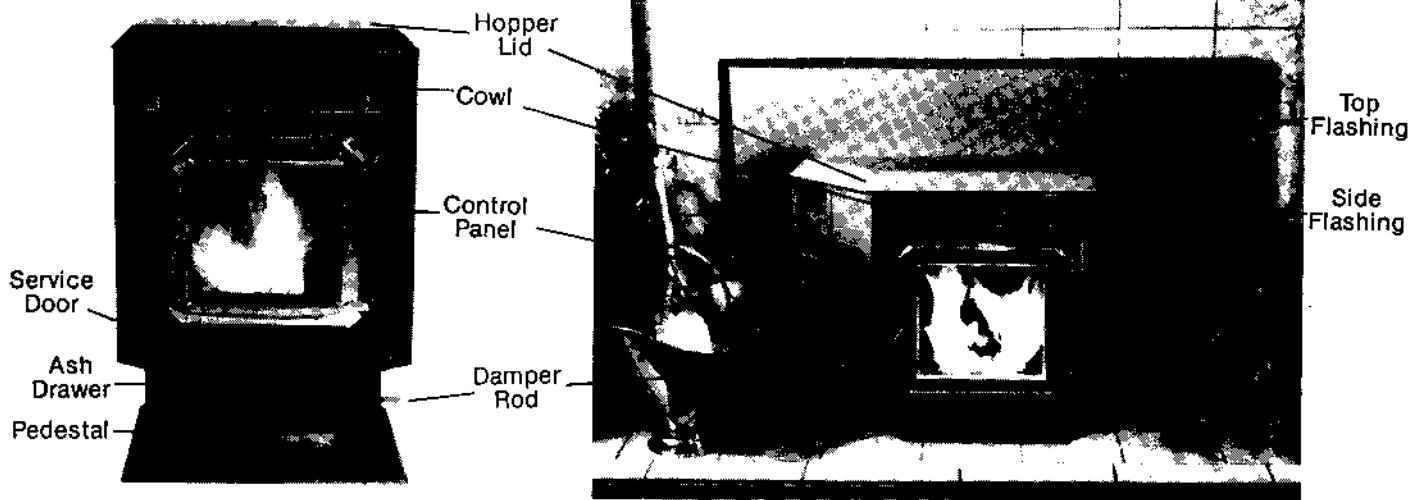


C A D E T

B Y B R E C K W E L L



MODEL P20 Freestanding Stove

MODEL P32 Fireplace Insert

# OWNERS MANUAL

Manufactured by  
National Steelcrafters of Oregon, Inc.  
P.O. Box 2501  
Eugene, Oregon 97402

7-91

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

P32 UNITS TESTED AND LISTED BY

**Warnock Hersey**



ICBO TL-116 NER-QA-219

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OF OREGON, INC.  
1991

P20 UNITS TESTED AND LISTED BY



Thank you for purchasing the Breckwell Pellet Burning Stove. You are now prepared to burn wood in the most efficient, convenient way possible. To achieve the safest, most efficient and most enjoyable performance from your stove, you must do three things; 1) Install it properly 2) Operate it

correctly and 3) Maintain in regularly. The purpose of this manual is to help you do all three. **PLEASE** read this manual thoroughly before beginning your installation and **KEEP IT** in a handy place for future reference and future owners.

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## 1.0 INTRODUCTION

Model P32 has been independently tested and approved in accordance with the relevant portions of ULC S627 CSA B366.2-M1983 "Standard for Space Heaters for use with Solid Fuels", UL 1482-1988 "Standard for Room Heaters", ASTM proposed standard E06.54-1991, CSA C22.2 No. 3 "Electrical Features of Solid Fuel Burning Appliances"; and installation as a stove heater and insert for masonry or metal fireplaces, plus Oregon new rules for mobile homes (814-23-900 through 814-23-909).

Model P20 has been tested to UL1482-1987 and H.U.D. requirements for installation as a stove heater, plus Oregon new rules for mobile homes. Both have been tested to EPA Method 28A and have been proven exempt from EPA emissions regulations.

This appliance is designed specifically for use only with pelletized wood. It is approved for residential installation according to current national and local building codes as a free standing room heater, as an insert, and as a zero

clearance (with header in place), when installed on the hearth of a masonry or metal fireplace. It is also listed as a mobile home heater which is designed for connection with an outside air source.

The stove will not operate using natural draft, or without a power source for the blower systems and fuel feeding systems and must not be burned with any type of coal. (Section 3.1)

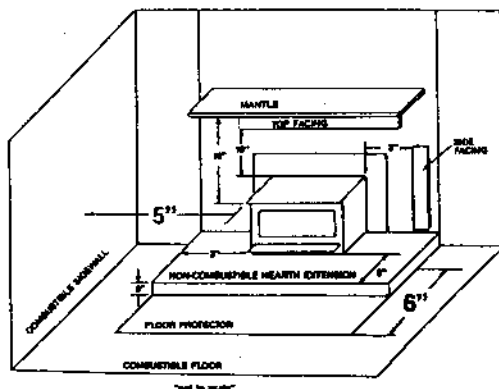
This stove is designed to provide the optimum proportions of fuel and air to the fire and will burn free of smoke and soot. Any blockage of the air supply to or from the stove will seriously degrade the performance and will be evidenced by a smoking exhaust and a sooting window. For the best operation the ash content of the pellet fuel should be less than 1% and the calorific value approximately 8200 BTU/LB. Avoid high ash content fuels as this will rapidly fill up the burn pot and eventually cut off the combustion air supply.

## 2.0 INSTALLATION

Model P32 has been tested and listed for installation into masonry fireplaces and factory-built "zero-clearance" fireplaces of the following description: all brands at least 30" wide and 20" high.

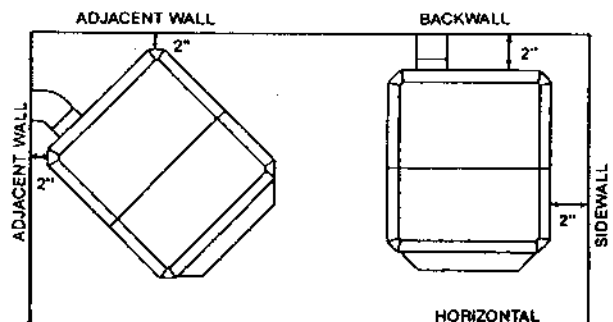
Also into mobile home factory built fireplaces of the following description: all brands at least 30" wide and 20" high.

### 2.1 Clearances (figure 1) P32



Model P20 has been tested and listed for installation in residential, mobile home, and alcove applications. **DO NOT USE MAKESHIFT MATERIALS OR COMPROMISES IN THE INSTALLATION OF THIS UNIT.**

### P20 CLEARANCE TO COMBUSTIBLES



FLOOR PROTECTION ON P20 MUST EXTEND 8" FROM FRONT FACE.

**ALCOVE MINIMUM DIMENSIONS:  
24½" (W) x 60" (D) x 72" (H)**

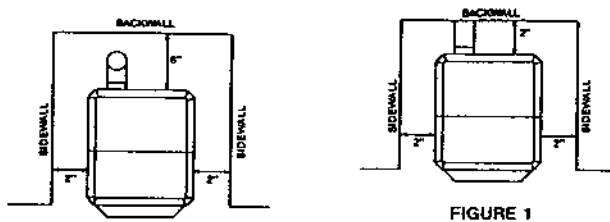


FIGURE 1

**2.2 Combustion Air Supply**

For mobile home installation the stove must be connected to an outside source of combustion air. A 1¾" inside diameter metallic pipe, either flexible or rigid should be used when outside air is to be connected. It attaches to an outlet on the stove's rear (see figure 2) and its terminus should have a wind hood or be turned 90° to prevent back draft. It should also terminate with a rodent guard. If outside air is not provided, air should NOT be restricted to the combustion air inlet. Hence in P32 installations, flashing vents should be allowed to provide air to the fireplace cavity. The fireplace opening should not be sealed at the face.

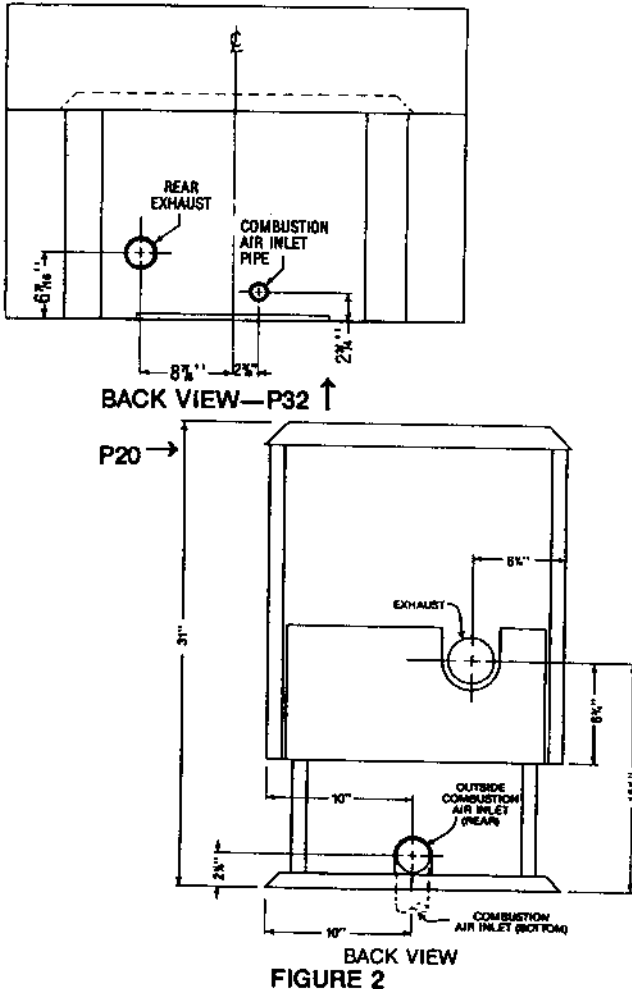


FIGURE 2

**Sources of Outside Combustion Air**

**A. Fireplaces**

1. Ash cleanout door on exterior wall.
2. Hole drilled in rear wall of firebox when fireplace is on an exterior wall (masonry fireplace only).
3. Top of chimney (see figure 6). All factory built fireplaces requiring outside air must use this method.

**B. Freestanding Stoves**

1. Hole in floor to accommodate outside air pipe.
2. Hole in rear wall to accommodate outside air pipe.

**2.21 When Outside Air is Not Used — Model P32 only**  
When outside air is not used, stove must be fitted with a Breckwell Check Valve (part #A-CV). This prevents smoke spillage in the event of combustion blower failure and competing exhaust pressure in the house, like bathroom or kitchen exhaust fans. This part must be attached to the end of the combustion air inlet tube (see figure 2A). **DO NOT OPERATE UNIT UNLESS EITHER CHECK VALVE OR OUTSIDE AIR IS CONNECTED.**

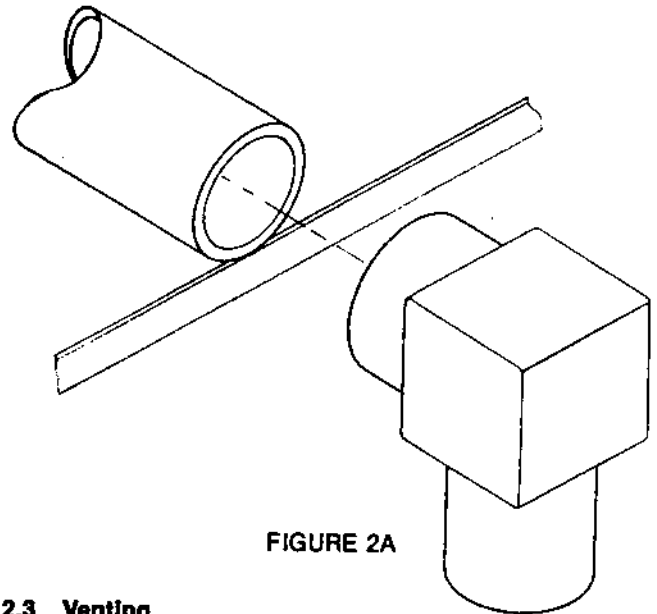


FIGURE 2A

**2.3 Venting**

Both Cadet models are certified for use with a listed Type L vent, 3 inch diameter, or 4 inch diameter. Class "A" chimney is not required. Do not connect this unit to a chimney flue serving another appliance. Do not install a flue damper in the exhaust vent of this unit.

**2.31 Equivalent Vent Length (EVL)**

The longer the run of pipe in your installation (both with inserts and freestanding), the more restriction there is in the system. Therefore, larger diameter pipe should be used. Here is how you determine whether 3" or 4" should be used in your installation.

If you have over 15 feet of equivalent vent length, we recommend the use of 4" pipe.

To calculate EVL, use the following conversions:

- 90° elbow or "T" = 5 equivalent feet
- 45° elbow = 3 equivalent feet
- Horizontal Pipe Run = 1 equivalent foot per actual foot
- Vertical Pipe Run = 0.5 equivalent feet per actual foot

NOTE: At altitudes above 3,000 feet, we suggest the use of 4" diameter vent at an EVL of 7 feet.

**2.32 P20 INSTALLATION**

Venting should be with 3" or 4" diameter listed pellet vent (type L-Vent) chimney. Stove was tested with Simpson Duravent Brand. Refer to the instructions provided by the chimney manufacturer, especially when passing through a wall, ceiling, or roof.

Because it is a pressurized exhaust, pipe joints must be sealed with at least three screws to insure no smoke spillage and consistent performance.

An exhaust adapter is included with the stove to adapt to L-Vent chimney. It should be attached directly to the combustion blower transition (see figure 3) and permanently sealed.

### 2.321 P20 REAR EXHAUST INSTALLATION Horizontally Through Wall

1. Position stove, adhering to clearances shown in section 2.1.
2. Locate position of hole in wall, directly behind stove's exhaust vent (see figure 2).
3. Cut opening in wall, 9 $\frac{1}{2}$ " round for 3" L-Vent, 10 $\frac{1}{2}$ " round for 4" L-Vent. This provides space for thimble which fits between wall studs. Attach thimble.
4. Attach enough pipe to penetrate and extend at least 3" beyond exterior walls.
5. Attach cap and seal outside wall thimbles with non-hardening waterproof mastic.
6. Termination should not be located such that hot exhaust gases can ignite trees, shrubs, grasses, or be a hazard to children. Exhaust gases can reach temperatures of 570°F and cause serious burns if touched. Locate termination a) not less than 3 feet above any forced air inlet located within 10 feet; b) not less than 4 feet below or horizontally from, or one foot above any door, window or gravity air inlet into any building; c) not less than two feet from an adjacent building and not less than 7 feet above grade when located adjacent to a public walkway.

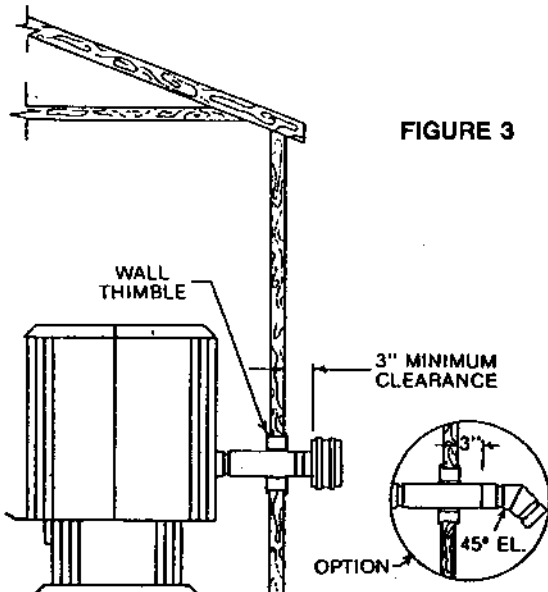


FIGURE 3

### 2.322 P20 VERTICAL INSTALLATION New Chimney System (see figure 4)

NOTE: Follow L-Vent Chimney manufacturer's instructions.

1. Use a cleanout tee to adapt to vertical.
2. Locate stove, drop plumb bob to center of appliance flue outlet, mark center point on ceiling. Cut square hold in ceiling, for firestop support assembly (for 3", cut 9 $\frac{1}{2}$ " square; 4", cut 10 $\frac{1}{2}$ " square).
3. Connect chimney sections from stove upwards.
4. When pipe passes through firestop at ceiling, tighten bolt and clamp around pipe.
5. Always maintain 3" clearance from combustible materials. When passing through additional floors or ceilings always install firestop spacer.

6. After lining up for hole in roof, cut either round or square hole in roof, always 3" larger all the way around pipe. Install upper edge and sides of flashing under roofing materials, nail to the roof along upper edge. Do not nail lower edge. Seal nail heads with non-hardening waterproof mastic.

7. Apply non-hardening, waterproof mastic where the storm collar will meet the vent and flashing, slide storm collar down until it sets on the flashing and put cap on, twist to lock.

### 2.323 P20 VERTICAL INSTALLATION Existing Chimney System (figure 5)

Adapters are available to adjust from 3" to 6" or 8". As an alternative, 3" or 4" pipe can be run inside existing chimney.

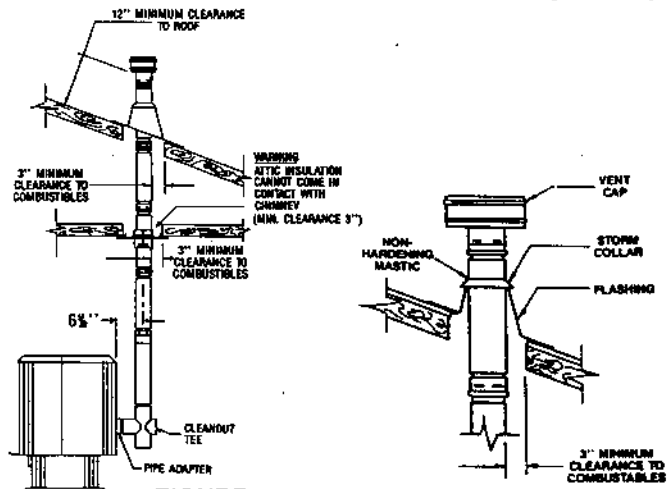


FIGURE 4

FIGURE 5

### 2.33 P32 INSTALLATIONS

Insert Installations must be vented with 3" or 4" pipe (see figure 6). Pipe may be single wall stainless steel flexible pipe. Vent may terminate within chimney beyond a blanking plate or extend to the chimney top. See section 2.2 for outside air access information. In zero-clearance fireplace installations, when the fireplace opening is above the floor or raised hearth, the stove's front can be supported with the Breckwell P32 support skirt.

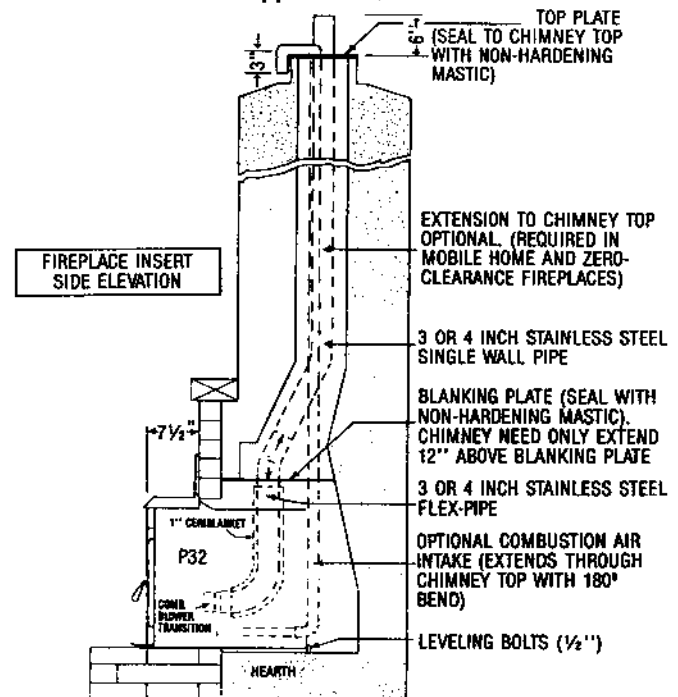


FIGURE 6

PROCEDURE NOTE: Follow metal chimney manufacturer's instructions.

### 2.331 WHEN VENT PIPE EXTENDS TO CHIMNEY TOP

1. You will need a pipe length equal to the chimney height (from hearth) plus one foot. If outside combustion air is to be used, you will need a pipe length (see section 2.2) equal to the chimney height less six inches.
2. Attach cerablanket wrap, which comes with stove, to that end of vent pipe that will connect to stove.
3. Set insert on hearth, adjust leveling bolts on rear sides, if necessary. Slide in far enough to attach vent pipe (and combustion air pipe if used). Use RTV, metallic tape, and/or self tapping screws to assure tight connection.
4. Complete assembly instructions (see section 2.334). Route power cord out the side nearest a 120V receptacle. Slide in insert. Seal is not necessary. Do not restrict air to or from vents in flashing.
5. Measure and build chimney top. Cut out holes for vent pipe (and combustion air pipe if used). Install and seal with non-hardening mastic to prevent water leakage. Install vent cap.

### 2.332 WHEN VENT PIPE EXTENDS THROUGH CHIMNEY BLANKING PLATE

**IMPORTANT: PREVENT SMOKE AND CARBON MONOXIDE LEAKAGE.** When vent pipe does not extend to chimney top, the blanking plate *must* be sealed and the vent pipe must be sealed where it inserts through the blanking plate. Otherwise, under poor draft conditions, products of combustion could be drawn through the blanking plate and enter the home.

1. You will need a pipe length equal to the hearth to blanking plate height plus twelve inches. An outside combustion air pipe (if used) must extend at least a foot above the vent pipe.
2. Attach cerablanket as on previous page.
3. Measure and build blanking plate. Cut out hole for vent pipe (and combustion air intake pipe, if used). Install and carefully seal blanking plate as in previous step 5. Failure to properly seal may result in smoke spillage.
4. Slide vent pipe (and intake pipe if used) up through blanking plate hole, leaving enough to grab and pull down.
5. Set insert on hearth, complete steps 3 and 4 above. Be sure to seal where pipe passes through blanking plate.

### 2.333 NEW CONSTRUCTION — SPECIAL CHASE

Figure 7 describes a P32 installation vented into either a special chase built outside an outer wall or a false inside wall. This is especially suited for new construction or remodeling.

### 2.334 FINAL ASSEMBLY

Assembly consists of three operations: A. 3-piece flashing attachment; B. Control Panel assembly attachment; C. firebox baffle attachment. After exhaust system has been installed and stove has been attached to it, follow this procedure.

**A. 3-piece flashing attachment** — Use screws provided to attach side flashing pieces to stove. On left side, pull the six loose wires from the wiring harness through the control panel hole. Also, be sure damper rod goes through its hole on left flashing's lower left corner. Screw wire damper handle onto rod. The top panel attaches last.

**B. Control Panel assembly attachment** — Connect the six loose wires to the circuit board/control panel assembly. Match the colors printed on the board. Failure to properly connect wires or match colors could lead to a dangerous condition. Then attach control panel assembly to outside left flashing face with four brass screws.

**C. Firebox Baffle attachment** — lift baffle plate and slip it into the tabs at the top of firebox.

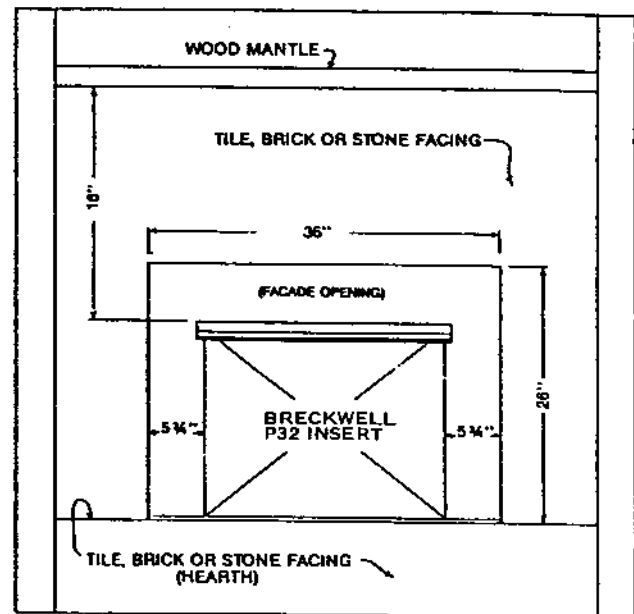
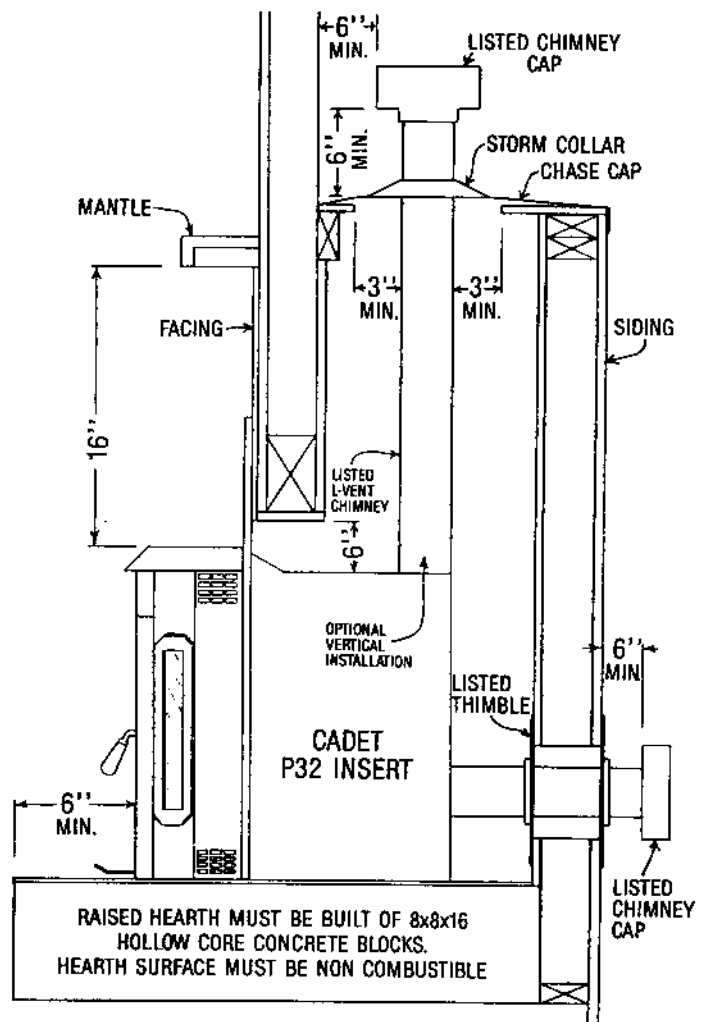


FIGURE 7

## 2.4 Electrical Installation

This stove is provided with an 8-foot grounded electrical cord extending from the rear of the stove. This should be

connected to a standard 3 prong 120 volt, 60 hz electrical outlet. Voltage variations can lead to serious performance problems. The Breckwell electrical system is designed for 120 volts AC with no more than 5% variation. National Steelcrafters of Oregon, Inc. cannot accept responsibility for poor performance or damage due to inadequate voltage. If connected to an older two-prong outlet, a separate ground wire should be run to a proper ground.

## 2.5 Special Mobile Home Requirements

Mobile Home installations made prior to the initial sale of

the mobile home are governed by US Department of Housing and Urban Development (HUD) standards. They include the following: a. Stove should be grounded, with #8 copper wire and terminated with NED approved grounding device; b. Stove should be attached to mobile home during shipment.

**WARNING:** Do not install in a sleeping room.

**CAUTION:** The structural integrity of the mobile home floor, wall and ceiling/roof must be maintained.

# 3.0 OPERATION

## 3.1 Proper Fuel

**THIS STOVE IS APPROVED FOR BURNING PELLETIZED WOOD FUEL ONLY!** Factory-approved pellets are those 1/4" or 3/8" in diameter and not over 1" long. Longer or thicker pellets sometimes bridge the auger flights which prevents proper pellet feed. Burning wood in forms other than pellets is not permitted. It will violate the building codes for which the stove has been approved and will void all warranties. The design incorporates automatic feed of the pellet fuel into the fire at a carefully prescribed rate. Any additional fuel introduced by hand will not increase heat output, but may seriously impair the stove's performance by generating considerable smoke. Do not burn wet pellets. The stove's performance depends heavily on the quality of your pellet fuel. We recommend the use of pellet fuel that carries the listing mark of the Association of Pellet Fuels Industries (left). Avoid pellet brands which display these characteristics:



- Excess Fines — "fines" is a term describing crushed pellets or loose material that looks like dust or sand. Pellets can be screened before being placed in hopper to remove most fines.
- Binders — Some pellets are produced with petroleum distillates or other materials to hold them together, or bind them.

Poor quality pellets will often create smoke and dirty glass. They will create a need for more frequent maintenance. You will have to empty the burn pot and ash pan DAILY plus vacuum the entire system more often. Poor quality pellets could damage the auger. National Steelcrafters of Oregon, Inc. cannot accept responsibility for damage due to poor quality pellets.

## 3.2 Pre-Startup Check

Clean firebox of all residue ash by scraping ash into ash pan. Remove burn pot and dump ash into ash pan making sure no air holes are blocked. Remove ash pan and dump ash into metal container with lid. Replace ash pan and burn pot. Clean door glass if necessary (a dry cloth is usually sufficient). Check fuel in hopper and refill if necessary. **NOTE:** Hopper capacity is approximately 50 lbs.

## 3.3 Building a Fire

**CAUTION:** Make sure you can see a flame before you leave fire unattended.

**NOTE:** During the first few fires, your stove will emit an odor as the high temperature paint cures or becomes seasoned to the metal. Maintaining smaller fires will minimize this. Avoid placing items on stove top during this period as paint could be affected.

- Check to make sure power cord from stove is plugged in.
- Fill burn pot half full by hand or by pressing "MANUAL FEED" switch on control panel, (See Figure 8). Add approved fire starter (see 3.91), light and close door. Keep door tightly closed during operation.

- Push damper control rod (located on lower side of stove) all the way in.
- Push on/off switch to "on" position. Set fuel control knob to "LOW".
- When fire is burning well in burn pot, push "auger" button. When forced air flow becomes warm and auger starts feeding pellets, usually in about 5 to 10 minutes, set pellet feed knob to desired setting. Readjust damper (see section 3.6). **NOTE:** Auger will not start feeding pellets until firebox temperature reaches preset level.

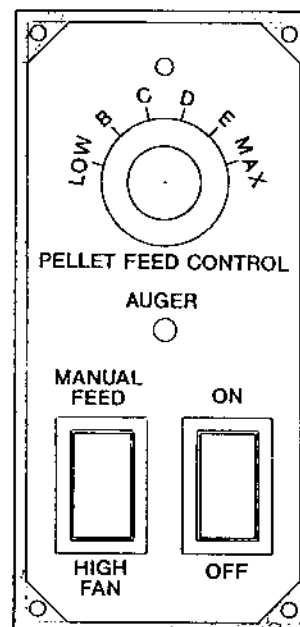


FIGURE 8

## 3.4 Panel Controls

The blowers and automatic fuel supply (auger) are controlled from a panel on the side of the stove. The on-off switch turns the blowers on. The "auger" button activates the automatic feed system. When the green light is on, there is power to the auger. The auger will not begin feeding pellets until the firebox has warmed up to a preset temperature. In case of a power outage lasting more than one or two seconds, this button must be pushed to re-engage the auger. There are six fuel feed settings. On "LOW", the feed rate is approximately 0.75 to 1 lb. per hour. On "MAX"

the feed rate is approximately 4.25 to 4.75 lbs. per hour on Model P20, 3 3/4 to 4 lbs. per hour on model P32.

The convection blower speed varies directly with feed rate. The "High Fan" switch overrides this variable speed function. It will set the convection blower speed to high at any feed rate setting. The "Manual Feed" switch allows you to add fuel to the burn pot automatically. **CAUTION:** Do not use this control during normal operation as it could smother the fire and lead to a dangerous condition (see 3.91a). During normal operation, this switch should be in its central position, neither on "HIGH FAN" or "MANUAL FEED".

## 3.5 Optional Thermostat

A remote thermostat will help you maintain a constant house temperature automatically. A low voltage thermostat is recommended. When engaged, the stove will automatically switch between two settings. When warm enough, it will switch to "low", which also slows the convection blower. If the house then cools below your thermostat setting it will switch to the feed rate of your

knob setting, with a maximum rate of "D". Thermostat must be installed by an Authorized Breckwell Dealer.

NOTE: When using the thermostat, it is important to set your damper control rod at approximately ¼" out.

### 3.6 Damper Control

The damper control rod on the stove's lower side adjusts the combustion air. This control is necessary due to the varied burn characteristics of individual installations, different pellet brands and pellet feed rates. It allows you to improve the efficiency of your stove. Providing correct combustion air will reduce the frequency of cleaning your glass door and prevent the rapid build-up of creosote inside your stove and chimney.

You should adjust the rod based on the fire's appearance. A lazy fire can be improved by pulling the damper out slightly. A "blow torch" fire can be improved by pushing the damper in a bit.

As a general rule, on a low feed rate setting, the damper should be in. On higher feed rates, the damper should be more open. Through trial and error, you will find the best settings. Consult your dealer if you need help. NOTE: If damper is out too far, it can cause the fire to go out.

### 3.7 Refueling

To open, lift hopper lid from corner next to top flashing. CAUTION: It may be hot. DO NOT put any weight on open lid or damage could result. We recommend you not let the hopper fall below ¼ full.

**KEEP HOPPER LID CLOSED AT ALL TIMES EXCEPT WHEN REFILLING. DO NOT OVERFILL HOPPER.**

### 3.8 Shut Down Procedure

Press the control panel switch to off. The blowers will continue to operate until internal firebox temperatures have fallen to a preset level.

### 3.9 Safety Features

- If there is a power outage longer than several seconds, the auger will not operate once power is restored. This prevents pellets being fed to a non-burning burn pot. Pressing the auger button on the control panel will reactivate auger. The blowers will come on when power is restored to evacuate the combustion chamber of gases.
- In case of a malfunctioning convection blower, a high temperature thermodisk will shut down the auger, preventing the stove from overheating. When stove has cooled, restart as in 3.2 and 3.3.
- On the P32, if the combustion blower fails, an air pressure switch will shut down the auger. NOTE: Under

some circumstances, opening the stove door during operation will cause enough pressure change to activate the air switch. Close the door and restart fire.

## 3.91 OPERATING SAFETY PRECAUTIONS

- If you notice a smoldering fire (burn pot full but no visible flame) AND a heavy smoke build-up in firebox, pull plug on unit. Do not tamper with any controls on stove. Wait 15 minutes or until firebox clears, open door, plug unit back in and restart fire. (See sections 3.2 and 3.3)
- DO NOT STORE OR USE FLAMMABLE LIQUIDS, especially gasoline, in the vicinity of your Cadet. Never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, a propane torch, or similar fluids to start or "freshen up" a fire in this heater.
- WARNING: DO NOT OVERFIRE THIS STOVE.** This may cause serious damage to your stove and void your warranty. It also may create a fire hazard in your home. **IF ANY EXTERNAL PART OF THE UNIT BEGINS TO GLOW, YOU ARE OVERFIRING.** Immediately press "off" switch on control panel.
- KEEP ALL HOUSEHOLD COMBUSTIBLES, SUCH AS FURNITURE, DRAPES, TOYS, ETC. THREE FEET, OR A CONSIDERABLE DISTANCE FROM THE BURNING STOVE.
- Maintain proper ventilation. It is important that adequate oxygen be supplied to the fire for the combustion process. Modern houses are often so well insulated, it may become necessary to open a window or install an outside air vent to provide sufficient combustion air.
- Since heating with a solid fuel fire is potentially hazardous, even with a well made and thoroughly tested stove, it would be wise to install strategically placed smoke detectors and have a fire extinguisher in a convenient location, near an exit.
- Do not open stove door when operating unless necessary. This will create a dirty, inefficient burn and could allow sparks to escape.
- Do not permit operation by young children or those unfamiliar with stove's operation.
- Do not service or clean this appliance without disconnecting power cord.
- Use only approved firestarters. These include gelled alcohol types and solid types with wax as an additive. Do not use solid types with paraffin, or liquids like barbecue lighter fluid, gasoline or rubbing alcohol. Do not use a gas torch to light your stove.

## 4.0 MAINTENANCE

**FAILURE TO CLEAN AND MAINTAIN THIS UNIT AS INDICATED CAN RESULT IN POOR PERFORMANCE AND SAFETY HAZARDS.**

### 4.1 Ash Disposal (see figure 12)

Remove ashes periodically as they fill the pan. To remove pan:

- Model P20
  - Put fire out or set feed rate to "LOW"
  - Open ash drawer door by turning thumbscrew counter clockwise. Door will open down.
  - Remove ash pan by grasping handle on front of pan. CAUTION: Pan may be hot.
  - Empty pan. Reverse procedure to replace. Make sure ash drawer door seals snugly to insure proper operation.
- Model P32
  - Make sure fire is out.
  - Remove burnpot by grasping and twist pulling straight out. NOTE: Inspect burnpot periodically to see that holes have not become plugged.
  - Empty ashes from burnpot into pan. Clean burnpot.

4. Use tool to lift pan and pull out carefully.

5. To replace, reverse procedure. Make sure burnpot is level and pushed all the way back in when it is reinstalled.

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

### 4.2 Burn Pot cleaning

The burn pot must be kept clean for proper operation. Clinkers and excessive ash must be removed when they block the air holes. If the fire's appearance changes or the door becomes dirty, you may need to clean the burn pot. Stirring the pot will often be sufficient. Other times it will be necessary to lift the pot up off its base and empty it in the ash pan. Scrape it clean and make sure holes are not blocked when emptying burn pot.

**NOTE:** The outside hole should face front when replacing pot on its base.

### 4.3 Firebox Cleaning

Periodically, fly ash must be removed from the exhaust manifold and combustion air chamber. Cleaning frequency depends on usage and pellet quality. Inspect the system monthly until you have determined ash and creosote accumulation with your operating patterns. To remove manifold:

- Extinguish fire and let stove cool.
- Remove burn pot and ash pan. On P32 remove firebox baffle (see Section 2.334). Use  $\frac{3}{8}$ " wrench to remove four bolts (see Figure 9). Pull off manifold.
- Vacuum fly ash from all surfaces. On P20, vacuum inside of pipe on which burn pot mounts (make sure slide damper is open). On P32, vacuum combustion blower blades.
- To replace manifold, reverse procedure. On P32, make sure burn pot mounts properly before tightening manifold bolts. **NOTE: Manifold must seal against firebox to insure proper operation.**

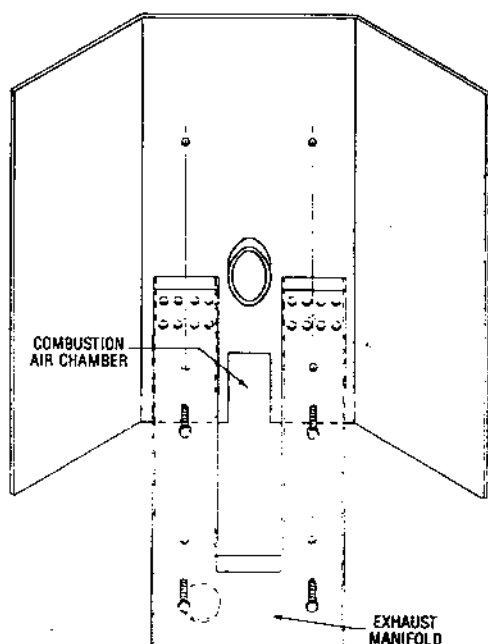


FIGURE 9

Gasket around door and door glass should be inspected and repaired or replaced when necessary (see section 6.0).

### 4.4 Blowers

**a. Cleaning** — Over a period of time, ashes or dust may collect on the blades of both the combustion blower and convection blower. Periodically the blowers should be vacuumed clean as these ashes can impede performance. Creosote can also accumulate in the combustion blower. This needs to be brushed clean.

#### 1. Model P20

Both blowers should be removed once per year and brushed clean. The combustion blower (see Figure 11) is accessed through the service door on the lower left side. The convection blower is accessed from the pedestal rear. While out the combustion blower can be oiled (see Section 4.4b) **NOTE: Be careful when cleaning to not dislodge balancing clip or bend fan blades.**

#### 2. Model P32

Both blowers are easily accessed by sliding stove out on hearth. Both blowers can be cleaned while attached.

**b. Oiling** — Blower manufacturers suggest oiling annually. See figure 11 for lubrication points. Use SAE 20W oil. Limit to one or two drops. **NOTE: P20 convection blower should not be oiled.**

### 4.5 Chimney Cleaning

**a. Creosote Formation** — 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 newly started fire or from a slowly burning fire.

As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire which may damage the chimney or even destroy the house.

Despite their high efficiency, pellet stoves often accumulate creosote under normal conditions.

**b. Fly Ash** — This accumulates in the horizontal portion of an exhaust run. Though non-combustible, it may impede the normal exhaust function. It should therefore be periodically removed.

**c. Inspection and Removal** — The chimney connector and chimney should be inspected at least monthly during the heating season to determine if a creosote or fly ash buildup has occurred.

If creosote has accumulated, it should be removed to reduce the risk of a chimney fire. Inspect the system at the stove connection and at the chimney top. Cooler surfaces tend to build creosote deposits quicker, so it is important to check the chimney from the top as well as from the bottom.

The creosote should be removed with a brush specifically designed for the type of chimney in use. A chimney sweep can perform this service. It is also recommended that before each heating season the entire system be professionally inspected, cleaned, and repaired if necessary.

**d. On Model P32 you can easily detach the vent at the combustion blower transition (see figure 10). To clean the chimney, remove bolts. Make sure gasket is in place and bolts are tightened equally when re-attaching.**

### 4.6 Recommended Maintenance Schedule

Use this as a guide under average use conditions.

	Daily	Weekly	Monthly or per ton	Annually
Burnpot	stirred	emptied		
Clean Glass	wiped			
Combustion Chamber		brushed		
Ash Pan		emptied		
Exhaust Manifold			vacuumed	
Combustion Blower Blades			vacuumed brushed	
Fan Motors				oiled
Vent System				cleaned
Gaskets				inspected

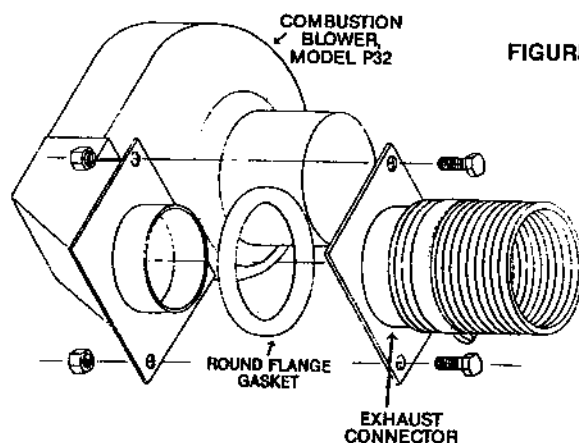


FIGURE 10



# 5.0 TROUBLE-SHOOTING GUIDE

When your stove acts out of the ordinary, the first reaction is to call for help. This guide may save time and money by enabling you to solve simple problems yourself. Problems can be due to only four factors: 1) poor fuel; 2) poor operation or maintenance; 3) poor installation; 4) factory defect. You can usually solve those related to 1 and 2. Your dealer can solve those in 3 and 4. Refer to figure 11 to help locate indicated parts. **REMINDER: Pull plug before servicing, unless otherwise instructed.**

## 5.1 Fuel Will Not Feed

1. Check for fuel in hopper. See section 3.7b. If stove runs out of fuel, pellets will not feed once hopper is reloaded until auger fills with pellets. This takes several full turns of the auger.
2. Push "auger" button.
3. Check for auger jam. You can hear auger motor work at least every 15 seconds. If motor is working and auger is not, contact your dealer.
4. If auger motor is not working, and there is power to the system (green light is on) high temp. or auger thermodisk may be stuck in wrong position. Check for continuity and tap lightly. If problem persists, call dealer.
5. On Model P 32 if suction or negative pressure in the stove is lost, an air switch shuts off the auger. Inspect for source of lost pressure. Stove door ajar may cause this.
6. If stove set at "MAX" is suddenly switched to "LOW", a temporary overfire condition may occur which will stop the auger (green light will go out). Wait ten to fifteen minutes, restart fire.

## 5.2 Fire Goes Out

(assuming auger is feeding and there is ample fuel in hopper and burnpot)

1. Check for blockage in combustion air inlet, burnpot and exhaust.
2. Restart fire, adjust feed rate upwards. Large pellets feed

more slowly. A fire sometimes CANNOT be maintained on low. When the fire goes out, a thermodisk stops the auger when the unit cools. If this problem recurs, either change to 1/4" pellet fuel or do not set feed rate below "B".

3. Check to see if combustion blower is operating.

## 5.3 Smokey Fire (see section 3.6 first) (lazy flame, soot deposits on door glass)

1. Check door and door glass gasket. Door should be tightly sealed. Replace gasket if necessary.
2. Check that burnpot is installed properly and holes are not plugged.
3. Check for blockage in combustion air inlet and exhaust.
4. Make sure manifold is sealed tightly.
5. Check quality of fuel (see section 3.1).
6. Adjust slide damper (see section 3.6)

## 5.4 No Power

1. Check power supply supply to stove. (See section 2.4)

## 5.5 Blower Will Not Operate Properly

1. Check power supply.
2. Check blower thermodisk with continuity tester.
3. Clean and oil blowers.
4. When "on" switch is pushed at start-up, convection fan turns on low. Pushing "auger" button sets this blower at proper speed.

## 5.6 Noisy Operation

1. Identify source of noise (i.e. which motor).
2. Check tension of blower mounting screws if vibrating noise.
3. Check for dirty or unbalanced impeller wheel on blowers if clanging noise.
4. Oil blowers with SAE 20W oil, two drops maximum.
5. Readjust convection blower speed (pellet feed control knob), if harmonic vibration.

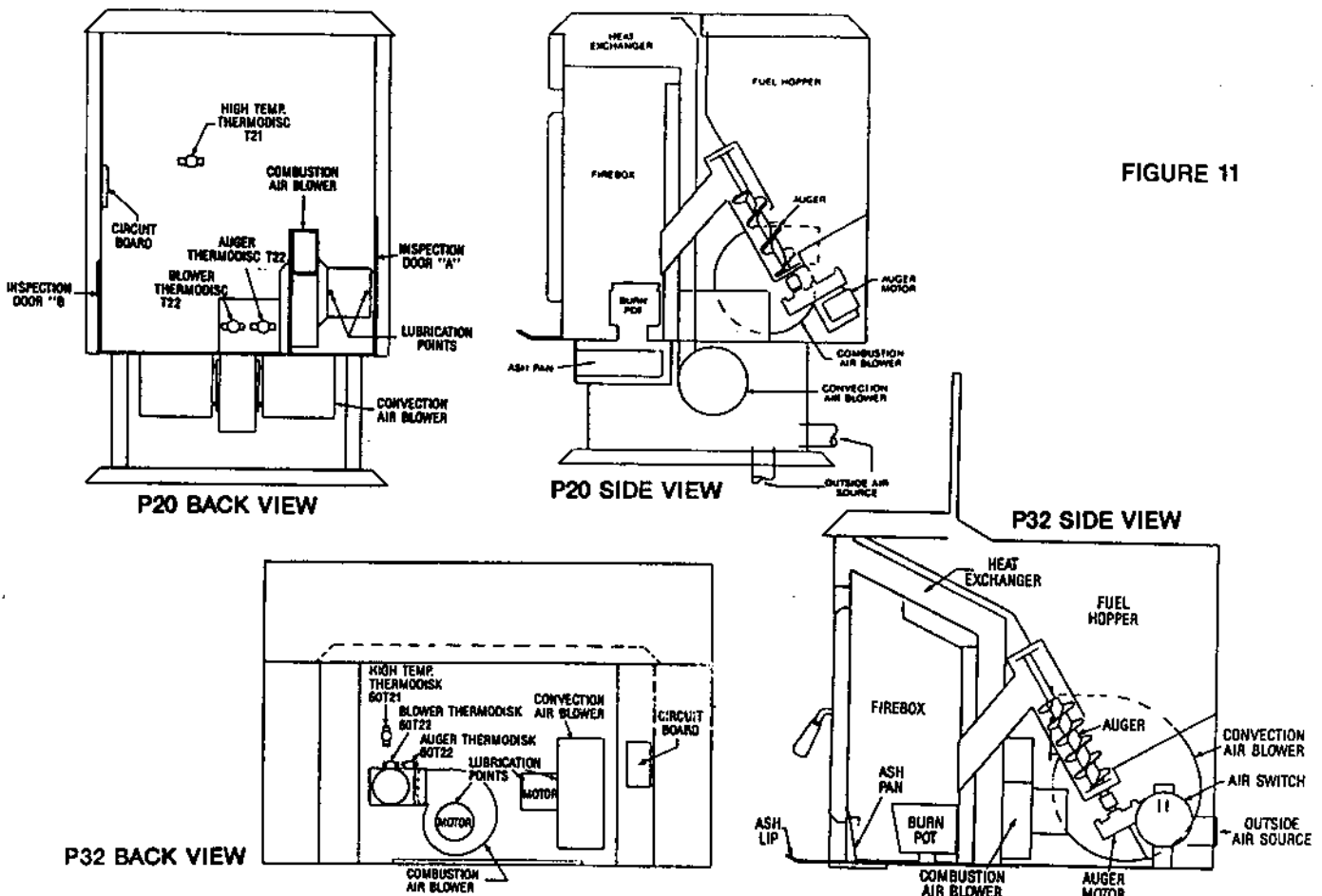


FIGURE 11

# 6.0 REPLACEMENT PARTS

Contact an Authorized Breckwell Dealer to obtain any of these parts

## Item

Damper Handle  
 Door Handle  
 Door Glass  
 Side Glass  
 Window Clips  
 Door Gasket (four feet)  
 Window Gasket (four feet)  
 Circuit Board Control Panel  
 Convection Blower — specify P20 or P32  
 Combustion Blower  
 Round Flange Gasket  
 Auger Gear Motor  
 High Temp Thermodisk (T21)  
 Auger/Blower Thermodisk (T22)  
 Burn Pot — specify P20 or P32  
 Maintenance Tool  
 Furnace Cement (2-Oz.)  
 Exhaust Adapter  
 Air Switch

## Optional Items for Your Breckwell

Brass Flashing Trim (P32)  
 Decorative Etched Door Glass  
 22-Carat Gold Plated Cowl  
 Check Valve

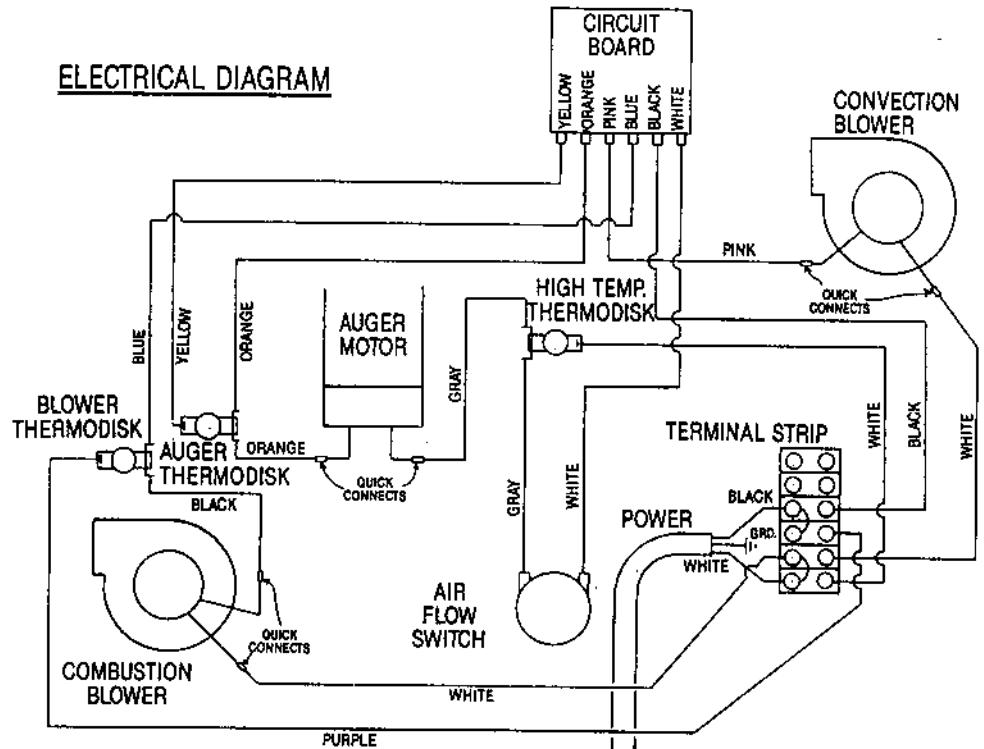


FIGURE 13

# WARRANTY

National Steelcrafters of Oregon, Inc. (NSO) provides the original consumer purchaser of the Cadet by Breckwell Pellet Stove with a five year limited warranty on non-electrical parts and a one year limited warranty on all electrical components, from the date of purchase. There is no warranty on glass window, gaskets, paint and burnpot, all of which may need periodic replacement.

This warranty covers defects in materials and workmanship in covered components, provided product has been installed and operated strictly in accordance with the instructions in this owner's manual. This warranty does not cover damage or breakage caused by improper handling, misuse, abuse, disassembly, unauthorized modification, or other circumstances beyond NSO's control.

If warranty service is needed during warranty period, notify nearest NSO Authorized Breckwell Dealer. Be prepared to provide your name, address, phone number, the installer, serial number of stove, date of purchase, and as much information as possible about the nature of the problem.

If dealer must examine Breckwell at consumer's residence, a reasonable service call charge may be incurred. If unit must be transported, those charges will be consumer's responsibility.

This warranty is limited solely to the purchase price of the product. NSO will not be liable for consequential or indirect damages to property or persons resulting from use of this product. No other express warranty is given and no affirmation of NSO or its agents by work or action shall constitute a warranty.

Warranty limitations may not apply in our area. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.