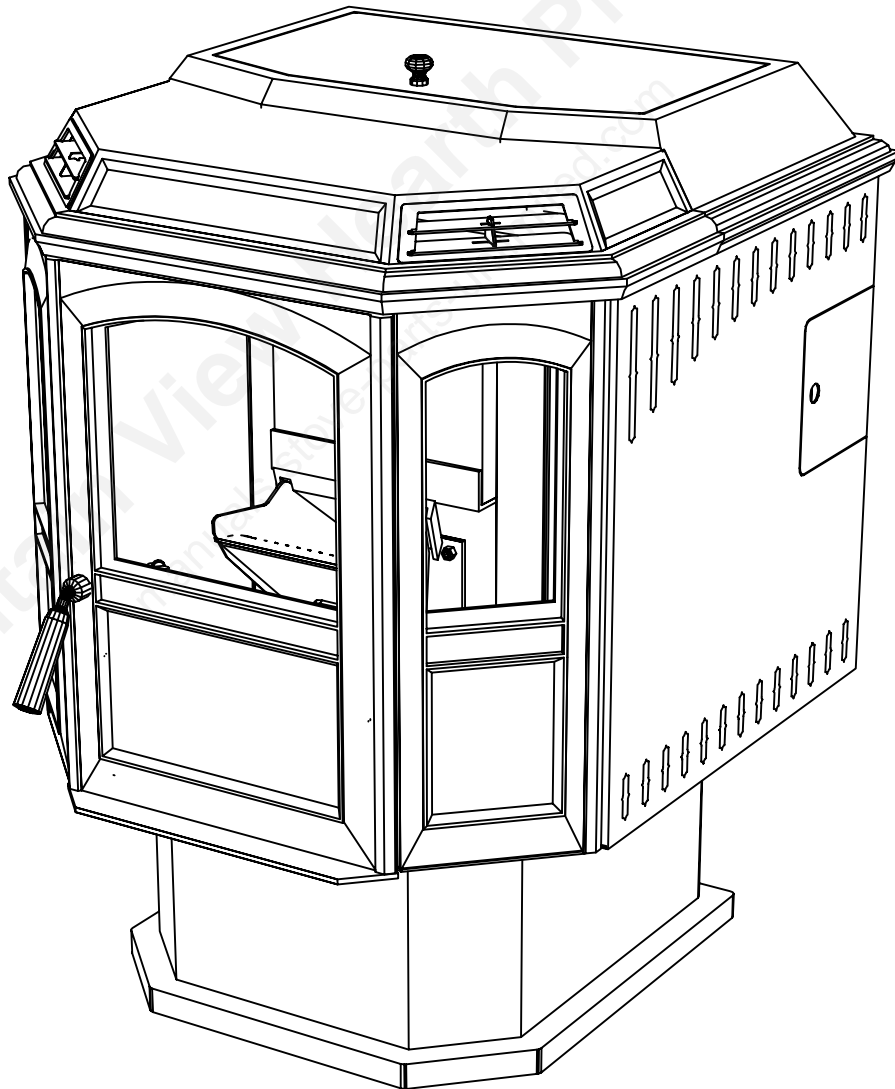


INVINCIBLE "RS" OWNERS MANUAL



R6

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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) Owners Manual
- (1) Warranty Activation Coupon
- (1) Room Sensing Probe
- (1) Ash Pan
- (2) Firebricks
- (1) Scraper
- (1) Flame Guide
- (1) Cleaning Brush

Assembly and Installation

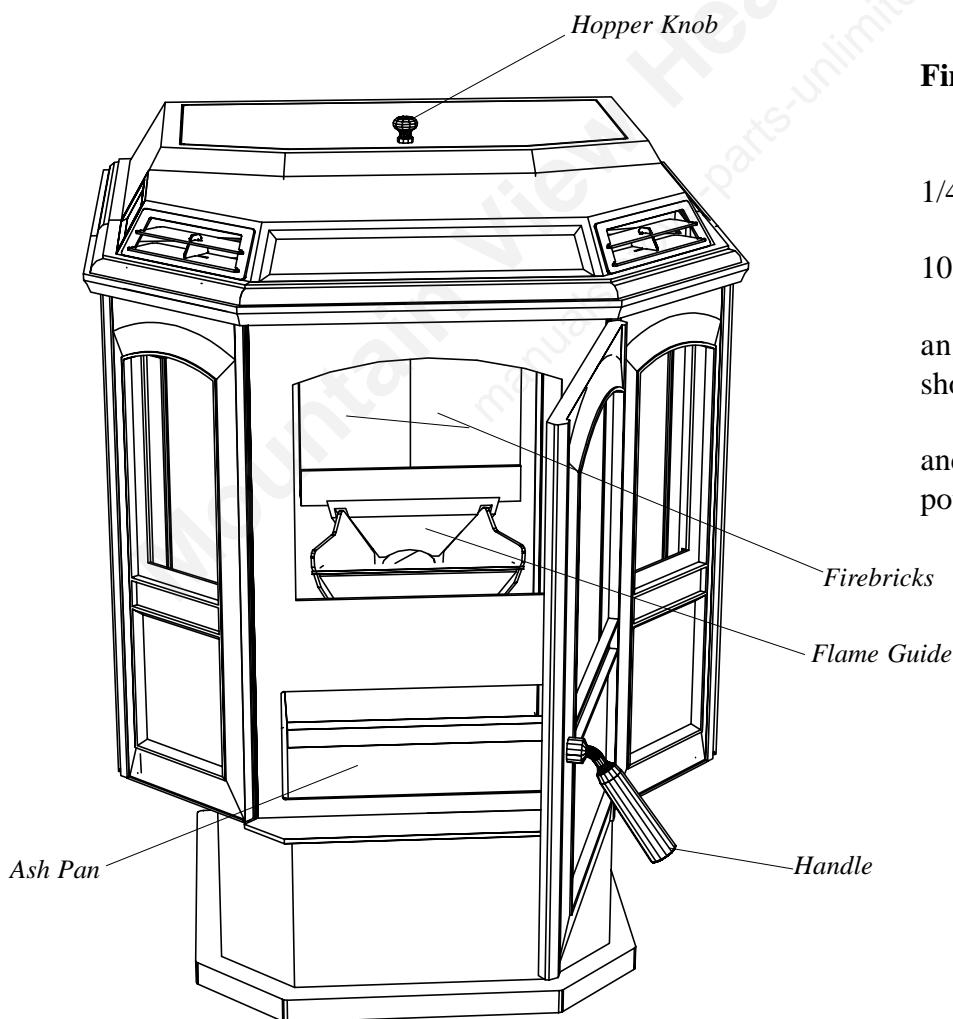


Fig. 1

Final Assembly

Remove parts from ash pan.

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. 1.

Remove tape from Flame Guide and make sure it is resting on the burn pot as shown in fig. 1.

Put the ash pan back in the stove.

Installing

Place the stove on a noncombustible floor protector and away from combustible walls at least as far as shown in figure 2 and 3. Note that the clearances shown are minimum for safety but do not leave much room for access when cleaning or servicing. Please take this into account when placing the stove.

Place the Room Sensing Probe in the desired location and run standard thermostat wire back to the terminals on the back of the stove and connect with the two terminals provided. Unlike a wall thermostat the RS probe can be placed anywhere and go unnoticed. We recommend the room sensor be installed even if only cut short and connected to room sensor remote ports.

Connect the power cord to a 120 volt receptacle.

Prior to installing flue pipe, connect draft and meter to stove. (The draft meter must have a minimum range of 0-.5). Connect stove to 120V power source. Set control board to test mode. Record draft reading here _____ (should read at least .5").

After connecting the flue system, follow the above procedure. However, prior to taking the draft reading be sure all doors and windows to the home are closed. Record the draft reading _____. If this reading is more than .1" lower than the unconnected reading check for possible restrictions or the need for outside air (see page 5).

Mobile Home Installation

When installing the Invincible RS in a mobile home it is required that the stove be bolted to the floor. This is usually done inside the pedestal base where the bolt will not be visible and requires drilling a hole where it is best suited.

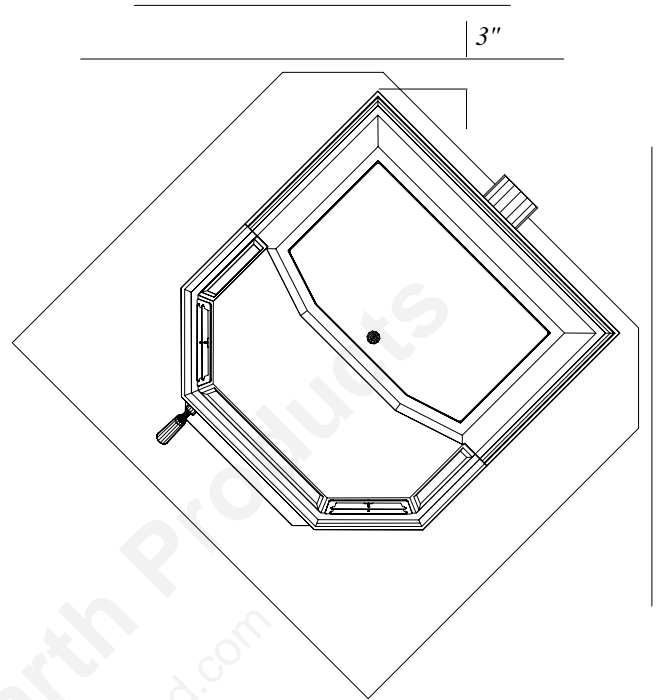


Fig. 2

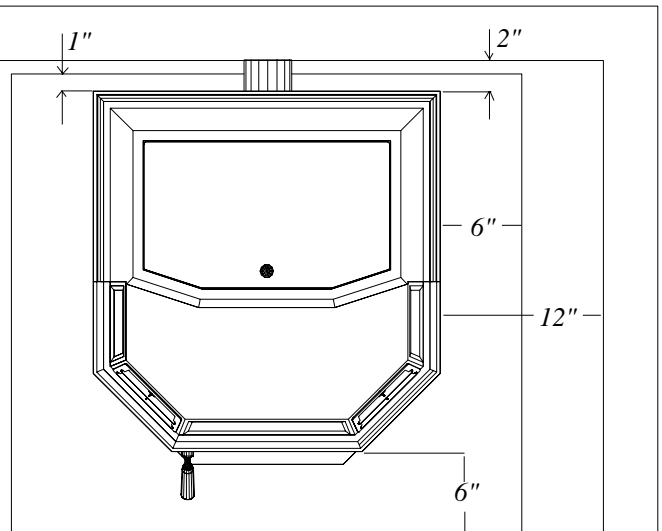


Fig. 3

Venting

A combustion blower is used to extract the combustion gases from the firebox. This causes a negative pressure in the firebox and a positive pressure in the venting system as shown in fig. 4. The longer the vent pipe and more elbows used in the system, the greater the flow resistance. Because of these facts we recommend using as few elbows as possible and 15 feet or less of vent pipe. If more than 15 feet of pipe is needed, the diameter should be increased from 3" to 4" because a larger pipe causes less flow resistance. Be sure to use approved pellet vent pipe and wall pass through fittings.

Vent Pipe

Pellet venting pipe (also known as PL vent) is constructed of two layers with an air space between them. This air space acts as an insulator and reduces the outside surface temperature to allow a clearance to combustibles of only 3 inches. The sections of pipe lock together to form an air tight seal in most cases however, in some cases a perfect seal is not achieved. For this reason and the fact that the Invincible RS operates with a positive vent pressure **we specify that the joints also be sealed with clear silicone.**

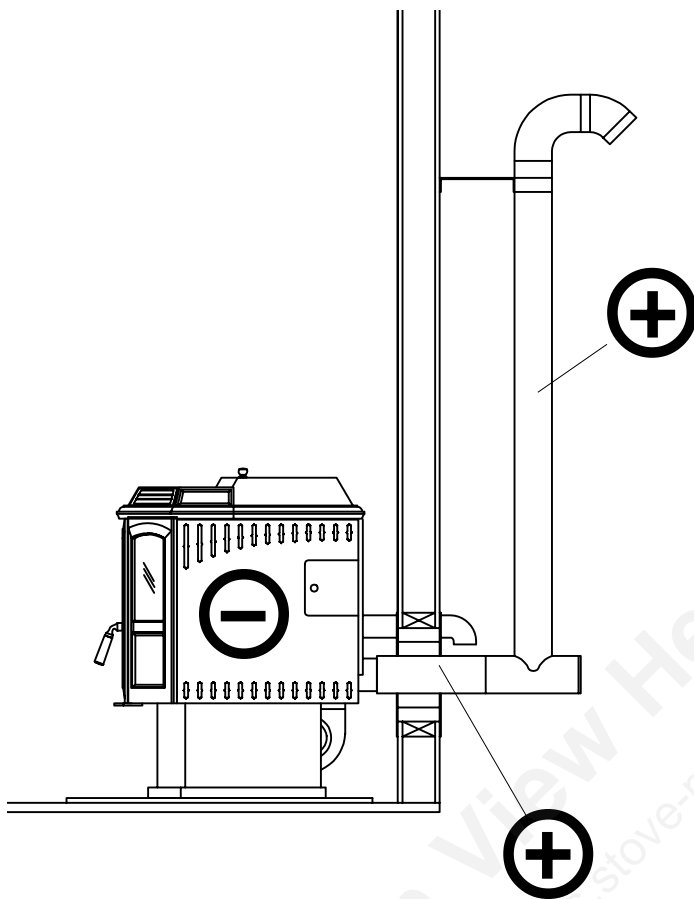
Outside Air

Outside air is optional except in mobile homes and where building codes require. The benefit of outside air is mainly noticed in small very tight houses.

To install outside air use 2" sch 40 plastic pipe inserted through the back of the stove. The pipe should be run outside and terminate 3 feet or more to the side or below the vent pipe outlet. Never terminate the outside air above the vent pipe outlet. From the stove and through the wall the PVC must be kept 3" from PL vent pipe.

HRV

When installing in a house with a Heat Reclaiming Ventilation System (HRV) be sure the system is balanced and is not creating a negative pressure in the house.



⊕ = Positive static pressure
⊖ = Negative static pressure

Fig. 4

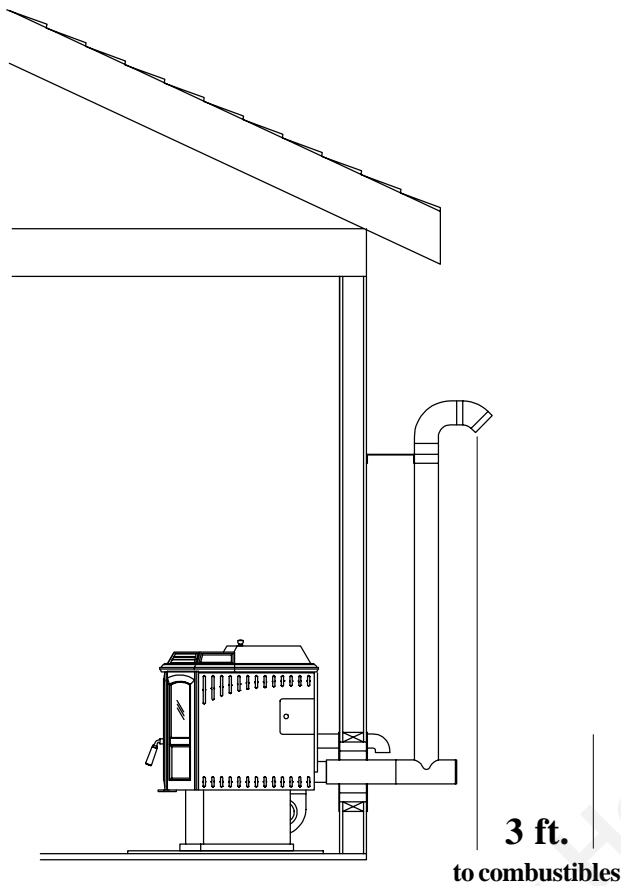


Fig. 5

#1 Preferred method

This method provides excellent venting for normal operation and allows the stove to be installed closest to the wall. Two inches from the wall is safe, however, four inches allows better access to remove the rear panel. The vertical portion of the vent should be three to five feet high. This vertical section will provide natural draft in the event of a power failure.

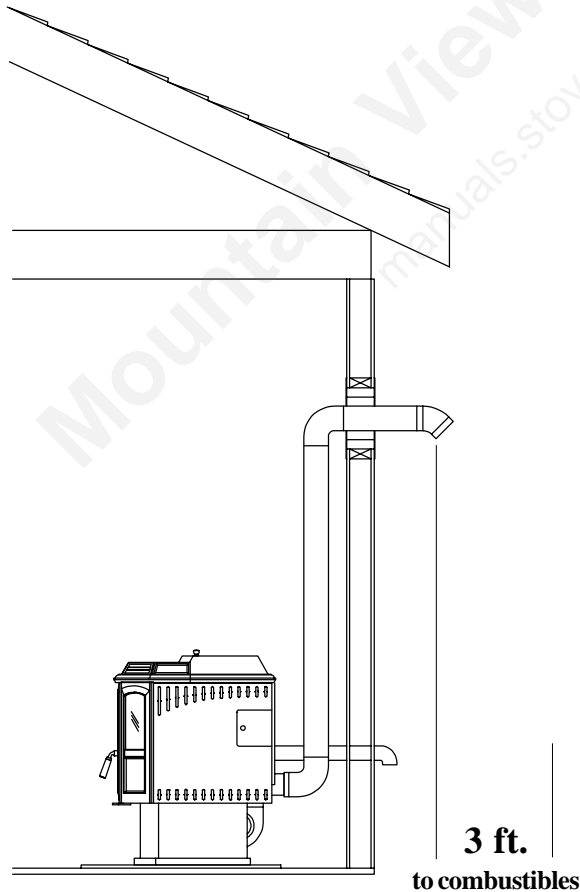


Fig. 6

#2 Preferred method

This method also provides excellent venting for normal operation but requires the stove to be installed farther from the wall. The vertical portion of the vent should be three to five feet high and at least three inches from a combustible wall. This vertical section will provide natural draft in the event of a power failure.

CAUTION
KEEP COMBUSTIBLES (SUCH AS GRASS, LEAVES, ETC.) AT LEAST 3 FEET AWAY FROM THE FLUE OUTLET ON THE OUTSIDE OF THE BUILDING.

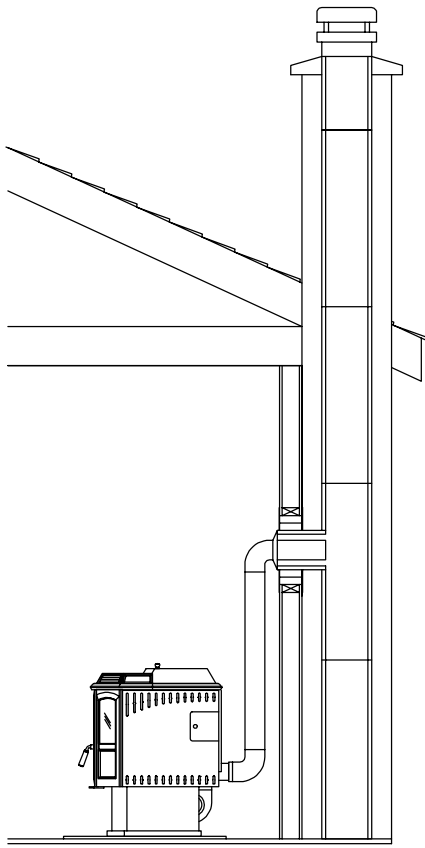


Fig. 7

#4 Installing into an existing chimney (US only)

This method provides excellent venting for normal operation. This method also provides natural draft in the event of a power failure. If the chimney condition is questionable you may want to install a liner as in method #7.

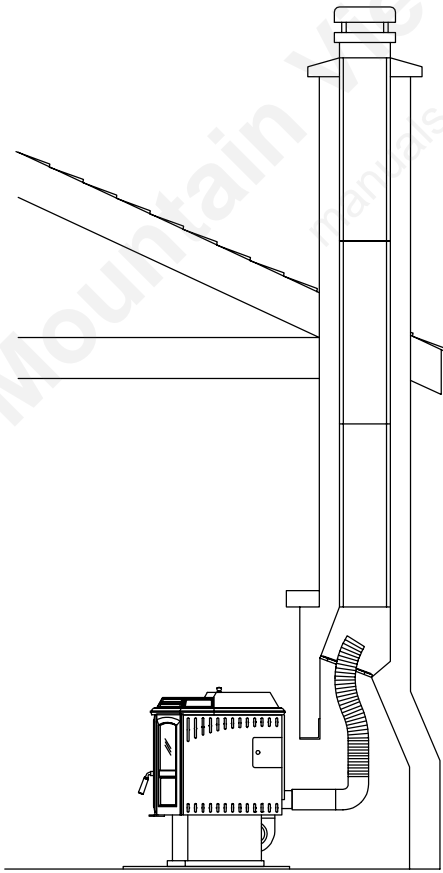


Fig. 8

#5 Installing into an existing fireplace chimney (US only)

This method provides excellent venting for normal operation. This method also provides natural draft in the event of a power failure.

The damper area must be sealed with a steel plate or fiberglass. A cap should be installed on the chimney to keep out rain. If the chimney condition is questionable you may want to install a liner all the way to the top as in method #6.

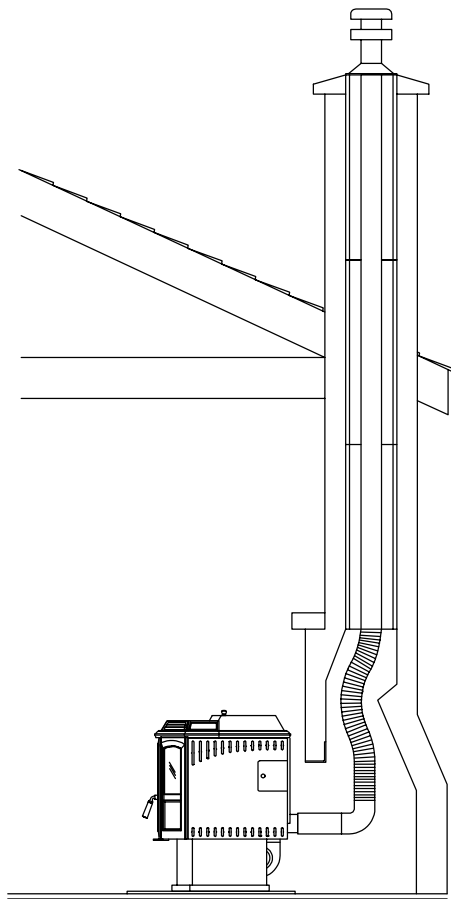


Fig. 9

#6 Installing into an existing fireplace chimney (US and Canada)

This method provides excellent venting for normal operation. This method also provides natural draft in the event of a power failure.

In Canada and some places in the US it is required that the vent pipe extend all the way to the top of the chimney.

In this method a cap should also be installed on the chimney to keep out rain. Be sure to use approved pellet vent pipe fittings. Seal pipe joints with silicone in addition to the sealing system used by the manufacturer. Pipe size should be increased to 4" using this method.

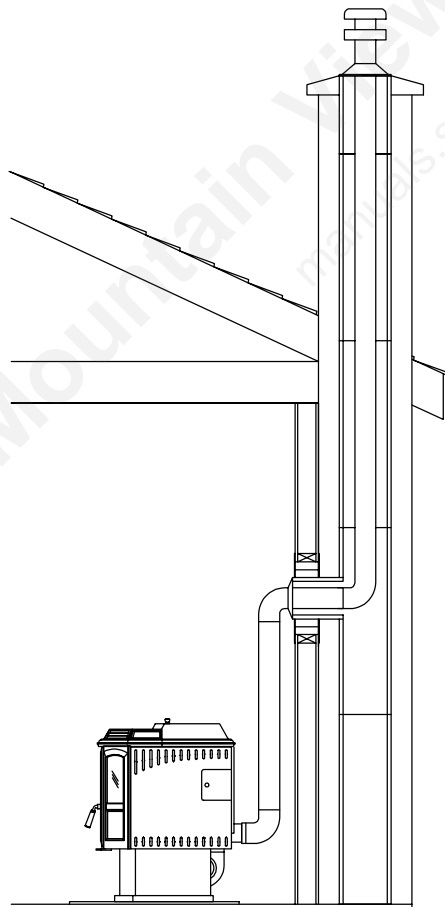


Fig. 10

#7 Installing into an existing chimney (US and Canada)

This method provides excellent venting for normal operation. This method also provides natural draft in the event of a power failure.

In Canada and some places in the US it is required that the vent pipe extend all the way to the top of the chimney. The pipe or liner inside the chimney should be 4" diameter.

In this method a cap should also be installed on the chimney to keep out rain. One disadvantage of this method is that it is harder to clean the vent pipe, therefore, there is a tendency not to do it as often as needed.

DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS UNIT.

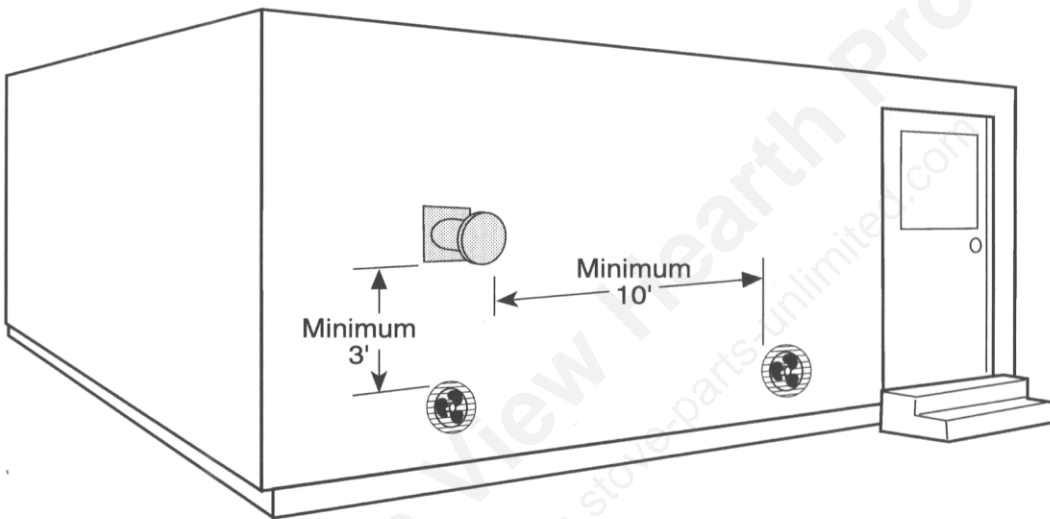
DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.

INSTALL VENT AT CLEARANCES SPECIFIED BY THE MANUFACTURER

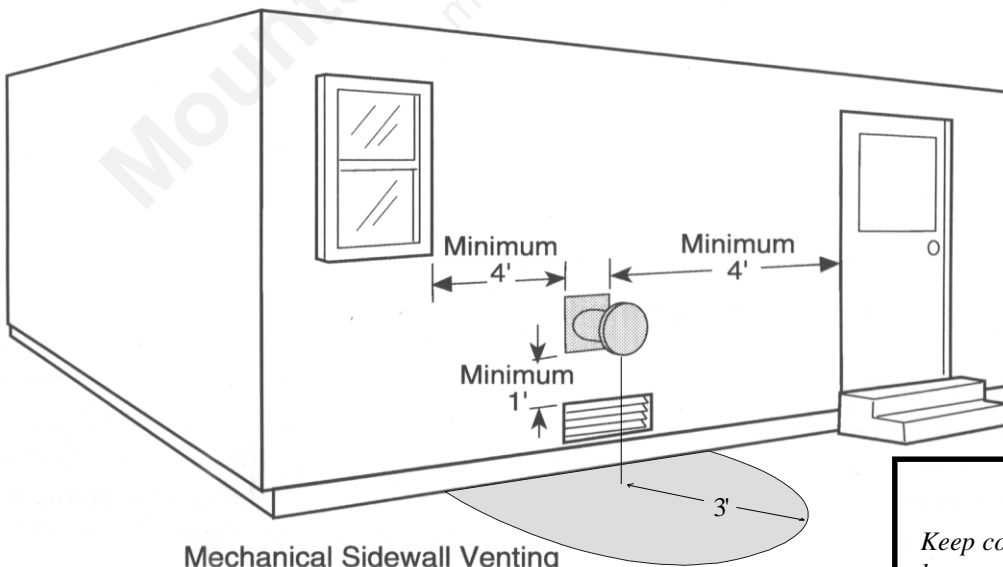
Mobile home installation should be done in accordance with the Manufactured Home and Safety Standard (HUD), CFR 3280, Part 24.

WARNING
DO NOT INSTALL IN SLEEPING ROOM

CAUTION
THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL, AND CEILING/ROOF MUST BE MAINTAINED.



Mechanical Sidewall Venting



Mechanical Sidewall Venting

WARNING
Keep combustible materials such as grass, leaves, etc. at least 3 feet away from the point directly under the vent termination.

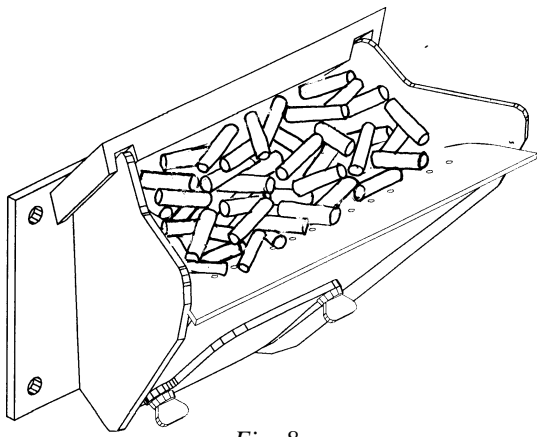


Fig. 8

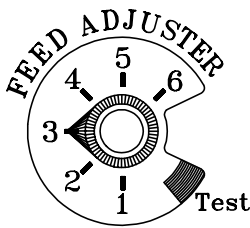


Fig. 9

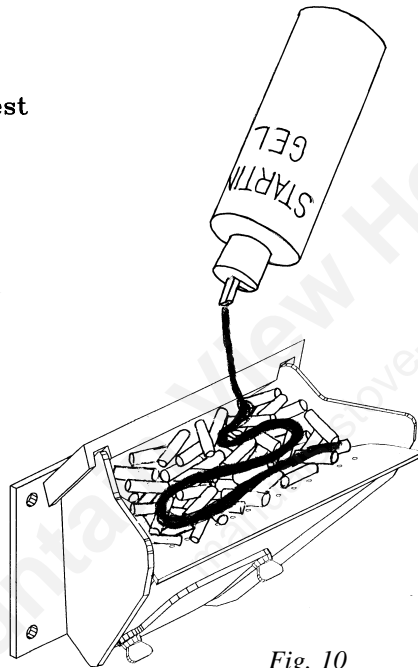


Fig. 10

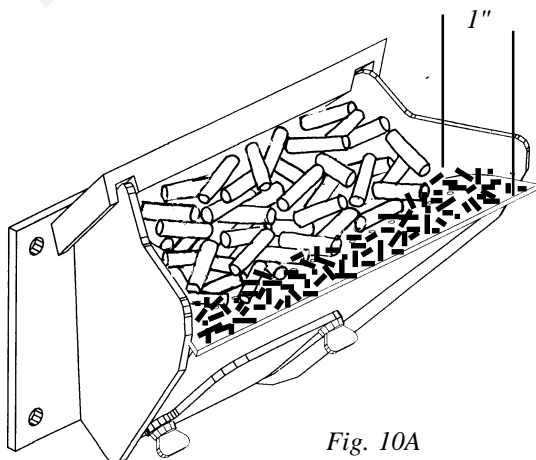


Fig. 10A

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. This is a maximum burn position and usually does not achieve this position under normal burn rates.

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

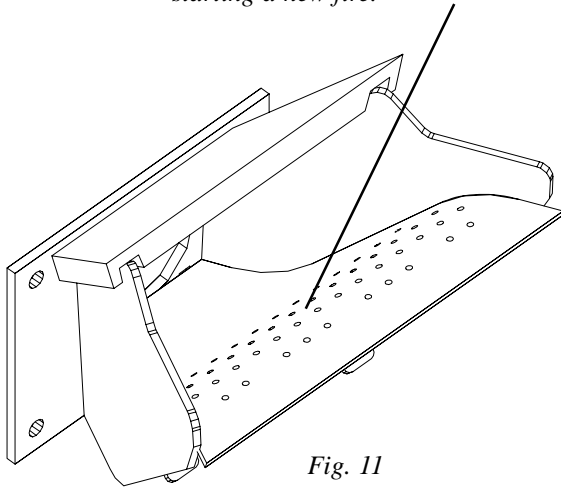


Fig. 11

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

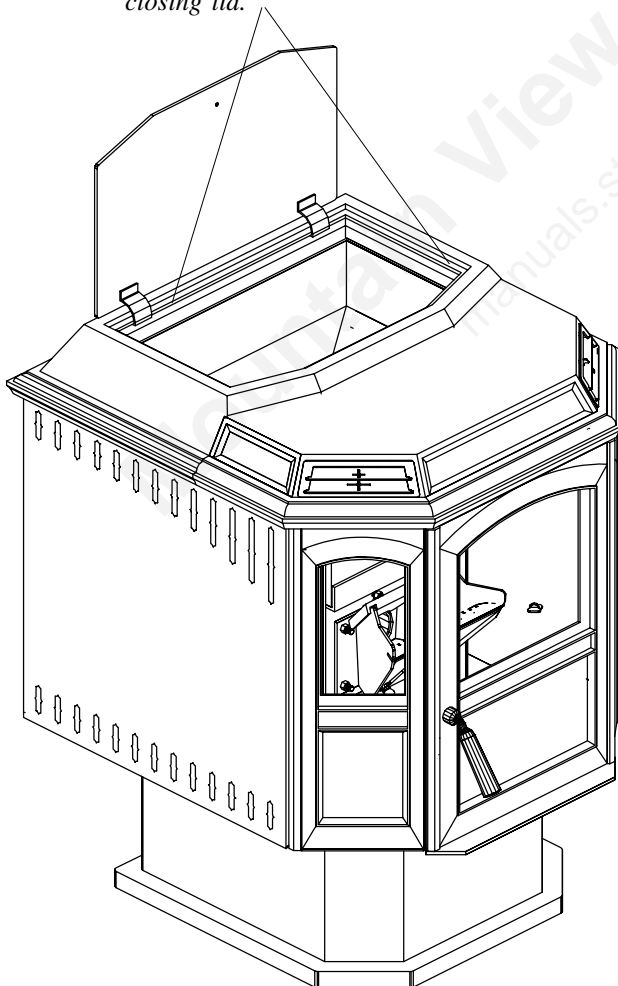


Fig. 12

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 in 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.

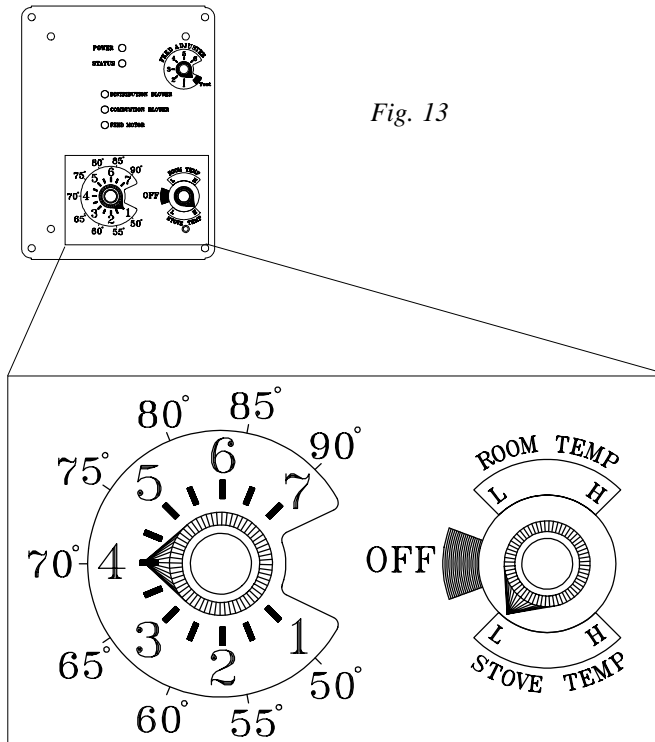
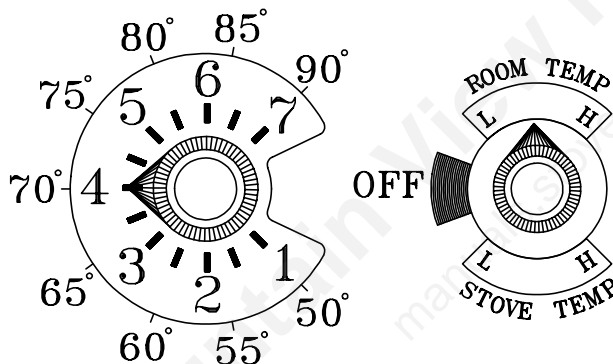
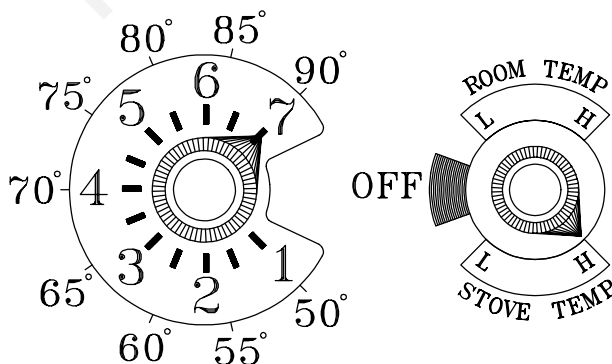


Fig. 13

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. Should be lit anytime the unit is plugged in.

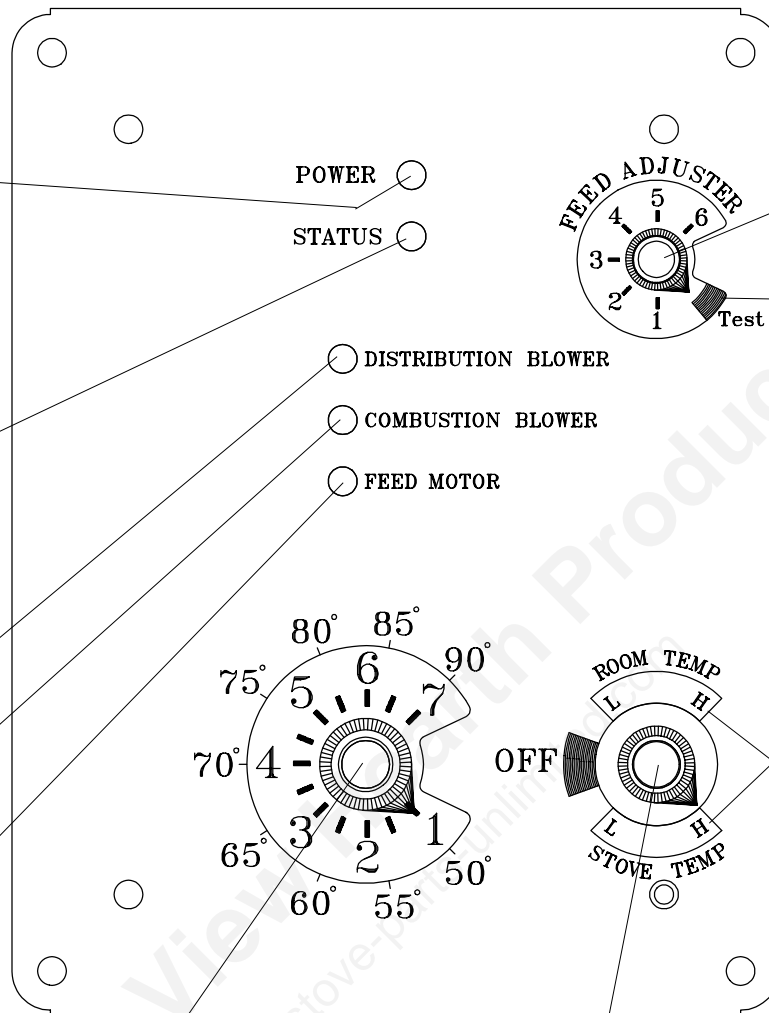
Status Light

Will be lit in either stove or room temp mode when pointer is not within off position band except after normal shut down. 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 due 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 itself 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.

(Note) only after unit has warmed up.

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