

INSTRUCTIONS

Supersedes all previous instructions before 2023

The Pioneer Duchess Airtight Cookstove

Read this entire manual before you install and use your new room heater. If this room heater is not properly installed a house fire may result. To reduce the risk of fire follow the installation instructions. Failure to follow instructions may result in property damage, bodily injury or even death.

ASSEMBLY AND INSTALLATION INSTRUCTIONS

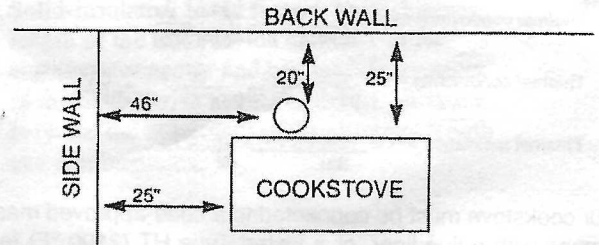
(The heater is not to be connected to any air distribution system.)

- 1) Remove all wooden crating from around the stove, being careful not to wedge or pry against the stove, as damage to the enameled liner may result.
- 2) Inspect stove for possible shipping damage, and notify your freight carrier immediately if any damage has occurred.
- 3) Loosen & remove the 4 bolts at the base of the stove that hold it to the pallet, twist the stove 1/4 turn so the bolt holes for the legs are accessible. Bolt the legs to the stove (adjustable leg in the rear), then remove the pallet.
- 4) Remove all parts from the oven.
- 5) Install the ash & fire door by holding them perpendicular with the stove. Insert the top pin through the top hinge eyelet then align the bottom pin. Drop through the bottom hole allowing it to sit on the hinge. Make sure both doors swings freely and latches properly.
- 6) Move your **Pioneer Duchess** to the desired position.
- 7) Install the back and shelf to the stove body with the bolts that are supplied. Bolts should be tightened until snug, but do not overtighten.
- 8) Install the thermometer bracket on the oven door; slide both of the wooden handles on either side of the bracket. Using the bolts provided, screw the 3/4" x 1 5/8" chrome plated, cylindrical spacers between the handle to the oven door. Attach the oven drawer wooden handle by sliding the bolts provided in order through the handle, bushings, cover, and then drawer, securing it with washers and nuts.
- 9) Install the spring knob by sliding it onto the 3/8" threaded rod that protrudes from the left side of the stove, just below the top. This is the thermostat handle. Position the pointer to low and tighten the allen screw.
- 10) The removable flue opening at the rear accepts a 7-inch stove pipe, crimped end down. It is important that with an airtight stove, the crimped end of the stove pipe be turned down. We recommend that a stainless steel stove pipe be used if possible. If an ordinary black pipe is used, it must be 24 gauge or better and should be checked for signs of corrosion every 3 months. The removable flue adapter has not been attached to the stove for shipment. After the stove has been moved into your house and put into place, this should be attached. The short angle flanges on the flue adapter must go inside of the stove flue. This will ensure that the chimney creosote drains into the stove instead of dripping on the floor. Bolts and nuts are supplied to fasten it with, nuts go on the outside.

Secure the stove pipe to the flue adapter by screwing through the tabs provided in flue adapter. You may need to predrill the 7" pipe before installing. Use a minimum of three evenly spaced screws at each joint of stove pipe.

- 11) Your **Pioneer Duchess** cookstove does not require a damper in the stove pipe.
- 12) Read these instructions carefully before installing your new cookstove. **Consult your local government offices, such as Municipal Building Department, Fire Department or Fire Prevention Bureau to determine whether you need a permit to install this unit. Installation must comply with all local and national building codes.**
- 13) Clearances to combustibles (measured from unit).
48" from front
25" from rear
25" from side
18" from right side

Clearances to combustibles (measured from chimney connector).
20" from rear
46" from side

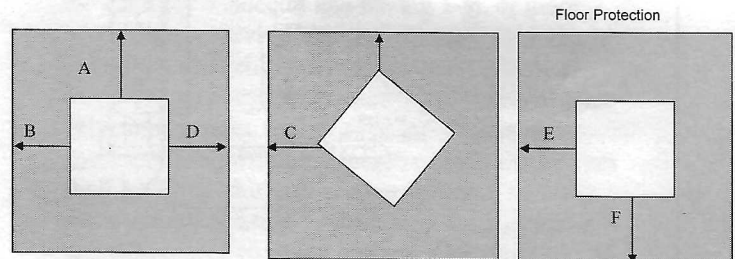


- 14) For reduced clearance and further information on using your wood stove safely, obtain a copy of the following booklet:

In United States: National Fire Protection Association publication "Using Coal and Wood Safely", NFPA No. 115-8-1974. The address of NFPA is: 470 Atlantic Ave., Boston, MA 02210.

In Canada: Canada Mortgage and Housing Corp. publication "Heating With Wood Safely". It is available through any C.M.H.C. office.

- 15) Floor Protection: When installing this stove on a combustible floor, a UL1618 floor protector of minimum R0.60 must be used. This protector must extend at least 18 inches to front, 18 inches to each side of unit, and 10 inches behind. The parts or materials to be employed for the floor protector including the minimum areas to be covered and their relationship to the product. At least the following areas shall be specified. (1) Under the stove (78" x 50"), (2) Under the chimney connector and 2 inches (50 mm) beyond each side.



A = Unit to backwall - 25-inches (635-mm) B = Unit to right sidewall - 25-inches (635-mm)
C = Unit to corner wall - 18-inches (457-mm) D = Unit to left sidewall - 18-inches (457-mm)
E = Floor protection side - 8-inches (203-mm) F = Floor protection front - 16-inches (406-mm)
Sidewall to chimney connector - 46-inches (1168-mm) Backwall to chimney connector - 20-inches (508-mm)

HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE. DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS. DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM. NEVER LET THE TOP OF YOUR STOVE GET RED HOT. STEEL EXPOSED TO THAT AMOUNT OF HEAT WILL CRACK!

SAVE THESE INSTRUCTIONS

To determine whether your floor protector meets the 0.60 R value, follow this procedure:

- 1) Convert specification to R-value:
 - i R-value is given - no conversion is needed.
 - ii K-factor is given with a required thickness (T) in inches: $R = 1/k \times T$
 - iii C-factor is given: $R = 1/C$
- 2) Determine the R-value of the proposed floor protector.
 - i Use the formula in step (1) to convert values not expressed as "R".
 - ii For multiple layers, add R-values of each layer to determine the overall R-value.
- 3) If the overall R-value of the system is greater than R0.60, the floor protector is acceptable.

Example:

The specified floor protector should be 3/4-inch thick material with a k-factor of 0.84. The proposed alternate is 4" brick with a C-factor of 1.25 over 1/8" mineral board with a k-factor of 0.29.

Step (a): Use formula above to convert specification to R-value. $R = 1/k \times T = 1/0.84 \times .75 = 0.893$

Step (b): Calculate R of proposed system.

4" brick of C = 1.25, therefore $R_{brick} = 1/C = 1/1.25 = 0.80$

1/8" mineral board of $k = 0.29$, therefore $R_{min.bd.} = 1/0.29 \times 0.125 = 0.431$

Total $R = R_{brick} + R_{mineral\ board} = 0.8 + 0.431 = 1.231$

Step (c): Compare proposed system R of 1.231 to specified R of 0.893. Since proposed system R is greater than required, the system is acceptable.

Definitions:

$$\text{Thermal conductance} = C = \frac{\text{Btu}}{\text{hr}(\text{ft}^2)(\text{°F})} = \frac{W}{(\text{m}^2)(\text{°K})}$$

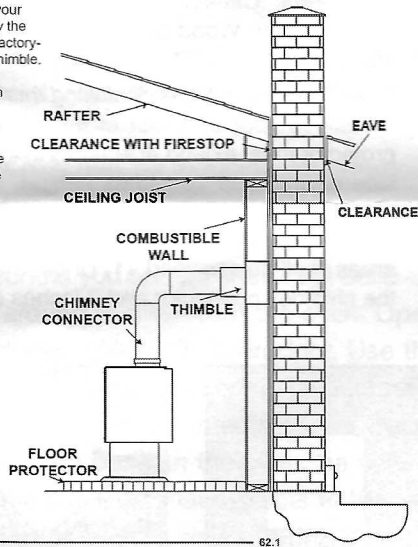
$$\text{Thermal conductivity} = k = \frac{(\text{Btu})(\text{inch})}{(\text{hr})(\text{ft}^2)(\text{°F})} = \frac{W}{(\text{m})(\text{°K})} = \frac{W}{(\text{hr})(\text{ft})(\text{°F})}$$

$$\text{Thermal resistance} = R = \frac{(\text{ft}^2)(\text{hr})(\text{°F})}{\text{Btu}} = \frac{(\text{m}^2)(\text{°K})}{W}$$

- 16) Your cookstove must be connected to a code-approved masonry chimney with a flue liner, or a Listed Type HT (2100 °F) factory built chimney per UL 103 or ULC S629. Chimney size must be at 7 inches but not more than 12 inches. A chimney height of at least 15 feet, measured from the floor on which the cookstove stands is required.

TYPICAL EXISTING MASONRY

You can also install your appliance using your existing masonry chimney. To do so, follow the guidelines below. You may want to use a factory-built thimble, or construct your own brick thimble. If you are using a masonry chimney, it is important that it be built in compliance with the specifications of the Building Code in your region. It must normally be lined with fire clay bricks, metal or clay tiles sealed together with fire cement. (Round flues are the most efficient). The maximum flue size is 8" x 8" square or 6" round.



See diagram for instructions on connecting the stove to your chimney, and for installing chimney sections through a combustible wall. All combustible wall or ceiling penetrations must conform to CAN/CSA-B365. A chimney connector shall not pass through an attic, roof space, closet, floor, ceiling, or similar concealed space.

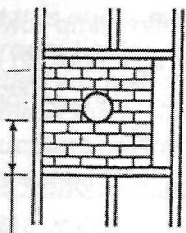
- 19) Do not connect the unit to a chimney serving another appliance.
- 20) Make sure your chimney is high enough to give a good draft. Trees, hills, overhangs or other house, etc. near your chimney can cause a downdraft resulting in a, smoke-filled room. Exhaust fans, such as bathroom and kitchen, can cause a drop in air pressure in your house, which will increase the chance of your stove "puffing" smoke or leaking smoke. If you have any trouble with smoke leakage related to exhaust fans, you will need to provide extra ventilation to minimize the air pressure drop in you house.
- 21) Remove the protective sticker paper from the cooking surface of the stove.
- 22) Your stove is supplied with a stainless 5/8 inch tube, to serve as a protective railing along the front of the stove, at the level of the cooking surface. You will notice two chrome spacers (one end of spacer cut at an angle). These two spacers fit between the railing and the top of the stove. The railing is fastened by means of bolts supplied.
- 23) Makeshift compromise during installation may result in a fire hazard.
- 24) This stove is designed to burn solid wood. You will obtain the best results with cordwood cut to 16" lengths split and dried. Special care should be taken when burning scraps of framing lumber or furniture lumber because it is so easy to overheat your stove. Not only might you burn your bread, it is a potential fire hazard. Do not attempt to burn coal, plastic, or any other petroleum products. If you do not have smoke detectors be sure to install some.

Your First Fire

1. Open the flue damper slide (by pulling the handle out so that your smoke and gases can travel directly into the flue, without being circled around the oven. This will increase the draft to your firebox, and reduce the stove's tendency to smoke while the chimney is still cold.
2. Turn the thermostat knob to "High". Open the accessory draft knob behind the stove two (2) complete turns or more.
3. Place kindling and crumbled newspaper into the firebox. Light with a match at a point close to the air intake side. Do not overheat your stove during your, first burn. A small fire is best to break in your stove when it is new. If your fire becomes too hot, close the accessory draft and adjust the thermostat as necessary.

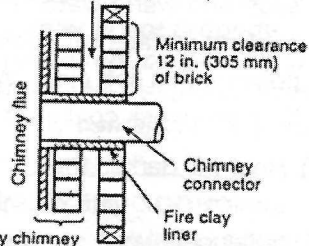
- 17) Keep the use of stove pipe to a minimum, especially elbows, as every turn in your pipe cuts down on the draft. Be sure all horizontal stretches of pipe slope slightly back toward the stove.
- 18) Do not insert flue pipe into masonry chimney further than the wall of the flue tile. Also, single wall stove pipe must not penetrate combustible ceilings or walls. Stove pipe clearances must be at least 18" from combustibles.

Chimney Connector Systems and Clearances from Combustible Walls for Residential Heating Appliances



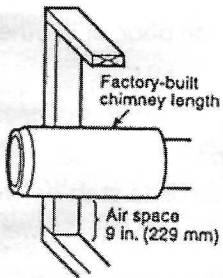
Minimum 12 in. (305 mm) to combustibles

Minimum chimney clearance to brick and combustibles 2 in. (51 mm)

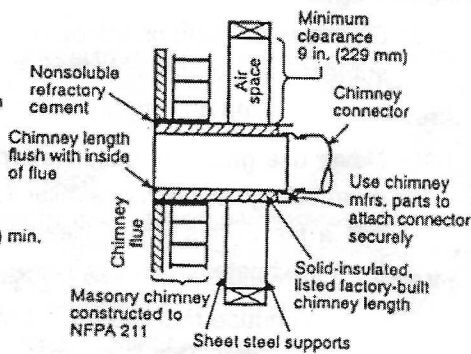


Masonry chimney constructed to NFPA 211

Minimum chimney clearance from masonry to sheet steel supports and combustibles 2 in. (51 mm)

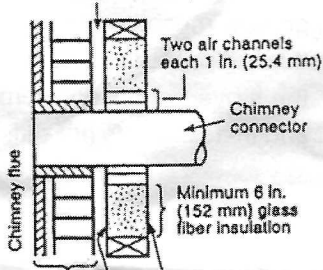


Air space 9 in. (229 mm) min.

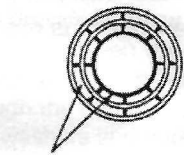


Masonry chimney constructed to NFPA 211

Minimum chimney clearance to sheet steel supports and combustibles 2 in. (51 mm)

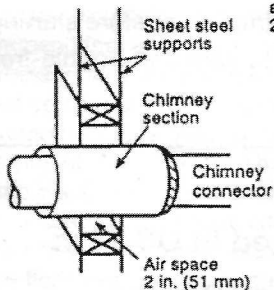


Masonry chimney constructed to NFPA 211

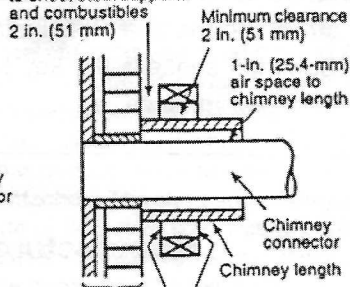


Two ventilated air channels each 1 in. (25.4 mm). Construction of sheet steel.

Minimum chimney clearance to sheet steel supports and combustibles 2 in. (51 mm)



Air space 2 in. (51 mm)



Masonry chimney constructed to NFPA 211

A Minimum 3.5-in thick brick masonry all framed into combustible wall with a minimum of 12-in brick separation from clay liner to combustibles. The fireclay liner shall run from outer surface of brick wall to, but not beyond, the inner surface of chimney flue liner and shall be firmly cemented in place.

B Solid-insulated, listed factory-built chimney length of the same inside diameter as the chimney connector and having 1-in. or more of insulation with a minimum 9-in. air space between the outer wall of the chimney length and combustibles.

C Sheet steel chimney connector, minimum 24 gauge in thickness, with a ventilated thimble, minimum 24 gauge in thickness, having two 1-in. air channels, separated from combustibles by a minimum of 6-in. of glass fiber insulation. Opening shall be covered, and thimble supported with a sheet steel support, minimum 24 gauge in thickness.

D Solid insulated, listed factory-built chimney length with an inside diameter 2-in. larger than the chimney connector and having 1-in. or more of insulation, serving as a pass-through for a single wall sheet steel chimney connector of minimum 24 gauge thickness, with a minimum 2-in. air space between the outer wall of chimney section and combustibles. Minimum length of chimney section shall be 12-in. chimney section spaced 1-in. away from connector using sheet steel support plates on both ends of chimney section. Opening shall be covered, and chimney section supported on both sides with sheet steel supports securely fastened to wall surfaces of minimum 24 gauge thickness. Fasteners used to secure chimney section shall not penetrate chimney flue liner.

SAVE THESE INSTRUCTIONS

OPERATING YOUR STOVE

- 1) Keep the auxillary (accessory) draft closed, located in the ash drawer, for normal operation. Use it only for starting fire, or if you have trouble with a sluggish fire. The automatic thermostat will not shut down the fire if the auxillary draft is open. Under normal operating conditions you should not need to have it open. Do not at any time operate your stove with the ash door or firebox door open. Build the fire directly on the grate supplied. Do not install extra grates to raise the fire or change the grate supplied.
- 2) The air from the auxillary draft pulls up through the grate in the bottom of the firebox. Excessive ash buildup will plug the grate and make it harder to start the fire. Shake the grate by moving the handle back and forth. This will cause the ashes to fall through the cracks into the ashpan below. Empty the contents of the ashpan whenever necessary.

DISPOSAL OF ASHES

- 3) Be careful to empty the ashes only where they cannot ignite a building or anything combustible. Even ashes that appear to be dead can become alive when exposed to air. Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a noncombustible 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.
- 4) When you want to use your oven, be sure the flue damper slide is closed (when the handle is pushed in) forcing the gases around the oven. If your stove is hot but the oven is slow to heat, you probably have a poor chimney draft. Check for obstructions that may be reducing your draft.

CREOSOTE-FORMATION AND NEED FOR REMOVAL

- 5) About every two (2) months you should check the build-up of soot and creosote around and beneath the oven. Open the small plate immediately below the oven door. Use the scraper provided to clean out this area, being sure to clean out on both sides of the baffle that intersects the clean-out opening. When cleaning beneath the oven, be sure to clean the deposits in the flue itself that projects to the rear of the stove. When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire. The chimney connector and chimney should be inspected at least once every two (2) months during the heating

season to determine if a creosote build-up has occurred. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

- 6) To clean the cooking surface, use fine (000) steel wool, soap and warm water. Dry with a clean damp towel. Rub cooking surface with paraffin wax or light cooking oil, and polish with a soft cloth. When stove is not in use for longer than one week coat surface with light oil.
- 7) Heat will darken the cooking surface; the hottest sections turning dark first. This is normal on any new stove and nothing to worry about.
- 8) If you have a reservoir model, be sure there is water in the reservoir at all times, **a minimum of at least three inches**. Never put anything except water into the reservoir.
- 9) Do not sit or stand on the open oven door, or in other ways subject it to excessive weight. To do so may cause enamel to chip, or the door to bend out of shape.
- 10) Never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, or similar liquids to start or "freshen-up" a fire in this stove. Keep all such liquids well away from the heater while it is in use.
- 11) You will notice that the oven bottom of your stove is not stainless steel. This is enameled steel for easier cleaning and better, more even baking. It is possible, that with time, your oven bottom may show signs of corrosion, depending on how much creosote your chimney is producing. When this happens, contact us or the dealer that you purchased the stove from. Replacement oven bottoms are available and installation is not difficult.

NOTE: The **Pioneer Duchess** has been thoroughly tested for safety; but remember that the main responsibility for safety rests with the user. Become familiar with your stove and the operating instructions before starting a fire. Common sense is the key to safe and trouble-free long-term performance.

Manufactured in USA by:
Pioneer Stoves
9269 Antrim Church Road
Greencastle, Pennsylvania 17225