

The Black Bart Heating System Owner's Manual

Model 3200
**Freestanding
and Insert**

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Combustion Features

The Black Bart has near total combustion through regulation of air to the fire. This process is somewhat difficult, as wood combustion is extremely irregular, with 50% of its heat value represented by combustible gases.

The Black Bart allows air to reach the heart of the fire. The rate of air entry determines the rate of burning. As air passes through the coals, most of the oxygen is consumed. Additional oxygen must be supplied to the combustion chamber. It is admitted by adjusting the draft control plates located at the bottom of each door. It combines with the volatile gases as they are leaving the coal bed, allowing these gases to be burned.

The specially designed wood grate enhances burning efficiency. It slopes to the rear allowing wood to roll to the back of the stove. This design helps to prevent ashes and partially burned wood from interfering with draft control openings.

Important Tips

Artificial logs may be hazardous and are not recommended.

Do not overheat the stove; that is, no part of the stove should be allowed to become "red hot."

Do not hit the draft controls to increase or decrease the amount of combustion air.

A spark screen, used when viewing the fire, is not designed to prevent logs from rolling out of the stove, but to prevent sparks from entering the room.

Burn a fire in the stove with the doors open for 35 to 45 minutes once a day. This helps prevent the accumulation of creosote.

Installation of a smoke detector is recommended. Never use a flammable liquid to start the fire. It is suggested a fire extinguisher be within close reach.

Warning: As a fireplace insert, only one draft control slot should be opened at a time.

Warning: This stove is intended for burning wood or coal only.

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 non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

Liquid Inflammables

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 stove while it is in use.

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 build-up has occurred.

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

For further information on using your stove safely, obtain a copy of the National Fire Protection Association publication "Using Coal and Wood Stoves Safely," NFPA No. HS-10. The address of the NFPA is Batterymarch Park, Quincy, MA 02269.

Firing Coal

Caution: Use grate or elevate fire—Do not build coal fire directly on hearth (firebox floor).

Use crumbled paper as a base, add kindling, with coal on top, and light.

After a coal fire is established, the dampers may need slight adjustment for proper burning. But the dampers must never be entirely closed as long as there is any fire in the stove. This is to prevent smoke and gases from

entering the dwelling, and is particularly important when coal is burned. Under closed damper conditions, coal gases are likely to contain a large amount of carbon monoxide. As the burning progresses, a suitable bed of glowing coal is produced. The coals are overlaid with fresh coal at intervals as needed.

Firing Wood

Important Note: A wood grate is necessary and required.

Use crumbled paper as a base, add kindling, and light.

To prevent smoke from entering the room, swing the doors almost closed. Smoking should stop after the flue is warm. If smoking persists, check the flue for blockage, or negative pressure may exist. In most cases negative pressure can be reduced or eliminated by opening a window.

When the kindling is burning steadily, add one or two small logs, close the doors, and open the draft control fully.

When the fire is burning steadily, adjust the draft control on the doors. The size of the opening will determine the amount of heat output and burn-time.

When reloading is needed, open the doors slowly to avoid drawing smoke into the room, then reload the stove.

Storage of Coal

There are many types of coal; most are highly volatile. Some types are subject to spontaneous ignition. To avoid this, as much as possible heat should be dissipated and oxidation minimal. The following precautions should be taken:

The storage area should be free of all foreign materials, such as leaves, hay, wood, rags, etc.; and apart from external sources of heat, such as piping carrying heated liquids of gases.

The storage area should be kept cool, i.e., 75°F or lower. This includes wall and floor surfaces as well as the surrounding air. Try to avoid any draft or excessive air through the coal.

It is desirable to watch the temperature of the pile. An iron rod driven into the coal will reveal temperatures. Or a pipe may be used with a thermometer inserted in it. If a temperature of 120°F is reached, the coal should be moved.

Alternate wetting and drying should be avoided. It is dangerous to have part of the stored coal wet and another part dry. Coal may be stored indoors or outdoors in moderate amounts, but wet coal should never be piled on top of or adjacent to dry coal unless the amount so mixed together is to be entirely used up within a few days.

National Fire Protection Association extraction.

Selecting Wood

There are a few things to consider when purchasing wood. All types of wood can be used for fuel. Generally hardwoods are superior to softwoods. The amount of wood required will depend on how well your home is insulated.

Wood is sold in various lengths: "Stove Wood" or "Block Wood" is 16" long; "Cord Wood" is 4' long. A "Cord Run," sometimes called a "Cord," is a stack of wood 8' long and 4' high, with a width equal to the length to which the pieces of wood are cut.

A "Standard Cord" is 8' long, 4' high, and 4' wide, or 128 cubic feet. A "Face Cord" is 4' long, 4' high, with a width equal to the length to which the pieces of wood are cut.

For wood of average size, actual solid contents of any volume is only about 70%.

The potential heat in a cord of wood depends on the weight of the wood itself.

Approximate moisture content of:
 "Green" wood is 50%.
 "Seasoned," or air-dried, wood is 15 to 25%, and
 "Kiln-dried" wood is 8%.

Mechanical Engineers Handbook by Lionel S. Marks—"Peat, Wood, and Misc. Solid Fuels"

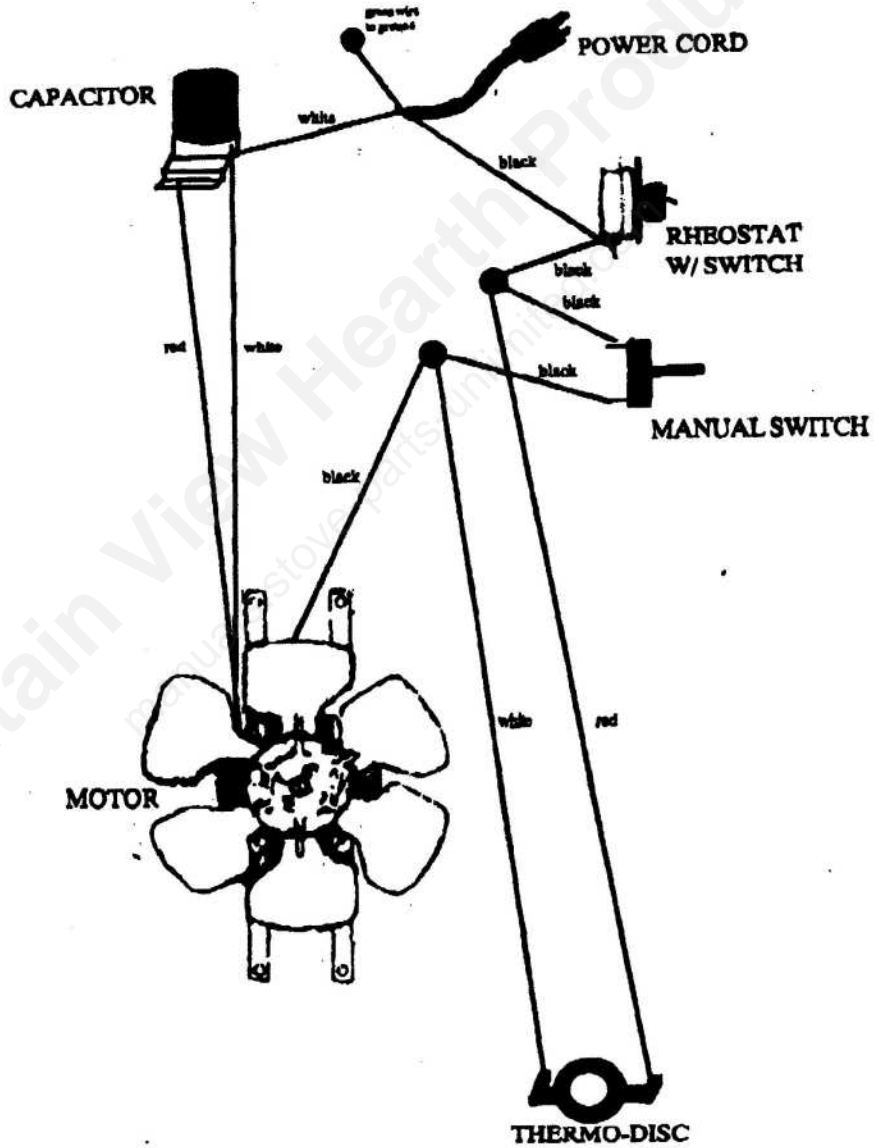
In the table below, some common woods are arranged according to weight per cord. The heat values of each type of wood are given in BTU's, A heat measurement unit. It can be seen that a cord of hickory will provide more heat than a cord of pine.

Care And Cleaning

When the Black Bart is not in use, the blower's power cord should be unplugged. The firebox floor should always be lined with at least a 2" layer of ashes; for extended periods of disuse, clean out all ashes and residue. By doing this, many years of "trouble free" operation will be given.

VARIETY OF WOOD	AVERAGE WEIGHT (LB) PER CORD	AVERAGE HEAT VALUE (MILLION BTU's) PER CORD
Shagbark Hickory	4400	30.7
Sugar Maple	4100	29.6
Red Oak	3900	27.1
American Elm	3400	23.6
Douglas Fir	2900	21.3
Eastern White Pine	2200	15.7

Black Bart I WIRING DIAGRAM



Introduction

The procedures in this manual cover all the steps necessary for complete installation of a Black Bart Stove. Steps should be completed in sequence. It is important that the entire manual be read before installation is attempted, this insuring both proper installation and the gathering of necessary installation tools. This is your stove, you want it right.

The Black Bart model #3200 has been tested and found to meet the requirements of UL Standard #1482.

This stove should not be used in a mobile home.

Any modification of the unit will void any and all warranties.

Guidance For Safe Installation

1. Do not use more than one elbow in the stovepipe.
2. Any horizontal stovepipe should be pitched upward toward the chimney at least $\frac{1}{4}$ " for each foot of horizontal run.
3. Be sure that there is at least an 18" clearance between horizontal piping, if used and combustible ceiling.
4. Always use insulated pipe and an insulated wall thimble when penetrating a wall.
5. Heavy gauge stovepipe should be used, at least 18 gauge. Lighter gauge stovepipe is more susceptible to rusting and corrosion from smoke condensates.
6. Each stovepipe juncture should be joined and secured with sheet metal screws to avoid possible separation during use.
7. The top of the stovepipe must be at least three feet higher than the roof at the point of exit. In the case of pitched roofs, the top of the stovepipe must be at least two feet higher than the highest point of the roof and at least ten feet away from that point.
8. **Warning:** The installation of the stove must comply with state and local requirements and be inspected by the state or local building inspector if required.
9. Install smokepipe segments with the crimped end down. This permits the creosote to drip back into the stove and be burned away.

10. Ensure that the ventilating pipe does not extend so far into the chimney flue that it blocks air flow.

11. Assure that the chimney connection pipe extends at least 2" into the chimney.

NOTE: Use of aluminum Type B gas vent for solid fuels is unsafe and prohibited by the N.F.P.A. (National Fire Protection Association).

Location

In no case shall clearances be such as to interfere with combustion air and accessibility. It is imperative that the Black Bart be installed with clearances no less than specified in Tables I and II below.

Table I: Free Standing Clearances

Top of Stove	36"
From Front	16"
From Back	30"
From Sides	24"
Chimney, or Vent Connector	18"

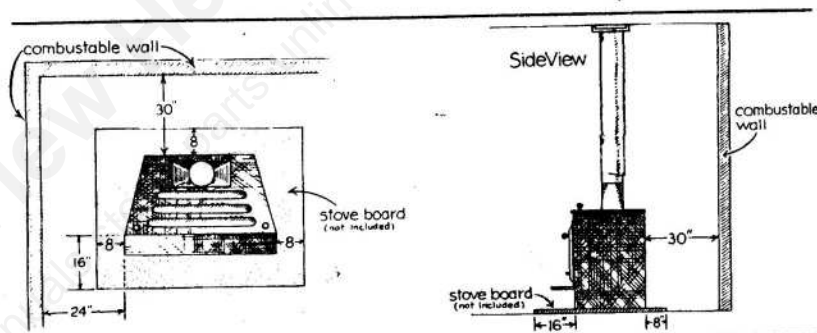


Table II: Fireplace Insert Clearances

From Front	12"*
From Back	8"
From Sides at Front	18"

*12" of non-combustible material must be directly in front of doors.

Warning: Combustible flooring below fireproof padding is unacceptable.

Stove Board must be made of non-combustible material equivalent to $\frac{3}{8}$ " asbestos millboard.

Note: A 2" side clearance to the fireplace brick is needed to provide adequate space for controls and air flow.

Consult your Black Bart Dealer and/or your local building inspector for applicable codes. Codes vary from state to state, county to county.

Chimneys

The Black Bart Stove should have a separate 8" Class A masonry chimney or Underwriters' Laboratory approved All-Fuel factory-built chimney.

Installing Blower

1. Tap the four holes located above and below cavity with a slotted screw (0707.) Insert the socket set screws (0708) until 1" is exposed.
2. Place the mounting brackets of the blower on the socket set screws. The motor wires should leave the motor casing on the floor side. It is important that there is proper clearance of the fan blades in the cavity. If this is a free-standing installation, slide the motor cover over the blower. Secure the blower with nuts (0709) and lock washers (0710.) (Figure 9) (Skip to step 6 if this is a fireplace insert installation.)

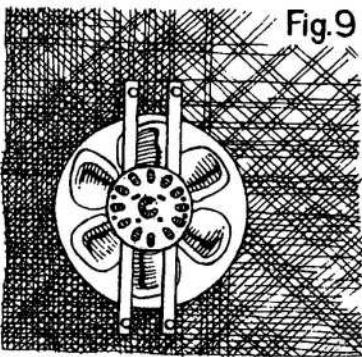


Fig. 9

3. Remove the plastic from the face of the rheostat dial. The threaded shaft of the rheostat should have a nut on it already. Remove the nut. On the same face of the rheostat is a small anti-rotational tab. This tab and the threaded shaft match holes in the motor cover and rheostat dial. Line up the rheostat with the holes in the motor cover and rheostat dial. Then hand tighten the dial onto the rheostat with the nut. Look at the back of the rheostat knob and slide it onto the shaft, according to the flat side of the shaft. (Figure 10)
4. Remove the capacitor from its bracket. Disconnect the three capacitor wires. Feed each wire through the appropriate hole in the motor cover. Reconnect the wires, and

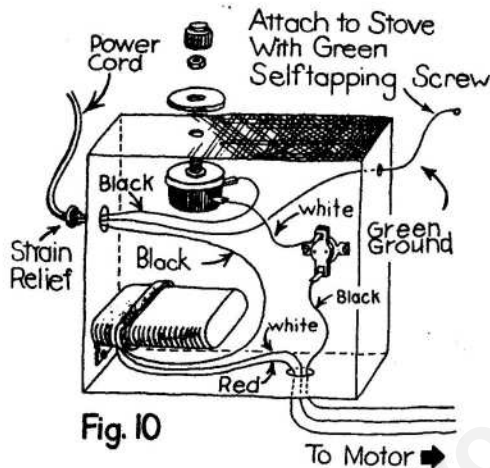


Fig. 10

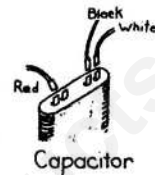


Fig. 11

replace the capacitor bracket on the the capacitor. Secure the bracket to the motor cover with the machine screws (0702) and nuts (0714.) The strain relief (0763) is installed by forcing it into the hole. (Figures 10 and 11) Use green self tapping screw to attach ground wire, pre-drill with $\frac{3}{64}$ " Drill Bit.

5. Drill two $\frac{3}{64}$ " holes. secure the thermdisc with two screws (0704.) (Figure 12) (Skip to step 7)
6. Decide on which side of the stove to place the controls. (Figure 12), is for left side mounting; for right side mounting, proceed with that in mind.) Drill two $\frac{3}{64}$ " holes. Secure the thermdisc with two screws (0704.) (Figure 13). Remove the plastic coating from the face of the rheostat dial. The threaded shaft of the rheostat should have a nut on it already. Remove the nut. On the same face of the rheostat is a small anti-rotational tab. This tab and the threaded shaft match holes in the side trim panel and rheostat dial.

Line up the rheostat with the holes in the side trim panel and rheostat dial. Then hand tighten the dial onto the rheostat with the nut. Look at the back of the rheostat knob and slide it onto the shaft. According to the flat side of the shaft. (Figure 13) The power cord should be located in the bottom of the side panel by forcing the strain relief, which you have attached to the cord, into the appropriate hole.

7. (The thermdisc is the blower's heat sensor. The blower will not operate unless the thermdisc is approximately 100°F or more.)

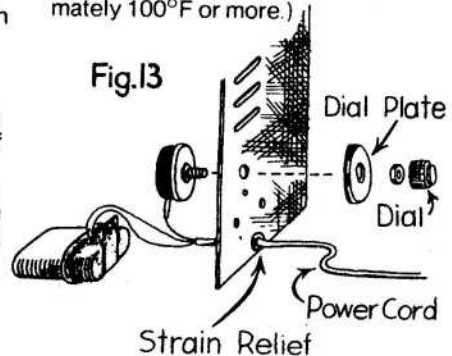


Fig. 13

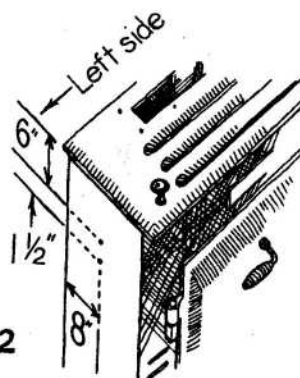


Fig. 12

The blower assembly should be installed now. Warning: No electrical connections should be touching metal or each other.

To test the blower assembly: Remove the wires from the thermdisc, and with electrician's tape, tape them together. Plug the power cord into a 115-120 V.A.C. receptacle. Rotate the rheostat knob; the blower's speed should vary.

Caution: First unplug the power cord; second reconnect thermdisc and its' wires.

Adapter Installation

It is recommended that a disposable dust mask, safety goggles, and suitable clothing be worn.

1. Check damper location within the fireplace, using a flashlight. Remove damper push rod and associated hardware with pliers. If the damper opening is vertical, skip to step 8.

2. For trial fitting of the adapter, a platform can be made from the box which the adapter comes in. Measure the height of the stove and add 1". Cut box to this height. This will aid in the installation of the adapter without the heavy lifting that goes with trial fitting the adapter on the stove. (Figure 1).

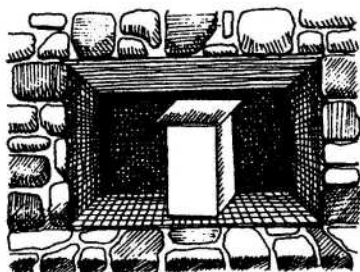


Fig. 1

3. Measure from the floor of the fireplace to the lintel and subtract: (Height of the stove + 1").

4. Measure from the flanges of the adapter's front piece up the distance determined in step 3; scribe a line on each side. (Figure 2).

5. On these lines cut the adapter to the corner with a hacksaw and fine toothed blade.

6. Insert the front piece into the damper opening. Bend the front piece until the flange is flush to the platform top and scribe your angle.

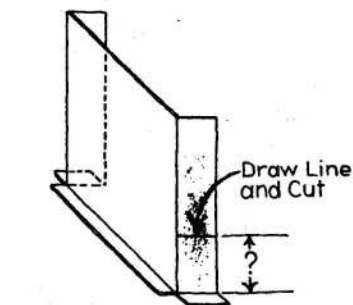
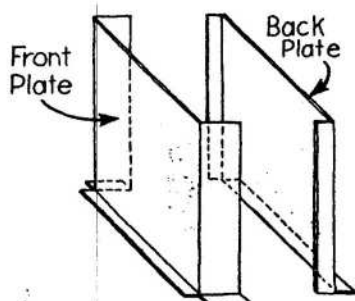


Fig. 2

7. Cut sides of back piece so that it conforms to the front piece. (The top of the stove can be used as a base for forming the bend needed on the back piece.) (Figure 3)

8. Put together front and back adapter pieces, holding them together while drilling. (Figure 4 or 5 as appropriate.)

9. Drill $\frac{3}{4}$ " holes approximately 2" apart for pan head screws (0715.) Fasten the front and back pieces with the screws. Be sure to use all screws to assure structural integrity.

10. Work generous amounts of furnace cement into all seams and joints, using a putty knife.

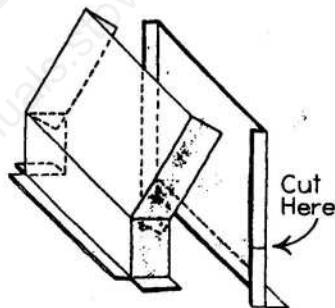


Fig. 3

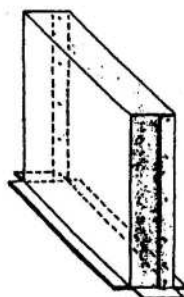


Fig. 4

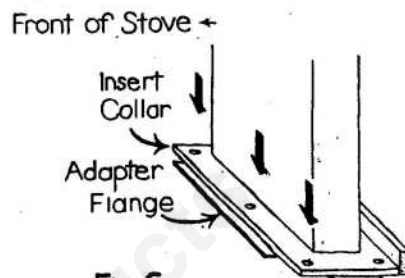


Fig. 6

11. Place insert collar over top of assembled adapter and position it on the adapter flange. Use the insert collar as a template. Drill a $\frac{1}{4}$ " hole in the adapter flange through the center front hole of the insert collar. (Figure 6)

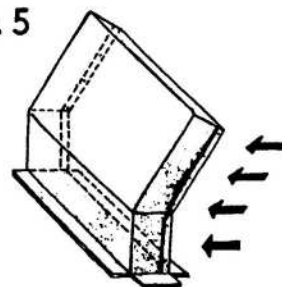
12. Push the adapter and insert collar through the damper opening inside the fireplace. Push the adapter up until its flange is approximately 27" above the floor of the fireplace.

13. Any space that the adapter does not fill must be packed tightly with fiberglass insulation. Caution: If paper backed bat insulation is used, be sure to remove all paper. The butt end of the screwdriver can be used to pack the insulation and the tip, to check for proper compaction. (If the tip penetrates easily, more insulation and/or additional compaction may be needed.)

14. Move the stove into the fireplace and align its flue opening with the adapter previously installed in the fireplace damper opening.

15. Apply a generous amount of furnace cement around the top of the flue opening on the stove, using a putty knife.

Fig. 5



16. Carefully pull the adapter and insert collar down until it seats on the furnace cement and over the flue opening of the stove. With the holes in the stove, insert the capscrews (0706) and finger start the nuts (0709.) With two wrenches, secure the adapter to the stove. (Figures 7 and 8)

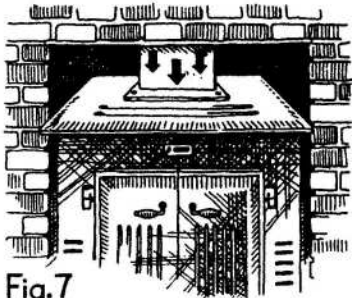
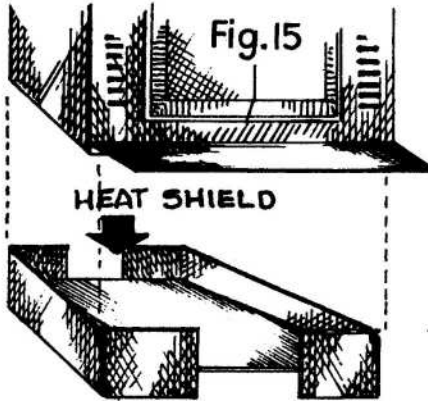


Fig. 7



Heat Shield (Only for freestanding installations)

Place the heat shield (Flat piece of light gauge steel) between legs. The shield will free stand 3" high. (Figure 15)

Heat Shield (9302)

Mounting Boot (Only for freestanding installations)

Place the boot on top of the stove. Looking inside the stove, insure that it is properly centered. While holding it in place, mark the location of the holes with a sharp instrument. Remove boot and drill five 1/4" holes in the boot.

Put a bed of furnace cement around the flue hole, aligning the boot with holes on top of stove. Sandwich cement between the boot and stove, making sure there is sufficient cement. Put the capscrews (0706) through the holes and secure with nuts (0709.) (Figure 16)

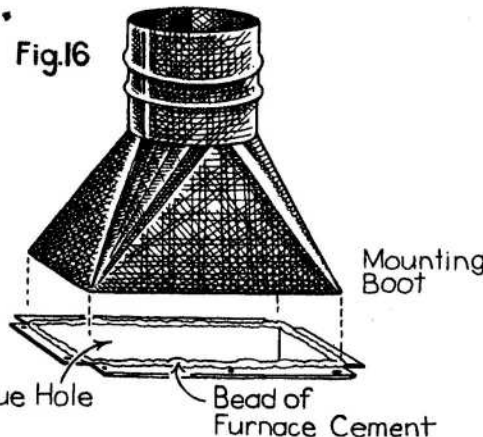


Fig. 16

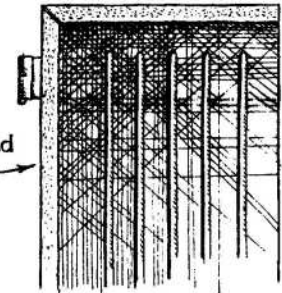
Door Gaskets

Remove doors and lay them flat with inside face up. Apply a 1/8" bead of silicon adhesive (0625) to the perimeter of the doors. Cut gasket (0624); press into place. Replace doors; trim excess gasket, if necessary. (Figure 17)

Draft Control Assembly

Locate draft control plates (0257) behind each door. Insert each draft control knob (0619) through upper draft slot and secure. Hex Key handle is to be used when adjusting the amount of combustion air when stove is hot. Caution: Do not over tighten the draft knob. Leave room for expansion.

Fig. 17



Installing Legs (Only for freestanding)

Legs for the freestanding stove have tabs on the side and rear. Latch doors; lay stove face down. Hold legs on bottom of stove. Use tab holes as a template; drill four 3/8" holes in stove bottom. Attach legs with the four slotted screws (0707.) (Figure 14)

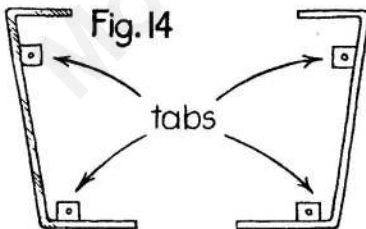


Fig. 14

Door Handle Grips

Install door handle grips (0623) by twisting them onto handles in a clockwise direction.

Ornamental Top Knobs

Mount top knobs (0622) with capscrews (0705.) Insert capscrew through hole from inside of stove and hand tighten.

Fireplace Trim Kit (Only for fireplace insert model)

Position the side panels next to the stove. Mark each panel at the top and bottom and drill $\frac{1}{8}$ " holes. Set panels in position and mark the masonry through panel holes. Drill with a $\frac{1}{4}$ " masonry bit. Install screw anchors (0701.) Secure panels with screws (0700.) Cut the gold trim strips (9370) with fine toothed hacksaw blade to fit area from the top of the stove to the end of each panel.

Attach top trim panel above stove in a similar fashion to the side panels. (Figure 18)

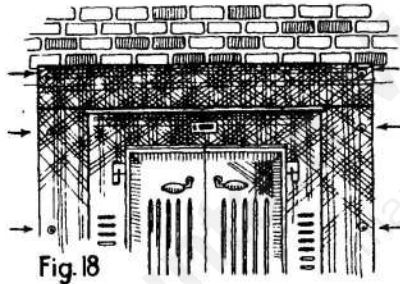


Fig. 18

Installer's Tools And Supplies

	NEEDED FOR:	
	FIREPLACE	FREESTANDING
Furnace Cement	X	X
Electric Drill	X	X
Drill Bit, Metal, $\frac{7}{64}$ "	X	X
Drill Bit, Metal, $\frac{1}{8}$ "	X	X
Drill Bit, Metal, $\frac{3}{32}$ "	X	
Drill Bit, Metal, $\frac{1}{4}$ "		X
Drill Bit, Metal, $\frac{1}{4}$ "	X	
Flashlight	X	X
Safety Goggles	X	
Hacksaw	X	X
Hammer	X	X
Fiberglass Insulation	X	
Putty Knife	X	X
Dust Mask	X	
Pliers	X	
Center Punch	X	X
Ruler	X	X
Screwdriver, $\frac{1}{4}$ "	X	X
Wrench, $\frac{1}{4}$ "	X	X
Wrench, $\frac{1}{32}$ "	X	X
Wrench, $\frac{3}{8}$ "	X	X
Wrench $\frac{7}{16}$ " (Two Required)	X	X
Wrench, $\frac{1}{2}$ "	X	X
Wrench, Hex, or Allen, $\frac{1}{8}$ "	X	X

HARDWARE DESCRIPTION

HARDWARE DESCRIPTION	QUANTITY	BARTPART NUMBER
$\frac{1}{4}$ "x $1\frac{1}{2}$ " Socket Set Screw	4	0708
$\frac{1}{4}$ "xl.D. Spring Lock Washer	4	0710
#6x1" Hex Washer Slotted Screw	8	0700
$\frac{1}{4}$ "-20 Finished Hex Nut	9	0709
$\frac{1}{4}$ "-20x1" Hex Head Cap Screw	5	0706
#8-32 Hex Machine Screw Nut	2	0714
$\frac{5}{16}$ "-18x $\frac{1}{2}$ " Hex Head Cap Screw	2	0705
$\frac{1}{4}$ "-20x $\frac{3}{4}$ " Hex Washer Slotted Screw	2	0707
#6-8x1" Lead Screw Anchor	8	0701
#8x $\frac{1}{2}$ " Hex Head Tek. Screw	5	0704
#8x $\frac{1}{2}$ " Hex Head tek. Screw (Colored Green)	1	0711
#6- $\frac{3}{8}$ " Pan Head Slotted Screw	22	0715
#8-32x $\frac{3}{16}$ " Round Head Slotted Machine Screw	2	0702