



# KING WOOD CIRCULATOR MODEL 8802-B

## INSTALLATION AND OPERATION INSTRUCTIONS

Look for the Underwriter's Laboratories, Inc. Listing Mark on Your Heater.

### GENERAL

The desired functions of any solid fuel heater are (1) to enclose the fuel, (2) to direct and control air flow to the fire for maximum efficiency, and (3) to transfer most of the fire's heat to the surrounding room.

Your King Circulator has been designed to give long and efficient performance of all these functions. Install and operate your circulator as detailed in these instructions.

An optional U.L. listed blower kit Model KB-902 is available at your dealer. If the blower is to be used, follow installation instructions provided with the blower.

Ensure that your heater installation and venting system conform to all applicable local and national building codes.

### VENTING

One thing a solid fuel heater **cannot** do is provide draft. Draft is caused by hot air rising in an airtight and properly sized system. **FOR YOUR SAFETY AND COMFORT, BE SURE THAT YOUR CHIMNEY IS SAFELY CONSTRUCTED AND IN GOOD REPAIR. IF THERE IS ANY DOUBT HAVE THE CHIMNEY INSPECTED BY THE FIRE DEPARTMENT OR A QUALIFIED INSPECTOR.** Your insurance company may be able to recommend a qualified inspector.

**DO NOT USE** single wall metal chimney or "Type B" gas appliance vent for venting.

For best results, a factory-built listed residential type building heating appliance chimney should be used. The flue size should be 6" in diameter or as noted below.

A masonry chimney may be used if it and the connecting thimble conform to building requirements for a residential type heating appliance chimney. If you have no state or local building requirements regarding chimney and thimble construction and you are not familiar with the details of how a safe masonry chimney is constructed, order Publication NFPA 211 from the National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210. **ENSURE THAT YOUR CHIMNEY AND THIMBLE CONSTRUCTION IS SAFE.** For best results, a masonry chimney should have minimum inside flue dimensions of 6" square, 7" in diameter or as noted below and must be in good repair (airtight and free of obstructions between the inlet and outlet openings). A chimney top cover similar to the one shown in Illustration 10 opened on four sides is advisable for most installations.

ILLUSTRATION 2

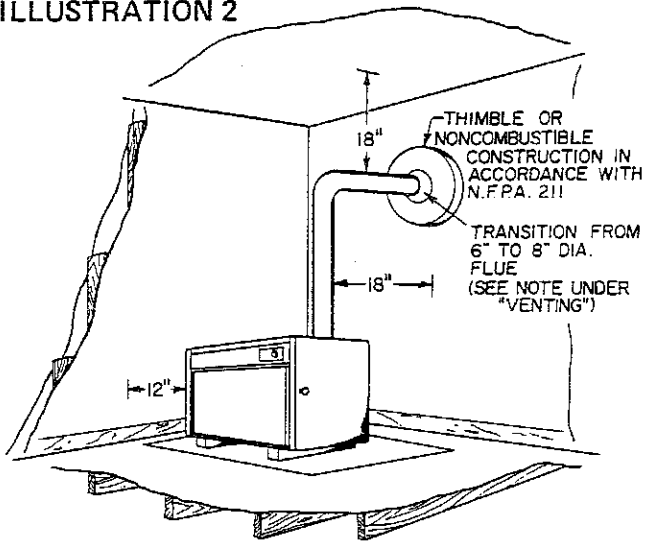


ILLUSTRATION 3

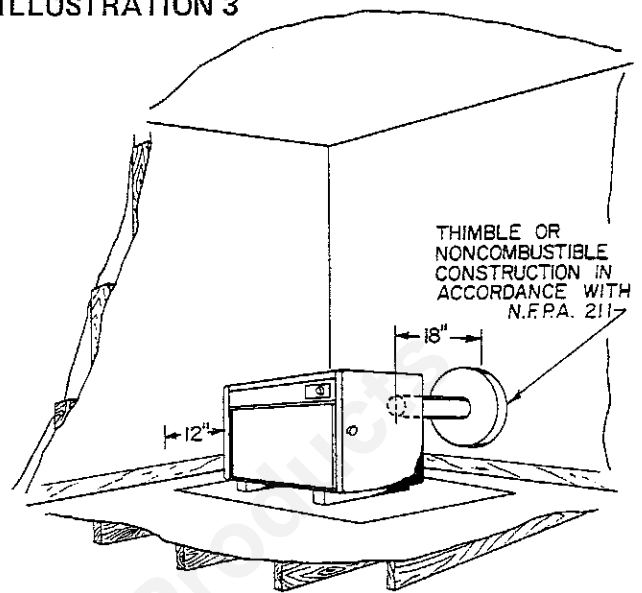


ILLUSTRATION 4

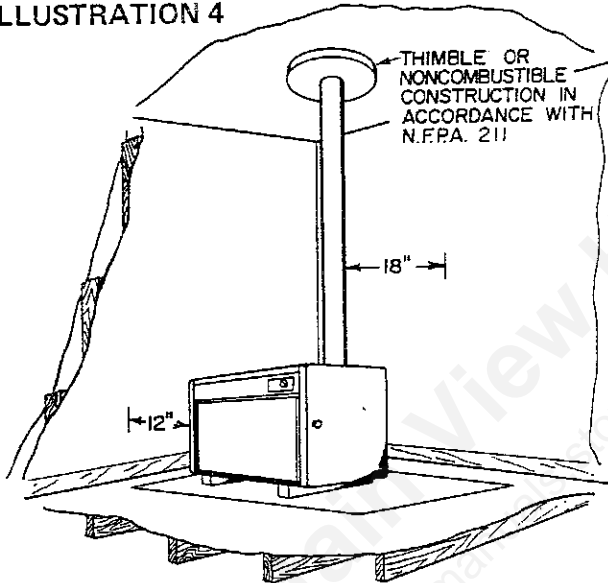
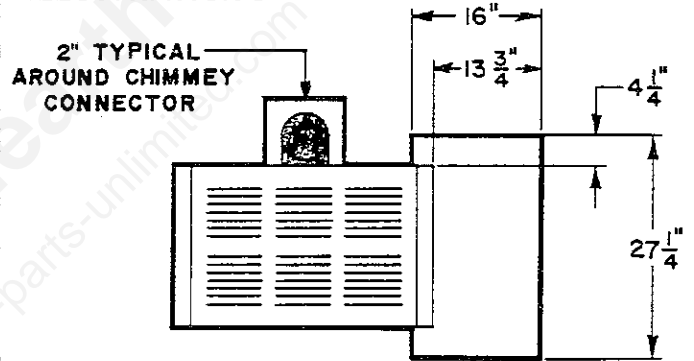
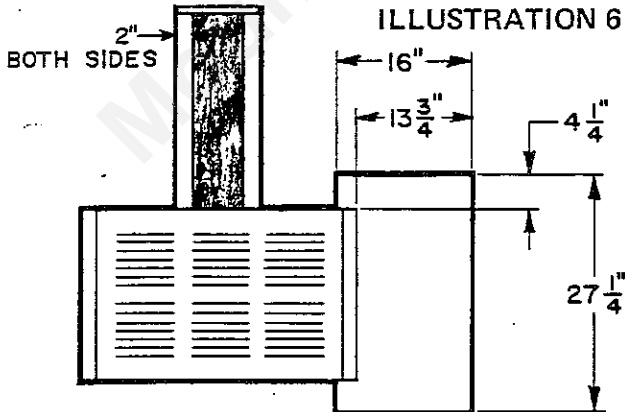


ILLUSTRATION 5



PLAN VIEW OF INSTALLATION WITH VERTICAL FLUE PIPE TO SHOW OUTLINE OF MINIMUM SIZE FOR NON-COMBUSTIBLE FLOOR PROTECTOR OR STOVE BOARD.



PLAN VIEW OF INSTALLATION WITH HORIZONTAL FLUE PIPE TO SHOW OUTLINE OF MINIMUM SIZE FOR NON-COMBUSTIBLE FLOOR PROTECTOR OR STOVE BOARD.

ILLUSTRATION 7

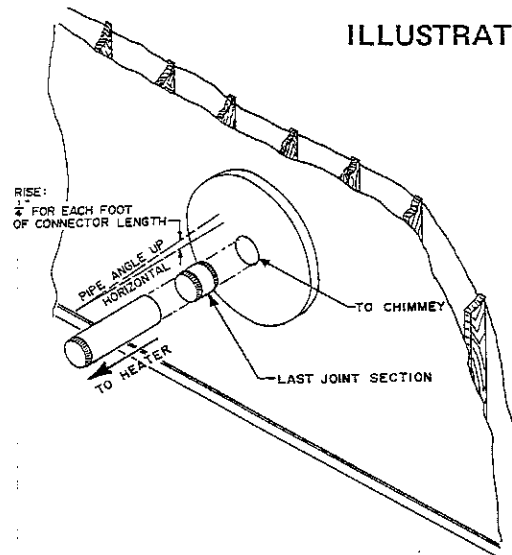
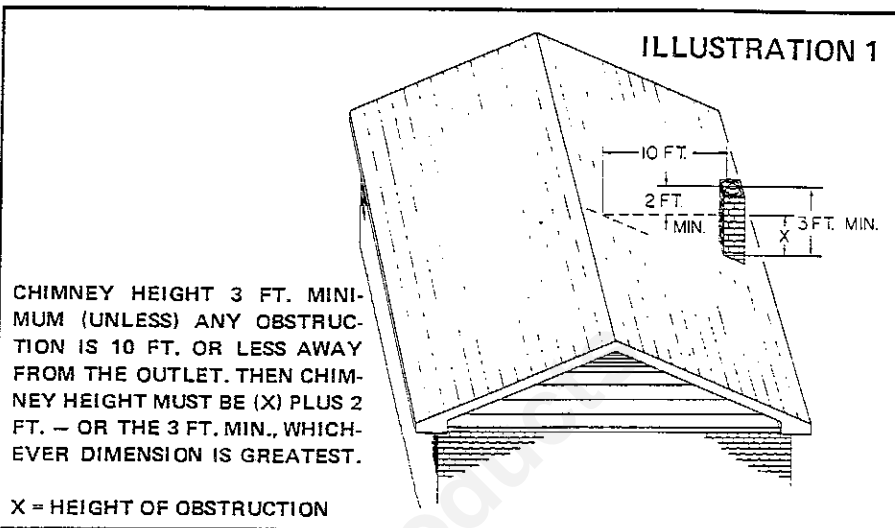


Illustration 1 shows the minimum height for a masonry chimney installation. For factory-built listed chimneys refer to the chimney manufacturer's instructions for minimum and maximum height requirements and minimum clearance to combustible construction. For either type of chimney installation the top of the chimney outlet must be at least 15 feet above the floor on which the heater is installed.

This heater should be the only appliance vented through the chimney to which it is connected.



**NOTE:** Installations which require the use of more than one 90 degree elbow in the chimney connector must be vented into a flue at least 8" in diameter or 8" square. See Illustration 2.

## LOCATION

The heater should be located as close to the chimney as minimum clearances to combustibles will permit (See Illustrations 2, 3, or 4).

The heater should be installed on a **noncombustible** floor protector or stoveboard as shown in Illustrations 5 or 6 as applicable. According to the National Fire Protection Association, noncombustible materials are defined as, "materials which will not ignite and burn, such materials consisting entirely of steel, iron, brick, tile, concrete, slate, asbestos, glass or plasters, or combinations thereof."

Another consideration in choice of location is the use of elbows in the chimney connector. Use as few elbows as possible. See NOTE under VENTING.

## INSTALLATION

1. Determine the most appropriate location and position the heater on the floor protector. (See Illustrations 2, 3, and 4 for minimum clearances to combustibles.
2. Adjust the leveling screws on the base legs as required to ensure a level, no-rock installation.
3. Select 6" diameter chimney connector pipe and elbow sections as required to reach the chimney and assemble to check the fit. All chimney connector parts must be of 24 gage or heavier steel construction.

**NOTE:** The crimped ends of all sections should be toward the heater. A 6" long last joint section has been provided to mate with the thimble or ceiling collar. See Illustration 7.

4. Provide 1/4" per foot rise for horizontal chimney connector pipe as shown in Illustration 7.
5. After all necessary chimney connector sections have been selected and assembled to check the fit, disassemble them.
6. Secure the first section to the flue collar. This is best accomplished by first drilling two holes (1/4" diameter) in the pipe section to match the holes in the flue collar. Then apply furnace cement to form a seal and secure the joint with two each 10-24 x 1/2" screws, 3/16" lock washers, and 10-24 hex or square nuts.
7. Assemble the remaining sections applying furnace cement to the joints and securing each joint with at least three (3) sheet metal screws.
8. Wipe off any excess furnace cement and fingerprints prior to firing the heater.

## FUEL

THIS APPLIANCE IS DESIGNED TO BURN WOOD ONLY. It must not be used to burn garbage or any type of volatile liquid. Also, it must not be used with any automatic stoking device.

## WOOD

Two wood characteristics largely determine the amount of heat energy per cord. The first is moisture content. When wood is first cut, its moisture content is high so wood burns poorly and encourages the formation of creosote. Wood stored for drying from six months to two years is considered to be seasoned wood and is, by far, preferred for fuel.

The second factor determining heat output of wood is its density or weight per cord. In general, assuming equal seasoning or dryness, heavier, denser woods have more heating value per cord. For example, Hickory is denser wood than Pine, so a cord of Hickory will give more heat than a cord of Pine.

For longer and safer heater life, never use manufactured composition logs or salt water soaked wood (driftwood).

For more specific information on how to select and obtain good firewood, see U.S. Department of Agriculture — Forest Service Leaflet No. 559. The leaflet is available by writing to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

## FIRE BUILDING

**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 it is in use. Failure to comply with this warning could cause an explosion.

1. Set the thermostat to the "HI" position.
2. Open the feed door and ash door and lay paper and/or kindling on the grate in sufficient quantities to ensure continued ignition.
3. Light the fire.
4. Close the feed door and ash door.
5. Add larger pieces of wood as the fire gains in intensity. As soon as the fire is established, logs may be added as desired.

**CAUTION:** Firing with the ash door or cabinet door opened creates an abnormal firing condition which will drastically shorten the heater life and WILL VOID THE FACTORY WARRANTY.

6. MAKE SURE THAT THE FEED DOOR, ASH DOOR AND CABINET DOOR ARE SECURELY CLOSED.
7. Set the thermostat to a point midway between HI and LO. This setting is only a starting point. A particular house or heating situation may require a higher or lower setting to obtain the desired amount of heat.

## NORMAL OPERATION

Keep the feed door, ash door and cabinet door closed at all times except for normal fire tending. See Illustration 8 for proper handle operation. See also CAUTION under FIREBUILDING.

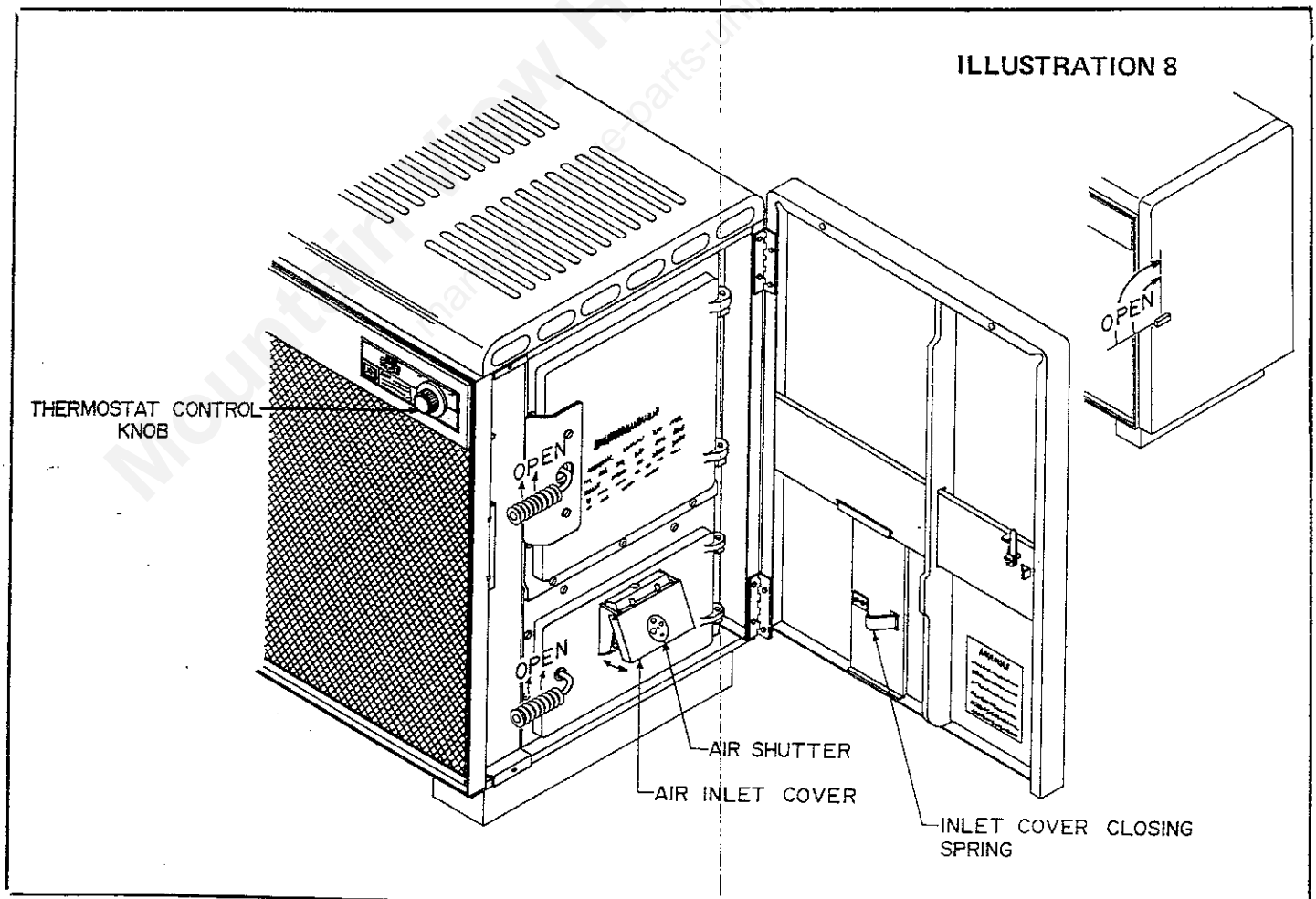
Normal fire tending includes adding wood and occasional poking or stirring of the fire to ensure adequate air movement through the grates and fire bed. Do not poke too often. As experience in fire tending is gained, a routine of adding wood and poking can be established to meet the needs of a particular heating situation.

The thermostat has been designed and calibrated to provide continuous control of the fire for safety and efficiency. Thermostat adjustments are made with the thermostat control knob only. See Illustration 8.

**CAUTION:** Do not tamper with the internal thermostat mechanism.

Prepare the heater to hold fire all night by loading it with well dried wood at least an hour before bedtime. Burn the heater at the normal rate for this hour, then turn it back to a slower burn just before going to bed. This procedure will help to drive out excess moisture and minimize creosote buildup during the night.

For further information on using your heater safely, obtain a copy of the National Fire Protection Association publication "Using Coal and Wood Stoves Safely," NFPA No. HS-10-1978. The address of the NFPA is 470 Atlantic Avenue, Boston, MA 02210.



## MINIMUM FIRE ADJUSTMENT

Wood distillates which are burned under normal firing, can accumulate in the chimney connector and chimney liner during extended periods of low firing. This accumulation can be reduced by proper setting of the air shutter on the smoke clearing air inlet cover. See "TERMS TO KNOW FOR SAFETY." See also Illustration 8 for air shutter location.

Rotating the shutter to allow more air into the fire chamber will increase the rate of the minimum fire and reduce the accumulation. Experience in a particular heating situation will give guidance in choosing the "best" setting. Setting changes are made with common pliers.

## HEATER MAINTENANCE

### General

Check the following items regularly during the heating season to ensure proper heater operation:

1. Condition of feed door and ash door gaskets — replace if excessive wear is observed.
2. Operation of the smoke clearing air inlet cover — the cover should open and close freely. See Illustration 8.
3. Condition of the inlet cover closing spring — ensure that it is not bent or broken. Replace if necessary. See Illustration 8.
4. Condition of feed door, ash door and cabinet latching pawls and handles — ensure that operation will securely close the door. Adjust as necessary.

### Ash Pit

Ashes must be removed from the heater at least daily or more often if ashes accumulate to within 2" of the bottom of the fire bed. Ash build-up too close to the fire bed during heater operation can shorten grate life.

### Thermostat

There is no user maintenance required for the thermostat mechanism. See CAUTION under NORMAL OPERATION.

### Cabinet.

The cabinet may be wiped clean with damp cloth when the unit is cool.

## DISPOSAL OF ASHES

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 in 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.

## CHIMNEY MAINTENANCE

As with any solid-fueled appliance, regular chimney maintenance is necessary. The National Fire Protection Association recommends chimney maintenance at least once each year before the heater is put into service. Each yearly check should include a thorough cleaning of the entire flue system and complete inspection to determine any need for repairs.

Cleaning the chimney involves the scraping, chipping or brushing away of creosote residues from the chimney liner. A common method of cleaning involves an up and down motion with a special weighted chimney brush suspended with a length of rope. In certain areas, professional chimney cleaning and inspection services are available.

If excessive creosote build-up in the flue is a problem in your installation, reduce the size of the fuel load. A smaller load burning quickly is far better than a large load smoldering. Less fuel and less chimney cleaning will be required if smaller loads are burned.

"For further information on using your heater safely, obtain a copy of the National Fire Protection Association publication "Using Coal and Wood Stoves Safely," NFPA No. HS-10-1978. The address of the NFPA is 470 Atlantic Ave., Boston, MA 02210."

## CORRECTION OF HEATER COMPLAINTS

1. Symptom: Fire rate does not increase with thermostat open:

Check for:

- a. Chimney connector pushed too far into a masonry chimney thimble restricting draft.
- b. Chimney or chimney connector restricted with creosote.
- c. Chimney draft reduced by air entering through:
  - Unsealed chimney clean-out access.
  - Loose mortar or cracked chimney wall.
  - Holes in rusted chimney connector.
  - Incompletely sealed chimney connector joint or thimble.
- d. Downdraft in too large chimney or chimney with no top cover.

2. Symptom: Back puffing during firetending:

See a, b, c, and d under No. 1.

3. Symptom: Fire rate too high when thermostat closed:

Check for:

- a. Feed door or ash door not securely closed.
- b. Feed door or ash door gasket worn excessively.
- c. Minimum fire shutter setting too large. (See Minimum Fire Adjustment.)

4. Symptom: Smoke smell in living space:

Check for:

- a. Items a, b, c, and d in No. 1 above.
- b. Leaking creosote at pipe joints or flue collar.

## TERMS TO KNOW FOR SAFETY

**BACK PUFFING** — is a minor explosion inside the heater which can occur whenever concentrated wood gases accumulate over the fire bed and then catch fire quickly. Smoke and flame may be expelled from the heater during firetending. If back puffing is expelled from the heater during firetending. If back puffing is experienced see **CORRECTION OF HEATER COMPLAINTS** section above. This is an abnormal condition and a potential hazard. Determine and correct the cause.

### **CREOSOTE — Formation and Need for Removal**

When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire.

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

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

See **MINIMUM FIRE ADJUSTMENT** and **CHIMNEY MAINTENANCE** sections of these instructions for ways to minimize creosote formation.

**CHIMNEY FIRE** (Also called soot burnout) — is an intense fire inside the chimney caused by the rapid burning away of deposits in the chimney. A chimney fire can occur whenever a build-up of chimney deposits is heated to ignition by a very hot fire in the heater. A chimney fire may be identified by a rushing crackling noise inside the chimney connector accompanied by excessive emission of sparks and/or flames from the chimney top. If you suspect a chimney fire is in your flue,

1. Turn the thermostat down to low.
2. Keep the heater feed, ash and cabinet doors closed!
3. Ensure that sparks do not ignite roofing.

As soon as the fire has subsided, inspect the roof and combustible materials adjacent to the chimney for possible damage. Then clean and inspect the chimney connector pipe and chimney to ensure that no damage has occurred.

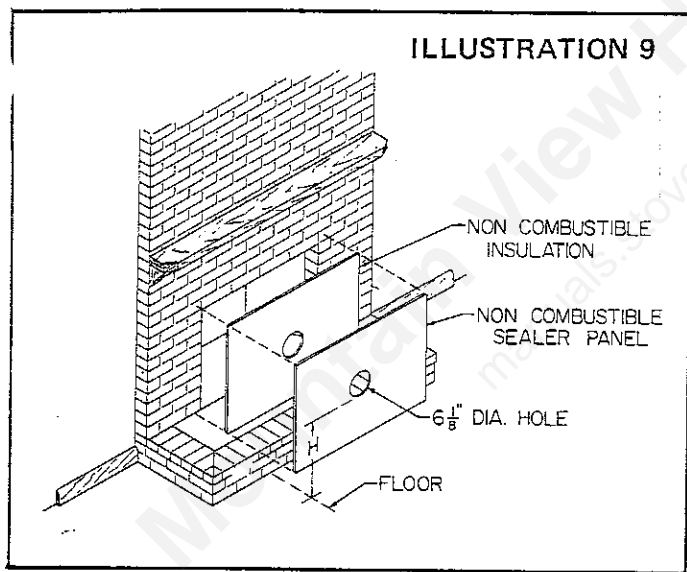
A properly constructed and installed chimney may be expected to withstand an occasional chimney fire without damage. However, **DO NOT NEGLECT** proper heater operation as outlined in these instructions and regular chimney inspection and cleaning which minimizes the potential for this hazard.

## SPECIAL SUGGESTIONS FOR FIREPLACE INSTALLATION

A masonry fireplace flue can sometimes be adapted to heater venting if the flue construction conforms to building requirements for a residential type appliance chimney. However, installations of this type require special planning and often some experimentation. Since fireplace flues are usually much larger than necessary for a solid fuel heater, the following suggestions are made for attempting this type of installation.

STEP 1: See Illustration 9

- a. Seal airtight any ash pit opening in the fireplace.
- b. Fasten the fireplace damper in the fully opened position or remove the damper.
- c. Install a noncombustible panel to completely cover the fireplace opening and seal it airtight with noncombustible insulation or furnace cement. Locate and cut a 6-1/8" diameter hole for the chimney connector. The hole should be located to allow 1/4" rise per foot of chimney connector behind the heater.
- d. Install the heater as described in the installation section above maintaining minimum clearances to combustibles. Allow the chimney connector to extend 4" to 6" inside the panel.
- e. Seal airtight around the chimney connector at the panel hole with noncombustible insulation or furnace cement.



### NOTES for Illustration No. 9

1. Fireplace damper must be fastened fully open or removed.
2. Close ash pit access airtight.
3. Insulation will assure airtight seal and prevent heat loss when heater is not in use.
4. Locate hole to give 1/4" per foot rise. Dimension "Hole" must equal the height of the heater flue collar plus 1/4" for each foot of distance between the flue collar and the hole.

**CAUTION:** Never slope pipe downward.

In many cases, no further installation steps will be necessary. However, in large chimneys sufficient draft may not be generated. The lack of draft can cause:

- Back puffing of smoke in the living space.
- Too little air flow to maintain fire in the fire chamber.
- Excessive creosote formation in the flue.

If any of the above conditions are experienced, try STEP 2.

**STEP 2:** See Illustration 10

Install a cone shaped outlet restrictor and top cover as shown in Illustration 10. This will minimize downdraft currents which tend to cool the flue products and resist the rising flow. Many installations will require no more steps.

However, if satisfactory results are not obtained even after completion of STEP 2, go to STEP 3.

**STEP 3 MAY NOT BE PRACTICAL OR EVEN POSSIBLE IN SOME MASONRY FIREPLACES.** Read through the step and inspect your fireplace carefully to determine if the added effort and expense is practical in your situation. Sometimes installation of a separate heater chimney is a better choice.

**STEP 3:**

- a. Install 6" diameter chimney connector pipe from the flue collar in the heater up through the cone on top of the chimney. Seal each joint with furnace cement and secure with screws.

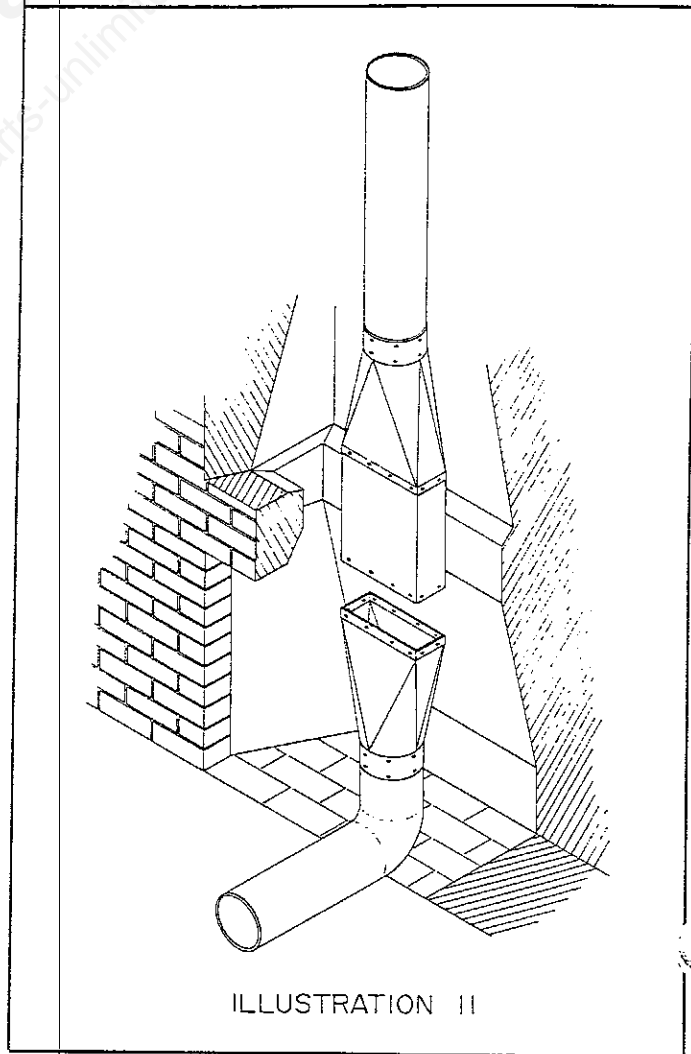
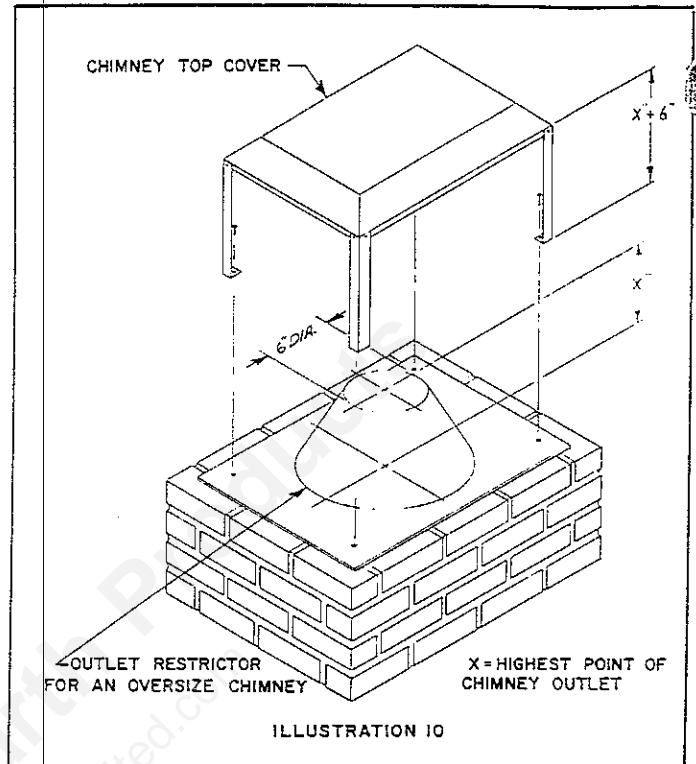
**NOTE:** If fireplace damper is constructed in an offset in the chimney, this installation is not possible. If fireplace damper opening is less than 6" in either length or width, a transition section will be required as shown in Illustration 11. Cross section area of transition must not be less than 28 square inches. Also, in many cases of this type, the fireplace damper must be removed.

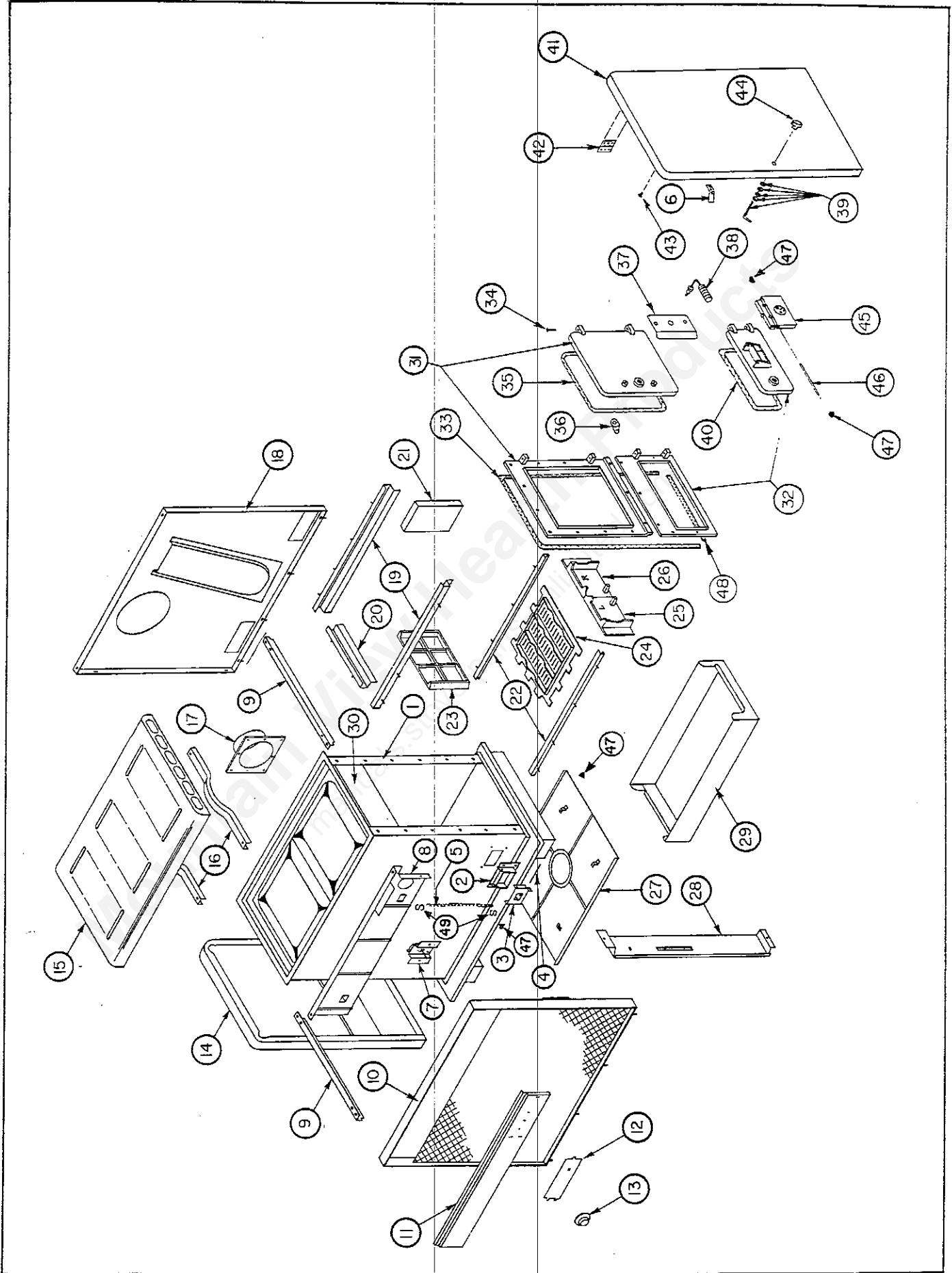
- b. At the top of the chimney, seal the space between the cone and the chimney connector pipe with noncombustible insulation or furnace cement.

**NOTE:** With chimney connector and transition section enclosed in the existing fireplace chimney, added difficulty in chimney cleaning and inspection must be expected.

**FIREPLACE CHIMNEY MAINTENANCE**

As with any chimney, periodic cleaning and inspection is necessary. Since larger chimneys tend to stay cooler allowing more condensation flue gases on chimney walls, cleaning may be required more often to minimize the potential for chimney fire from excess creosote and soot. See **CHIMNEY MAINTENANCE** for suggested maintenance intervals and suggested procedures for cleaning and inspection.





KEY NO.	PART NAME	PART NO.
1	Chamber painted assy. (includes base and chamber shell only)	009059H
2	Manifold painted assy.	004083H
3	Draft plate painted assy.	009050H
4	Pin, draft control	009027H
5	Chain	013911H
6	Spring	007944H
7	Thermostat assy.	009006H
8	Shield, radiation painted assy.	008236H
9	Bar, right casing tie painted	004090H
10	Frame, screen assy.	009011H
11	Panel, trim	008338H
12	Plate, logo	006474H
13	Knob	004798H
14	End, cabinet enameled assy.	009047H
15	Top, cabinet assy.	004093H
16	Brace, top	C15301H
17	Collar, flue	005204H
18	Back, casing painted assy.	009051H
19	Retainer, brick assy.	006114H
20	Rear retainer assy.	009099H
21	Brick	004911H
22	Angle, grate support assy.	000851H
23	Liner, back	009669H
24	Grate	006054H
25	Liner, left front	006190H
26	Right front liner	006056H
27	Shield, base assy.	009005H
28	Panel, thermostat cover painted	009686H
29	Pan, ash welded	006237H
30	Curtain, smoke painted assy.	009102H
31	Frame and feed door assy.	009913H
32	Frame and ash door assy.	009914H
33	Rope	009448-01H
34	Rivet	P626H
35	Rope	009535-01H
36	Latch, cast K-39	P5236H
37	Shield, handle radiation	008264H
38	Handle	006088H
39	Catch, door	009917H
40	Rope	009535-02H
41	Door casing enameled assy.	009053H
42	Hinge painted assy.	009054H
43	Bumper, rubber	P6108H
44	Handle	009513H
45	Inlet painted assy.	007943H
46	Pin, draft control	009027H
47	Nut, acorn	009028H
48	Rope	009448H
49	"S" Hook	011641H