Pellet Stove Test Manual

Stricter Emission Standards

Adopt stricter emission standards than the EPA.

1. Washington: 4.5 grams per hour for non-catalytic and pellet stoves; 2.5 grams per hour for catalytic and pellet stoves.
2. Montana: The tax code, Subchapter 1, 42.4.104 (2) (d) says a tax credit applies to biomass stoves and furnaces which emit less than six grams per hour.
3. Ten states require that only outdoor hydronic wood boilers qualified by an EPA voluntary program be installed: New England states, New York, Pennsylvania, Maryland and Indiana. In two states - Washington and Oregon they are banned altogether.

Forbid Sale of Exempt Stoves

1. California: Forbids sale or installation of residential indoor wood stoves that are exempt from EPA regulation.
2. Washington: Same as California, above.
3. Oregon requires all stoves sold must meet EPA standards.
4. Colorado requires all new wood stoves sold must meet EPA standards, Pellet stoves must be below 4.1, and masonry stoves must not emit more than 6 grams PM per 6 kilograms of fuel. Wood boilers and furnaces are exempt which does allow outdoor wood boilers to be installed.
5. Utah: Solid Fuel Burning Devices must be EPA certified to be installed in the following Utah counties: Box Elder, Cache, Davis, Salt Lake, Tooele, Utah, and Weber Counties.

Forbids Sale and/or Installation of Uncertified Stove

1. Washington: Since 1992, has forbidden sale and installation of wood stoves or inserts that are not certified to the stricter Washington state emission standards.
2. Oregon: Forbids sale and installation of wood stoves or inserts that are not certified. Oregon began certifying stoves in 1986 and the EPA in 1988.
3. Denver-Metro area, Colorado: Prohibits sale and installation of new or used uncertified wood burning appliances
4. Summit County, Colorado: Forbids the installation of a non-certified wood stove in a new home or as a replacement unit for an existing non-certified stove.
5. Idaho: Several counties ban selling second-hand non-certified stoves.

Forbids Installation of Fireplaces

Denver Metro area: Banned unless they are equipped with an EPA Phase II wood or pellet burning insert, or electric or gas log.

Installation

VENT TERMINATION CLEARANCES:

A —— Minimum 4-foot clearance below or beside any door or window that opens.

B —— Minimum 1-foot clearance above any door or window that opens.

C —— Minimum 3-foot clearance from any adjacent building.

D —— Minimum 7-foot clearance from any grade when adjacent to public walkways.

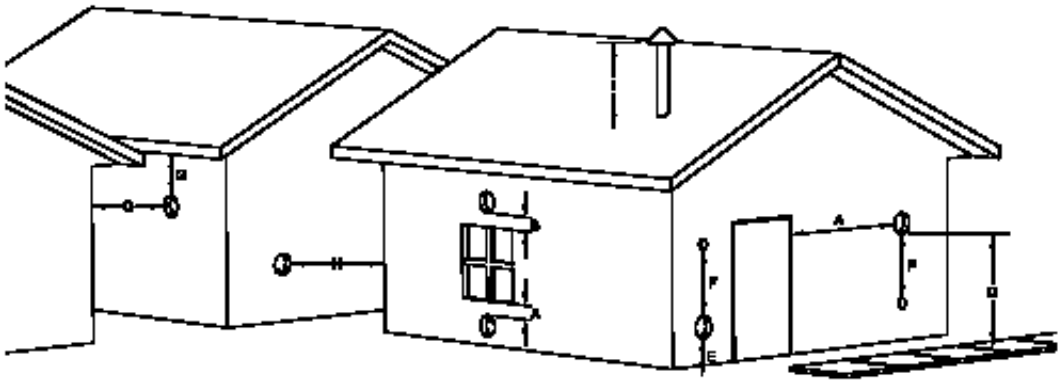
E —— Minimum 2-foot clearance above any grass, plants, or other combustible materials.

F —— Minimum 3-foot clearance from a forced air intake of any appliance.

G —— Minimum 2-foot clearance below eaves or overhang.

H —— Minimum 1-foot clearance horizontally from combustible wall.

I —— Must be a minimum of 36-inches above the roof and 24-inches above the highest point of the roof within 10-feet.



VENT TERMINATION CLEARANCES

5660 side mount board

Control Board Functions

Mode Button: The mode button allows you to switch operating mode on the pellet stove room heater. Depress the Mode button to switch between manual and T-Stat modes. As you depress the MODE button the indicator light above the desired mode will engage. When you engage the Manual Mode, you will be able to manually select the heat settings. If you have installed a remote Thermostat for you pellet stove Press the MODE Button to engage T-State Mode. The thermostat will control the heat output of the heat alternating between the lowest heat level and the highest heat level that you have per-selected (3 or above).

The T-Stat mode provides the most even heat output, for better comfort, and to extend the life of the pellet fuel ignition system.

On/Off Button: The On/Off button is used to turn the heater on and off. Whenever there is power to the heater, the LED indicator light above the On/Off button will be solid red. If the heater is cold prior to start-up, press and release the On/Off button. The Led light above the On/Off button will alternately flash red and green to indicate the startup cycle has started. Fuel pellets will start to feed into the burn pot and the pellet fuel ignition system will be activated. Flames in the burn pot will normally appear between 4-8 minutes, and once the flame has been established, the startup cycle will end, this takes between 8-12 minutes. At this point the Led indicator light above the On/Off button will glow solid green.

Heat Level Button: Depress the Heat Level button to advance the heat level by on level until you reach the maximum setting ; from the maximum level you will decrease one level each time you depress the heat level button. The circulation fan speed will also increase with the heat setting. Wait until the startup cycle is completed and the On/Off button is solid green to set the heat level. (The heat level leds are also used as codes to indicate a malfunction)

Fan Button: Depressing the fan button will set the circulation fan speed to high, overriding the automatic fan speed control. The onboard logic will modulate the fan speed in accordance with the heat level setting.

Auger Button: Whenever operating the stove for the first time or if it runs out of pellets it is necessary to prime the auger with pellet fuel. To do this, Press and Hold the AUGER button for approximately 3 seconds until the auger Led illuminates. This Procedure will prime the auger and then automatically initiate the normal ignition cycle.

Auger Trim Button: This button is only enabled when operation at heat level 1. Depress the auger trim button to change the auger feed rate on the minimum heat level; to account for the quality of pellet fuel being used.

Error Codes and Display Indicators

1 & 2 Flashing red led	• Vacuum Error
1 & 5 Flashing red led	• Pellets failed to ignite
3 & 4 Flashing red led	• High Limit switch reset switch • Unit over heated reset switch
4 & 5 Flashing red led	• Low Limit switch • Auger jam • Hooper lid open

5660 Test

Make sure the unit is plugged in and turned ON. Press and Hold the Auger Trim and Heat Level keys for 3 seconds. Press the MODE button to advance through the test.

1. LEDs: ON/OFF, red/green (9 LEDs in total)

2. Key Function (press as fallows):

Key pressed	LED response
Heat Level	L1
Auger Trim	L2
Fan	L3
Auger	L4
On/ Off	L5

3. Convection Fan ON :(you must bypass the POF Disk to run this test)

4. Exhaust Fan ON: (no components bypassed for this set)

   Open and Close the door to check vacuum switch

5. Igniter ON

6. Auger Motor ON:

   Open and Close Hopper Lid to check Hopper Lid switch

7. Test complete

5660 Top Mount Board

Built in Thermostat

Display Indicators

On/Off Switch (Power Button):

- When pushed, the stove will automatically ignite. The igniter stays on for 10-12 minutes, depending on when the POF is reached. It should start in approximately 5 minutes.
- The red light above the power button will turn green when pressed and remain green until the stove is turned off.
- After pushing "Power", the auger motor is on for 3.5 minutes, off for 1 minute. During the remainder of the start-up period, the auger motor operates on the heat range "1" setting.
- During start up the heat level advance (up and down keys) will change the heat range indicator level accordingly, but there is no change in the stoves operating conditions until start-up is completed.
- During startup if ignition does not occur within 12 minutes the stove will error out and show Er4.
- During the start-up phase, the Mode key does not function.

Level/ Temp Arrow Buttons:

- These buttons when pushed will set the pellet feed rate, hence the heat output or heat range of your stove.
- The levels of heat output will incrementally change on the bar graph starting from heat range "1" to heat range "5".

C°/F° Buttons:

- The C°/ F° button changes you two digit display from degrees Celsius to degrees Fahrenheit.

Mode (M/T) Button:

- The Mode of the stove can be switched between manual and thermostat. Separate LED's to the left of the two digit display indicate the mode of operation- Manual or T-Stat. The stove has to be in normal operation to be switched from manual to T-Stat mode.
- Manual mode operates according to the 5 set levels of feed on the bar graph from heat range "1" to heat range "5".
- T-Stat mode works as follows:
- The stove has a built in thermostat into the controls of the appliance. The temperature sensor for the T-Stat is located on the back of the stove behind the display board.
- Once the stove has gone into run mode the stove can be switch into T-Start Mode.
- The UP and Down Level / Temp Arrow Buttons are used to change the desired set-point temperature. Once the desired temperature is reached the two digits display will flash for four seconds and reset to the actual room temperature.
- Once the stove reaches within 3 °F of the set point, it returns to the heat range that the stove was set on before it was switched to T-Stat mode(If the stove was running on Heat range "5" when switched to T-Stat mode when it gets within 3 °F of the set point it will return to heat range "5")
- Once the stove reaches the desired set-point, the stove will drop the heat range "1".
- When room temperature drops below desired set-point the stove will ramp back up until it reaches the desired temperature.

Error Codes and Display Indicators

ER 1

Possible Causes	Possible remedies:
The convection blower is overheating and tripping the internal temperature shutoff	Clean any dust off the windings and fan blade. If oiling the blower does not help, the blower may be bad
The stove is being left on the highest setting for extended periods of time	If operating the heat on the heater on the highest settings, the room temperature could increase enough and lead to potential overheating situation. If this happens try operating at a lower setting.
Fuel other than wood pellets is being burned in the stove	This pellet stove is designed and tested to use wood pellets. Check for sighs of fuel other than wood pellets. No other types of fuel have been approved for this pellet stove. If there are any signs of other types of fuel being used, stop using them immediately
Power surge or brown out situation	A power surge, spike, or voltage drop could cause the high limit switch to trip. Check to see if a surge protector is being used on the stove. If no, recommend one to the customer.
High Limit Switch is malfunctioning	If the other items check out OK, replace the high limit switch.

ER 2

Possible Causes	Possible Remedies
Airflow switch hose or stove attachment pipes of hose are blocked	Unhook air hose from the air switch and blow through it. If air flows freely, the hose and tube are fine. If air will not flow throw the hose, use a wire coat hanger to clear the blockage.
The air inlet, burnpot, interior combustion air chambers, or exhaust pipe are blocked with ash or foreign material	Follow al cleaning procedures in the maintenance section of the owner's manual.
The firebox is not properly sealed	Make sure the door is closed and that the gasket is in good shape.
Vent pipe is incorrectly installed	Check to make sure vent pipe installation meets criteria in owner's manual.
The airflow switch wire connections are bad	Check the connectors that attach the gray wires to the air switch.
Combustion blower failure	With the stove on, check to see if the combustion blower is running. If it is not, you will need to check for power going to the combustion blower. It should be a full current. If there is power, the blower is bad. If there is not, see #8.
Control board not sending power to combustion blower.	If there is no current going to the combustion blower, check all wire connections. If all wires are properly connected, you have a bad control board.
Control bard not sending power to air switch.	There should be a 5-volt current (approximately) going to the air switch after the stove has been on for 30 seconds.
Air switch has failed	To test the air switch, you will need to disconnect the air hose from the body of the stove. Whit the other end still attached to the air switch, very gently suck on the loose end of the hose (you may want to remove the hose entirely off the stove and the air switch first and make sure it is clear). If you hear a click, the air switch is working. Be Careful too much vacuum can damage the air switch.

ER 3

Possible Causes	Possible Remedies
The hopper is out of pellets	Refill the hopper
The air damper is too far open for a low feed setting	If on the low setting, you may need to close the dampener all the way
The burnpot holes are blocked	Remove the burnpot and thoroughly clean it
The air inlet, the interior chambers, or exhaust system has a partial blockage	Fallow all cleaning procedures in the maintenance section of the owner's manual
The hopper safety switch has failed or hopper is open.	When operating the unit, be sure the hopper lid is closed so that the hopper safety switch will activate. Check the wires leading from the hopper safety switch to the control panel and auger motor for secure connection. Use a continuity tester to test the hopper safety switch; replace if necessary.
The auger shaft is jammed	Remove the auger motor from the auger shaft and try to run the unit. If the motor will turn the shaft is jammed on something. If the motor will not turn, the motor is bad.
The auger motor has failed	Remove the auger motor from the auger shaft and try to run the unit. If the motor will turn the shaft is jammed and something. If the motor will not turn, the motor is bad.
The POF thermo disc has malfunctioned	Temporarily bypass the POF thermo disc by disconnecting the two wires and connecting them with a short piece of wire. Then plug the stove back up. If the stove comes on and works, you need to replace the POF thermo disc. This is for testing ony.DO NOT LEAVE THE THERMODISC BYPASSED. Your blowers will never shut off and if the fire went out the auger will continue to feed pellets until the hopper is empty if you leave the POF thermo disc bypassed.
The control board is not sending power to the POF or other auger system components.	There should be a 5-volt (approximately) current going to the POF thermo disc after the stove has been on for 10 min.

ER 4

Possible Causes	Possible Remedies
The air inlet, burnpot, interior combustion air chambers, combustion blower, or exhaust pipe are blocked with ash or foreign material	Follow all cleaning procedures in the maintenance section of the owner's manual.
The Proof of Fire (POF) thermodisc has come unplugged	Check the (POF) thermodisc to see if the wires are connected properly
The proof of fire (POF) has Malfunctioned	Temporarily bypass the POF thermodisc by disconnecting the two wires and connecting them with a short piece of wire. Then plug the stove back up. If the stove comes on and works, you need to replace the POF thermodisc. This is for testing only, DO NOT LEAVE THE THERMODISC BHYPASSED. Your blowers will never shut off and if the fire went out the auger will continue feeding pellets until the hopper is empty if you leave the POF thermodisc bypassed.
The Hooper is out of Pellets	Refill the Hopper
The Hopper Safety Switch has failed or the Hopper is Open	When operating the unit, be sure the hopper lid is closed so that the Hopper safety switch will activate. Check the wires leading from the hopper safety switch to the control panel and the auger motor for secure connections. Use a continuity tester to test the hopper safety switch; replace if necessary.
The Auger shaft is jammed	Start by emptying the hopper. The remove the auger motor by removing the auger pin then remove the auger shaft and inspect the shaft for bent flights, burrs or broken welds. Remove any foreign materials that might have caused the jam. Also, check the auger tube for signs of damage such as burrs, rough spots, or grooves cut into the metal that could have caused a jam.
The Auger motor has failed	Remove the auger motor from the auger shaft and try to run the unit. If the motor will turn the auger shaft is jammed on something. If the motor will not turn, the motor is bad.

ER 5

Possible Causes	Possible Remedies:
The stove automatically flashes "E5" when turned on.	The T-stat sensor has come unplugged from the control board. Check to see if the sensor is unplugged. If the sensor is not unplugged, then the sensor is damaged or has a short, it will need to be replaced.