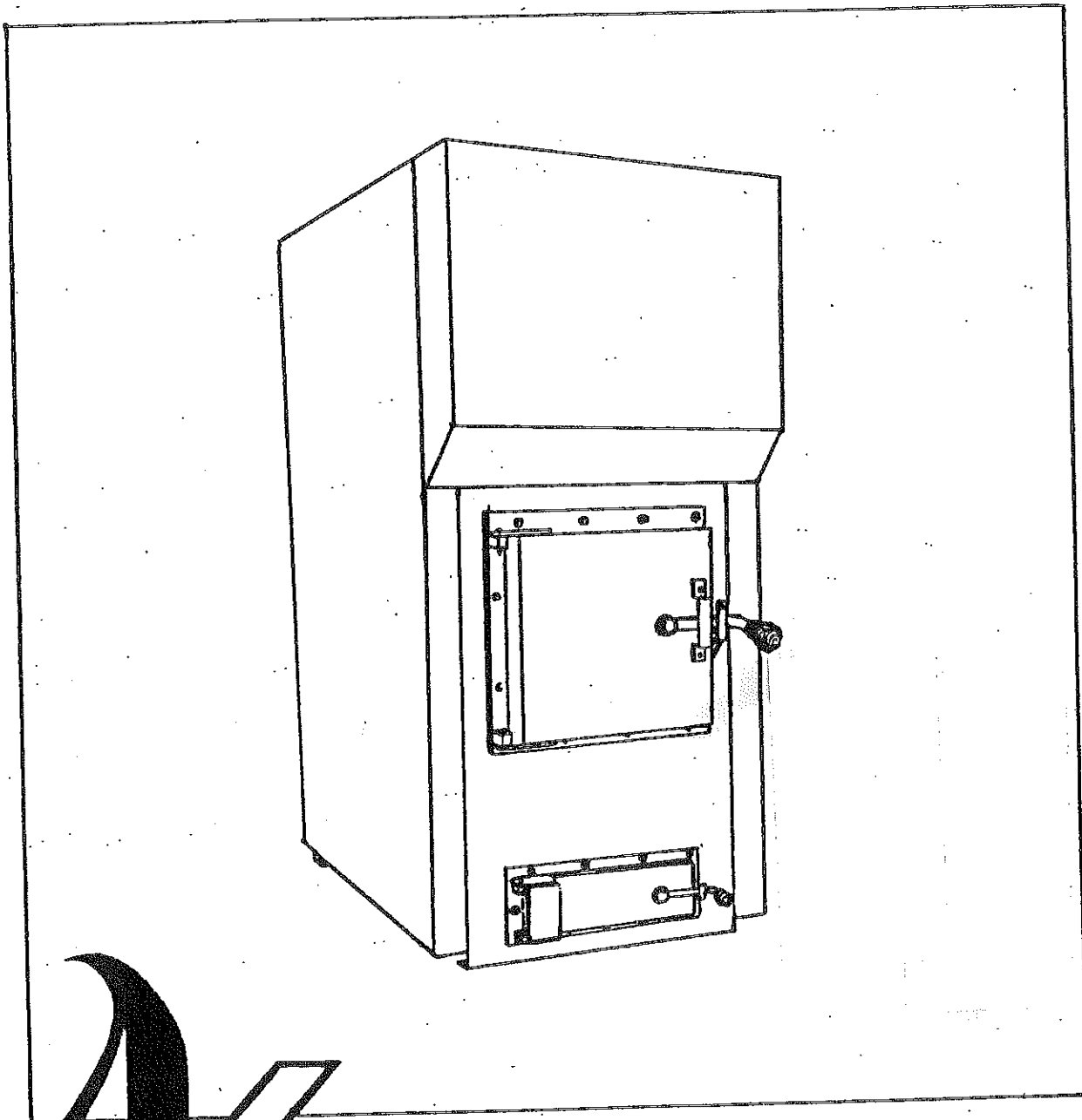


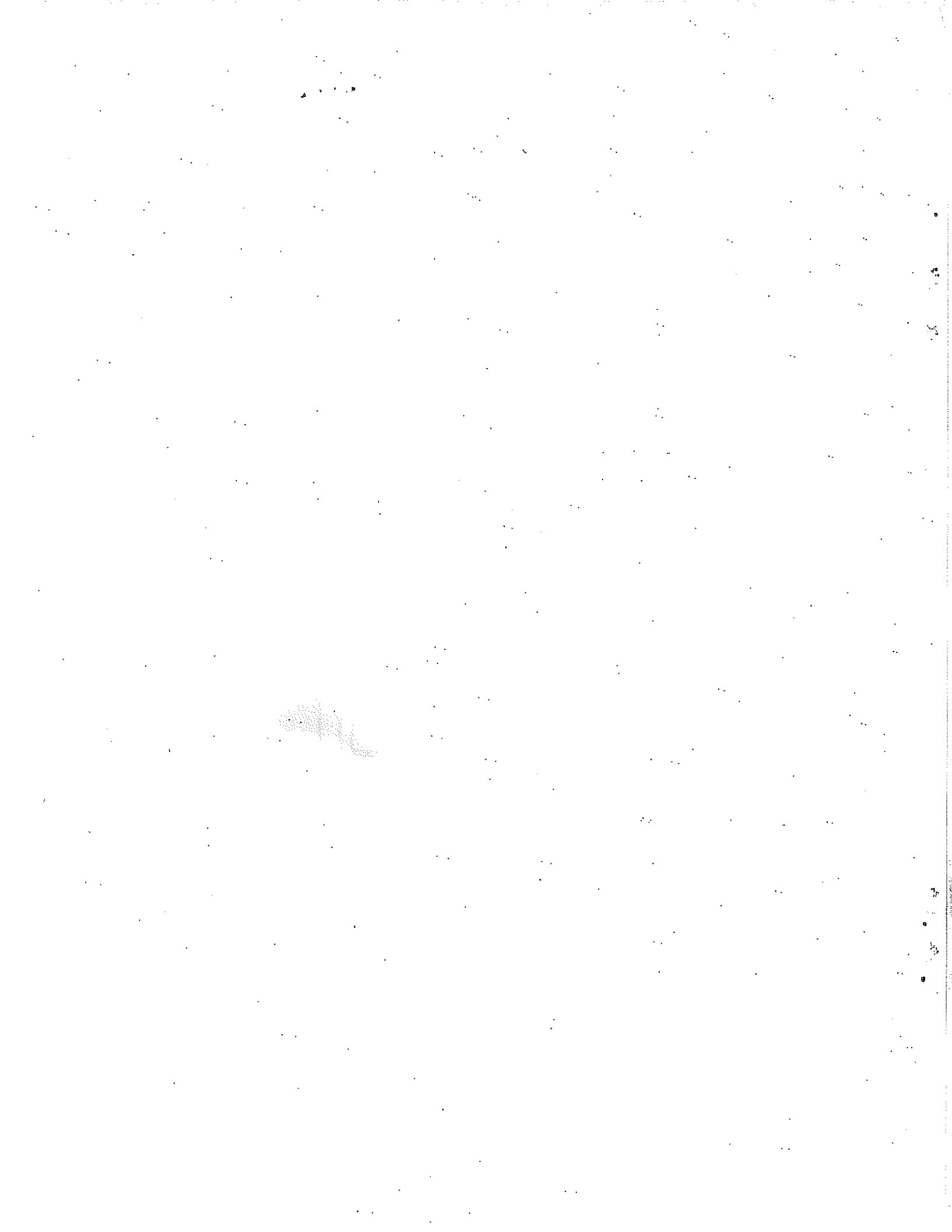
# OWNER 'S & INSTALLATION MANUAL

**CAUTION:** READ ALL INSTRUCTIONS AND RULES FOR SAFE OPERATION CAREFULLY BEFORE STARTING THE INSTALLATION. FOLLOW ALL STATE AND LOCAL CODES AND ORDINANCES.



**Kuuma** Vapor-Fire  
Model 200

LAMPPA MFG. & DISTRIBUTING CO., INC.  
Box 422 - Tower, Minnesota 55790 Tel: (218) 753-2330



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## INTRODUCTION

Your Vapor-Fire Model 200 - by Lamma is a highly sophisticated electronically controlled solid fuel furnace utilizing the latest space-age technology. If installed and operated properly it should give you years of satisfying heat. Please read all of the instructions before installing and operating your new Vapor Fire Model 200.

We ask that you contact your salesperson and arrange for a professional installation.

Installation must be done by a qualified installer.

## LIMITED WARRANTY

Your basic Vapor-Fire Model 200 is warranted for five (5) years from the date of purchase by Lamma Manufacturing and Distributing Co., Inc., if it is installed and maintained according to the instructions provided by the manufacturer.

Under this warranty the manufacturer will repair defects in workmanship and replace defective parts free of charge to the customer. Any repairs that might require welding, burning, patching, etc., that is normally done in the manufacturer's plant, the customer shall ship the furnace, freight prepaid, to the plant at no cost to Lamma Manufacturing and Distributing Co., Inc.

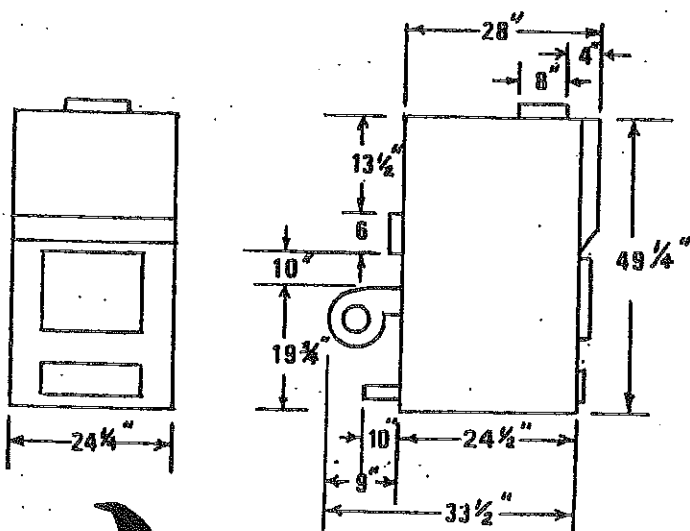
This warranty does not apply to any parts, such as seals, latches, hinges, or other moving parts that wear out under normal usage.

Under this warranty, all electrical components are covered for a period of 90 days from date of purchase if installed according to the manufacturer's instructions. The customer shall provide to the manufacturer, proof of purchase. Any repairs or replacement of components shall have a prior agreement between the customer and the manufacturer, before any such action is undertaken.

## Specifications

Figure 1

Vapor-fire Model 200

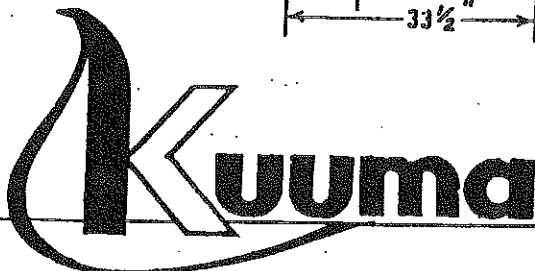


Dimensions	24 1/4" W x 45 1/2" D x 49 1/4" H
Flue Size	6" Diameter
Heat Outlet Size	8" Diameter
Fire Door Opening	12" W x 12" H
Draft Control	Automatic
Draft Control Type	C100A
Ashpan Size	9 3/4" W x 16" L x 3 1/2" H
Fire Chamber	18 1/2" L x 15 1/2" W x 20" H
Maximum Wood Length	17"
Fire Chamber Lining	Brick
Grate	3/4" Cast Iron
Fan Control	Klixon F120-2
Draft Requirement	.04"-.06" W.C.
Power	15 Amps, 120 V, 60 Hz, #14 AWG Wire

### Clearances to Combustibles

Side	12"
Front	48"
From the Flue Pipe	18"
Clearance between the supplementary furnace and the central gas/oil furnace must be	6 inches

Weight	525 pounds
Fuel type	Wood only
Chimney requirement	6" Class "A"



## INSTALLATION INSTRUCTIONS

1. Read thoroughly all of the installation and operation instructions before attempting installation.
2. If your stove doesn't have any bricks, install the bricks as shown in figure 2. (Also see figure 27, page 18)
3. The unit must be set on a non-combustible surface, such as brick, ceramic tile, stone, or concrete and be at least 1 inch in thickness and 18 inches larger than the dimensions of the base as stated in the specifications, figure 1. The non-combustible floor protection must extend at least 16 inches in front of the unit.
4. Install the blower assembly to the back of the unit as shown in figure 3. See figure 16 for typical hot air hookup.
5. Use 6 inch stove pipe to connect the smoke outlet in the back of the stove to AN APPROVED CLASS A CHIMNEY. Install only ONE connection to one flue. Make sure you use at least three metal screws at each joint connection, refer to figure 4.
6. Install a barometric draft control type F as described and illustrated on page 12 and 13, also see figures 21 & 22.
7. WE SUGGEST THAT A LICENSED ELECTRICIAN BE HIRED TO DO ALL YOUR ELECTRICAL CONNECTIONS.  
See wiring diagram, figures 5 & 6 page 6, also see figure 24 page 15.

\*\*\*\*\*  
\*\*\*\*\*

## OPERATION GUIDELINES

### STARTING A FIRE IN A COLD FIRE CHAMBER WITHOUT ANY HOT COALS

1. Open fire door.
2. Scrape the ashes through the grate.
3. Place a moderate amount of paper and kindling on the FRONT half of the fire chamber floor.
4. Place your logs on top of the paper and kindling, making sure that front face of the logs are kept 1 inch away from the front inside face of the fire chamber, also make sure that the primary air openings as shown in figure 2 are kept open.
5. Ignite the paper. \*\*
6. Momentarily hold the fire door open, approximately one-half inch, this will assist in igniting the kindling and helps to create the initial draft.
7. Close the fire door tight - the electronic control automatically monitors the fire.

\*\* Open ashpan door momentarily, when draft control is activated -  
CLOSE ASHPAN DOOR.

## RELOADING ON HOT COALS

1. Open fire door.

\*\*\*Never load any logs when there is still some unburnt wood in the fire chamber, also refrain from opening the fire door while the logs are burning.

2. Scrape the ashes through the grates as shown in figures 8 & 11.

3. Pull the hot coals from the back of the fire chamber forward, but never closer than 2-3 inches from the front inside face.

\*\*\*If the accumulation of coals is thicker than 4-5 inches (½ way up the first row of bricks) pull them forward, again leaving a space of 2-3 inches between the coals and the front inside face. Close the fire door and allow the coals to burn down to the recommended level. DON'T OPEN THE ASHPAN DOOR TO ACCOMPLISH THIS.

4. Load the logs so that the face of the logs are 1 to 2 inches away from the front inside face, see figure 12.

5. Close the door-the electronic control automatically monitors the fire.

6. Periodically inspect the primary air openings to make sure that they are free and clear of any ashes. The long narrow slit between the two square holes MUST be kept clean. (see figure 2)

## HELPFUL HINTS

1. Use only dry, seasoned wood that has been cut and split and placed under cover to dry for 6 to 9 months. (25 - 30% moisture content)

2. Use 16" wood lengths. (Fire chamber is 18½")

3. Never burn less than two complete rows of wood, regardless of their size. The reason for this is that each log gives off its heat to the adjoining log to sustain continuous combustion.

4. DO NOT start a fire in a cold fire chamber with excessive amounts of paper and kindling, because the chimney is cold and lacks sufficient draft causing the "chugging" effect that could produce some puffing of smoke through your pipe joints.

5. Keep the front one-third of the fire chamber free of grey ashes.

6. Always rake the hot coals forward from the back, but leaving a space of 2 to 3 inches between the front inside face and the hot coals.

7. Always burn down the coals if they are excessive. When the coals have been raked forward, the back half of the fire chamber floor should be free of any hot coals. If the logs are added when there are hot coals in the back, the logs will ignite and burn from the back to the front, just opposite from what it should be.

8. Whenever wood lengths are added to the fire chamber when there are some hot coals make sure that the front of the logs are in contact with the hot coals so that the logs ignite.
9. Empty the ash pan when the fire chamber is cold and dispose of them as recommended on page 10.
10. Clean out your heat exchanger once or twice each year to increase the heat transfer efficiency. See figure 26, page 18.

### TROUBLE SHOOTING

- A. If you have trouble starting the fire check the following:
  - a) Chimney draft should read between .04" to .06" water column.
  - b) Smoke pipes are clean.
  - c) Chimney is clean.
  - d) More then one unit connected to one chimney.
  - e) Chimney may be too low. Increase its height.
  - f) Chimney may have cracks and excessive leakage.
  - g) Cleanout door is open.
  - h) The primary opening on your KUUMA are filled with ashes.
  - i) House is too airtight. To correct this see figure 15.
  - j) Wood is too wet.
- B. If blower makes excessive noise.
  - a) Blower fins are filled with dust.
  - b) Motor bearings need oil.
  - c) Blower is loose on its mounting bracket.

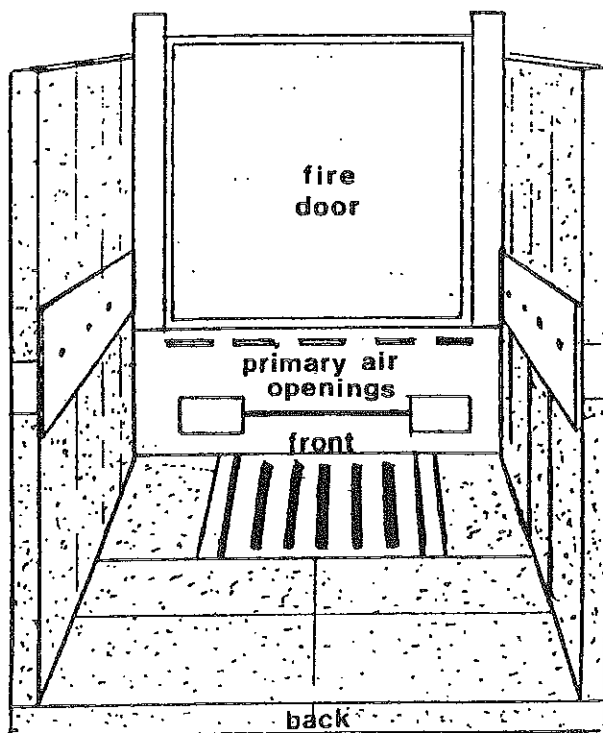


figure 2

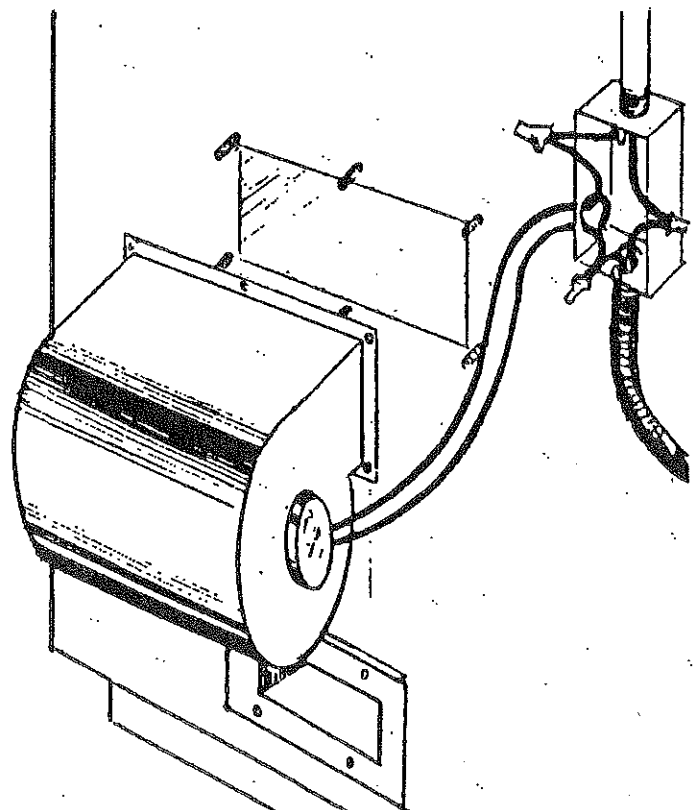


figure 3

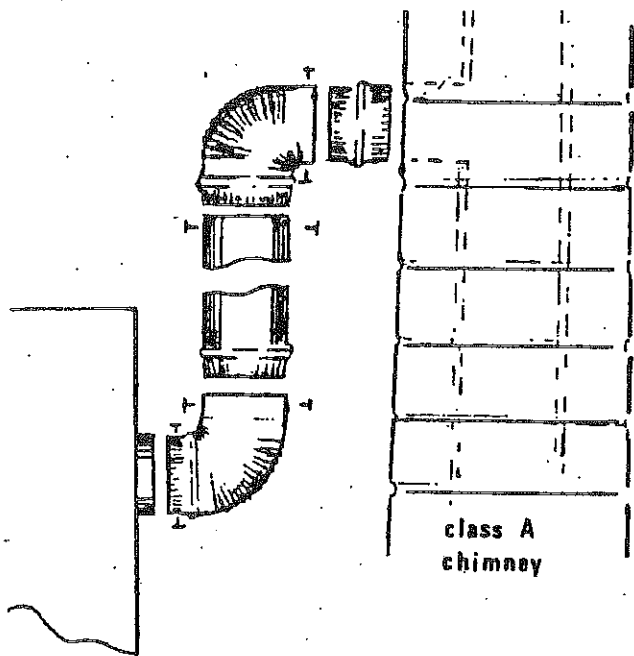


figure 4

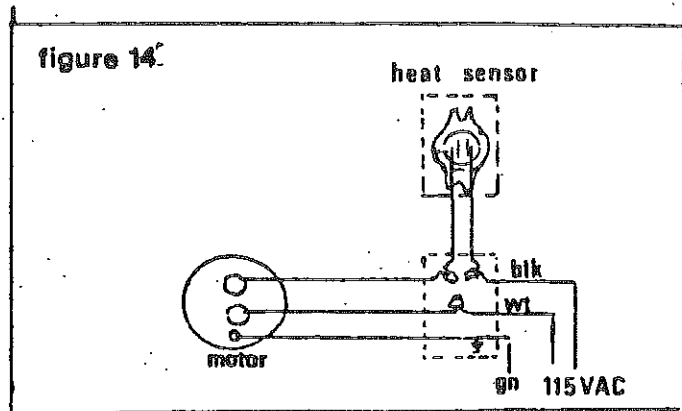


figure 5

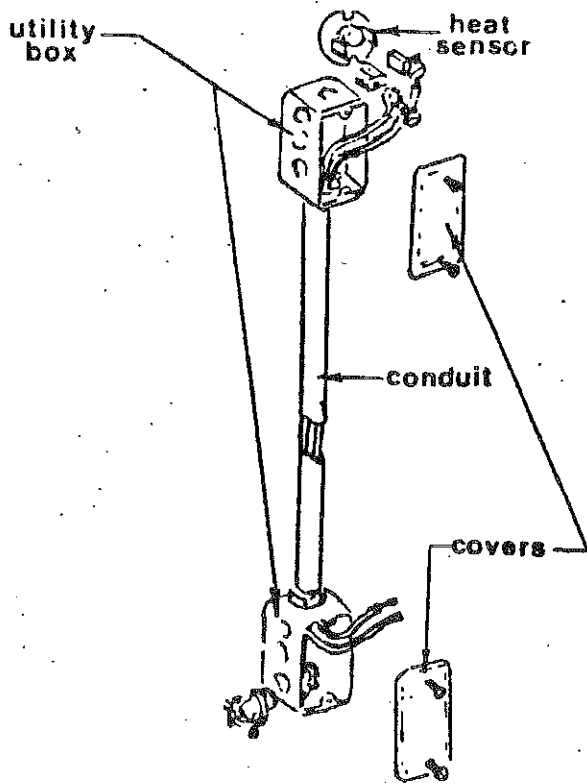


figure 6

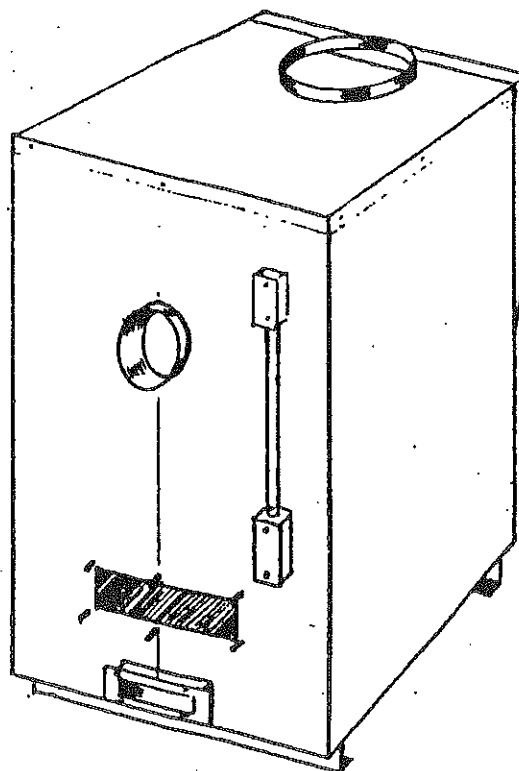
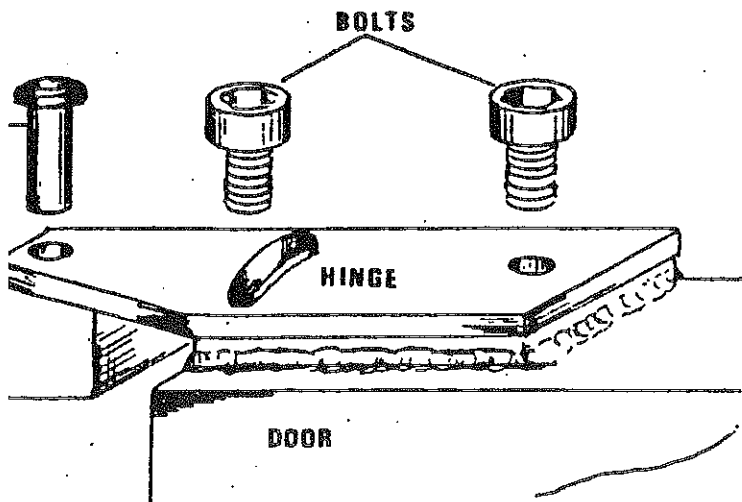
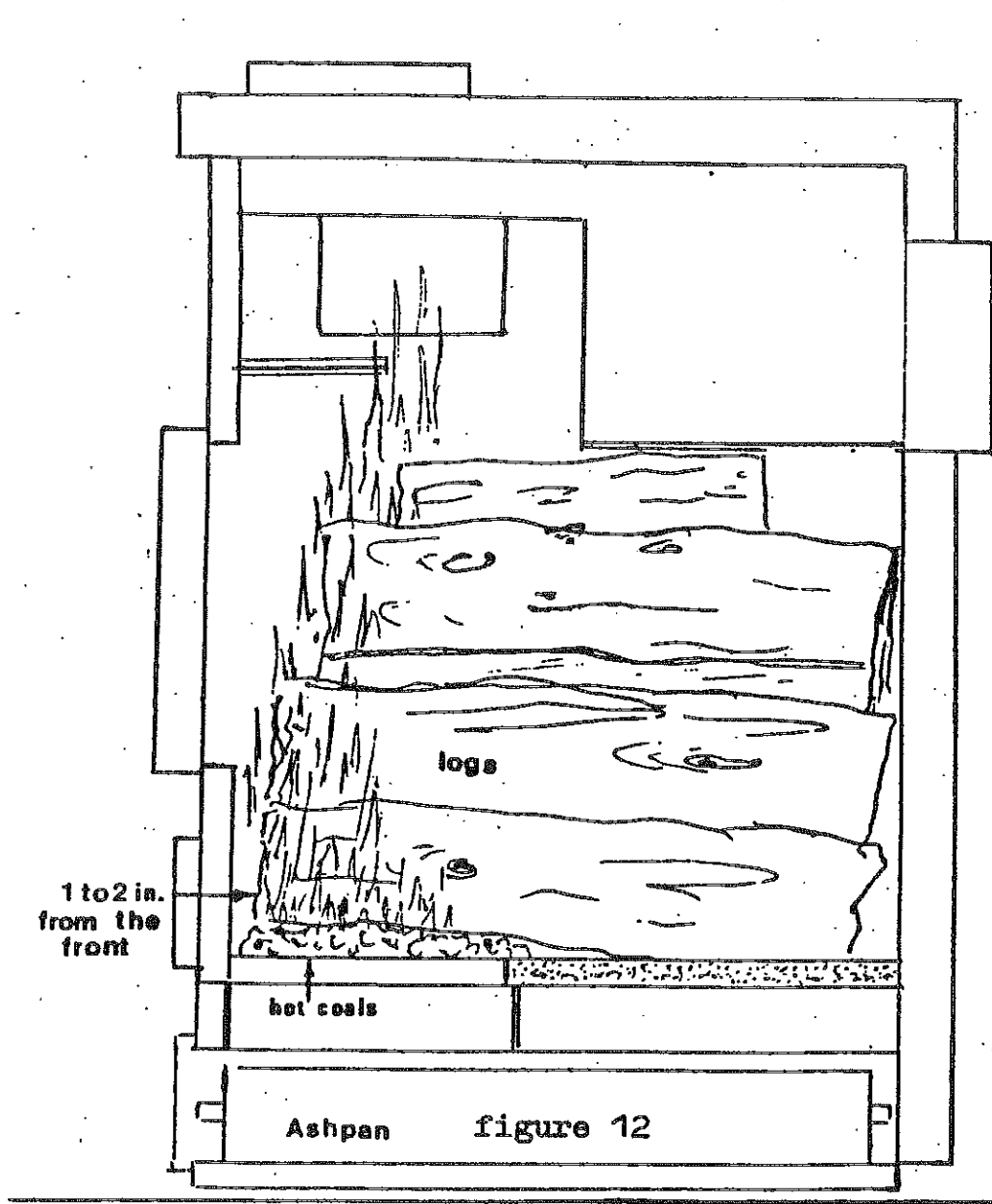


figure 7



ADJUSTABLE HINGE FOR THE DOORS  
figure 13

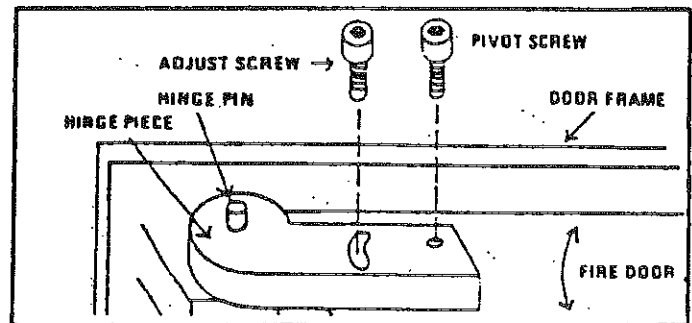


figure 14

When adjusting doors, loosen the two screws (Figures 13 & 14) and push door in until there is a slight bind. As you close the door make sure that it is not too tight, tighten the two screws.

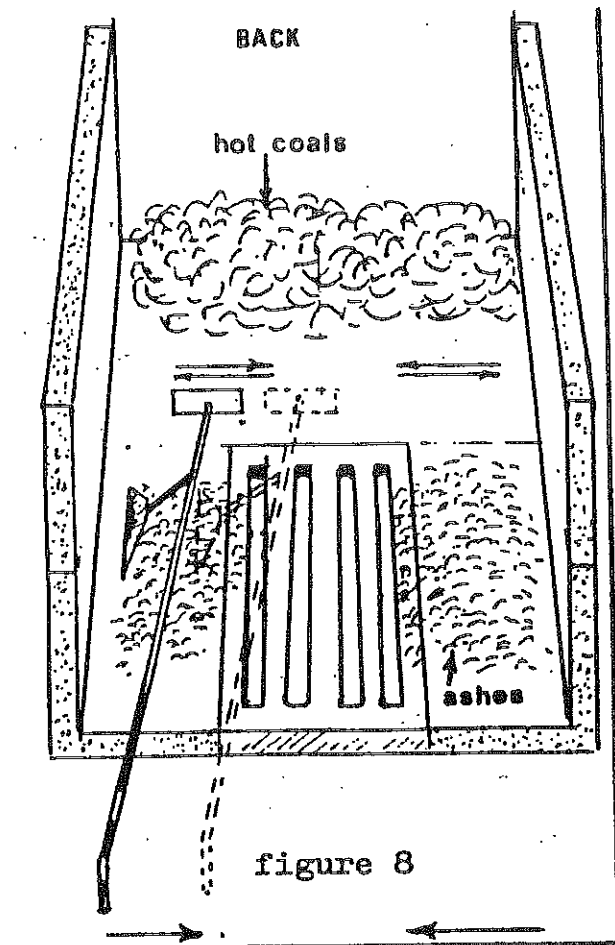


figure 8

To tighten the door on the handle side - loosen the two set screws, lower handle behind latch, push door in tightly and tighten set screws.

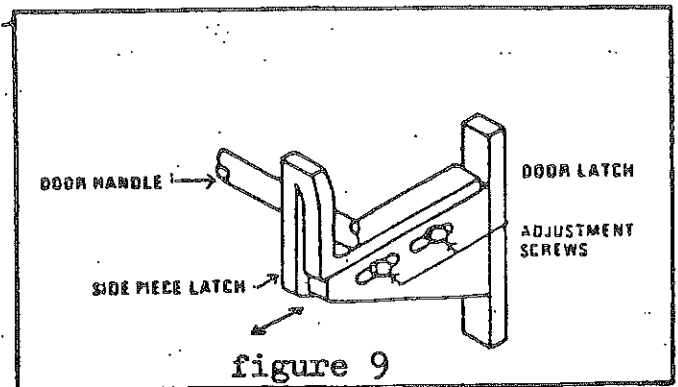


figure 9

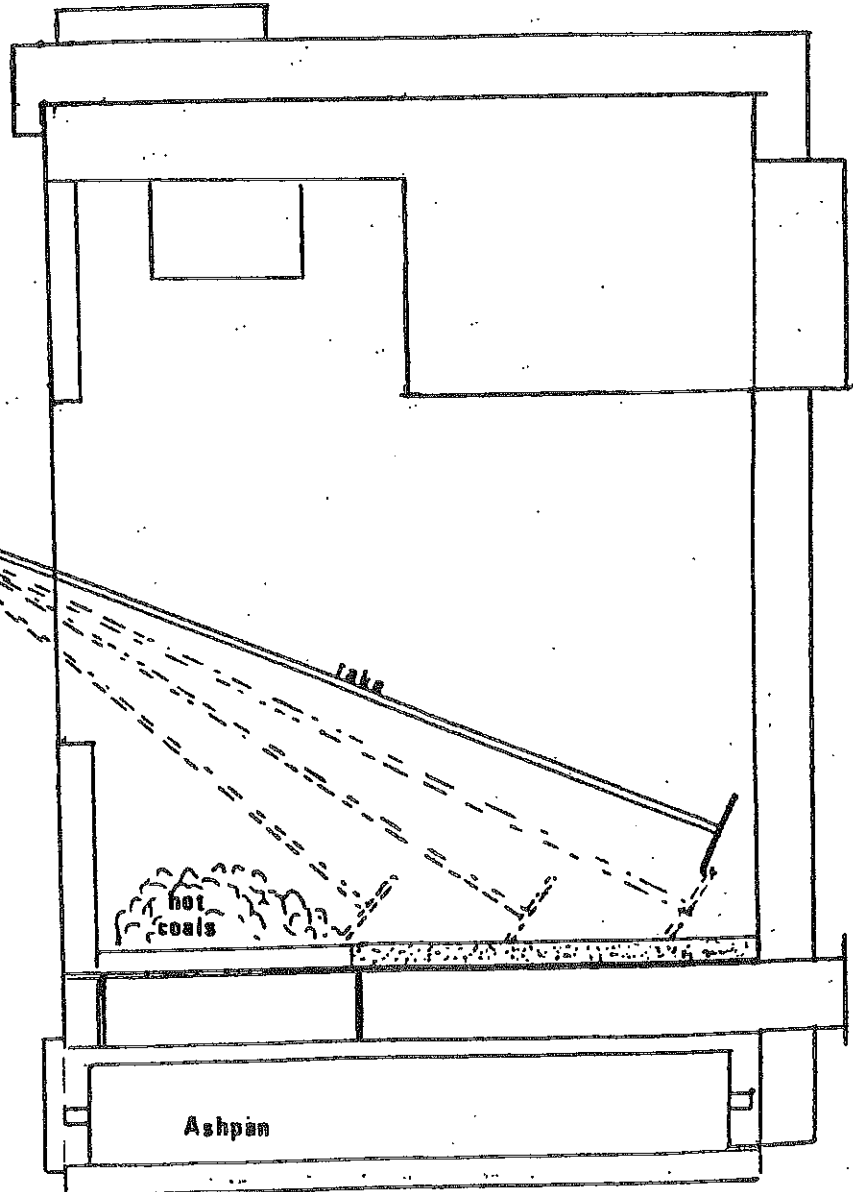


figure 11

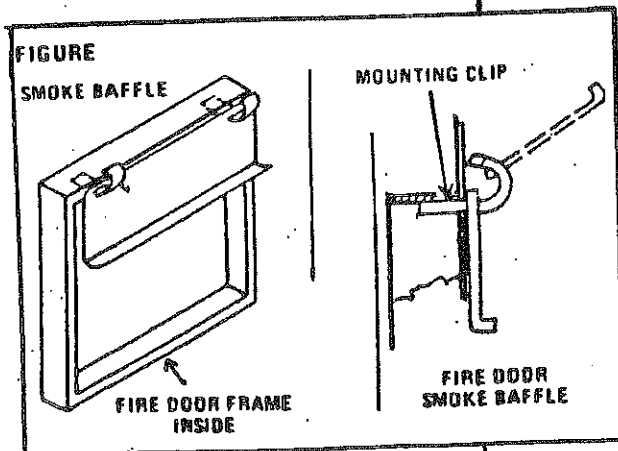


figure 10

Rake hot coals to the FRONT as shown, DON'T BLOCK PRIMARY AIR OPENINGS.

## OPERATION

### Wood Firing the Unit

**IMPORTANT**  
DURING NORMAL OPERATION,  
FIRING DOOR AND ASH DOOR  
MUST BE KEPT TIGHTLY  
CLOSED. AIR LEAKAGE WILL  
CAUSE LOSS OF EFFICIENCY  
RESULTING IN HIGHER HEATING  
COSTS. IF DOOR GASKETS  
BECOME WORN, REPLACE WITH  
1/2" CERAMIC ROPE AVAILABLE  
FROM LOCAL SOURCES

**IMPORTANT**  
KEEP ASH DRAWER EMPTY.  
IF ASHES ARE PERMITTED TO  
BUILD UP ABOVE THE GRATE;  
THE GRATES COULD WARP AND  
EVENTUALLY BURN OUT.

**DANGER**  
NEVER BURN MATERIALS OTHER  
THAN WOOD LOGS, PREFERABLY  
SPLIT AND DRIED.

A CHIMNEY FIRE OR HEAT  
EXCHANGER FAILURE COULD RESULT.  
THIS INCLUDES LARGE AMOUNTS  
OF CORRUGATED BOXES,  
WOODSHAVINGS, PAPER SCRAPS,  
DRIED CHRISTMAS TREES,  
COAL, GARBAGE, TIRES OR  
OTHER BURNABLE PRODUCTS.

**IMPORTANT**  
DURING NORMAL OPERATION, FIRING  
DOOR AND ASH DRAWER MUST BE KEPT  
TIGHTLY CLOSED. AIR LEAKAGE  
WILL CAUSE LOSS OF EFFICIENCY  
RESULTING IN HIGHER HEATING  
COSTS. IF DOOR GASKETS BECOME  
WORN, REPLACE WITH 1/2" CERAMIC  
ROPE AVAILABLE FROM LOCAL  
SOURCES.

To Add more air to the furnace room.  
Your home may be so airtight, not  
enough oxygen is reaching the fire.  
Your heating contractor can do this.  
Refer to Figure 15

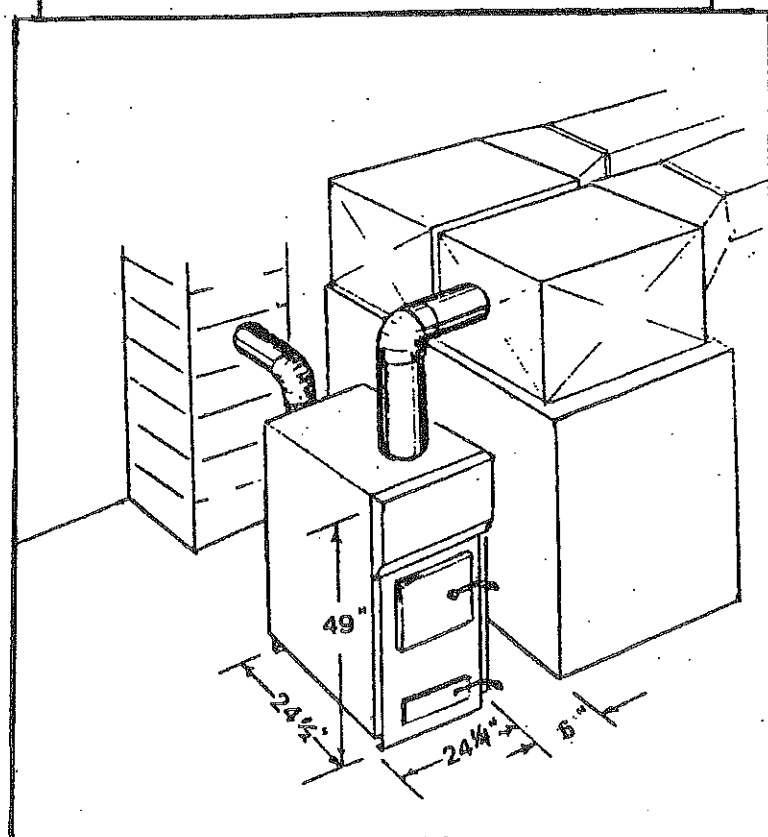
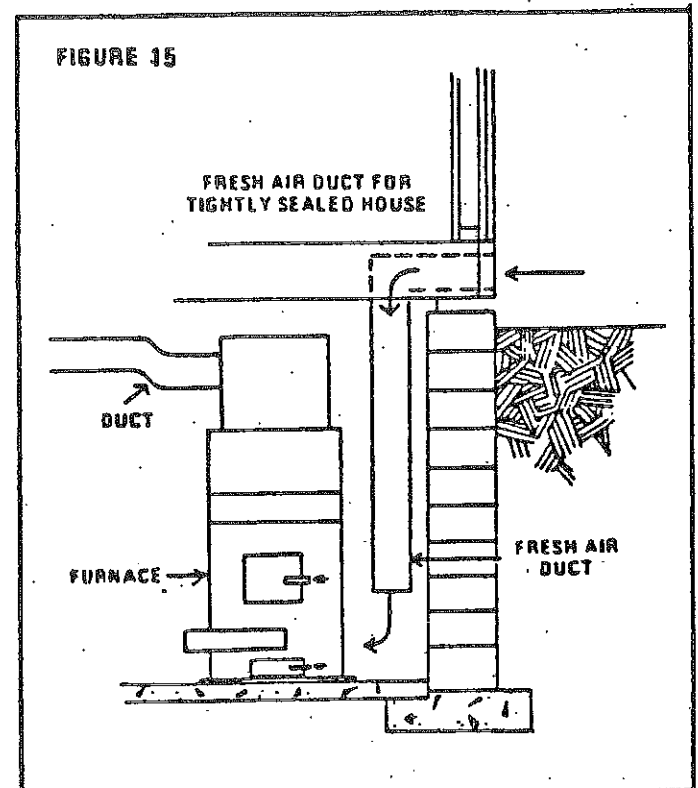


figure 16

Typical hot air hook-up

## SAFETY CONSIDERATIONS

### DANGER

#### RISK OF FIRE OR EXPLOSION

DO NOT BURN GARBAGE, GASOLINE, DRAIN OR ENGINE OIL, KEROSENE, FUEL OIL, OR OTHER FLAMMABLE LIQUIDS.

DO NOT USE CHEMICALS OR FLUID TO START FIRE.

### WARNING RISK OF FIRE

DO NOT OPERATE WITH FLUE DRAFT EXCEEDING .06 INCHES WATER COLUMN.

DO NOT OPERATE WITH FUEL LOADING OR ASH REMOVAL DOORS OPEN.

DO NOT STORE FUEL OR OTHER COMBUSTIBLE MATERIAL WITHIN MARKED INSTALLATION CLEARANCES.

INSPECT AND CLEAN FLUES AND CHIMNEY REGULARLY.

### CAUTION

SURFACES ARE HOT

KEEP CHILDREN AWAY

DO NOT TOUCH DURING OPERATION

### CAUTION

NEVER CONNECT TO AN OUTSIDE CHIMNEY UNLESS IT IS SUFFICIENTLY INSULATED TO REDUCE THE AMOUNT OF CONDENSATION TO A LEVEL THAT WILL NOT INTERFERE WITH THE EXHAUST OF THE FLUE GASES.

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

### 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.

IMPORTANT  
RUNAWAY FIRE AND CHIMNEY FIRE  
CLOSE THE DRAFT IMMEDIATELY  
FUEL LOADING AND ASH REMOVAL  
DOORS ARE SHUT

CALL FIRE DEPARTMENT

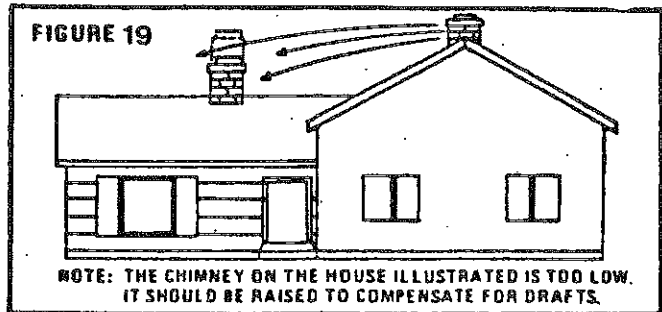
### CAUTION:

YOU MUST CHECK YOUR CHIMNEY FLUE PIPE CONNECTOR FREQUENTLY WHEN FIRST STARTING TO BURN WOOD TO DETERMINE THE AMOUNT OF CHIMNEY MAINTENANCE (CLEANING) THAT WILL BE REQUIRED. THIS, OF COURSE, IS ALSO DEPENDENT ON WOOD TYPE, MOISTURE, AND, IN GENERAL, HOW THE FURNACE IS USED.

2. Chimney Improper Height - Chimney does not extend through the roof to a sufficient height to promote sufficient draft or causes a down drafting condition to take place. See NFPA 211.

3. Obstructions - Obstructions in the chimney. Check prior to using holding a mirror in chimney cleanout door. This will give a inside view of the chimney.

4. Trees or other topographical barriers - Impeding the chimneys operation or causing a down draft condition to exist. This can also be caused by adjacent building or the roof of the same structure where the chimney is not high enough (Figure 19)



5. Chimney Size - Chimney is not properly sized to adequately fit the appliance. It is either too small or too large. Minimum chimney height - 14 foot. Minimum Diameter - 6 inches.

6. Chimney Offsets - chimneys with offsets should not be used. They cause an obstruction to draft as well as a place for debris to collect.

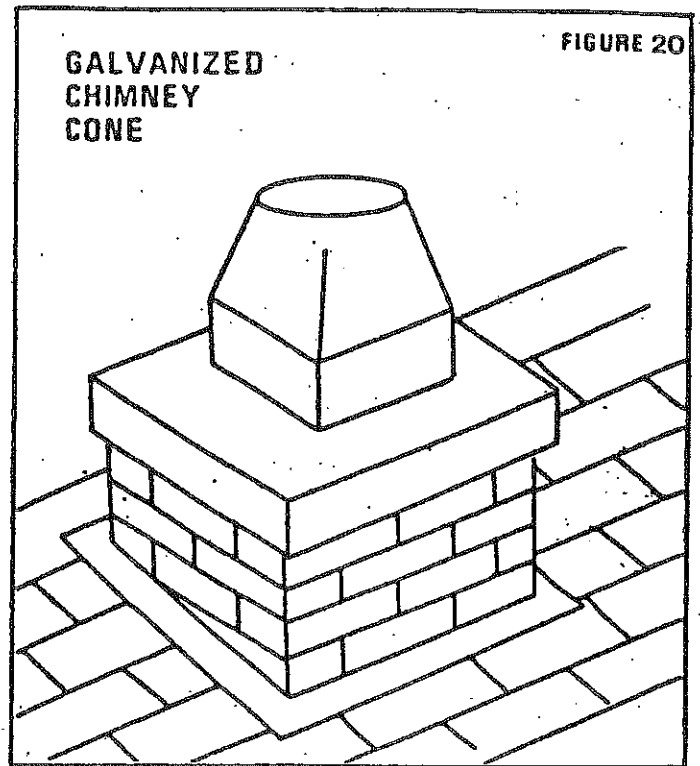
7. Elbow Restrictions - The flue pipe is connected to the chimney with too many elbows reducing the draft the chimney can provide.

B. Multiple Venting - When more than one (1) device vents into the same chimney flue.

When smoke rises into the chimney, it will rise in a spiraling path.

The most important thing to remember about chimneys is there need for maintenance and cleaning. If chimneys are not cleaned on a regular basis, it affects the draft, as well as make an attributing cause to a chimney fire.

The draft can be improved by using a chimney cone (Figure 20) or by extending the height of the chimney and reducing the flue area. A cone or chimney extension can be made by a local sheet metal shop.



A properly operating chimney will tend to reduce the amount of creosote that is left deposited.

Instructions for installation, draft measurement, adjustment of the barometric draft regulator.

#### INSTALLATION

Barometric Draft Control Type F Number 906 is provided with your model 200 Vapor Fire unit. A draft regulator is designed for insertion into a six (6) inch tee. Refer to Figure 21 for mounting of the barometric damper. It is recommended that the stove pipe be installed with the crimped end down so that if any creosote is formed, as a natural by-product of combustion, it will run back towards the furnace and not run through the joints to the outside of the smoke pipe. The section of pipe (tee) holding the draft regulator can be installed in either horizontal or vertical direction. The draft control will revolve within this collar to an upright and level position.

## CHIMNEY INFORMATION

The chimney is one of the most important yet most neglected and misunderstood portion of any Solid Fuel Burning installation. THE FURNACE SHALL NOT BE CONNECTED TO THE CHIMNEY WITH OTHER HEATING DEVICES.

### CAUTION:

THE CHIMNEY MUST BE A CLASS "A" CHIMNEY IN GOOD OPERATING CONDITION. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE.

There are two types of Class "A" chimneys:

1. Masonry with tile liner suitable for venting residential or building heating appliances. (See NFPA 211.)
2. Class "A" Chimney, listed or certified by a nationally recognized testing agency as suitable for venting residential or building heating appliances.

If your masonry chimney has not been used for some time, have it inspected by a qualified person (Building Inspector, Fire Department Personnel, etc.)

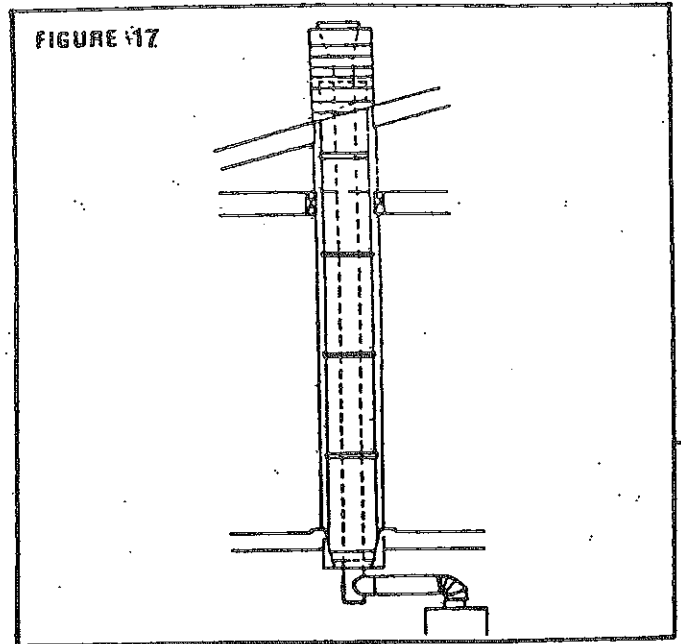
If a listed or certified manufactured chimney is to be used, make certain it is installed in accordance with the manufacturer's instructions and all local and state codes. See Figure 17, Manufactured Chimney Installation and Figure 18 of Masonry Chimney (note roof clearance) in accordance with NFPA 211.

### COMMON CHIMNEY PROBLEMS

In order to have a proper operating Solid Fuel Heat System, the chimney must be capable of providing the draft required.

In the Vapor-Fire Model 200 Furnace, the required draft is .04 to .06 water column (W.C.). This must be measured using a draft gauge.

FIGURE 17



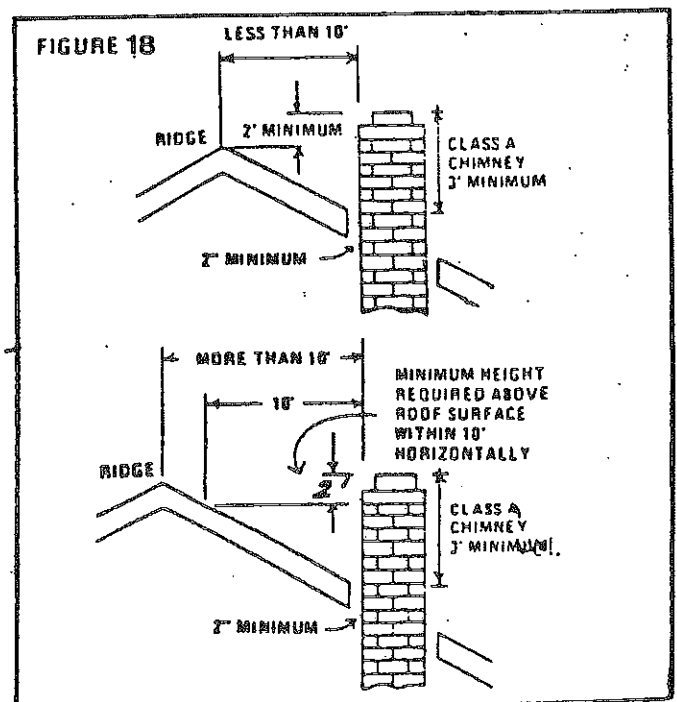
If the chimney cannot supply this constant draft, the unit will not operate properly.

In all furnace installations using Vapor-Fire Model 200 add-on units a barometric draft regulator must be used and properly adjusted for proper draft.

REASONS for insufficient draft readings:

1. Leaky Chimney - Air leaking in around a loose fitting clean-out door, flue pipes not tight at the joints, improper plug openings, or defective masonry.

FIGURE 18



## WOOD BURNING FACTS

BE AWARE OF CREOSOTE "BUILD-UP" WHEN BURNING WOOD!

Woodburning equipment will give you trouble with creosote deposits under certain conditions, unless you are aware of these conditions and avoid them.

Creosote is a tarry liquid or solid resulting from the distilling of wood during the combustion process.

It consists of a number of elements which condense and bake layer upon layer in the chimney flue.

### WARNING:

SERIOUS FIRE MAY RESULT IF A SUFFICIENT CREOSOTE "BUILD-UP" IS PERMITTED OVER AN EXTENDED PERIOD OF TIME.

Highly combustible in its solid and semi-liquid state, creosote is present in the gases given off by burning wood. Creosote may build up a considerable thickness on the interior surface of the chimney and flue pipes, considerably reducing their cross-sectional area.

Creosote condenses from the flue gases when the stack temperature drops below 250°F. The amount of creosote deposited in the pipe and chimney is dependent on the amount of moisture in the flue gases, the temperature of the stack, and how completely the combustible elements in the flue gases have been burned in the combustion process. Most problems with creosote are due to poor chimneys with low draft and cold walls and to a low rate of burning when heat is needed during the spring and fall months.

Moisture in the flue gases may be controlled by using the driest wood possible, mixing small pieces with a very full load, and never using only large wood during mild weather when combustion is relatively slow.

## BEST WOOD FOR BURNING

Generally wood should be cut at least a year in advance and properly split at that time.

This wood should also be stored out of the weather, if possible. If the wood is to remain outside, be sure to cover with plastic, etc. This wood should be brought inside and stored there for at least two (2) weeks before it is fired to obtain top performance.

Soft woods burn at a faster rate per cord than do hard woods.

Know what types of wood to burn. Wood is safe, clean and economical fuel. Freshly felled wood is not suitable fuel due to the moisture content of the wood. Well-seasoned wood is best for the proper production of heat. The following table will give you some relative values of the heating content of some of (the more readily available wood).

Type	Weight Cord	BTU's Per Cord Dried Wood	Equivalent Value #2 Fuel Oil Gals.
White Pine	1800#	17,000,000	120
Aspen	1900	17,500,000	125
Spruce	2100	18,000,000	130
Ash	2900	22,500,000	160
Tamarach	2500	24,000,000	170
Soft Maple	2500	24,000,000	170
Elm	2750	24,500,000	175
Yellow Birch	3000	26,000,000	185
Red Oak	3250	27,000,000	195
White Oak	3750	27,700,000	200
Hard Maple	3000	29,000,000	200
Hickory	3500	30,500,000	215

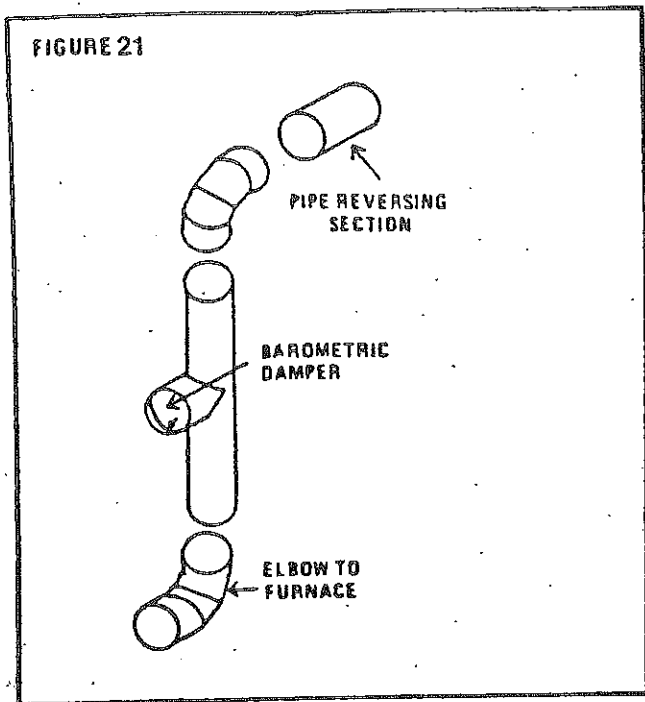
## USEFUL FACTS

No. 2 Fuel Oil - 140,000 BTU/gallon  
Natural Gas - 100,000 BTU/therm  
Propane Gas - 93,300 BTU/gallon  
Butane Gas - 100,671 BTU/gallon  
Electricity - 3,413 BTU/kilowatt-hour

## DRAFT MEASUREMENT

### IMPORTANT

WHENEVER YOU MEASURE THE DRAFT, THE FURNACE MUST BE OPERATING FOR A SUFFICIENT LENGTH OF TIME ALLOWING THE CHIMNEY TO WARM UP AND THE FURNACE TO ACHIEVE PROPER OPERATING TEMPERATURES. This should take a minimum of 30 minutes. The draft reading is taken 18 inches up from the center of the Vapor Fireflue outlet in the six (6) stove pipe. (See Figure 23)



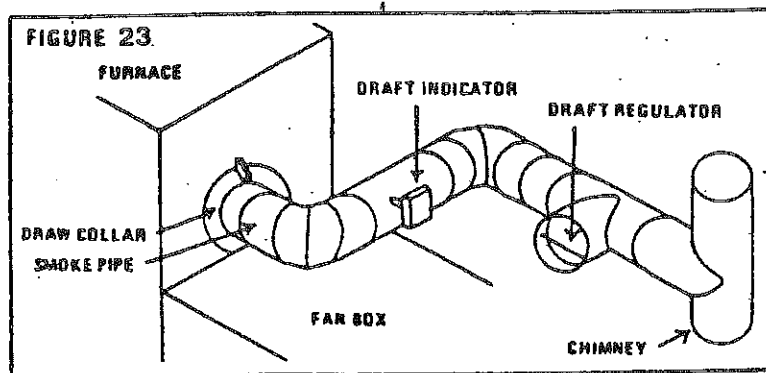
The draft control can be positioned within its collar to an upright position.

### CAUTION:

FOLLOW MANUFACTURER'S INSTRUCTIONS ON HOW TO INSTALL THE BAROMETRIC REGULATOR.

It is essential that the draft regulator be located in the same room (pressure zone) as the stove and as close as possible to the flue outlet.

After installation, make certain the draft control barometric regulator is upright and level. Tighten the screw to hold firmly in place. See Figure 22.

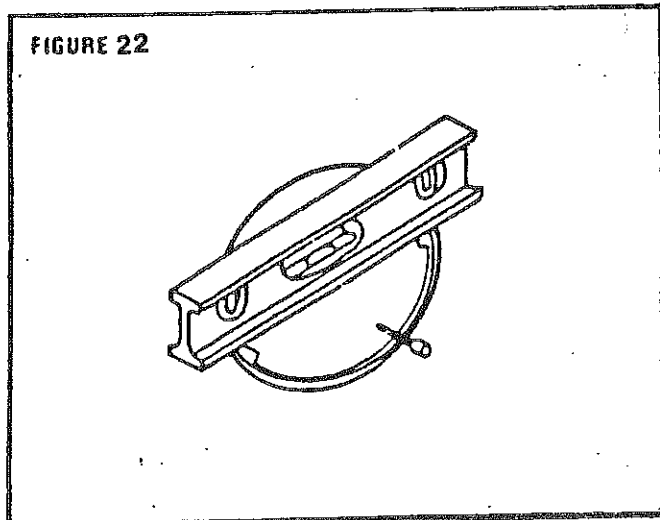


Draft Must be Measured With A Draft Gauge

Whether your old stove worked O.K. on your present chimney or if it is brand new unit, remember - the Vapor Fire Model 200 has an air controlled fire chamber, and with the fire burning, insert the draft gauge into the six (6) inch smoke pipe 18 inches up from the center of the flue outlet in the pipe between the damper and the add-on Model 200 you must receive .04 to .06 inches water column updraft to perform satisfactorily.

More or less draft may result in an unsatisfactory operation.

Operate the Model 200 Unit for 30 minutes and while continuing to operate, insert about half of the draft tube into draft hole. Cover zero, check hole with finger, level instrument until a) draft tube is horizontal, b) pointer is in line with zero scale marks, uncover zero check hole without disturbing position with instrument, pointer instantly shows draft or pressure reading. The above instrument is manufactured by Control Masters Corporation, Brookfield, Wisconsin.



04040

## Installation

1. Mount the unit in the position most desirable to your needs.
2. Connect the two leads to the appropriate power source. Refer to blower name plate.

**CAUTION:** A ground wire must run from the blower motor housing to a suitable electrical ground such as a properly grounded metallic raceway or ground wire system.

3. Wiring Diagram for Model 4C565A 2 speed blower only.

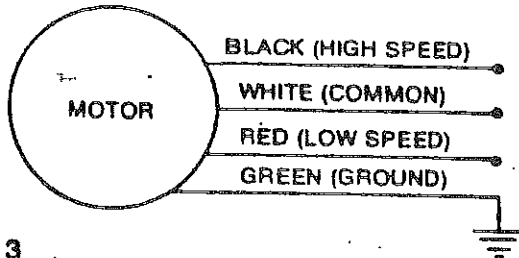


Figure 3

**NOTE:** IF ONLY ONE SPEED IS USED, ISOLATE THE REMAINING LEAD WITH ELECTRICIANS TAPE OR PLASTIC CONNECTOR.

## Maintenance

**WARNING: ALWAYS DISCONNECT POWER SUPPLY BEFORE SERVICING THE BLOWER OR WORKING WITH THE UNIT FOR ANY REASON. THIS IS ESPECIALLY IMPORTANT WITH UNITS EQUIPPED WITH AUTOMATIC-RESET THERMAL PROTECTION. UNIT MAY ACTIVATE WITHOUT WARNING!**

### LUBRICATION

The motor should be relubricated every 6 months with 10 or 20 drops of SAE 10W or 20W nondetergent oil (ML-type) or with electric motor oil.

### GENERAL

Should further servicing of the unit be necessary, refer to the "exploded" view illustration as an-aid in disassembly and assembly procedures.

## Trouble Shooting Chart

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Excessive Noise.	<ol style="list-style-type: none"> <li>1. Blower wheel contacting housing.</li> <li>2. Foreign material inside housing.</li> <li>3. Leak in duct work.</li> <li>4. Loose duct work.</li> </ol>	<ol style="list-style-type: none"> <li>1. Realign or replace.</li> <li>2. Clean.</li> <li>3. Repair.</li> <li>4. Secure properly.</li> </ol>
Insufficient air flow.	<ol style="list-style-type: none"> <li>1. Leaks in duct work.</li> <li>2. Dampers and/or registers closed.</li> <li>3. Obstruction in system.</li> <li>4. Clogged Filters.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair.</li> <li>2. Open.</li> <li>3. Remove.</li> <li>4. Clean or replace.</li> </ol>
Unit fails to operate.	<ol style="list-style-type: none"> <li>1. Blown fuse or open circuit breaker.</li> <li>2. Defective motor.</li> <li>3. Automatic-reset thermal protector "tripped".</li> <li>4. Motor improperly wired.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace fuse or reset circuit breaker.</li> <li>2. Replace.</li> <li>3. Check for high (or low voltage) input or ambient temperatures in excess of 40°C (104°F).</li> <li>4. Re-wire.</li> </ol>

### LIMITED WARRANTY

Dayton blowers, Models 4C004A, 4C005, 4C006B, 4C012A, 4C013A, 4C264A, 4C448, 4C447, 4C448A, and 4C565A, are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use (rental use excluded), for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be repaired or replaced at Dayton's option. For warranty claim procedures, see "Prompt Disposition" below. This warranty gives purchasers specific legal rights, and purchasers may also have other rights which vary from state to state.

**WARRANTY DISCLAIMER.** Dayton has made a diligent effort to illustrate and describe the products in this literature accurately; however, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions.

Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in "LIMITED WARRANTY" above is made or authorized by Dayton, and Dayton's liability in all events is limited to the purchase price paid.

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some states do not allow limitations on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of this Limited Warranty, any implied warranties of merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

**PROMPT DISPOSITION.** Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within warranty. For any product believed to be defective within warranty, first write or call dealer from whom product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date and number of dealer's invoice, and describing the nature of the defect. If product was damaged in transit to you, file claim with carrier.

DAYTON ELECTRIC MFG. CO., 5959 W. HOWARD ST., CHICAGO, ILLINOIS 60648

## NORMAL AUTOMATIC OPERATION

When power is turned on, the furnace is cold, the draft will be closed. As the temperature in the fire box rises to approximately 100 - 120° F, the automatic draft opens allowing combustion air to enter the fire chamber. As the temperature in the fire chamber rises, the automatic draft will begin its throttling process until it is completely closed, allowing maximum furnace idling.

As the outer heat jacket temperature rises past 120° F., the fan starts automatically and continues to operate until the fire burns down and the heat jacket cools to approximately 100° F.

## AUTOMATIC DRAFT CONTROL

Indicating lights are furnished on the electric control to provide the following:

- A. Thermocouple indicator light is on when there is an open circuit in the thermocouple. The automatic draft will remain closed. Replace the thermocouple.
- B. Low temperature indicator light is on when the fire chamber is below 70 - 100° F. and the automatic draft is closed.
- C. The draft indicator lights are on indicating that draft stages are open.
- D. High temperature indicating light is on when there is a high temperature in the fire chamber. Tighten door adjustment to eliminate door leaks.

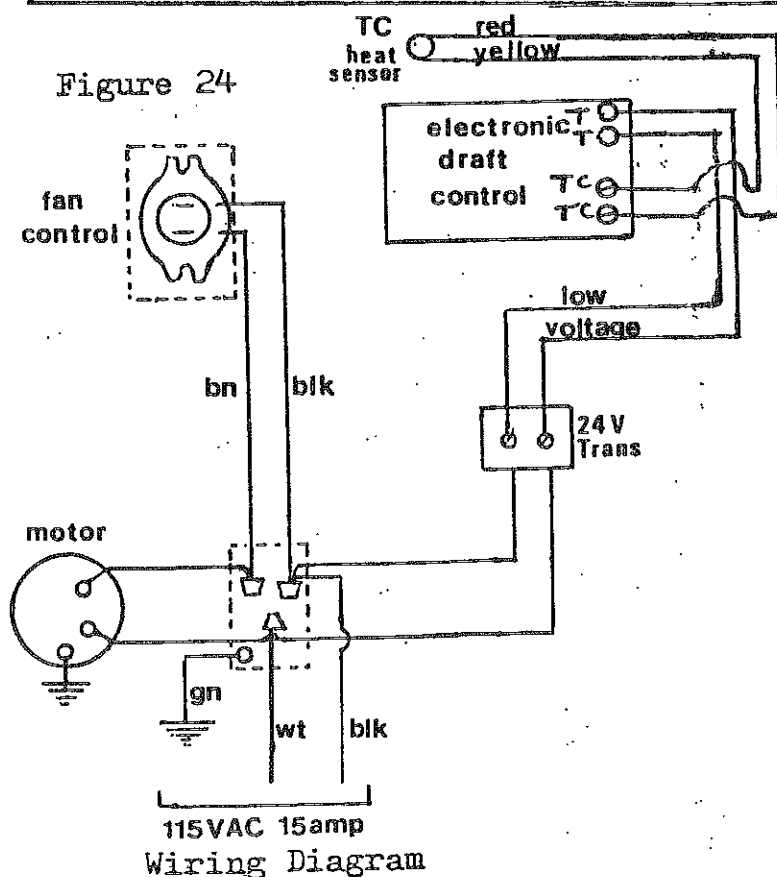
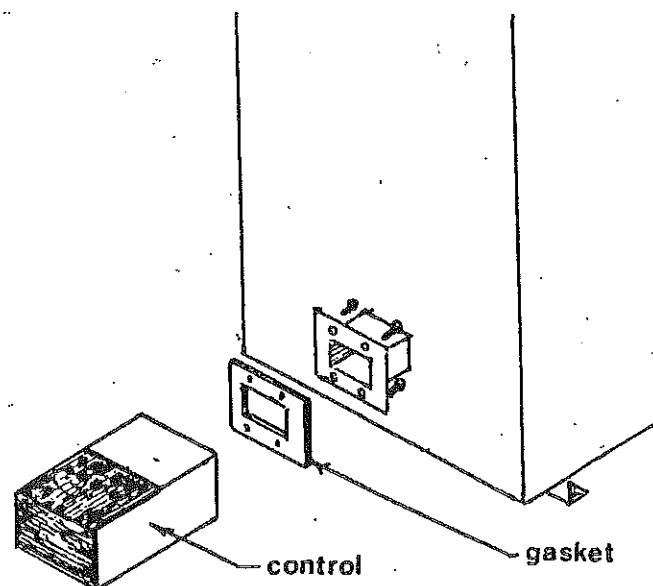


Figure 25



Draft Control Attachment

CAUTION

The warm-air supply outlet of the supplementary furnace shall not be connected to the cold-air return inlet of the central furnace, damage may result to the components of the central furnace.

THIS UNIT MUST BE INSTALLED BY A QUALIFIED INSTALLER.

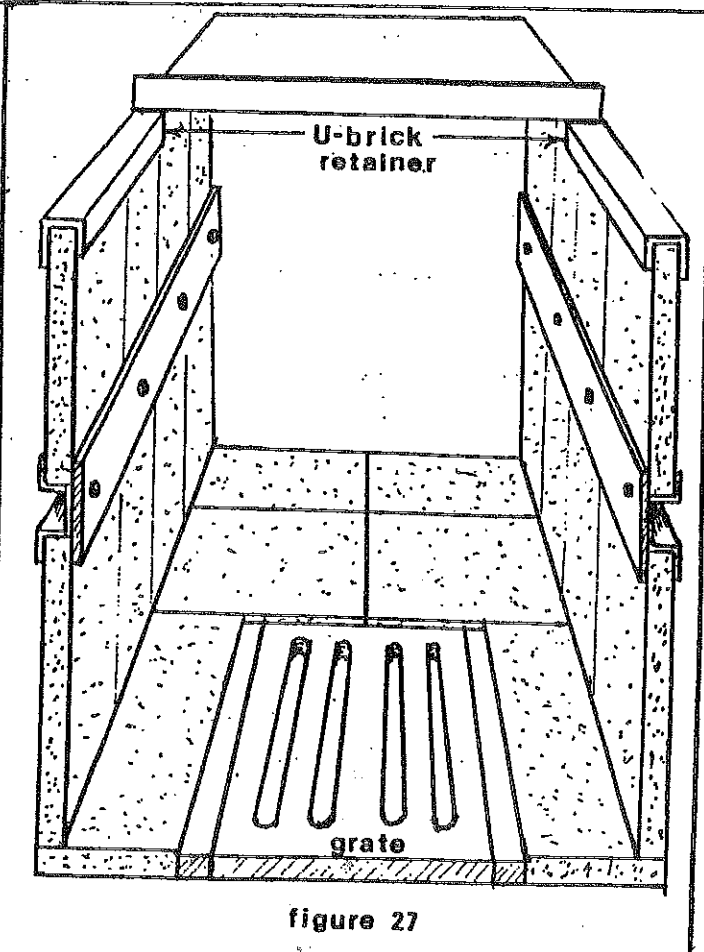
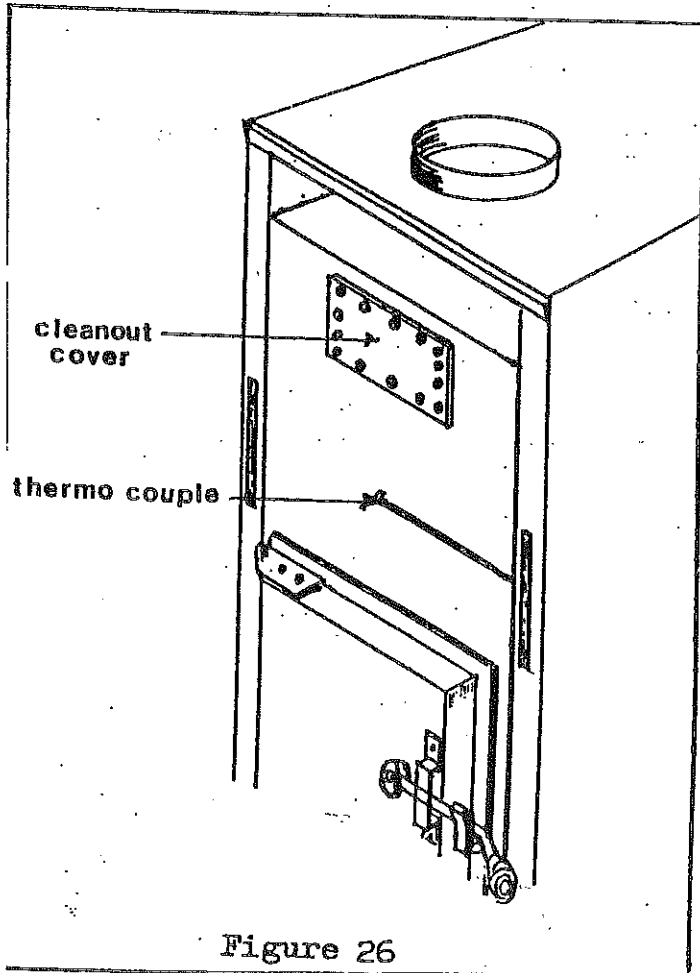
INSTRUCTIONS DURING POWER FAILURE

DO NOT BURN THIS UNIT WITH THE FUEL OR ASH DOORS OPEN DURING POWER FAILURE.

DO NOT BLOCK THE COMBUSTION AIR DAMPER SYSTEM OPEN DURING POWER FAILURE, the unit will create sufficient heat on low idle. Excessive duct temperatures may cause a house fire.

NEVER BLOCK THE FLOW OF HEATED AIR FROM THE UNIT INTO THE ROOM.

"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, Massachusetts 02210."



MODELS 4C004A, 4C005, 4C006B, 4C012A, 4C013A  
4C264A, 4C446, 4C447, 4C448A AND 4C565A

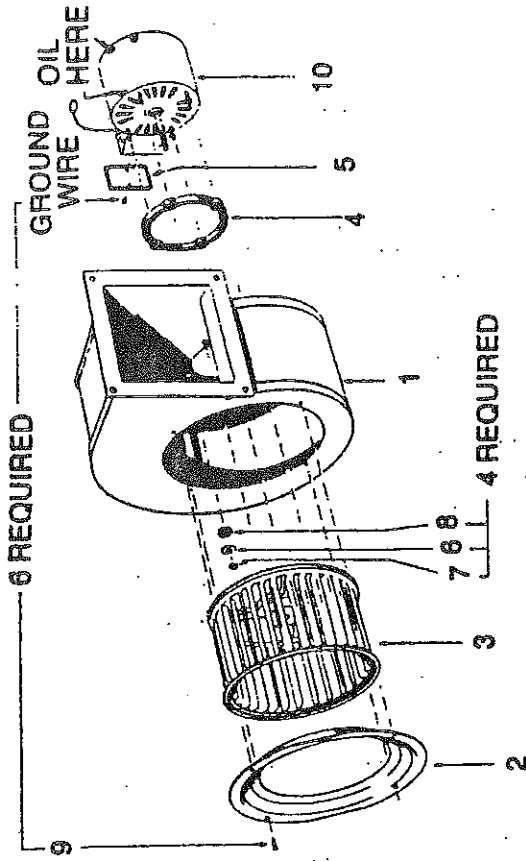


Figure 4 — Models 4C264A, 4C448A & 4C565A

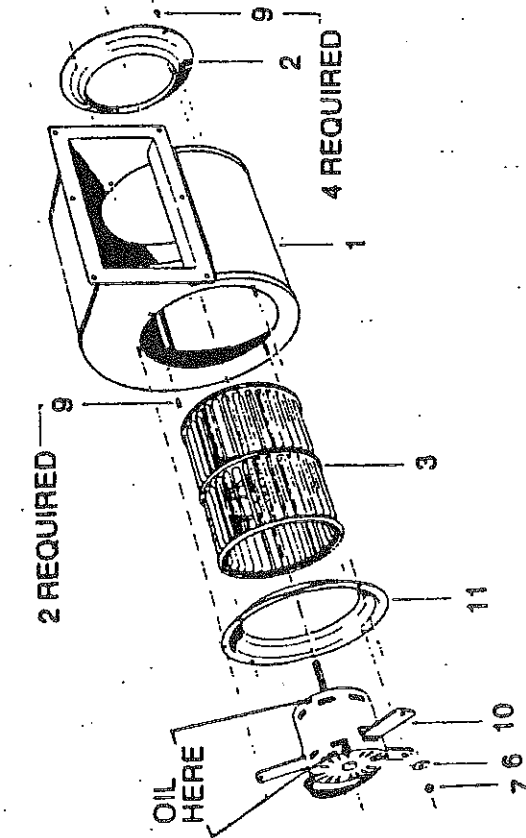


Figure 5 — Models 4C004A, 4C005, 4C006B, 4C446,  
4C012A, 4C013A & 4C447

Replacement Parts List

Ref. No.	Description	Part Numbers For Model:										
		4C004A	4C005	4C006B	4C012A	4C013A	4C264A	4C446	4C447	4C448A	4C565A	
1	Housing	8853-4078	8853-4053	8853-4092	8853-4082	8853-4009	8853-4206	8853-4053	8853-4009	8853-4206	8853-4206	
2	Inlet ring	8793-4006	8793-4008	8793-0801	8793-4009	8793-4049	8793-4049	8793-4008	8793-4049	8793-4049	8793-4049	
3	Blower wheel	0905-0050	0921-0008	0914-0003	0905-0393	8710-0003	8710-0028	0921-0008	8710-0003	8710-0028	8710-0028	
4	Gasket	0912-0167	0912-0167	0912-0167	0920-0069	0912-0167	0912-0167	0912-0167	0912-0167	0912-0167	0912-0167	
5	Outlet box cover	8591-6482	8591-6482	8591-6482	8591-6482	8591-6482	8591-6482	8591-6482	8591-6482	8591-6482	8591-6482	
6	Washer*	#8	#8	#8	#8	#8	#8	#8	#8	#8	#8	
7	Nut*	#8-32	#8-32	#8-32	#8-32	#8-32	#8-32	#8-32	#8-32	#8-32	#8-32	
8	Grommet	0912-0168	0912-0168	0912-0168	0912-0168	0912-0168	0912-0168	0912-0168	0912-0168	0912-0168	0912-0168	
9	Screw*	#8-1/4	#8-1/4	#8-1/4	#8-1/4	#8-1/4	#8-1/4	#8-1/4	#8-1/4	#8-1/4	#8-1/4	
10	Motor	3M776	3M078	3M728A	3M729	3M082	7163-5142	7121-3469	3M778	7163-5176	7163-5243	
11	Inlet ring motor side	—	—	—	—	—	8793-4057	—	—	8793-4057	8793-4057	