Within the 20 minute time frame, you can begin to add your wood. Remember—**DO NOT FILL** firebox during your first 2 to 3 fires!
12. Once your fire is burning well, close the bypass damper completely (push in). Gradually close the primary air controls (push in). You will have to experiment with the primary air controls to accommodate your draft. If you close them too soon, your fire may die down too quickly and go out. Close them gradually, a little at a time, until you can close completely.

## BURN RATES

- A. **Low Burn Rate:** Set primary air controls (both) almost closed - leave open about 1/8". Set the rheostat for fan control between the low to medium speed. This burn rate is the most desired and most efficient, but can only be achieved after a fire has been established and burning on its own controlled air. Close the bypass damper (push in).
- B. **Medium-Low Burn Rate:** Partially close primary air controls (push halfway in). Close the bypass damper (push in). Set the rheostat for the fan control halfway between low and high.
- C. **Medium-High Burn Rate:** Set the primary air controls almost fully open. Close the bypass damper. Set the rheostat for the fan control between the medium position and the high position.
- D. **High Burn Rate:** Set primary air controls wide open. Have the damper closed. Set the rheostat for the fan control all the way on high. **USE CAUTION!** Close shotgun air control after 5 minutes.
- E. **Wood Loading:** During refueling, open (pull out) the bypass damper to allow smoke in the firebox to escape - wait a few seconds, slowly add wood. Immediately close door and bypass damper. Open primary air control wide open for 2 minutes to charge the wood. After most of the wood has burned and if you are not planning on reloading immediately, it may be necessary to open damper bypass, then the door, and rake the wood and coals into a pile near the front center of the firebox. (Be certain wood chunks are pulled out of the rear corners.) Close the door and the damper bypass. This step will assure continued combustion and thorough burning of the wood.

You will have to experiment with the fire rate until you find the particular setting for heating your home. Chimney drafts, tightness of the house, doors, windows, insulation in the house, and atmospheric conditions all influence which setting you must have, so it may take several firings to learn the setting necessary for your installation. Heating capacity is based on BTU output and the conditions listed above. These conditions will affect the heating capability of your heater.

Although the catalytic stoves decrease ash residue, routine removal of excess ash is still necessary.

## SECTION VI

### PREVENTIVE MAINTENANCE / PARTS REPLACEMENT THE CATALYSTS

The catalysts in your stove are designed for many years of use. If after several years of use, the efficiency of the stove decreases or if a notable amount of smoke is observed, the catalysts may need to be replaced. See the Catalyst Warranty prior to replacement. The following points are some general guidelines from the catalyst manufacturer.

1. Do not “hot fire” the stove. For many years retailers and installers have advised customers to build an extra hot fire to burn creosote deposits in the fire system. This advice may be acceptable for non-cat stoves, but can be death to a catalyst. Why? Because the catalyst is reducing the particulate, or creosote buildup, therefore the need to “hot fire” is eliminated. Proper chimney cleaning procedure should be followed.
2. Direct Flame contact is death to a catalyst. A catalyst burns the by-products in the smoke. The gases such as CO, HC, and O<sup>2</sup> ignite with each other in a chemical reaction in the presence of the catalyst (while passing through the honeycomb configuration). Direct flame inhibits this reaction by changing the chemical make-up of the catalyst breaking down the substrate or ceramic. This problem is called **flame impingement**. Today’s modern stoves are designed so that flame impingement is unlikely. However, a strong, fast draft can pull the flame into the catalyst. Or, a hot fire, with all the air controls and/or the ash door open can literally torch the catalyst. The remedy for the hot fire related flame is to advise customers not to “hot fire” the stove. The customer will enjoy their catalysts longer and with better performance if these guidelines are followed. Fly ash problems also can be reduced by controlling the draft.
3. The **“Glow” Misconception**: A catalyst can glow during certain stages of combustion. The determination that a catalyst is not working simply because it does not glow is inaccurate. During the low burn cycle, when the catalyst is doing the bulk of its work, it usually does not glow. Also, extremely dry wood (oak, ash, etc.) can burn clean enough not to produce a glow in the converter. In most new stoves, you cannot see the catalyst.
4. **Light Off Temperature**: CO conversion in the Applied Ceramics catalyst begins at a very low temperature. Usually, a normal start up to produce a coal bed will produce more than sufficient temperatures to begin catalytic combustion.
5. The catalyst is not consumed or “used up”. The nature of a catalytic reaction is defined as follows, by the American Heritage Dictionary, Second College Edition: cat.a.lyst n “1. Chem. A substance, usually present in small amounts relative to the reactants, that modifies and especially increases the rate of a chemical reaction without being consumed in the process.” This means your catalyst is always there. This also means that gases that would normally go out the flue system and pollute the environment are being burned to create more heat from less wood.
6. Why does a catalyst stop working? Most catalyst that are returned are either destroyed by flame impingement, broken due to accidents or mishandling, or have nothing wrong with them but fly ash build-up. A catalyst can be “saturated” with by-products of wood burning such as potassium. This is chemical saturation. The prohibitive chemical will fill in the chemical “holes” that the gases normally use for reaction. This process of saturation can be slowed by regular maintenance of the catalyst. Saturation can take several years since there are units in use for over five years. Burning garbage, painted woods, or large amounts of colored paper can poison your unit. Poisoning, however, is very difficult to do. Burning colored paper causes more of a fly ash problem than a risk of poisoning. NEVER BURN RUBBER OR PLASTIC.
7. Burn only seasoned dried wood. Wood should be dried for at least 12 months prior to burning. The wood should be FREE of any moisture such as RAIN or SNOW. Wet wood creates water vapor which can drop the temperature of the catalyst. The results can be plugging, clogging, and thermal shock to the catalyst. When a catalyst has ceased to be effective, you will notice increased fuel usage and your chimney sweep will notice increased creosote in your system. Before you replace the unit, review this section. If you find that your catalyst should be replaced, follow the instructions for warranty replacement that were provided when your unit was purchased.

8. Cleaning the catalyst with plain water can reduce build-up of the catalyst-retarding chemicals. Nothing but a soft brush, low pressure air or plain water should be used to clean a catalyst. The ceramic unit is fragile in comparison to the rest of the stove, so it should be handled with care. A soak in warm or hot (not boiling) water for 20 minutes is ideal. Then, allow the unit to cool at room temperature and rinse under medium pressure under a faucet. Allow the unit to thoroughly dry before reinstalling it or you will damage it. Finally, reinstall the unit. A cleaning once every year is sufficient for most users. Clean it when you have your flue system cleaned.

### **CATALYST REPLACEMENT (Off-Season Replacement Recommended)**

1. Spread a drop cloth in front of the stove.
2. Open the door and clean out any ash.
4. Using penetrating oil, generously lubricate the eight (8) bolt threads holding the catalyst housing in place. Allow oil to penetrate.
5. Using a 9/16" wrench or 9/16" socket, loosen the eight (8) nuts and remove the catalyst housing (drop down) and place in a suitable work area. **BE CAREFUL** removing the 8 nuts. If you break the bolt, you will have to drill out the bolt (difficult) and wait for your dealer to order one! You do not want this to happen during the cold weather!
6. Using needle nose pliers, grasp the front edge of the stainless steel "cans" which houses the catalytic element and pull upward. Reposition pliers to another position and pull upward. Repeat procedure until the catalyst can be removed from the housing.
7. Using a small putty knife or scraper, remove any gasket that may have adhered to the catalyst housing.
8. Now, obtain the new catalysts and wrap the stainless steel "can" with interam gasket and tape ends together using scotch tape or masking tape. **IMPORTANT: BEFORE STARTING TO REPLACE CATALYST**, contact your dealer and order the **INTERAM gasket** and the **CATALYST HOUSING Gasket**. Gaskets not covered under warranty. It may take your dealer several days to receive the gaskets.
9. Insert the new catalysts into the catalytic housing and push down until they are seated on the top of the stainless steel wire mesh supports.
10. Reinstall the catalyst housing into the stove and secure in place with the bolts.
11. The stove is now ready for use.

### **DOOR GASKET REPLACEMENT (Cold Heater)**

To replace deteriorated gaskets, the following steps must be taken to ensure proper installation of gaskets.

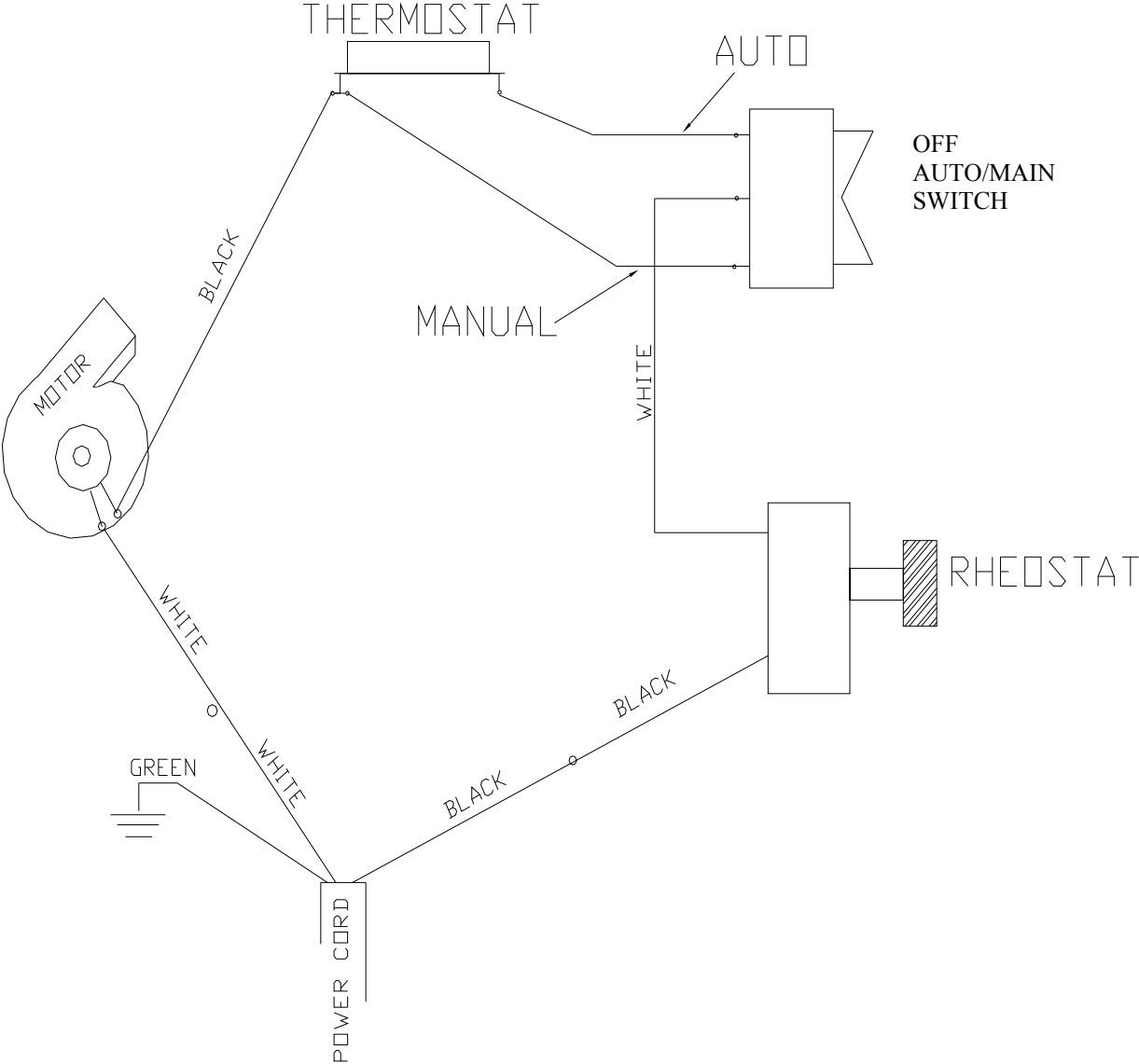
1. Obtain the proper gaskets and silicone glue from your local dealer.
2. Using pliers, remove any worn and deteriorated gaskets.
3. Using a scraper, wire brush, and sandpaper or steel wool, clean glue and gasket residue from the door frame.
4. Measure and cut gaskets to length. Care should be taken not to stretch the gaskets. What you want is a full and loose gasket weave after attachment to the framing.
5. Obtain the silicone glue and run a 3/16" bead inside the door frame.
6. Obtain the gasket (s) and place in the gasket channel areas. Use a technique which assures that the gasket is applied in a loose like manner. **DO NOT STRETCH GASKETS.**
7. After gasket (s) are applied to the glue, use your finger and go over all the gasket gently pressing the gasket to the channel. Use the same pressure against the gasket so that the final result is an evenly applied gasket.
8. Leave door open and allow at least one hour for the glue to dry.
9. Once gaskets are checked, the heater is ready for use.
10. This should be done annually. Allowing gaskets to deteriorate can cause over-firing and shorten the burn time.

# **MOTOR ASSEMBLY REPLACEMENT**

(Motor, Thermostat, Rheostat, Wiring Harness)

1. Unplug the heater from the 115V AC outlet.
2. To replace the motor you must first take the cover door off. Do this by removing the two screws holding it in place.
3. Next, you will find a wire cage protecting you from the electrical components of this unit. By looking to the right of the ash pan, you will find the two screws that hold the wire cage in place. Remove the two screws. You will also find a screw at the bottom right of the wire cage. Remove this screw. It will be easier to remove the cage if you first take the knob and nut from the rheostat that is hooked to the cage. Lay the cage aside.
4. To remove the motor simply unhook the wire servicing the motor. Take the two screws holding the motor bracket out.
5. Gently slide the motor out, and while pulling it out moving the rear of the motor facing you from right to left in a counterclockwise motion.
6. To replace the thermostat follow steps 1 through 3 and then gently push the thermostat up out of the bracket.
7. To rewire the motor, rheostat, and thermostat see Figures 10.
8. To replace the motor turn the motor so that the 4"x4" air discharge opening is pointing toward the rear of the stove. The flat part of the motor housing is turned up. With the air discharge opening pointing in the 2 o'clock position, start in toward the unit rotating the rear of the motor clockwise. The air discharge opening of the motor housing fits in a cavity in the rear of the unit that will direct the air flow to the proper location. Make sure the air discharge opening is located firmly in the opening. Replace motor bracket to the motor.
9. Hook up the wiring to all three components if you have replaced or unhooked them.
10. Replace rheostat on to the screen housing. Fasten the screen housing to the vertical bar to the right of the ash pan. Also fasten the motor bracket to the bar at the same time.
11. Replace screw at the bottom of the screen guard. Replace cover door.
12. Plug heater back into a 115V AC outlet.

# WIRING SCHEMATIC



# SECTION VII

## TROUBLESHOOTING

Operation of any wood heater can create problems. While the use of a catalytic-combustor equipped stove will substantially lessen some of these problems— such as creosote formation— other traditional wood heater problems may remain.

The following guidelines apply to operation of all wood heaters, with problems related to catalytic heater addressed where appropriate.

### HEATER RELATED PROBLEMS

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
1. Sluggish heater Performance	1. Obstruction in chimney	1. Check cap and chimney and remove obstruction.
	2. Improperly sealed trim kit or direct connect kit	2. Check trim kit gasketing or direct connect kit seal to fireplace and gasket as necessary to seal unit. Gasket under stove if needed. Check seal or direct connect and correct.
	3. Manual damper in chimney is closed	3. Open manual damper and wire shut with stainless steel wire or remove damper.
	4. Closing bypass or exhaust damper too soon	4. Follow <b>New Buck</b> instructions for proper firing procedures
	5. Poor chimney draft	5. Flue may need extension. Oversized flue may need direct connect or positive liner.
	6. Combustor is plugged	6. See section in “Combustor Related Problems”
	7. Wet or unseasoned wood being burned	7. Burn dry, seasoned wood
2. High Fuel Consumption	1. Inexperience in catalytic operation	1. Operate stove with desired heat output in mind. Do not be overly concerned with maintaining light-off temperatures
	2. Improper regulation of draft or inlet air	2. Close inlet air control as much as possible to maintain desired heat output. Check gaskets, reinstall fiberglass gasketing around doors and glass as necessary
	3. Air leaking around door frame and/or glass	3. Check door gasket. Check adjustment of door latch.
	4. Bypass damper open	4. Close bypass damper

3. Backpuffing	<ol style="list-style-type: none"> <li>1. Gusts of wind / windy day</li> <li>2. Hot combustor. (Above 1400° F)</li> </ol>	<ol style="list-style-type: none"> <li>1. If flue cap not on chimney, install one.</li> <li>2. Increase the amount of combustion air slowly</li> </ol>
4. Smoke Rollout when Heater Door is Opened	<ol style="list-style-type: none"> <li>1. Bypass damper is closed</li> <li>2. Opened door too soon after opening bypass damper</li> <li>3. Wind gusts blowing</li> </ol>	<ol style="list-style-type: none"> <li>1. Open bypass damper</li> <li>2. Open bypass damper– wait 15-30 seconds before slowly opening door</li> <li>3. Install flue cap</li> </ol>
5. Low Catalytic Temperature	<ol style="list-style-type: none"> <li>1. Bypass is open</li> <li>2. Light-off not obtained</li> <li>3. Fuel charge is spend</li> <li>4. Combustor coated with fly ash or soot</li> <li>5. Heater dampered down too much</li> </ol>	<ol style="list-style-type: none"> <li>1. Once light-off temperatures have been reached and unit is stabilized, close bypass</li> <li>2. Follow manufacturer’s operating instructions</li> <li>3. Refuel as necessary for combustor operation</li> <li>4. See Section VII “Preventive Maintenance”</li> <li>5. Ensure that proper air mixture and draft are available for wood pyrolysis to continue</li> </ol>
<b>COMBUSTOR-RELATED PROBLEMS</b>		
1. Plugging	<ol style="list-style-type: none"> <li>1. Burning materials that produce a lot of char and fly ash</li> <li>2. Burning wet, pitchy wood or burning large loads of small-diameter wood with the combustor in the operating position without light-off taking place</li> </ol>	<ol style="list-style-type: none"> <li>1. Do not burn materials such as garbage, gift wrap or cardboard</li> <li>2. Burn dry, seasoned wood. Don’t place the combustor in the operating position until high temperatures are high enough to initiate light-off</li> </ol>
2. Catalyst Peeling	<ol style="list-style-type: none"> <li>1. Extreme temperatures at combustor surface can cause the catalyst to peel. Over-firing and flame impingement are primary causes</li> </ol>	<ol style="list-style-type: none"> <li>1. If severe, remove and replace catalysts. See “Catalyst Replacement” Section VI. Avoid extreme temperatures</li> </ol>
3. Catalyst Masking	<ol style="list-style-type: none"> <li>1. Not maintaining light-off temperatures</li> </ol>	<ol style="list-style-type: none"> <li>1. See Section VI and review operating instruction.</li> </ol>

**NEW BUCK CORPORATION (NBC)  
“LIMITED WARRANTY” FOR NBC RELATED PRODUCTS**

**PLEASE READ THIS WARRANTY CAREFULLY  
PRODUCTS COVERED**

This warranty covers the new heating unit so long as it is owned by the original purchaser, including optional and standard accessories purchased at the same time, subject to terms, limitations, and conditions herein set out.

**PRODUCTS NOT COVERED**

This warranty does not cover the following:

- Glass;
- Refractory material such as refractory cement or firebrick
- Gaskets;

This Warranty will also not cover any damage and/or failure caused by abuse or improper installation of the Products Covered.

**WARRANTY TIME PERIODS**

**(A) Period I**

For one (1) year from the date of purchase, NBC will replace or repair, at its option, any part defective in materials or workmanship. The costs of parts only are included. The customer pays any labor or transportation charges required.

**Thereafter**

**(B) Period II**

For the period after the first year from the date of purchase and extending for five (5) years as long as the related product is owned by the original purchaser, NBC will repair or replace, at its option, any part defective in materials or workmanship, with the exception of: electrical motors, wiring, switches, and components; optional and standard accessories; and all parts not permanently attached to the heating unit. Parts not permanently attached to the heating unit are defined as those items designed to be removed from the unit, including those removable with common hand tools. The cost of parts only are included. The customer pays any labor or transportation charges required.

**PROCEDURE**

Should you feel that your **heater** is defective, you should contact any NBC dealer for the name of your nearest authorized heater service representative, who will instruct you on the proper procedure, depending on which Warranty Time Period (Period I or Period II) applies.

If for any reason you are dissatisfied with the suggested procedures, you may contact us in writing at:

**NEW BUCK CORPORATION  
Customer Service Department  
P. O. Box 69  
Spruce Pine, NC 28777**

**CONDITIONS AND EXCLUSIONS**

- (A) Replacement of parts may be in the form of new or fully reconditioned parts, at NBC's option.
- (B) There are no other warranties express or implied including warranties of Merchantability, Fitness for Purpose or Otherwise except those warranties expressly stated herein.
- (C) **New Buck Corporation** is not liable for indirect, incidental, or consequential damages in connection with the use of the product including any cost or expense or providing substitute equipment or service during periods of malfunction or non-use. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.
- (D) All warranty repairs under this warranty must be performed by an authorized Buck Stove service representative. Repairs or attempted repairs by anyone other than an authorized service representative are not covered under this warranty. In addition, these unauthorized repairs may result in additional malfunctions, the correction of which is not covered by warranty.

**OTHER RIGHTS**

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

**OWNER REGISTRATION CARD**

The attached Owner Registration Card must be completed in its entirety and mailed within 30 days from the date of purchase or from the date of installation, if installed by a factory certified installer, to New Buck Corporation, in order for warranty coverage to begin.

**PLEASE NOTE:** The Owner Registration Card must contain the Authorized Dealer Code Number and the Certified Installer's number (if applicable) for warranty coverage to begin.