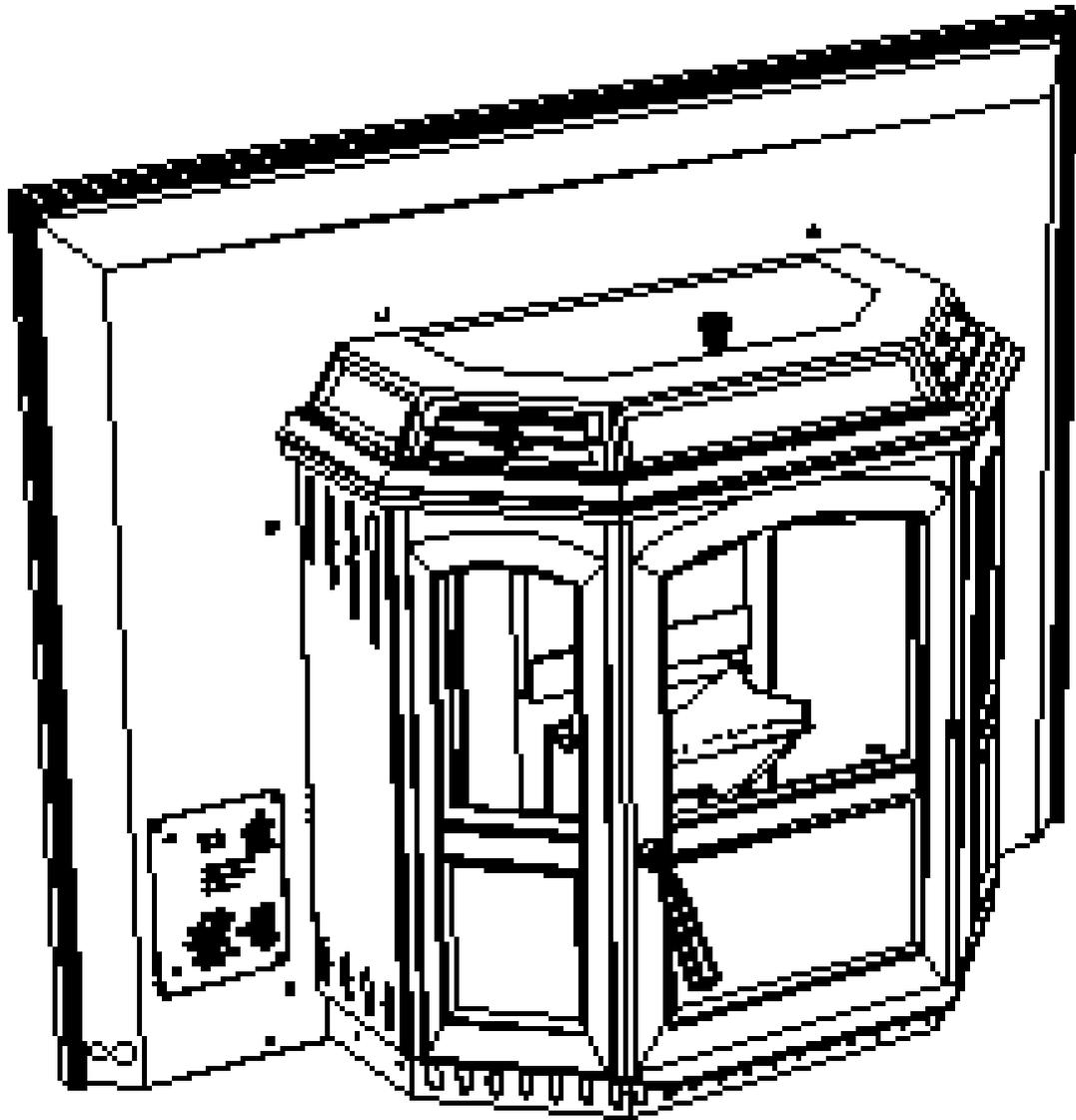


# INVINCIBLE PELLET INSERT OWNERS MANUAL



R4

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**Manufactured by  
Harman Stove Company  
352 Mountain House Road  
Halifax Pa. 17032  
(717) 362-9080**

# Packing List

## Inside Stove:

### Hardware Pack

- (2) Electrical Terminals
- (1) 10-32 x 1/2" Bolt
- (1) 1/4 x 20 x 2 1/2" Bolt
- (1) Wooden Handle
- (1) Brass Knob
- (1) Control Board Wired to Stove
- (1) Owners Manual
- (1) Warranty Activation Coupon
- (1) Room Sensing Probe
- (2) Side Panels
- (1) Ash Pan

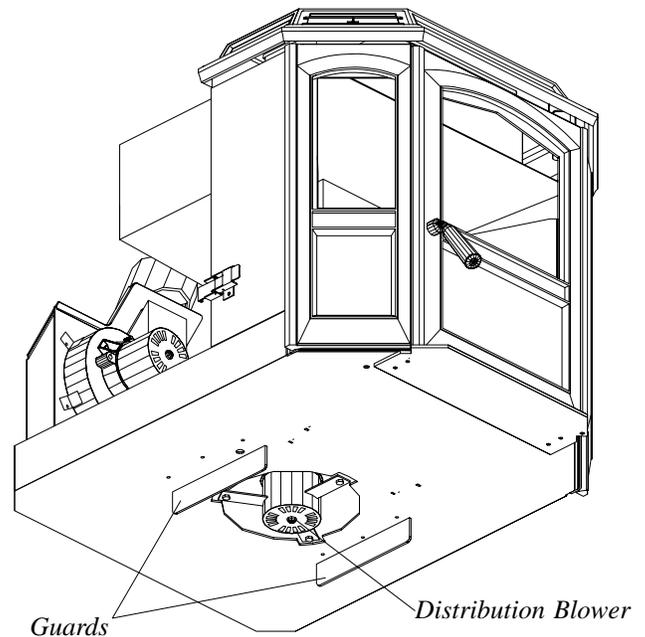
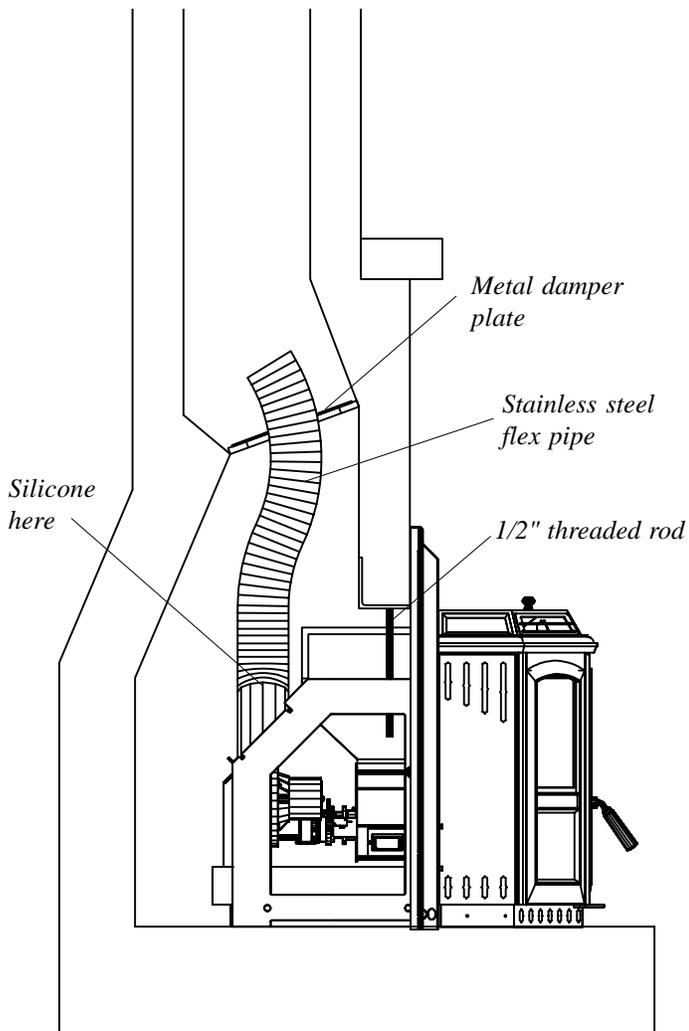
- (2) Firebricks

- (1) Scraper
- (1) Flame Guide
- (1) Cleaning Brush
- (2) 1/2 x 12" Threaded Rods

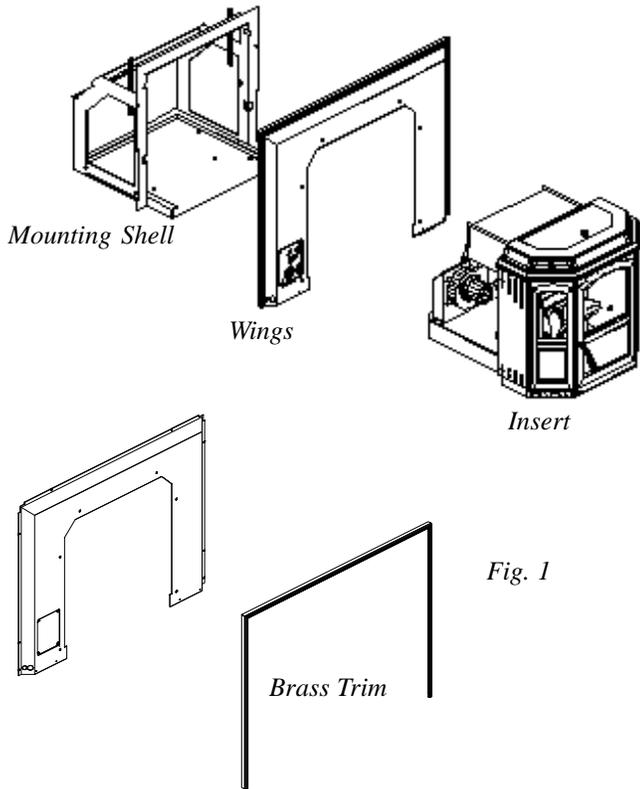
## Inside Wing box

- (1) Air Intake Grill
- (1) Hardware Pack
  - (6) 1/4 x 20 x 1/2 Bolts
  - (6) 10-32 x 1/4 Bolts
  - (2) 10-32 Nuts
- (1) Set of Brass Trim for Wings

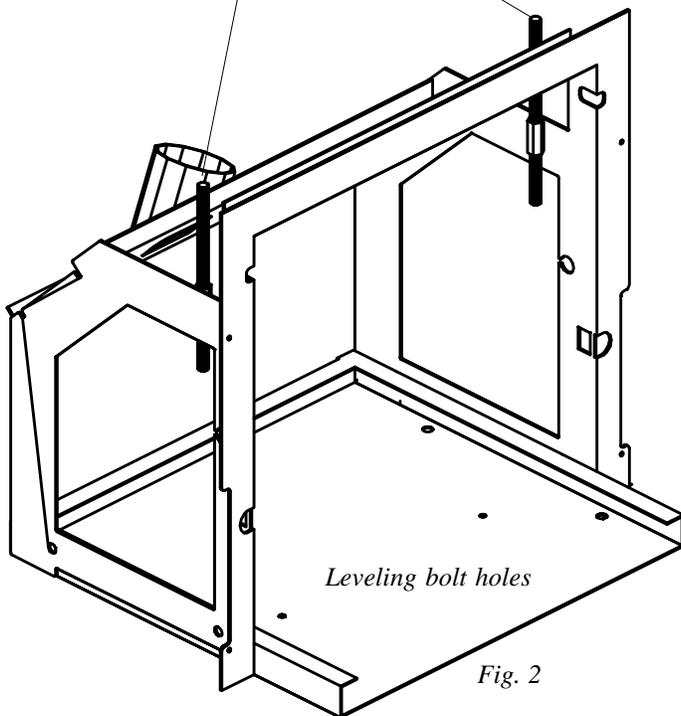
# Assembly and Installation



*Be careful not to damage the distribution blower located under the insert. There are guards on both sides of the motor to allow the insert to rest on a flat surface, however, extra care should still be taken.*



After leveling, tighten the two 1/2" threaded rods up against the fireplace lintel.



The Invincible Insert is made up of three main parts. They are the mounting shell, the wings, and the stove insert, fig. 1.

A unique feature of this unit is the fact that the insert can be removed from the fireplace for service without removing the mounting shell, the wings or disconnecting the flue pipe.

Please note that the insert extends through the rear of the mounting shell and this distance needs to be considered when installing the shell. The easiest place to see this is before you remove the unit from the skid, fig.3.

## Installing the Mounting Shell

Before installation, remove the damper and any accessories from the fireplace. It is intended that a four inch stainless steel flex pipe shall be connected to the pipe on the rear of the mounting shell and extend up through the damper opening. The pipe shall be sealed at the damper opening with a metal plate or packed with fiberglass.

Install brass trim on wings with hardware provided. Bolt wings to shell with button head bolts.

Place flex pipe up through damper opening and seal around the pipe. The pipe should be able to slide down over the flue on the shell, and sealed with high temp silicone.

Place shell with wings attached into the fireplace. Level the wings in all directions with the leveling bolts in the base of the shell. After leveling, tighten the two 1/2" threaded rods up against the fireplace lintel, fig. 2. Do not over-tighten.

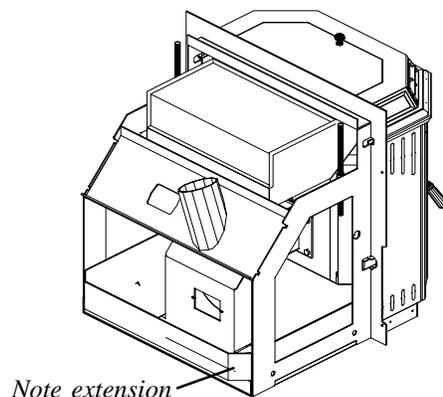


Fig. 3

## Installing Insert

Slide two four foot long wood 2 x 4's into the bottom of the shell as shown in fig. 4. Support the ends of the 2 x 4's by cutting two pieces the proper height for your hearth. A cross brace between the two supports is recommended.

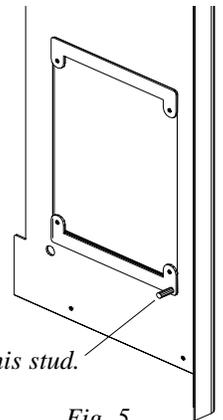
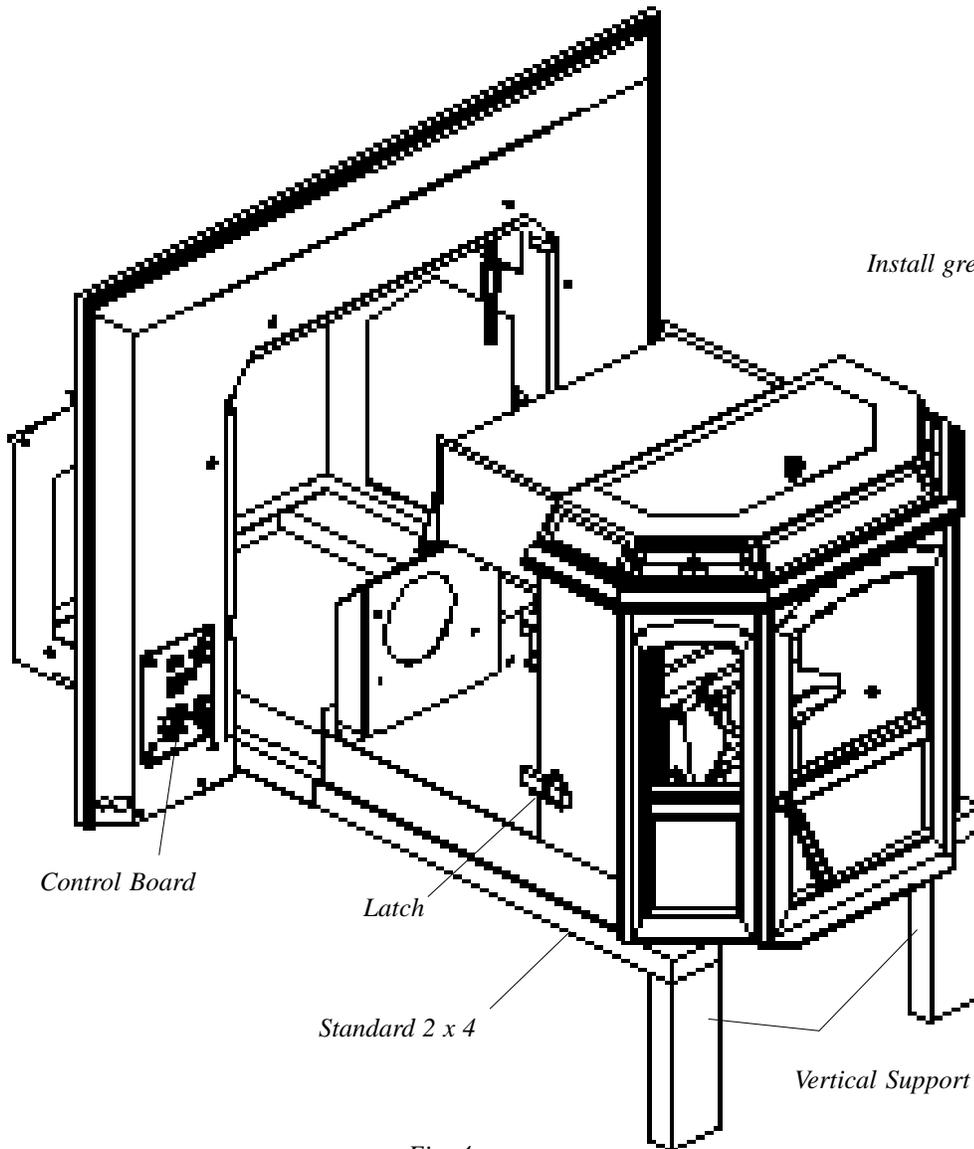
Place the insert on top of the 2 x 4's and slide back until the bottom is started onto the shell.

Unpack the control board and install. This can be done with the wiring attached by bringing the control through the wing from the back. The control can be mounted from the front if the wiring harness is disconnected and reconnected after

mounting. Be sure to put the green wires on the stud behind the wing. This stud also has the green wire from the power cord on it, fig 5.

Next slide the insert to within an inch of home position. Align the latches on the sides of the insert and slide in the rest of the way. Always be sure no wires are being pinched. Latch the two latches and remove the 2 x 4's. Reattach the side panels and bottom air intake grill, fig. 6.

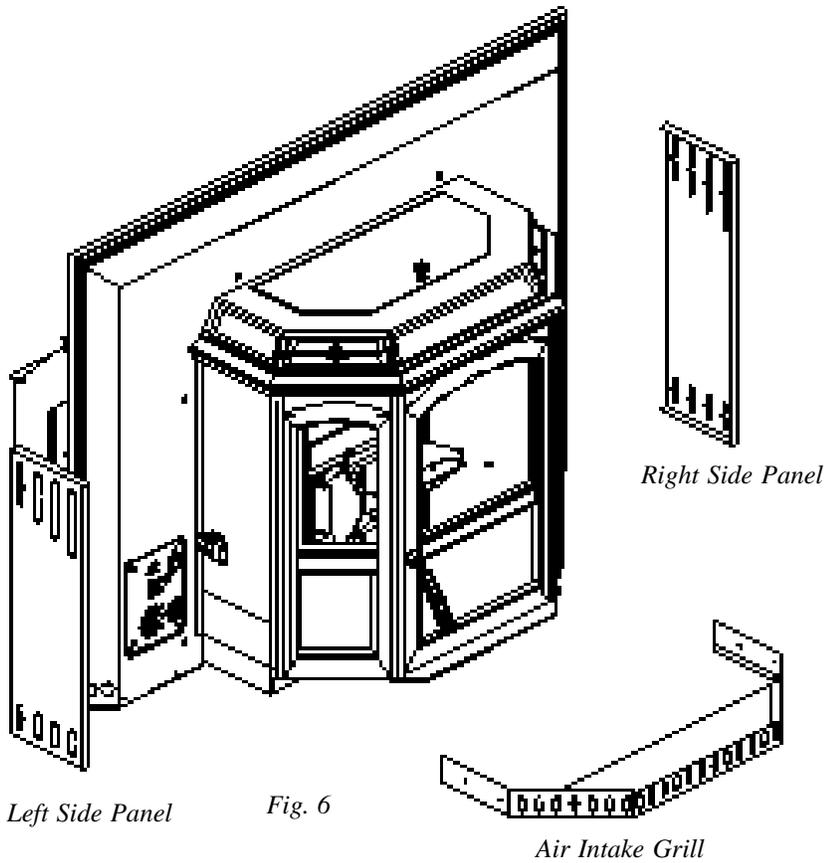
Place the Room Sensing Probe in the desired location and run standard thermostat wire back to the terminals on the left wing and connect with the two terminals provided, fig. 7. Connect the power cord to a 120 volt receptacle.



*Install green wires on this stud.*

Fig. 5

Fig. 4



### Final Assembly

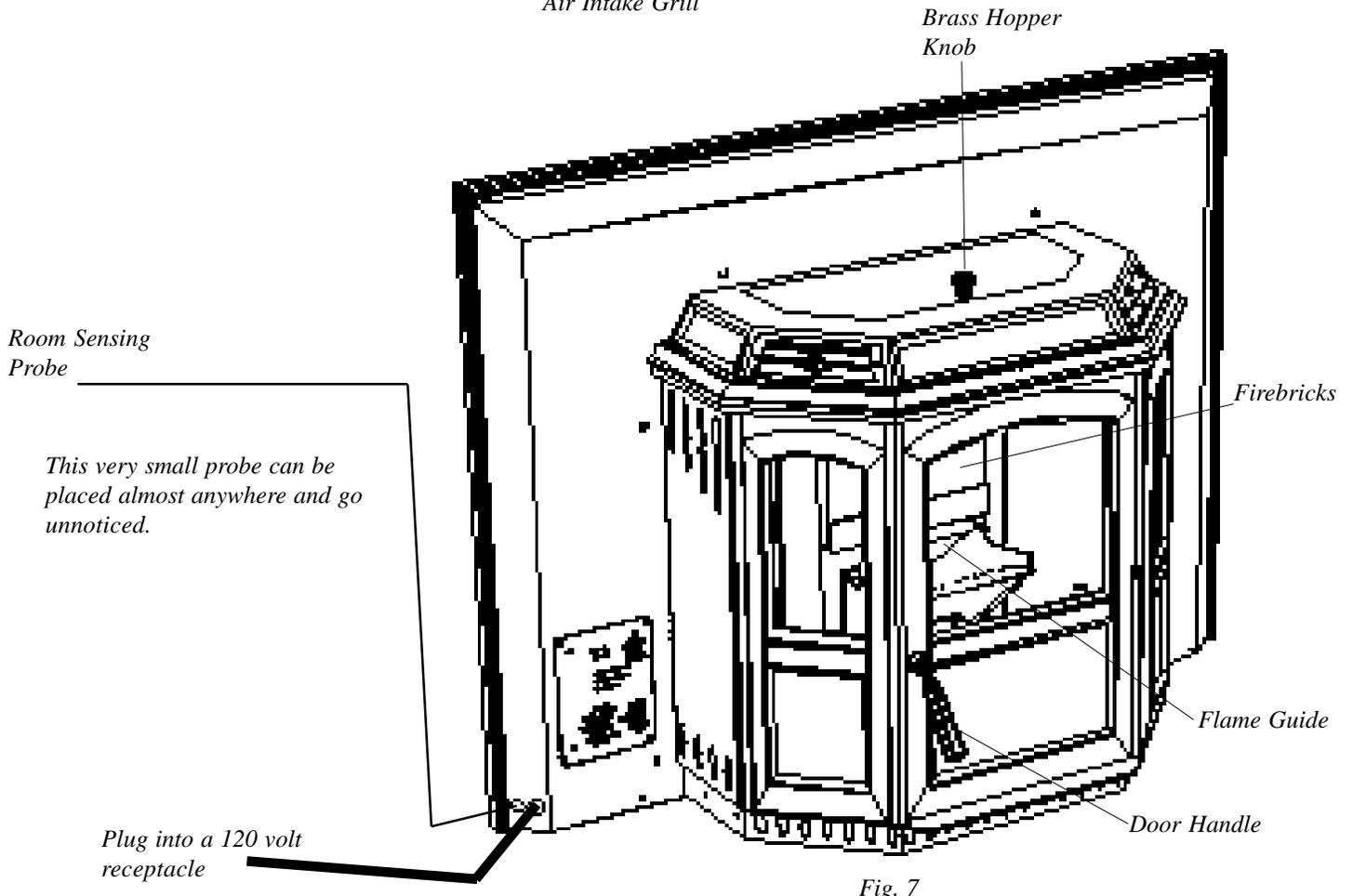
Install Wooden Door Handle with 1/4 x 20 x 2 1/2 bolt.

Install Brass Hopper Knob with 10-32 x 1/2 bolt.

Install the two Firebricks on the angle iron behind the burn pot as shown in fig. 7.

Remove tape from Flame Guide and make sure it is resting on the burn pot as shown in fig. 7.

Put the ash pan back in the stove.



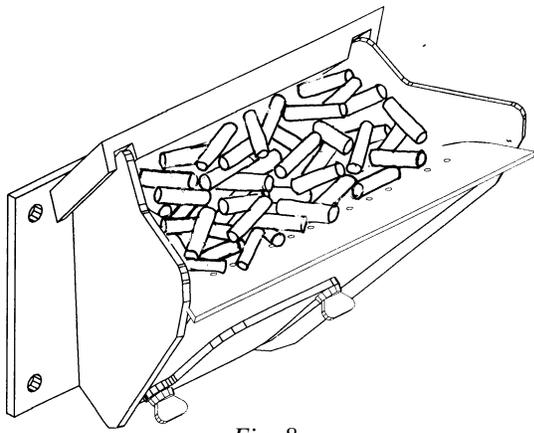


Fig. 8

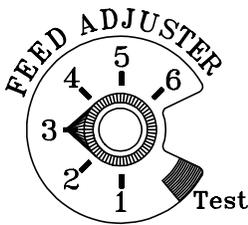


Fig. 9

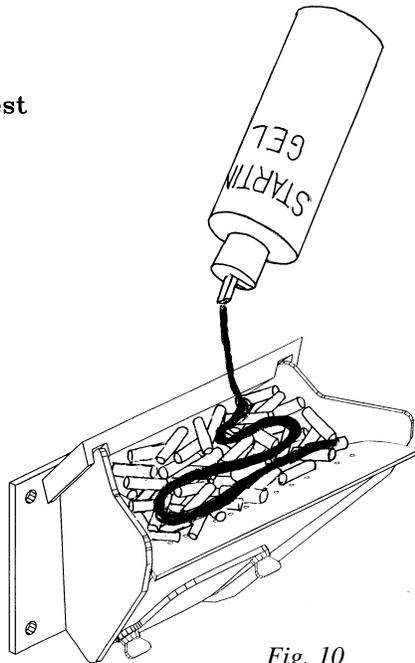


Fig. 10

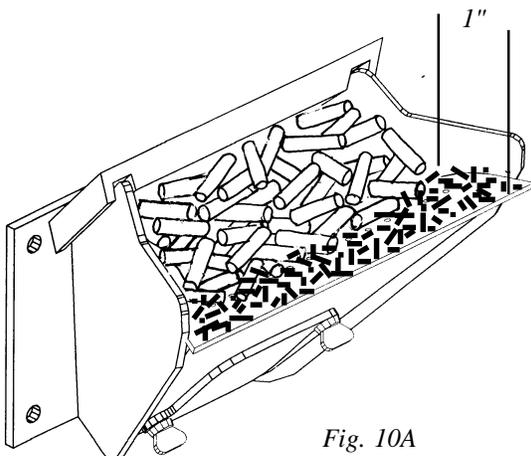


Fig. 10A

# Operation

## Starting First Fire

Be sure the power cord is plugged into a 120 volt receptacle. This can be verified by the red power light on the control panel.

**Fill the hopper** with pellets, fig. 12.

**Fill the burn pot** with pellets to a level just short of overflowing, fig. 8.

**Adjust feed rate.** If this is your first fire or you are trying different pellets, set the feed adjuster to "3", fig. 9. This is a conservative number and will probably need to be increased. After you know a feed rate setting that works well, use that setting. Remember too high a feed rate will waste fuel.

**Turn Mode selector to "OFF" and then to "Stove Temp".** This will turn the combustion blower to high. When starting a fire always turn the mode selector to "OFF" before selecting the desired mode. This resets the control for start-up.

**Turn Temp Dial to 7.** This will allow the stove to burn at maximum for feed rate adjusting purposes.

**Apply starting gel** to pellets in burn pot and **light** the gel. Close the door after lighting.

At this point the distribution and combustion lights will be on and the feed motor light will be off.

As the temperature of the fire increases, the feed motor light will come on and pellets will feed into the burn pot. As the stove temperature increases the distribution blower speed will increase.

After 30 to 45 minutes it may be necessary to **readjust the feed rate.** The feed rate should be adjusted so there is about one inch of ash in front of the fire, fig. 10A.

Scrape floor of burn pot with scraper to remove any carbon build-up before starting a new fire.

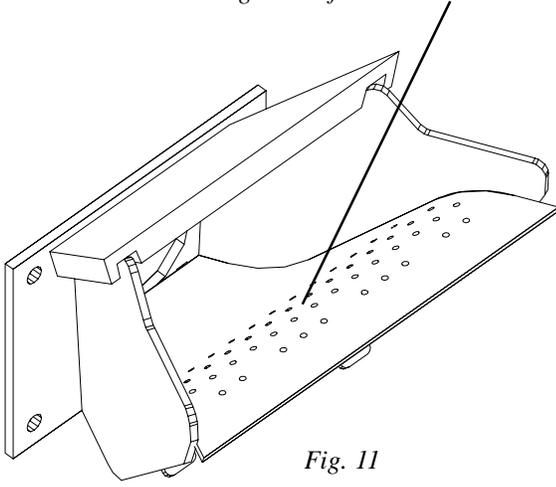


Fig. 11

When filling hopper be sure to remove any pellets from ledge before closing lid.

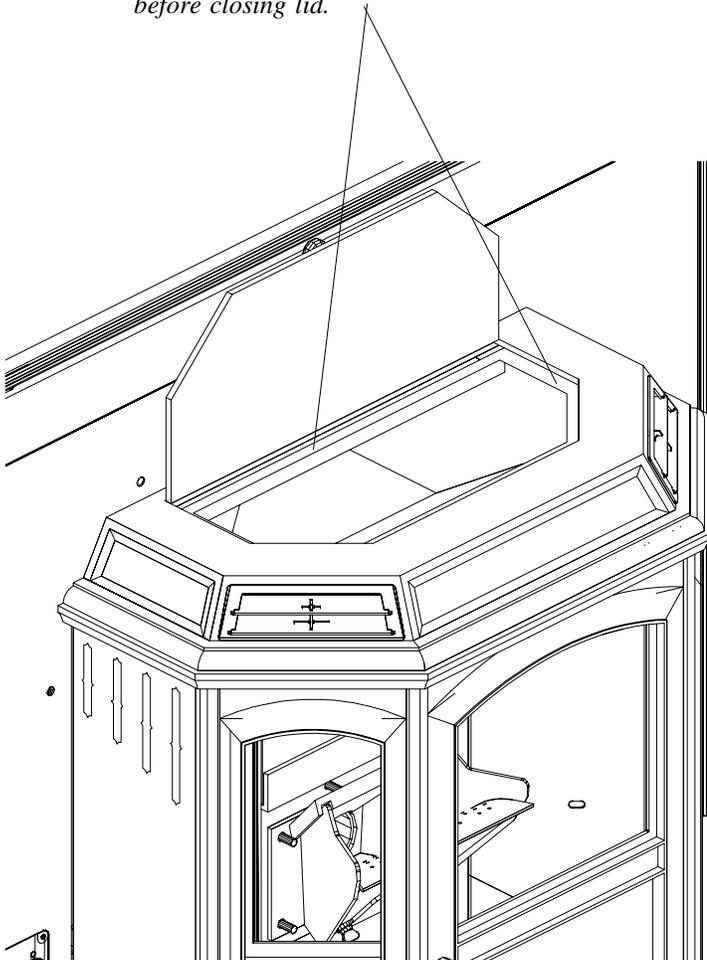


Fig. 12

## Starting a fire after proper Feed Rate is known.

**Clean burn pot with scraper** (supplied).

**Fill the hopper** with pellets.

**Fill the burn pot** with pellets to a level just short of overflowing.

**Adjust feed rate to proper setting.**

After you know what feed rate works well, then use that setting. (For example a setting of "5" produces 1" or more of ash on the burn pot with the brand of pellets you are using.) Remember, too high a feed rate will waste fuel.

**Turn Mode selector to "OFF" and then to the desired mode.**

**Turn Temp Dial to the desired temperature.** In Room Temp Mode this would be the outer scale marked in degrees. In Stove Temp Mode this would be the inner scale marked from 1 to 7.

**Apply starting gel** to pellets in burn pot as shown on fig. 10 and **light** the gel. Close the door after lighting.

At this point the distribution and combustion lights will be on and the feed motor light will be off. As the temperature of the fire increases, the feed motor light will come on and pellets will feed into the burn pot. As the stove temperature increases the distribution blower speed will increase.

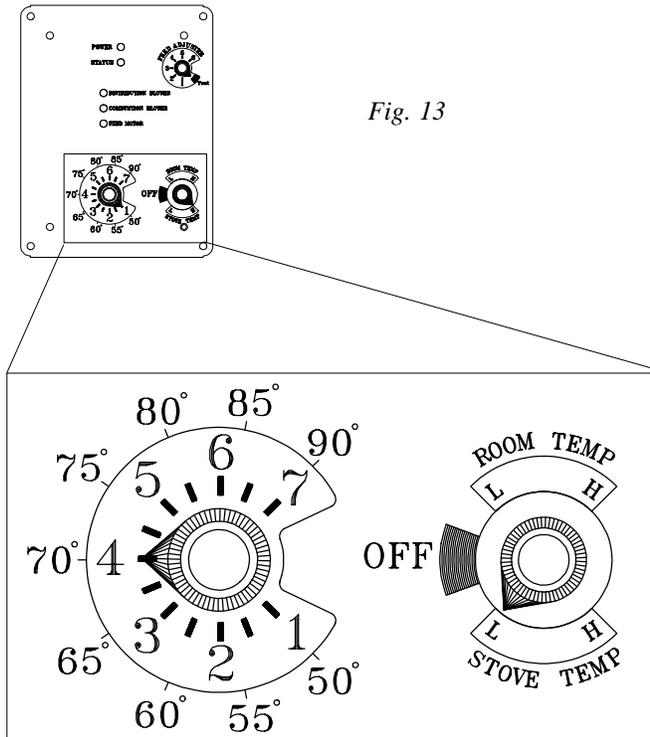
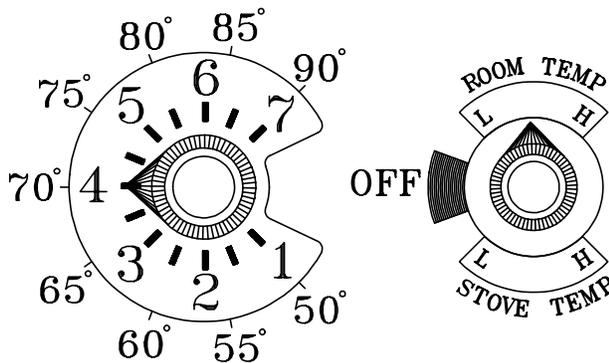
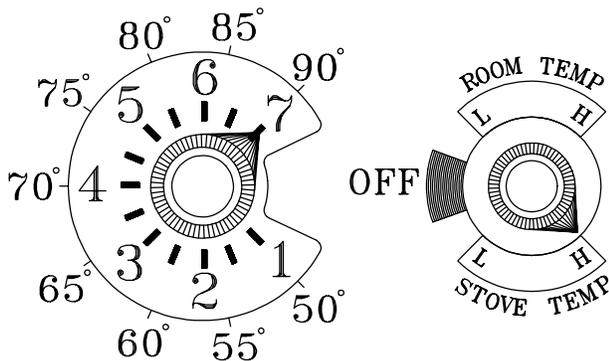


Fig. 13

*This setting will produce medium heat with the distribution blower on "low".*



*This setting will produce a room temperature of 70 degrees with the distribution blower at medium speed.*



*This setting will produce continuous maximum heat output with the distribution blower at full speed.*

## When to use "Stove Temp Mode"

In "Stove Temp Mode" the Stove Temp Dial determines the temperature of the stove. Heat output and fuel consumption will remain constant. This makes it possible to tell how long a hopper full of pellets will last. The distribution blower speed will vary according to the position of the mode selector, fig. 13.

## When to use "Room Temp Mode"

In "Room Temp Mode" heat output is controlled automatically by the Room Sensing Probe. When the Room Sensing Probe calls for heat, the stove will increase output. When the Room Sensing Probe is getting close to the set temperature, the stove will begin to level off output and keep the fire burning at just the right temperature to maintain that setting.

High output is determined by the feed rate. The maximum feed rate should be set for 1" of ash in front of fire.

In "Room Temp Mode" fuel consumption is sacrificed for exact room temperature. Therefore, as it gets colder more pellets will be burned automatically.

The distribution blower speed will vary according to the position of the mode selector, fig. 13.

## Shut-Down Procedure

To kill the fire or stop burning the stove, Turn the Mode Selector to "OFF". This will cause the fire to diminish and burn out. When the fire burns out and the stove cools down everything will stop.

If you pull the plug to shut down the stove, all motors will stop. This may cause incomplete combustion and smoke in the firebox. If the load door is opened the smoke may escape.

The best way to shut down the stove is simply let it run out of pellets, then the stove will shut down automatically.

# ESP CONTROL

## Power Light

Indicates power to the control.

### Secondary

*function:* Blinks every 15 seconds when the feed adjuster is in "Test Mode". This verifies feeder switch operation.

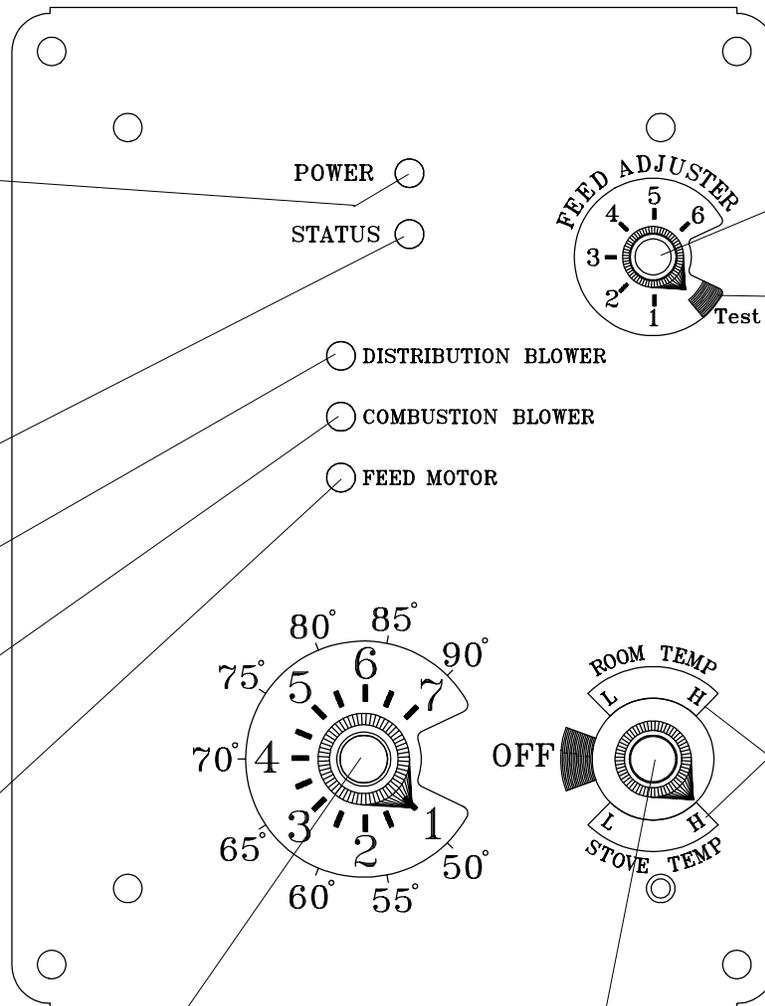
## Status Light

Blinks to Indicate errors listed below.

Indicates Power to distribution blower.

Indicates Power to combustion blower.

Indicates Power to the feed motor.



## Feed adjuster

Sets the maximum feed rate

## Test

Runs all motors at full speed for two minutes to check operation. After two minutes the stove will go to minimum burn and the blowers will alternate from high to low every two minutes to remind you that you are still in "Test Mode".

Distribution Blower speed adjustment range.

## Temp dial

Allows you to adjust the Room temperature in Room Temp Mode using the outer scale marked in degrees Fahrenheit. It also allows you to adjust the stove temperature while in Stove Temp Mode using the inner scale marked from 1 to 7.

## Mode Selector

Allows you to choose between Room Temp Mode, Stove Temp Mode, or OFF. Also allows you to vary the distribution blower speed by turning the knob to the high or low side of each mode.

## Status light error messages:

**1 Blink:** Indicates control board self diagnostic failure. This requires a manual reset\*.

**2 Blinks:** Indicates that the feeder position switch has not sensed the slide plate in the home position for 30 minutes. This means that the slide plate may be stuck do to a foreign object in the fuel or the switch has failed. If the switch has failed the stove will operate normally, however if turned to the "OFF " position the stove will go to minimum burn and will only shut down when it runs out of fuel. If the slide plate frees its self the status light will

automatically reset. If the error continues call your Harman Dealer.

**3 Blinks:** Indicates ESP (Exhaust Sensing Probe) failure. This requires a manual reset\*.

**4 Blinks:** Can occur only in Room Temp Mode and indicates Room Sensing Probe failed or not installed. If a Room Sensing Probe is then installed the status light will automatically reset.

\* **Manual reset**, disconnect power cord for a few seconds and reconnect. If error still occurs call your Dealer.

# Maintenance

The Invincible Insert is designed to need little maintenance mechanically. However, **The stove must be cleaned when needed to maintain top performance.**

## AS NEEDED

- \* Fill hopper with pellets and remove ashes.
- \* Clean burn pot (scrape carbon loose with scraper), fig. 14. If the fire is pushing out more in the middle of the burnpot than before or pushing partially burned pellets off the edge, these are indications that the burnpot needs cleaned.
- \* Remove, clean, and inspect flame guide for warpage and replace as needed, fig. 15. The flame guide is an expendable part and may need to be replaced in a few years.
- \* Open burn pot clean-out slide plate by loosening the two thumb screws and rotating the slide plate clockwise, fig. 15. Remove fly ash and replace slide plate.
- \* Clean glass. A dry paper towel will do the job in most cases. If a cleaning fluid is used, do not allow fluid to run down into the slot at the bottom of the corner glass. Always keep these slots clean. (Always wear gloves).

## ANNUALLY (or as needed)

- \* Remove vertical baffles from firebox by first removing the thumb screws. Next rotate the baffles around to the front and remove through the door opening, fig. 16. This exposes the divider baffles which can be removed by first removing the thumb screws, fig. 18.

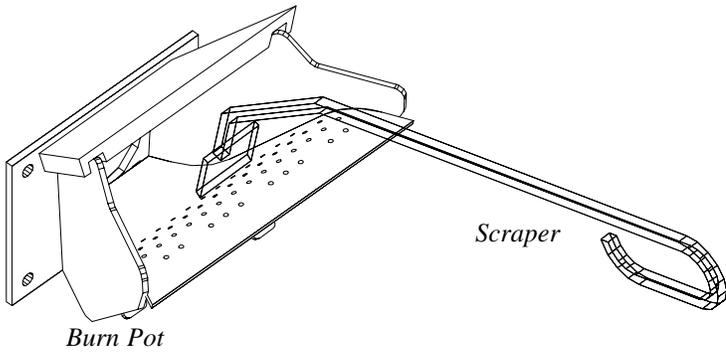


Fig. 14

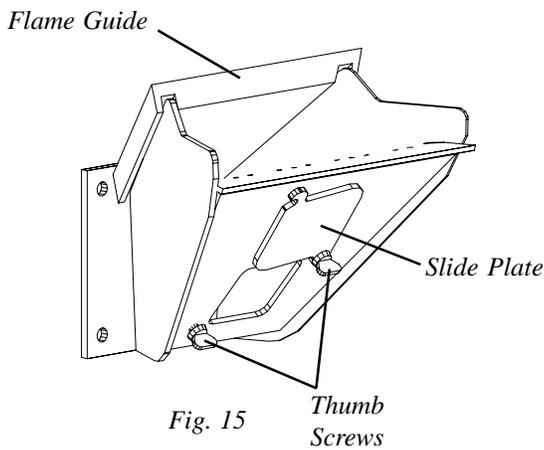


Fig. 15

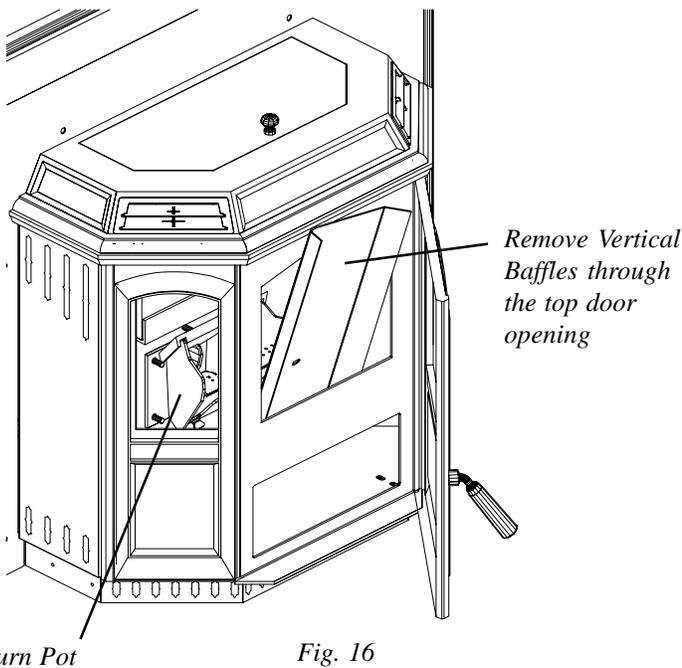


Fig. 16

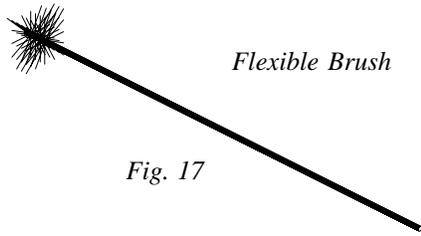


Fig. 17

\*Clean fly ash from heat exchanger tubes with flexible brush (Fig 17). There are two vertical tubes on each side and a horizontal side tube which runs front to back. There is also a horizontal tube across the back which can be cleaned through the rear access port (Fig, 18). After the fly ash is brushed loose, use a vacuum cleaner to extract to extract the residue.

\* Clean combustion blower through access port in rear of unit. In extreme cases the motor assembly can be removed for better access to the blades. Be careful not to tear the gasket. The blower is sealed to the mounting plate with silicone and will need to be pried loose if the blower housing ever needs to be replaced.

\* Clean ESP probe. This can be done by removing the probe or by reaching through the access port (Fig. 19). Inspection can be improved by removing the probe.

\* Check the docking gasket to make sure it is in good condition (Fig 19).

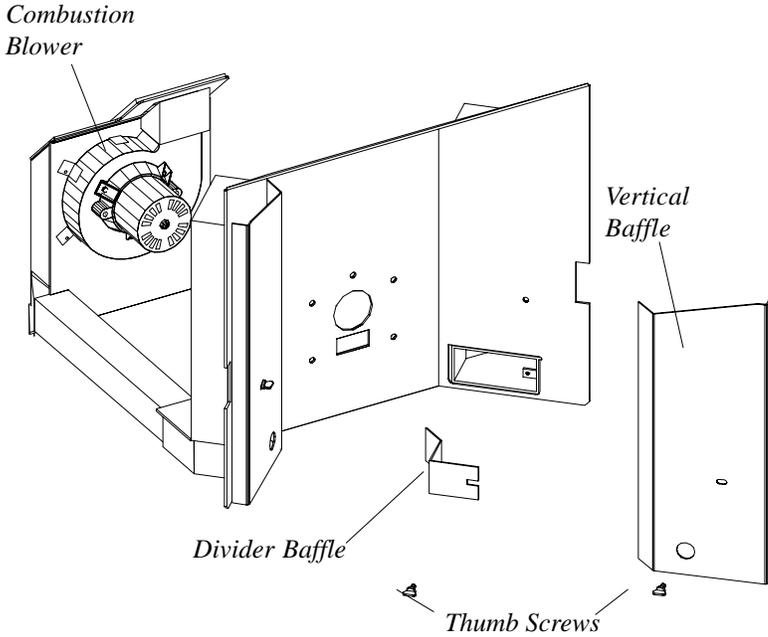


Fig. 18

*Note: Fig. 18 & 19 show heat exchanger and rear firebox only. This is done to better illustrate cleaning.*

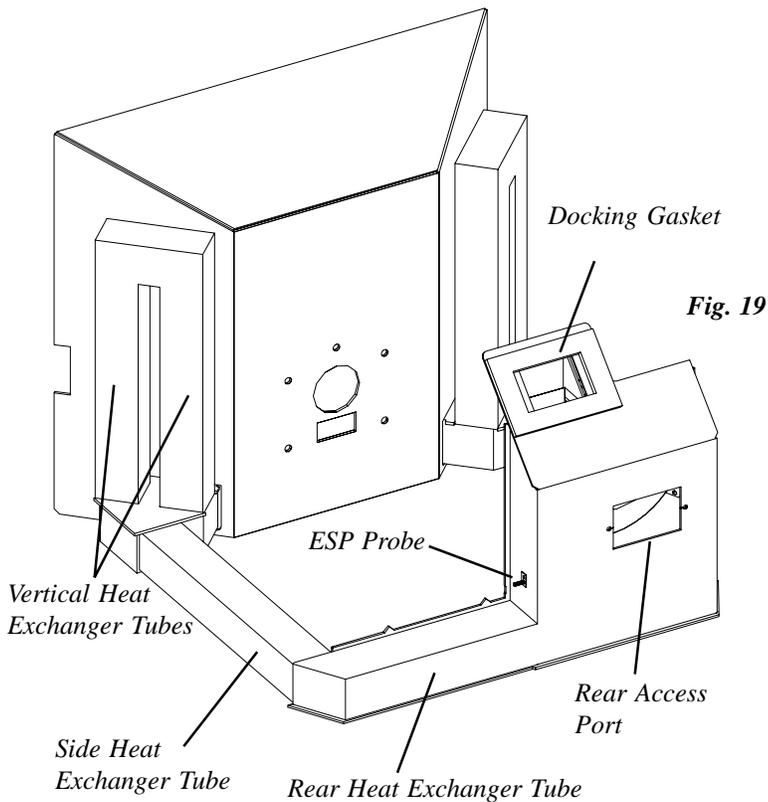


Fig. 19

**This unit has been designed and tested to be operated with the door closed. The door should only be opened to remove ashes. Normally the door open time to remove the ashes is less than 10 seconds and does not pose a problem. Keep hopper lid closed except when loading.**

# Trouble Shooting

## FEEDER DOES NOT FEED

1. No pellets in hopper.
2. Feed motor will not run until ESP senses 165 deg. F. Maybe you did not put enough pellets in the burn pot before lighting the fire.
3. Feed motor has failed.
4. Something is restricting flow in the hopper or causing the slide plate to stick.

## PARTIALLY BURNED PELLETS

1. Feed rate too high.
2. Draft too low. (check burn pot clean- out slide and door gasket).
3. Burn pot or heat exchanger tubes may need cleaned.
4. Combination of all.

## SMOKE SMELL

Seal the vent pipe joints and connection to stove with silicone.

## FIRE HAS GONE OUT

1. No pellets in hopper.
2. Feed rate too low.
3. Something is restricting fuel flow.
4. Feed motor or draft motor has failed.
5. Power failure.

## SMOKE IS VISIBLE COMING OUT OF VENT

1. Air-fuel ratio is too rich.
  - A. Feed rate too high.
  - B. Draft too low caused by a gasket leak.

## LOW HEAT OUTPUT

1. Feed rate too low
2. Draft too low because of gasket leak.
3. Poor quality or damp pellets
4. Combination of 1. and 2.

## STATUS LIGHT ERROR MESSAGES

Refer to page 10.

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## Helpful Hints

### Cleaning Burn Pot

Whenever your stove is not burning, take the opportunity to scrape the burn pot to remove carbon buildup. A vacuum cleaner is handy to remove the residue. Be sure the stove is cold if you use a vacuum.

Carbon buildup can be scraped loose with the fire burning using the special tool provided with your stove. Scrape the floor and sides of the burn pot. The carbon will be pushed out by the incoming fuel. Always wear gloves to do this.

proximately 30 minutes before removing ashes. This will result in a cooler stove and ash pan.

Maximum settings are not needed in most cases. Always remember the maximum feed rate and do not exceed. Too high a feed rate will push partially burned fuel off the end of the burn pot, wasting fuel and causing the glass to get dirty. Using a lower feed rate than maximum is recommended when maximum heat output is not required.

### Removing Ashes

Turn the Stove Temp Dial to number 1 ap-

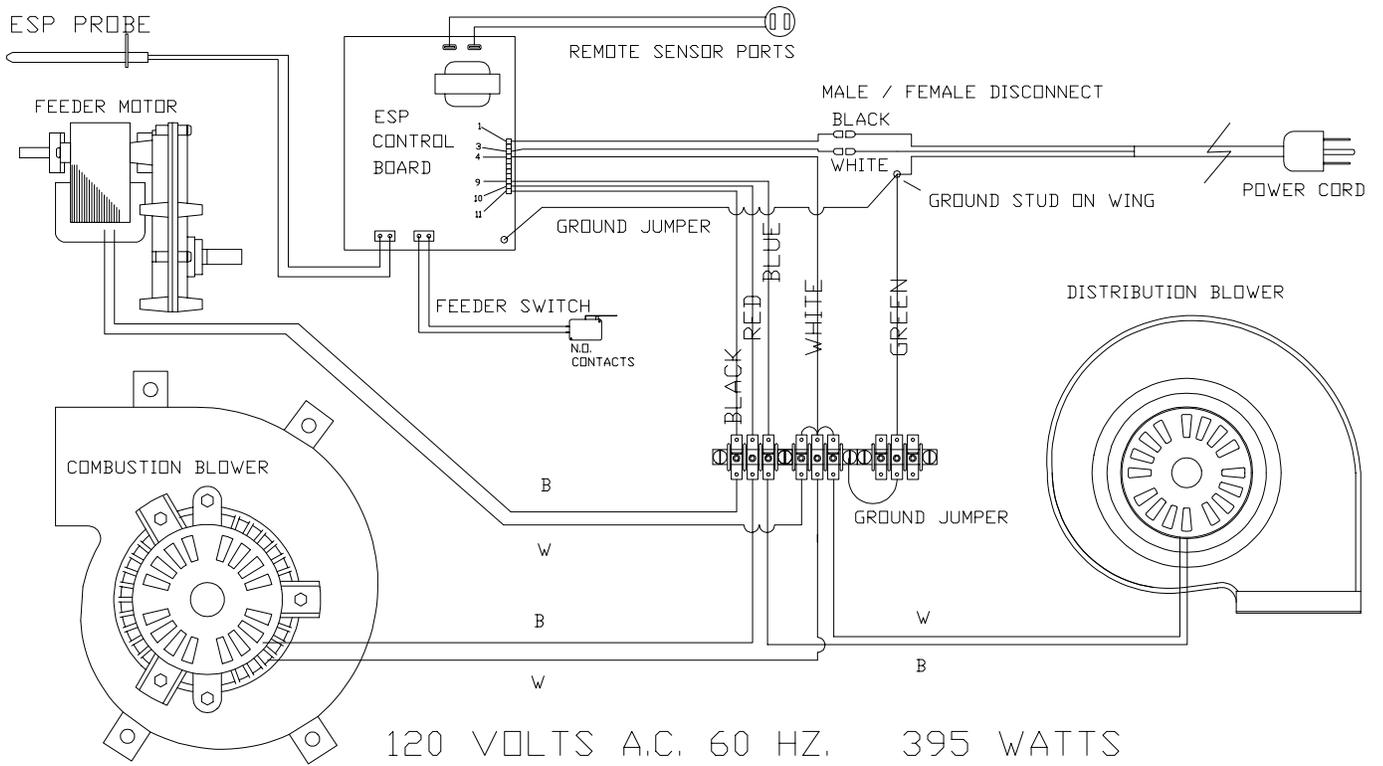
Keep the stove free of dust and dirt.

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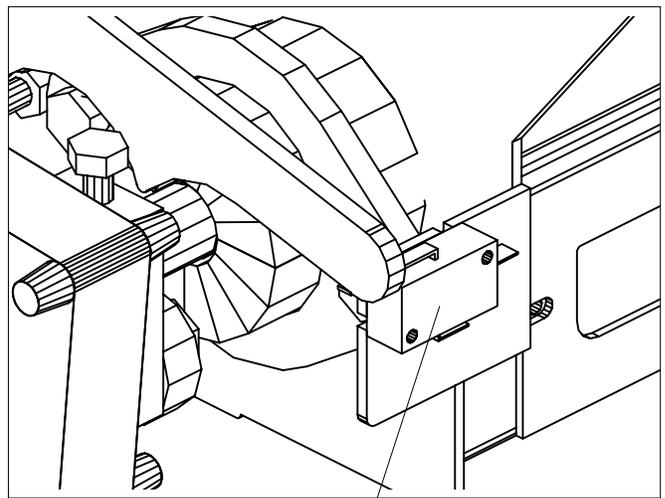
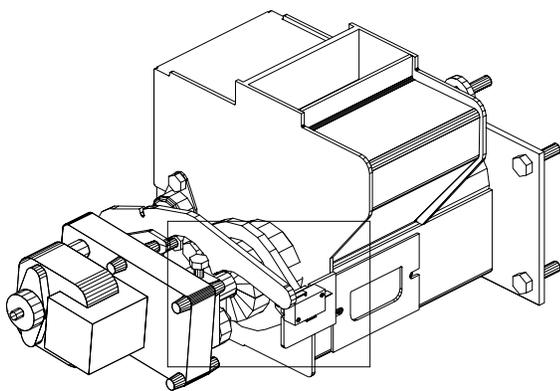
## Fuels

All Wood pellets  
Cardboard pellets  
Walnut shell pellets  
75% Corn, 25% Wood pellets

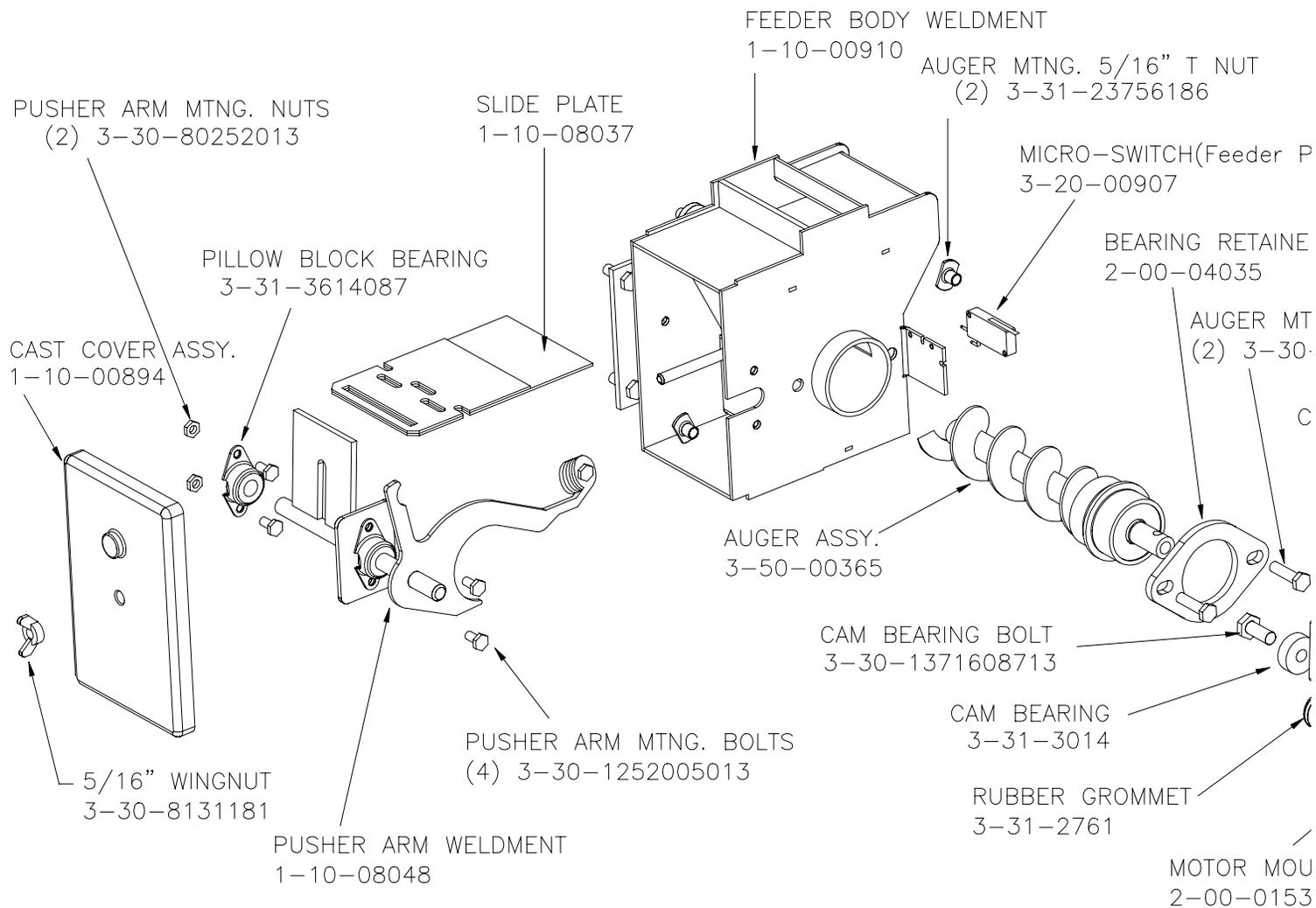
# HARMAN PELLET INSERT WIRING DIAGRAM

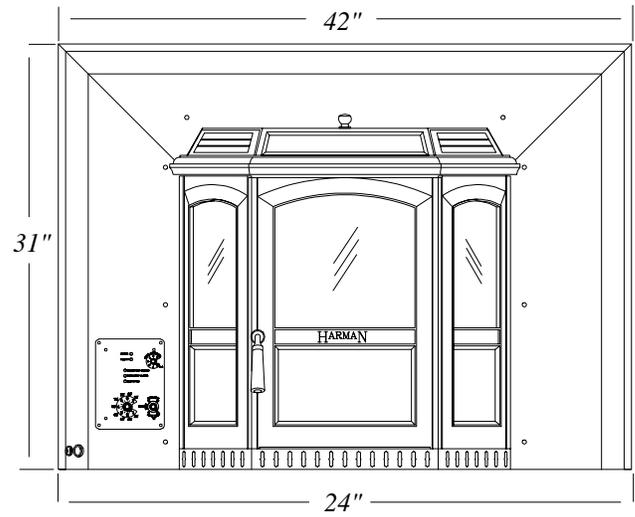
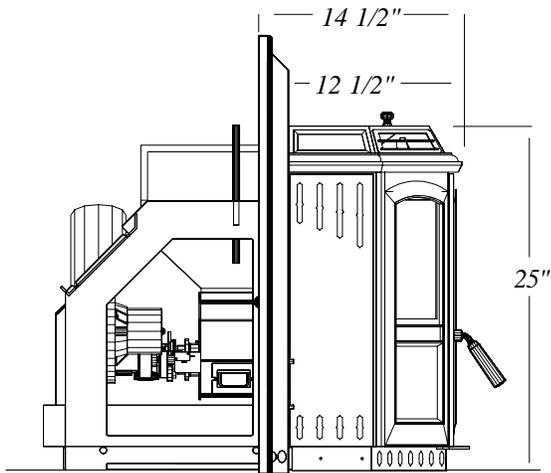


**NEVER PULL THE PLUG  
TO KILL THE FIRE**

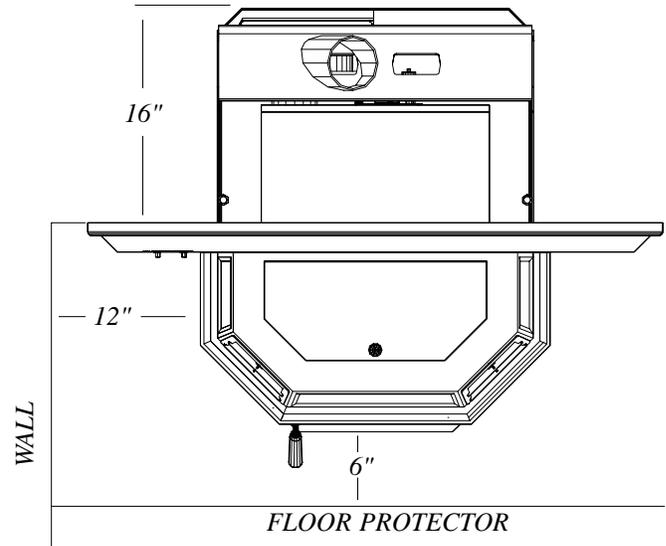


# Invincible Insert Feeder





The INVINCIBLE INSERT operates at varying sound levels and types of sounds depending on the mode of operation. This is normal and is not a problem.



<b>Specifications</b>	
Weight	354 lbs.
Blower Size	190 cfm
Hopper Capacity	40 lbs.
BTU Range	7000 to 53000
Heating Capacity	1700 Square Feet
Fuel	Wood Pellets
Flue Size	4" Round
Fuse Rating	5 AMP

**HARMAN GOLD WARRANTY**  
**6 YEAR TRANSFERABLE LIMITED**  
**WARRANTY (Residential)**  
**1 YEAR LIMITED WARRANTY (Commercial)**



Harman Stove Company warrants its products to be free from defects in material or workmanship, in normal use and service, for a period of 6 years from the date of sales invoice and for mechanical and electrical failures, in normal use and service, for a period of 3 years from the date of sales invoice.

If defective in material or workmanship, during the warranty period, Harman Stove Company will, at its option, repair or replace the product as described below.

The warranty above constitutes the entire warranty with respect to Harman Stove Company products. HARMAN STOVE COMPANY MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING "ANY" WARRANTY OF MERCHANTABILITY, OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. No employee, agent, dealer, or other person is authorized to give any warranty on behalf of Harman Stove Company. This warranty does not apply if the product has been altered in any way after leaving the factory. Harman Stove Company and its agents assume no liability for "resultant damages of any kind" arising from the use of its products. In addition, the manufacturer and its warranty administrator shall be held free and harmless from liability from damage to property related to the operation, proper or improper, of the equipment.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

THESE WARRANTIES APPLY only if the device is installed and operated as recommended in the user's manual.

THESE WARRANTIES WILL NOT APPLY if abuse, accident, improper installation, negligence, or use beyond rated capacity causes damage.

HOW TO MAKE A CLAIM - Any claim under this warranty should be made to the dealer from whom this appliance was purchased. Then contact is made with manufacturer, giving the model and serial numbers, the date of purchase, your dealer's name and address, plus a simple explanation of the nature of the defect. Extra costs such as mileage and overtime are not covered. Nuisance calls are not covered by these warranties.

THIS WARRANTY IS LIMITED TO DEFECTIVE PARTS - REPAIR AND/OR REPLACEMENT AT HARMAN STOVE COMPANY'S OPTION AND EXCLUDES ANY INCIDENTAL AND CONSEQUENTIAL DAMAGES CONNECTED THEREWITH.

WARRANTY EXCLUSIONS: Failure due, but not limited to, fire, lightning, acts of God, power failures and/or surges, rust, corrosion and venting problems are not covered. Damage and/or repairs to cabinets and all exterior components, including but not limited to, remote controls, filters, fuses, knobs, glass, gaskets, door packing, fire brick or tile, ceramic logs sets, paint, batteries or battery back-up and related duct work are not covered. Additional or unusual utility bills incurred due to any malfunction or defect in equipment and the labor cost of gaining access to or removal of a unit that requires special tools or equipment are not covered. Maintenance needed to keep the stove in "good operating condition" is not covered. This includes, but is not limited to, cleaning, adjustment of customer controls and customer education. Labor, materials, expenses and/or equipment needed to comply with law and/or regulations set forth by any governmental agencies are not covered.

This Warranty provides specific legal rights and the consumer may have other rights that vary from state to state.

In the event of change in ownership, the remaining portion of this warranty may be transferred to the new owner by sending the new owner information and a transfer fee of \$25.00 US to the Harman Stove Company.

PLEASE READ THE LITERATURE BY THE MANUFACTURER FOR THE VARIOUS ACCESSORY DEVICES. THE MANUFACTURER WARRANTS THESE ACCESSORY DEVICES, NOT HARMAN STOVE COMPANY OR THEIR WARRANTY ADMINISTRATOR. FURTHERMORE, THESE ACCESSORY DEVICES MUST BE INSTALLED AND USED ACCORDING TO THE RECOMMENDATIONS OF THE MANUFACTURER.

REMEDIES - The remedies set forth herein are exclusive and the liability of seller with respect to any contract or sale or anything done in connection therewith, whether in Contract, in tort, under any warranty, or otherwise, shall not, except as herein expressly provided, exceed the price of the equipment or part of which such liability is based.

CLARIFY - The above represents the complete warranty, which is given in connection with stoves, manufactured by Harman Stove Company. No other commitments, verbal or otherwise, shall apply except by a written addendum to this warranty.