ADVANTAGE SERIES SERVICE MANUAL

ADVANTAGE

ADVANTAGE II

ADVANTAGE II-T

ADVANTAGE SERVICE MANUAL

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ADVANTAGE SERVICE MANUAL

REVISION RECORD

DATE	SYMBOL	REVISION
04/89	ORIGINAL	ADVANTAGE SERVICE MANUAL
08/89	A	UPDATED 'ADVANTAGE' PAGES AND ADDED NEW PAGES FOR 'ADVANTAGE II'
04/90	B	UPDATED 'ADVANTAGE' AND 'ADVANTAGE II' PAGES; ADDED NEW PAGES FOR ADVANTAGE II–T
6/91	C	UPDATED ALL PAGES. ADDED NEW PART NUMBERS. ADDED 1991 MODEL

PELLET FUEL

The Whitfield Advantage like all top fed pellet stoves, requires a top grade pellet to operate satisfactorily. Most pellets that meet the APFI Standard are recommended.

APFI Standard:

Heat Content: . . . . . 8200 BTU/Lb Min.
Bulk Density: . . . . . 40 Lb per cubic ft. Min.
Moisture Content: . . . . . 8% Max.
Ash Content: . . . . . 1% Max.
Size: . . . . . 0.23 to 0.35 in diameter, 1.5 in long Max.
Fines: . . . . . 1% Max. through 1/8th inch screen

Clinkering or ash fusion is also an important fuel parameter. This is not addressed in the APFI Standard. Clinkering is a low grade glass making process whereby the silica in the ash softens at temperature and then solidifies on cooling as clinker and blocks off the primary combustion air holes in the grate. The fire will then burn very rich and soot up the firebox and window rapidly. A clinker can be easily removed using the grate scraper tool provided by lifting the clinker from the bottom of the grate and depositing it in the ash pan.

The clinkering characteristics of the fuel depend on the silica content of the non-combustible ash and the quantities of the trace elements of sodium and potassium which significantly reduce the melting point of the silica. A fuel that meets the APFI Standard may possibly have high clinkering characteristics which would make it an unsuitable fuel for this stove.

Care must be taken to recommend suitable fuels to customers, and to advise customers of how and when to remove the clinkers.

SERVICE & MAINTENANCE

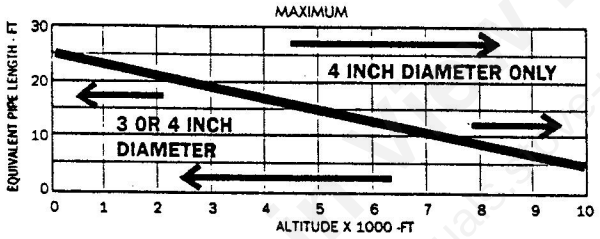
When an installed stove is to be checked out for periodic maintenance or for trouble shooting, the following items should be checked to ensure correct burning of the stove.

1) EXHAUST INSTALLATION

Any blockage in the exhaust, including an excessive length or number of bends, will starve the fire of combustion air and could cause gas and dust leaks at the exhaust pipe joints and seams. (A 90 degree bend is equivalent in restriction to approx. 60in of straight 3in exhaust pipe or 48in of 4in pipe.)

The exhaust system must be installed to the pipe manufacturer's specifications and follow the instructions in the Whitfield "Advantage" Installation and Operation Manual.
Determine whether 3 or 4 inch pipe is necessary based on the following diagram:

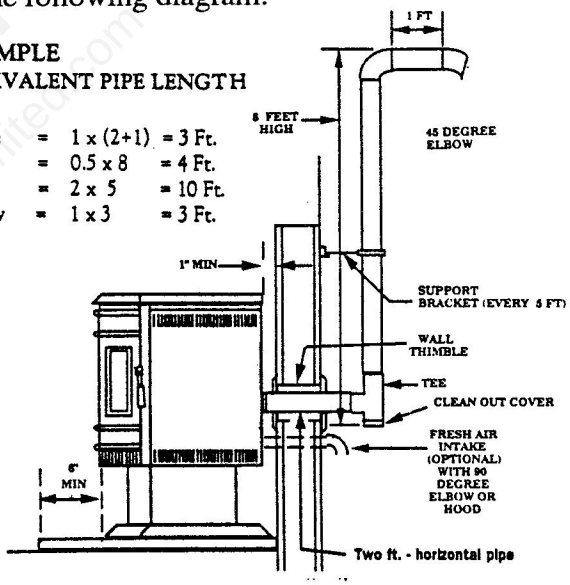
Horizontal Straight Pipe = 1 x actual length Ft.
Vertical Straight Pipe = 0.5 x actual length Ft.
90 Degree Elbow or Tee = 5 Ft.
45 Degree Elbow = 3 Ft.



CRITERIA FOR SELECTING EXHAUST DIAMETER

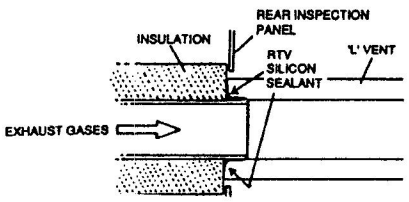
EXAMPLE
EQUIVALENT PIPE LENGTH

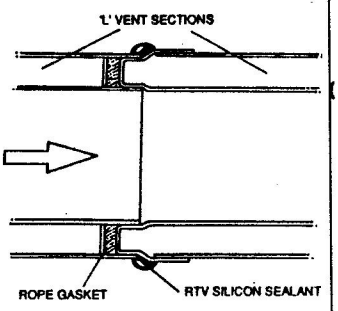
A) Horizontal Pipe	=	1 x (2+1)	= 3 Ft.
B) Vertical Pipe	=	0.5 x 8	= 4 Ft.
C) 90 Degree Tee	=	2 x 5	= 10 Ft.
D) 45 Degree Elbow	=	1 x 3	= 3 Ft.



EXHAUST CONNECTION TO STOVE

During inspection or service of the exhaust installation, check the following:





a) Attachment to the stove

* Connection at the stove must be sealed with RTV high temp (400 degree minimum) silicone sealer.

b) Exhaust pipe joints
*Each joint is fully twist locked together.
*The rope gasket seal is in place.
*The outer joint is sealed with RTV seal for connections inside the house.
*Every seam of each pipe is sealed with RTV sealer for connections inside the house.
*High temperature metal tape can also be used in addition to, but not in place of RTV at the joints.

EXHAUST CONNECTION TO STOVE (L VENT)

c) Clean out Tee

*Remove end cap and clean out fly ash

*Clean out Tee's (single or double) should be used in place of 90 elbows to enable easy clean out towithout disassembly of the exhaust system.

*Every seam on the Tee must be sealed with RTV.

d) Termination

*A horizontal exhaust must be terminated with a proprietary end cap or a 45 degree elbow. A 45 degree elbow is more desirable to an end cap to prevent fly ash from blowing onto the side of the house.

*Clean rodent screen (1/2" mesh) if installed. Fly ash build up on this screen will restrict the exhaust pipe.

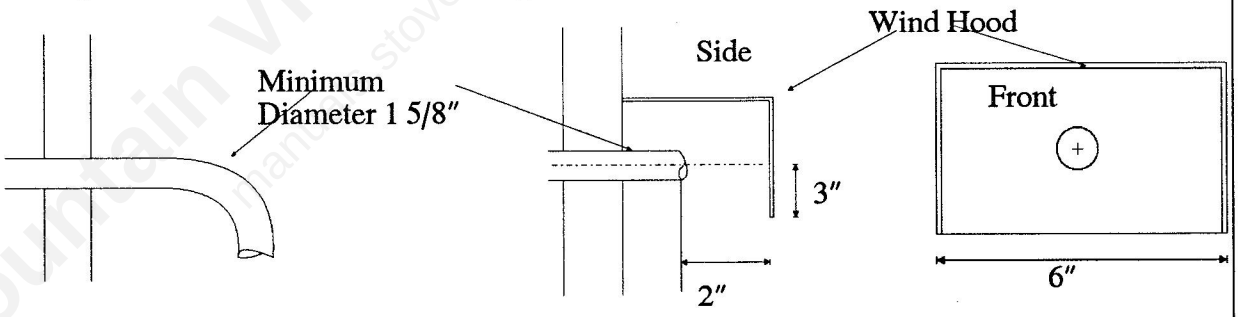
2) COMBUSTION AIR INLET

a) Blockage or excessive length or bends will starve the stove of combustion air (90 degree bend is equivalent in restriction to approx 30in of straight inlet pipe).

b) Only steel pipe 1 5/8in minimum inside diameter is approved for use (straight or flexible).

c) If the air inlet is connected to the outside, it MUST be terminated with a vertical 90 degree bend (down) or with a wind hood. Failure to do so could precipitate a burn back due to high winds blowing directly up the air inlet during a simultaneous power failure (Advantage and Advantage II).

***NOTE: 90 degree bend or wind hood is not required for Advantage II-T**



90° Bend Termination ***Wind Hood Termination***

d) Connection to outside the house is REQUIRED for mobile home installations.

e) For freestanding installations with horizontal through the wall exhaust, it is recommended, but not required, that the stove be connected to the outside. Be sure to terminate the outside air connection far enough away from the exhaust termination so as not to re-circulate exhaust gases into the home.

f) For insert installations into an existing fireplace, or freestanding installations with a vertical exhaust, (5 Feet or more) outside air connection is not required.

NOTE: DO NOT TERMINATE BOTH THE FRESH AIR INTAKE AND THE EXHAUST INSIDE A CHIMNEY; YOU WILL RE-CIRCULATE THE EXHAUST GASES BACK INTO THE COMBUSTION CHAMBER AND CAUSE THE FIRE TO BURN "RICH". SMOKE MAY ALSO BE DRAWN INTO HOUSE BY THE CONVECTION FAN.

3) FIREBOX DRAFT PRESSURE - Advantage and Advantage II (serial # 1001 - 18144)

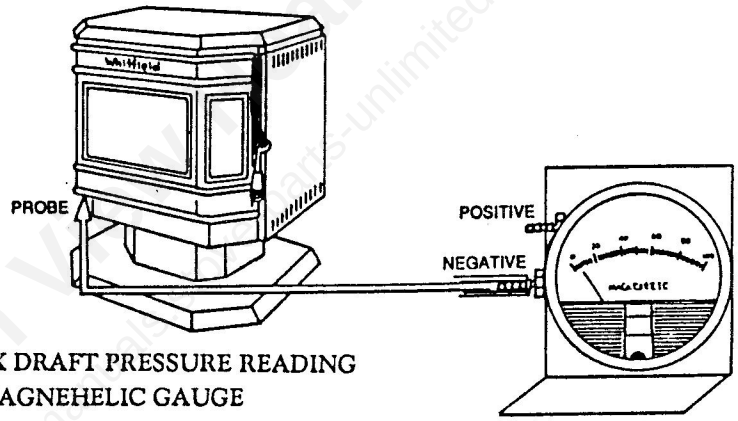
The draft pressure in the firebox must be measured and recorded when the stove is first installed. This will indicate whether the seal integrity around the door, windows, and ash pan has been maintained during shipping and installation, and whether there is any blockage of the exhaust or intake. (This is especially important when installed at high altitude as the combustion fan cannot pull as much mass flow of oxygen through the fire. There is 30% less oxygen at 9000 ft. compared to sea level.)

Use a magnehelic draft gauge with a one-eighth (1/8") inch probe attached to the lower connection on the gauge. (This will measure negative or draft pressure in units in inches of water gauge. Insert the probe into a hole provided in the firebox just below the cast iron door as shown below.

Draft pressures should be within the following limits:

a) Damper OUT: - 0.4 to - 0.65 in.WG

b) Damper IN: - 0 to - 0.1 in.WG



FIREBOX DRAFT PRESSURE READING
WITH MAGNEHELIC GAUGE

MAGNEHELIC
DRAFT PRESSURE
GAUGE
Part Order # 5-700-200

If reading a) cannot be attained (-0.4) check for leaks in the door gasket seal, ash pan seal & window seal, and check for a restriction in the exhaust pipe to correct a low reading. Inspect the air inlet pipe to correct a high reading (-0.65). It may be easier to remove each pipe in turn.

If reading b) is exceeded (-0.1) the damper is probably not fully seated in its slide and is leaking air around the end. Adjust the damper by bending the damper rod (fore or aft) a little. Alternatively, remove the rear brick in the firebox and the blower inspection plate to check that the damper is sliding straight and is closing completely. Also, check to see that air inlet tube is not restricted as this will give you a reading -0.1.

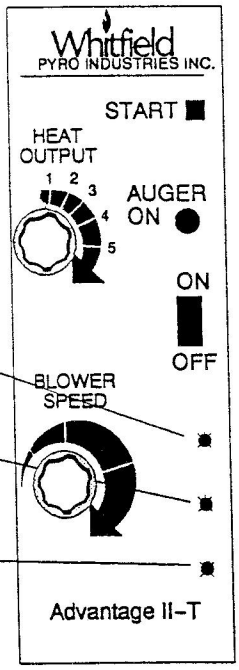
3A) CONTROL SET-UP PROCEDURES - Advantage II-T (serial #18145 or greater)

Using the SSAC (brand) control boards, the ADVANTAGE II-T stoves are preset at the factory such that the 5 positions on the heat output selector switch will give you the proper air-to-fuel ratio when the damper is set approximately 2 1/4 inches IN from its fully extended position.

With the damper handle in the correct position, the following firebox draft pressures (ΔP) should be observed using a magnehelic pressure gauge.

HEAT OUTPUT SWITCH POSITION	ΔP COLD FIREBOX * (inches W.C.)
1	-.03 TO -.10
3	-.05 TO - .15
5	-.20 TO -.25+

NOTE: IF THESE ΔP READINGS CANNOT BE ACHIEVED, LOOSEN THE SET COLLAR ON THE DAMPER ROD AND ADJUST THE DAMPER IN OR OUT FOR DESIRED RESULTS. AFTER MAKING ADJUSTMENTS, SLIDE THE COLLAR AGAINST THE SIDE OF THE STOVE AND TIGHTEN THE SET SCREW. THIS WILL PREVENT THE DAMPER FROM BEING PUSHED IN BUT WILL STILL ALLOW THE CUSTOMER TO GIVE THE FIRE MORE AIR IF NEEDED.



Three separate trim knobs are provided on the front of the SSAC control board to permit adjustment of the auger motor 'ON' time, the combustion blower speed and the minimum convection blower speed (see diagram). Remove the metal plugs to get access to the these trim knobs.

*TO INCREASE THE AUGER MOTOR 'ON' TIME, TURN THE TRIM KNOB CLOCKWISE. (NOTE: Different fuels feed at different rates. The minimum feed rate at the number 1 setting should be no less than one pound per hour).

*TO INCREASE THE COMBUSTION BLOWER SPEED, TURN THE TRIM KNOB CLOCKWISE. (NOTE: If the ΔP readings are not obtained when the stove is installed, the damper should be adjusted first).

*TO INCREASE THE CONVECTION FAN MINIMUM SPEED, TURN THE TRIM KNOB COUNTER CLOCKWISE. (NOTE: Minimum voltage to the convection blower should not be less than 65 volts. The voltage can be measured between terminals #3 and #6 on the terminal strip).

HEAT OUTPUT SWITCH POSITION	VOLTAGE TO COMBUSTION BLOWER **	AUGER 'ON' TIME	AUGER 'CYCLE' TIME (ON+OFF)
1	61 - 68	1.8 TO 2.0 sec	11.8 to 12 sec
2	64 - 72	1.8 TO 2.0 sec	6.8 to 7.0 sec
3	69 - 78	1.8 TO 2.0 sec	5.8 to 6.0 sec
4	73 - 82	1.8 TO 2.0 sec	4.8 to 5.0 sec
5	98 - 108	1.8 TO 2.0 sec	3.0 to 4.2 sec

THE NUMBERS IN THIS TABLE SHOULD BE USED AS TROUBLESHOOTING GUIDELINES ONLY.

* If ΔP pressures appear to drop over time, refer to page C1 - "Fire burns with a lazy orange flame..." before making any adjustments to the trim pots.

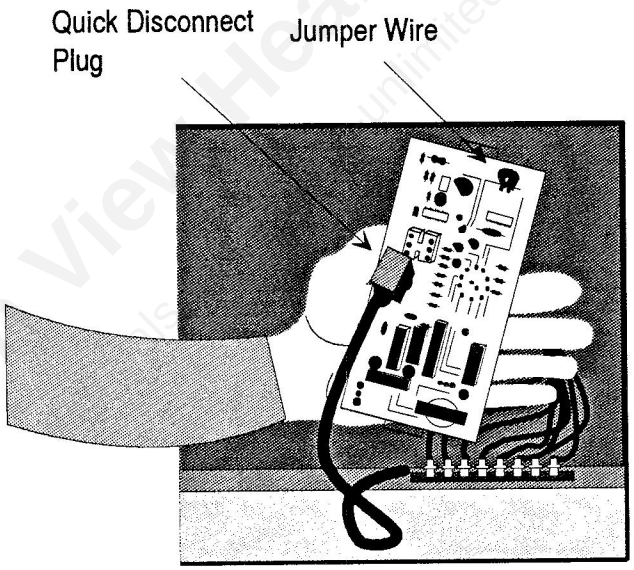
**The voltage to the combustion blower is measured between #4 and #6 on the terminal strip.

3B) THERMOSTAT INSTALLATION - Advantage II-T (serial # 18,145 or greater)

GENERAL GUIDELINES FOR INSTALLING A WALL THERMOSTAT:

The ADVANTAGE II-T can be installed with, and operated by a wall mounted thermostat. However, a wall thermostat is not supplied with the stove. The Advantage II-T stoves can also be attached to and operated by an automatic set-back thermostat. However, there are no provisions on the stove to power a set-back thermostat so a battery powered timer will be required. Most thermostats will have instructions with them as to where to place them in your room. Please follow the thermostat manufacturer's instructions carefully. Most dealers have found that placing the thermostat on the wall behind the stove is the most convenient location to install it.

There are two (2) male spade terminals on the back of the control panel on the, top right corner. A jumper wire will be found in place across these terminals and must be in place for the stove to operate on MANUAL control. If the control is manually operated without the jumper wire in place, the stove will always operate in the PILOT mode (position 1) whatever the position of the heat output switch. The jumper wire must be removed to connect the wall thermostat. (See diagram below).



The thermostat option allows the stove to switch between a high setting (DEMAND) and a low setting (PILOT) at the command of the wall mounted thermostat. The DEMAND setting is controlled by the HEAT OUTPUT selector switch. Position #2 thru #5 can be used for the DEMAND setting depending on the heat output required of the stove. During the PILOT mode the stove automatically switches to position #1. The convection fan will automatically switch to minimum setting during the PILOT mode and will increase in speed in the DEMAND mode.

NOTE: On the ICM brand control boards the jumper wire is located on the bottom left corner.

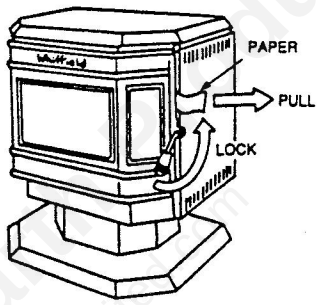
4) DOOR SEAL - Advantage , Advantage II and Advantage II-T

1/2" diameter rope gasket (soft) is mounted in the cast iron door that seals against the stove frame when the door is closed. Significant leakage around this seal may cause insufficient combustion air to be drawn through the grate. The rope gasket will shrink and harden somewhat with use and possibly cause small areas of leakage. However, a small amount of leakage will not seriously degrade the stove performance.

A paper strip test will check the integrity of the door seal when the stove is cold (See diagram). Place the paper at several points around the door, close door and pull on the paper strip. A slight friction should be felt on the paper if the seal is tight.

TESTING DOOR SEAL

TESTING DOOR SEAL

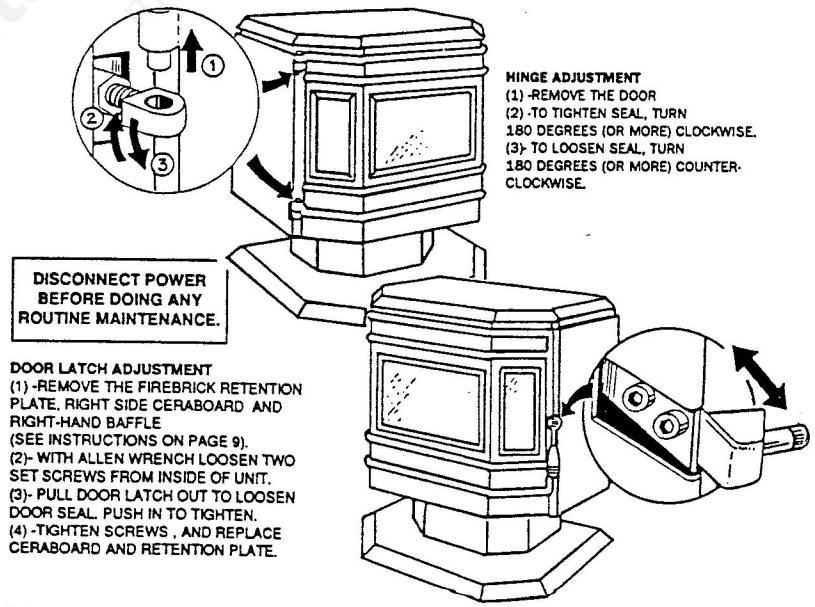


Remedies if the gasket is leaking:

a) Replace the rope gasket (Part Order # 61027100). Use a small amount of RTV sealant (Part Order # 73027209) to glue the gasket in place. (Use of rope gasket cement in place of RTV hardens the rope when heated.)

b) A larger gasket (5/8" diameter, medium weave) may be used if the 1/2" gasket provides an inadequate seal.

c) Adjust door latch. Use a hammer or a small pipe placed over the latch rod to bend it back a small distance (**Advantage** Stove). On Advantage II and Advantage II-T stoves the door latch and the hinge swing bolts are adjustable. (See diagram below)



NOTE: A "ROUTINE MAINTENANCE " reminder sticker is located on the hopper lid of every Whitfield ADVANTAGE II-T" pellet stove and insert for your convenience.

5) ASH PAN SEAL - Advantage, Advantage II, Advantage II-T (serial # 1001 - 32210)

A damaged gasket around the ash pan or an improperly latched ash pan will have the same effect as the leaky door seal (See previous page).

Using a regular screwdriver, latch the ash pan tightly and check the seal integrity per #4 (previous page).

Remedies:

a) Replace rope gasket (Part Order # 61027100.)
b) Adjust latch draw.
c) Ensure fly ash or pellets are not keeping the ash pan from sliding in completely.

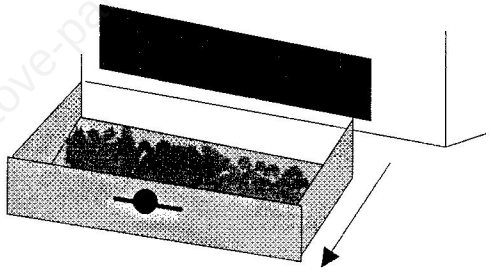
5A) ASH PAN DOOR SEAL - ADVANTAGE II-T (serial # 32211 or greater)

The ash pan on Advantage II-T stoves with a serial number of 32211 or greater is separate from the ash pan door. It is important to ensure that the seal around the ash pan door is good. The ash pan door seal can be checked using the steps in #4 on the previous page.

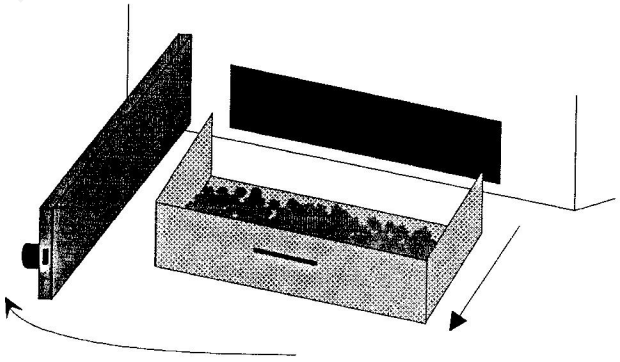
Remedies if ash pan door is leaking:

a) Replace rope gasket (part or # 61027204)

b) If you are having trouble closing the ash pan door completely, check to see that fly ash or pellet are not preventing the ash pan from completely sliding in. Clean out if necessary.



Ash Pan (Serial # 1001-32210)

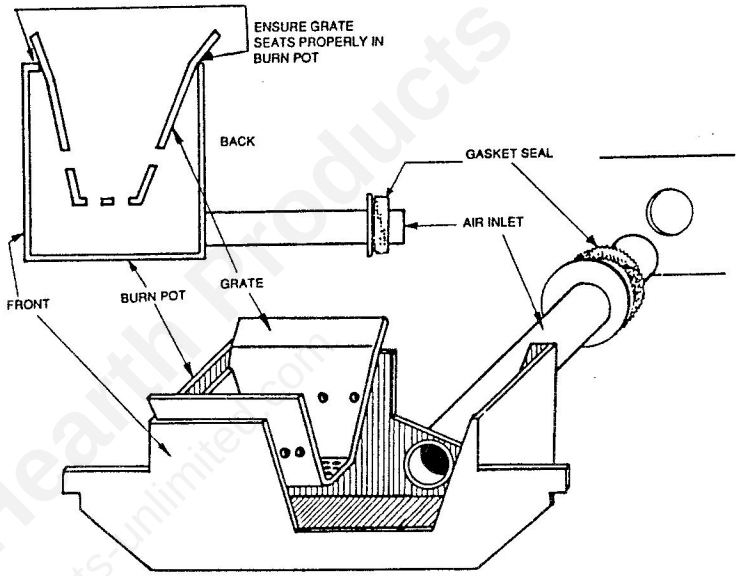


Ash Pan and Ash Pan Door (Serial # 32211 or greater)

6) BURN POT & GRATE - ADVANTAGE (serial # 1001 - 7216)

Incorrect installation of the burn pot or the grate will lead to leakage of air around the grate and the fire will be starved of combustion air. Correct installation is shown in the diagram below. Note that the inlet tube gasket on the burn pot must be firmly seated against the back of the firebox, and that the grate must be installed straight in the burn pot to ensure a good metal fit along the front and back edges of the grate, as shown below.

GRATE AND BURN POT INSTALLATION



6A) BURN POT & GRATE - Advantage II , Advantage II-T (serial # 7217 or greater)

The burn pot and grate assembly for the Advantage II and II-T pellet stoves is comprised of two pieces. The grate is stainless steel.

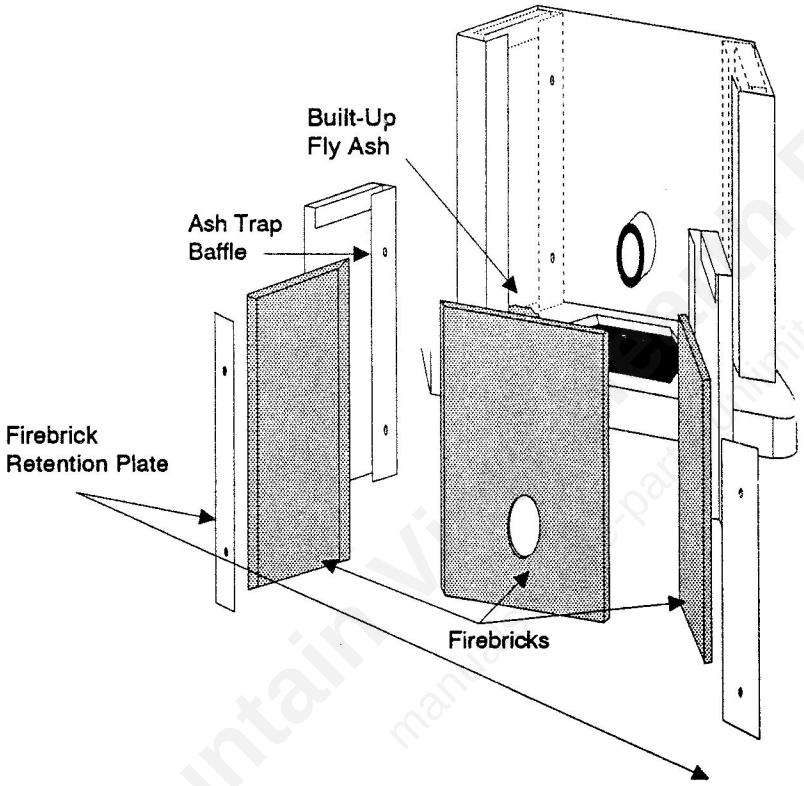
The burn pot should be emptied periodically of ash that has fallen through the holes in the grate. The entire burn pot/ grate assembly will need to be removed, and the ash cleaned from the burn pot (See diagram below).

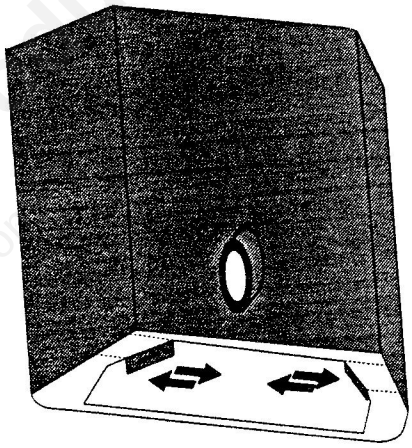
Note: The inlet tube gasket must be firmly seated against the back of the firebox to ensure good airflow (Advantage II-T) into the burn pot/ grate assembly. The grate in the Advantage I should not be interchanged with the grates Advantage II and II-T. (The Advantage II and II-T grates are interchangable, **provided** the Advantage II grate is not welded to the burnpot.)

Burn Pot / Grate Assembly - Part Order #24290700
Burn Pot "O" Ring Gasket - Part Order #61027206
* Note: A one piece burn pot / grate assembly may be found in some Advantage II stoves. Should it need replacement, order Part # 12190800 & 12100700.

7) ASH TRAP AND BLOWER IMPELLER ACCESS - Advantage, Advantage II and Advantage II-T (serial # 1001 - 32210)

The baffle system behind the side firebrick is designed to collect fly ash within the stove. The firebrick must be removed periodically (depending on fuel quality and usage) and the rear cavities cleaned of fly ash. Care must be taken in handling the firebrick which can be easily damaged. Failure to clean the rear cavities will eventually result in air starvation to the fire as the baffles become blocked. The steel baffles should also be removed and cleaned at least once a year or every ton of fuel. Stoves with a Serial #7108 thru #17,626 will not have baffles behind the firebrick. Baffles can be added if necessary.





Ash Release Slide Plates

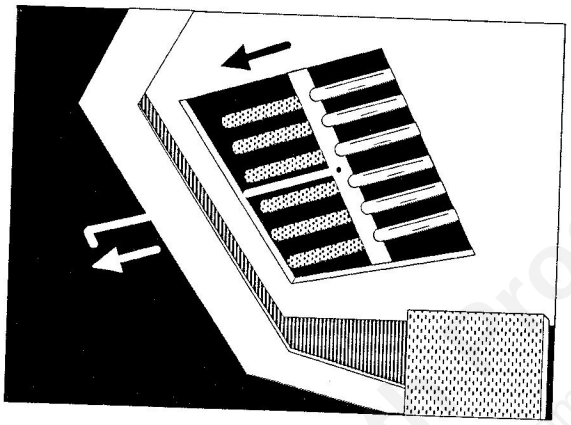
Behind the center ceraboard panel (serial number #32210 and below) is a removable steel plate that provides access to the impellor of the combustion fan. This panel should be removed at the same time to inspect the cleanliness of the impellor. If this panel is not installed so as to be tight fitting against the back of the firebox, hot exhaust gases will bypass the heat exchanger and it will appear that the flames are being drawn through the firebrick around the bottom of the fuel feed tube. There is a small channel section on the back of the plate. This must always be on the side of the plate facing away from the firebrick.

NOTE: STOVES WITH SERIAL #32211 OR GREATER ARE EQUIPPED WITH ASH RELEASE SIDE PLATES. SEE DRAWING ABOVE. THE DAMPER SHOULD ALSO BE PULLED ALL THE WAY OUT AND THE HEAT OUTPUT SWITCH TURNED TO POSITION #5 TO ALLOW ASH TO BE BLOWN OUT OF THE SYSTEM.

The ash release slide plates allow for easy clean out of the ash traps behind the side pieces of ceramic fiber board. To utilize the ash release slide plates, first remove the burn pot. Next, pull each of the slide plates forward and push them back in a few times. Most of the ash trapped behind the side pieces of ceramic fiber board will fall into the ash pan area. You will notice that the slide plates will need to be push in to enable re-installation of the burn pot.

8) HEAT EXCHANGER - Advantage, Advantage II and Advantage II-T

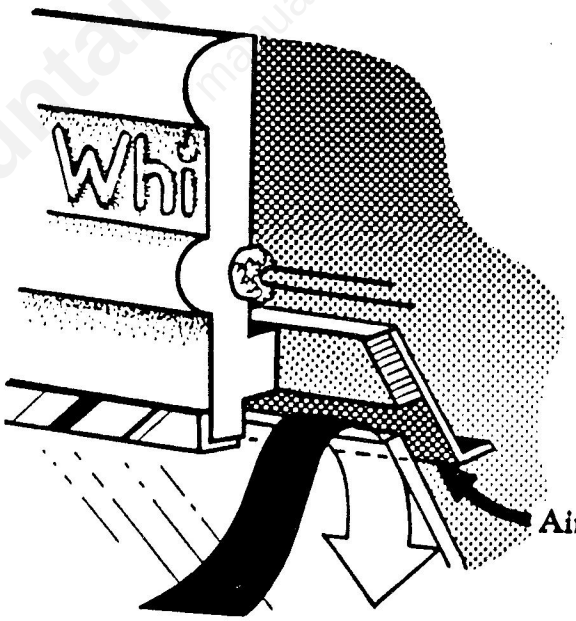
The heat exchanger tubes will collect fly ash over time. A scraper attached to a rod protruding through the front of the stove above the door permits these tubes to be cleaned when necessary by a simple in and out movement of the rod. The firebox door should be kept closed while using this scraper rod.



9) ADVANTAGE II , ADVANTAGE II-T AIR WASH SYSTEM (serial # 7401 or greater)

To maintain the optimum air wash and most efficient stove operation, the air wash gap between the glass and deflector plate must be maintained between .070 and .075 inches. If a window on a particular stove is becoming dirty, remove the deflector plate and remove any debris that may be obstructing the air flow. Also, the top of the windows may have been blocked by RTV during the manufacturing assembly process. The RTV can be removed with the use of a knife. Replace the deflector plate when inspection is completed.

NOTE: Household dust may accumulate between the brass trim and the glass.



ELECTRICAL CIRCUITS

UNPLUG STOVE BEFORE PERFORMING ANY MAINTENANCE ON THE STOVE

10) CHECKING THE ELECTRICAL CIRCUIT - Advantage (serial #1001 - 7400)

A multimeter is required that measures AC voltage and resistance (Ohms). The wiring diagram is shown on page 17. Disconnect the power to the stove.

1) Disconnect the 2 blue wires connecting the snap switches to terminals 1 & 2 of the terminal block, B. Measure the resistance across each snap switch separately. The low limit snap switch, S1, should register open circuit (infinite resistance - nothing will register), and the high limit snap switch S2 should show 0 Ohms (closed circuit). Reconnect the 2 blue wires.

2) Disconnect the 2 blowers and the auger motor. Measure the resistance across each motor winding, by connecting the Ohm meter to both wires of the motor. The nominal resistance should be approx 20 Ohms. If any of the motors indicate 0 Ohms, then that motor is probably burned out and should be replaced.

3) Plug stove into the wall. Line voltage (110-120v) should be indicated across terminals 1 & 3 of the terminal block, B, and across the input terminals of the 30 minute timer. 0 volts should be measured across the load terminals of the 30 minute timer. Check the wire connections from the start switch to the 30 minute timer, or replace the timer if any voltage greater than 0 is registered across the load terminals.

4) Press the start switch. Line voltage should be indicated across the 30 minute timer load terminals and the 2 blowers should operate. Replace the start switch or the 30 minute timer if the timer and blowers do not start.

5) Switch the ON/OFF switch to ON. Line voltage should be indicated across the input terminals 2 & 3 of the recycling timer, R. Line voltage should switch on and off periodically across the load terminals 1 & 3. The timing cycle should be either 1sec ON, 0-10sec OFF; or 6sec ON, 1-30sec OFF; the OFF time depending on the position of the potentiometer. If this is not the case, check the connection of the potentiometer wires to the terminals on the recycling timer, or replace the potentiometer. The resistance of the different potentiometers, and the recycling timers they must be used with, are shown below:

Blue/ Yellow Wire	**0 to 5 Meg Ohm**	**SSAC 1 sec**	**Part Order # 12020504**
Blue Wire	**.1 to 5.1 Meg Ohm**	**SSAC 1 sec**	**Part Order # not available**
Black Wire	**0 to 1.5 Meg Ohm**	**SSAC 6 sec**	**Part Order # not available**
Red or White Wire	**0 to 1.0 Meg Ohm**	**ACP 1 sec**	**Part Order # not available**

SSAC and ACP denote the manufacturer of the timer that is shown on the label

6) Switch the blower speed control from OFF to MAX to MIN. The convection blower should switch on and then reduce speed to 2600 rpm. There should be no audible harmonic noises from the fan. If harmonics are evident, the blower speed should be increased a little by adjusting the trim potentiometer on the bottom of the blower speed control rheostat with a screw driver.

10A) ADVANTAGE II ELECTRICAL TROUBLESHOOTING (serial # 7401 - 18,144)

1. Check that all wires are correctly connected to the terminal block per the hook-up diagram above. Check that all of the spade connectors are firmly attached to the wires by pulling on the wires.

2. Disconnect the 2 blue wires and the 2 yellow wires connecting the snap switches to the terminal block, B. Measure the resistance across each snap switch separately. The low limit snap switch, mounted on the combustion fan, should register open circuit (infinite resistance), and the high limit snap switch should show 0.0 - 0.1 Ohms (closed circuit). Reconnect the wires.

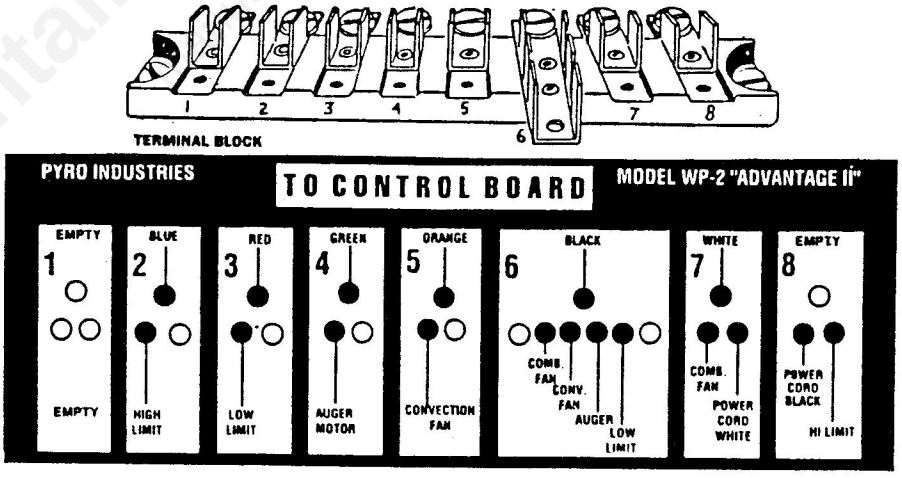
3. Disconnect the 2 blowers and the auger motor. Measure the resistance across each motor winding by connecting the Ohm meter to both wires of the motor. The nominal resistance should be approximately 18 - 20 Ohms for the combustion fan or auger motor and 8 - 10 Ohms for the convection fan. If any of the motors indicate 0 Ohms, then that motor is burned out and should be replaced.

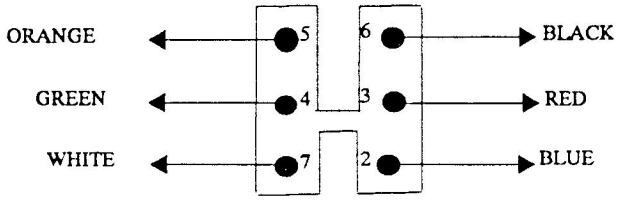
4. Plug the stove into the wall. Line voltage (110-120v) should be indicated across terminals 7 and 8 of the terminal block. 0 volts should be measured across the load terminals 4 and 6, 5 and 6 & 7 and 6.

5. Press the start switch. A voltage should be indicated across the load terminals and the 2 blowers should operate.

6. Switch the ON/OFF switch to ON. Line voltage should be indicated across the auger load terminals 4 and 6, and the auger motor should operate. Line voltage should switch on and off periodically across the load terminals. The timing cycle should be approximately 1.8 to 2.0 sec ON, 1-10 sec OFF; the OFF time depending on the position of the potentiometer.

7. Switch the blower speed control from MAX to MIN. The convection blower should reduce speed from 3000 rpm to 1500 rpm. There should be no audible harmonic noises from the fan.





10B) ADVANTAGE II-T ELECTRICAL TROUBLESHOOTING (serial # 18,145 or greater)

1. Check that all wires are correctly connected to the terminal block per the hook-up diagram on page F. Check that all of the spade connectors are firmly attached to the wires by pulling on the wires.

2. Disconnect the 2 blue wires and the 2 yellow wires connecting the snap switches to the terminal block, B. Measure the resistance across each snap switch separately. The low limit snap switch, mounted on the combustion fan, should register open circuit (infinite resistance), and the high limit snap switch should show 0 Ohms (closed circuit). Reconnect the wires.

3. Disconnect the 2 blowers and the auger motor. Measure the resistance across each motor winding, by connecting the Ohm meter to both wires of the motor. The nominal resistance should be approx 18 to 20 Ohms for the combustion blower motor or the auger motor and 8 to 12 Ohms for the convection blower motor. If any of the motors indicate 0 Ohms, then that motor is burned out and should be replaced.

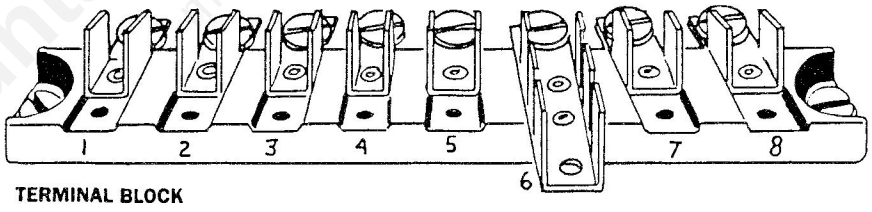
4. Plug stove into the wall. Line voltage (110-120v) should be indicated across terminals 7and 8 of the terminal block. 0 volts should be measured across the load terminals 4 and 6, 5 and 6, 7 and 6.

5. Press the start switch. A voltage should be indicated across the load terminals and the 2 blowers should operate.

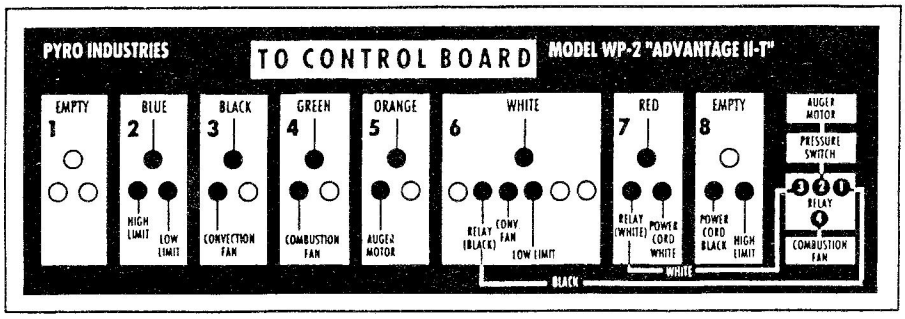
6. Switch the ON/OFF switch to ON. Line voltage should be indicated across the auger load terminals 5 and 6, and the auger motor should operate. Line voltage should switch on and off periodically across the load terminals. The timing cycle should be 2 sec ON, 1-10 sec OFF; the OFF time depending on the position of the potentiometer.

7. Switch the blower speed control from MAX to MIN. The convection blower should reduce speed from 3000 rpm to 1500 rpm. There should be no audible harmonic noises from the fan.

8. Check that the combustion motor speed changes with selector switch position. The voltage to the combustion motor (measured across terminals #4 and #6) should be approximately as shown on page 6A:



TERMINAL BLOCK



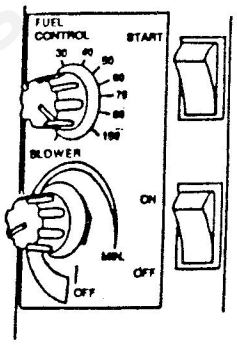
THE WIRING DIAGRAM FOR STOVES WITH A SERIAL NUMBER OF 1001 THROUGH 7400 IS ON PAGE 'D' OF THIS MANUAL.

STOVE COMPONENTS

1) ELECTRICAL CONTROL SYSTEM - Advantage (serial # 1001 - 7400)

The control system contains the following elements:

a) Single shot 30 minute time delay (30 minute timer)
   Part Order # 12020404(SSAC)
   Part Order # 24220405(ACP)
b) Recycling timer Part Order # 12020403(SSAC only)
c) High limit snap switch, normally closed (250o F) Part Order # 12127705
d) Low limit snap switch, normally open (140o F) Part Order # 12127601
e) Start switch (momentary) Part Order # 12020701
f) Fuel ON/OFF switch Part Order # 12020702
g) Potentiometer (fuel feed knob) Part Order # 12020504
h) Blower speed control (convection fan) Part Order # 24220901



CONTROL PANEL

*** LOCATION OF THESE CONTROL ELEMENTS IS FOUND IN THE CUT-AWAY DIAGRAM ON PAGE 'A'.

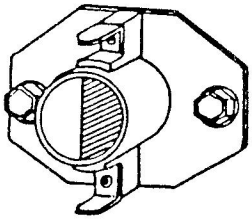
*** THE WIRING DIAGRAM LINKING THESE CONTROL ELEMENTS IS SHOWN ON PAGE 'D'.

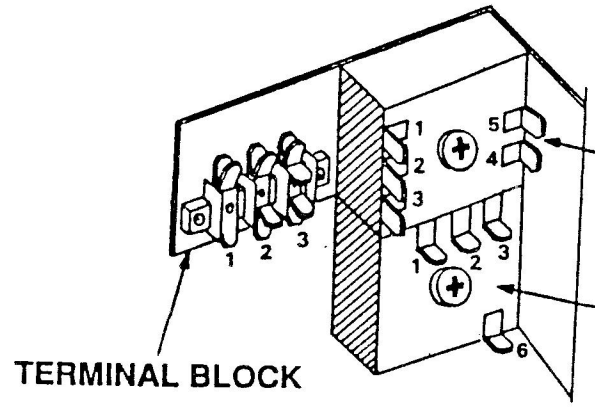
The correct operation of the control system is as follows:

1) After igniting the pellets, closing the door, and setting the damper, the start switch is depressed. This initiates a single shot timing cycle of 30 minutes. (±3 min) which provides power to the two blowers and the auger motor ON/OFF switch, thus bypassing the normally open low limit snap switch mounted on the combustion fan. If after 30 minutes the stove is not up to temperature, the stove will automatically shut down at the end of the timing cycle.

2) Switching on the ON/OFF switch also provides power to the recycling timer that controls the duty cycle of the auger motor by means of varying the resistance of the potentiometer on the control panel.

3) When the stove exhaust temperature reaches 140° F the low limit snap switch closes and takes over control of the stove until such time that the exhaust temperature falls below 120° F.


THERMAL SNAP SWITCH



ELECTRICAL CONTROL SYSTEM - Advantage (CONT'D)

4) The speed of the convection fan is controlled by an integral solid state speed controller. This controller is pre-set at the factory at 87 volts for minimum speed using the trim pot located at the bottom of the controller.

5) If the high limit snap switch opens due to overheating of the stove, power is lost to both blowers and the auger motor until the snap switch cools down to a point of 210 degrees F. At this point, the stove systems will restart and the pellets will re-ignite if there is sufficient heat in the grate. If not, pellets will feed until the low limit snap switch shuts down the stove.

6) When the ON/OFF switch is switched off, the fuel feed ceases and the blowers continue to operate until the low limit switch shuts down the stove on cool down.

ADVANTAGE SERVICE MANUAL

1A) ELECTRICAL CONTROL SYSTEM - Advantage II (serial # 7401 - 18,144)

The control system contains the following elements:

a) Control Board. (RK Brand) Part Order # 25220801

b) Control Cable. (Grey Cable/White Connector) Part Order # 25220803

c) Terminal Block, Part Order # 12028001

d) High limit snap switch, normally closed (250 deg F) Part Order # 12127705

e) Low limit snap switch, normally open (140 deg F) Part Order # 12127601

f) Auger motor pressure switch (Negative pressure) - Serial #10,348 thru #18144 Part Order #25225903

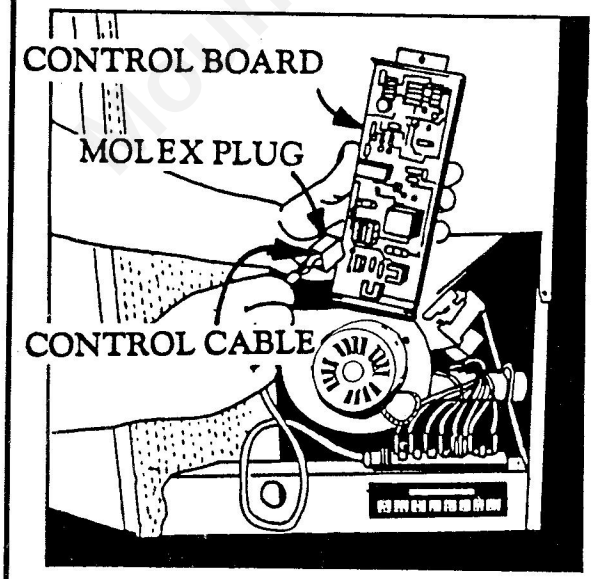
***LOCATION OF THESE CONTROL ELEMENTS IS FOUND IN THE CUT-AWAY DIAGRAM ON PAGE B.

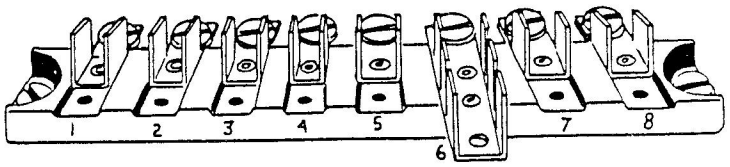
***THE HOOK UP DIAGRAM SHOWING THE PROPER WIRING CONNECTIONS LOCATIONS IS ON PAGE 'E.'

The correct operation of the control system is as follows:

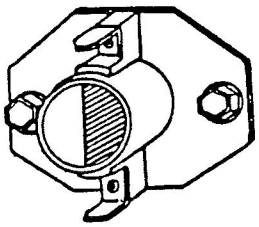
1) After igniting the pellets, closing the door, and setting the damper, the start switch is depressed. This initiates a single shot timing cycle of 30 minutes. (+/-3 min) which provides power to the 2 blowers and the auger motor ON/OFF switch, thus bypassing the normally open low limit snap switch mounted on the combustion fan. If after 30 minutes the stove is not up to temperature, the stove will automatically shut down at the end of the timing cycle.

2) Switching on the ON/OFF switch provides power to the recycling timer that controls the duty cycle of the auger motor by means of varying the resistance of the potentiometer on the control panel.





TERMINAL BLOCK



THERMAL SNAP SWITCH

ELECTRICAL CONTROL SYSTEM - Advantage II (Continued)

3) When the stove exhaust temperature reaches 140 deg F the low limit snap switch closes and takes over control of the stove until such time that the exhaust temperature falls below 120 deg F.

4) The speed of the convection fan is controlled by an integral solid state speed controller.

5) The fuel feed rate can be adjusted up or down by means of the screw driver adjustment on the front of the control panel located below the fuel feed dial. This varies the ON delay time of the recycling timer from 1 to 3 seconds. The board is preset at the factory at 2 seconds ON.

6) If the high limit snap switch kicks out due to overheating the stove, power is lost to both blowers and the auger motor until the snap switch cools down to a minimum of 210 degrees F. At this point, the stove systems will restart and the pellets will re-ignite if there is sufficient heat in the grate. If not, pellets will feed until the low limit snap switch shuts down the stove.

7) The auger motor pressure switch will shut off power to the auger motor if the combustion blower fails or if the exhaust pipe becomes restricted. (See page #17 for more details)

8) When the ON/OFF switch is switched off, the fuel feed ceases and the blowers continue to operate until the low limit switch shuts down the stove on cool down.

1B) ELECTRICAL CONTROL SYSTEM - ADVANTAGE II-T (serial # 18,145 or greater)

The control system contains the following elements:

a) Control Board. (SSAC/ICM Brand) Part Order #12195900

b) Control Cable. (Black Cable/Black Connector) Part Order # 12025901

c) Terminal Block, Part Order # 12028001

d) High limit snap switch, normally closed (250 deg F)
Located on convection fan transition duct - Part Order #12127705

e) Low limit snap switch, normally open (140 deg F) Part Order #12127601

f) Auger motor pressure switch (Positive pressure) -Part Order #25225903

g) Current sensing relay Part Order #12125902

h) High limit snap switch 250 degree (Located on Air Inlet Tube) - Part Order #12127601

i) Low Voltage Fuse - located on the terminal strip (Serial Numbers #19912 - #31037) - Part Order #12125908

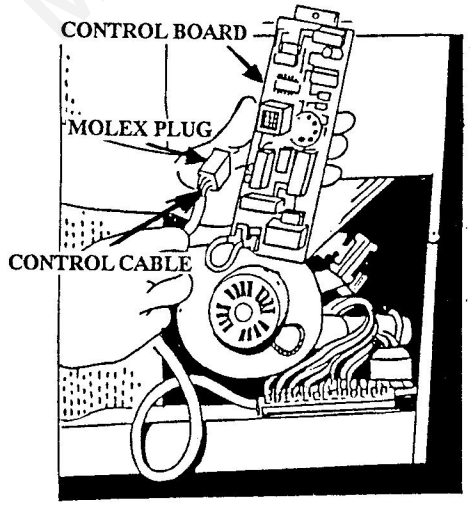
Location of these control elements is found in the cut-away diagram on page C.

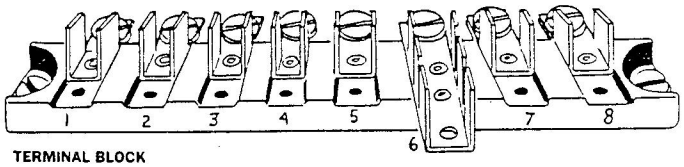
THE HOOK UP DIAGRAM SHOWING THE PROPER WIRING CONNECTION LOCATIONS IS ON PAGE 'F.'

The correct operation of the control system is as follows:

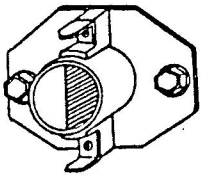
1) After igniting the pellets, closing the door, and depressing the start switch, a single shot timing cycle of 30 minutes is initiated (+/-3 min). This provides power to the 2 blowers and the auger motor ON/OFF switch, thus bypassing the normally open low limit snap switch mounted on the combustion fan. If after 30 minutes the stove is not up to temperature, the stove will automatically shut down at the end of the timing cycle.

2) Switching on the ON/OFF switch provides power to the recycling timer that controls the duty cycle of the auger motor by means of varying the resistance of the potentiometer located on the control panel.





TERMINAL BLOCK


THERMAL SNAP SWITCH

ELECTRICAL CONTROL SYSTEM - Advantage II-T (Continued)

3) When the stove exhaust temperature reaches 140 deg F the low limit snap switch closes and takes over control of the stove until such time that the exhaust temperature falls below 120 deg F.

4) The speed of the convection fan is controlled by an integral solid state speed controller. A trim adjustment located on the back of the control board provides the ability to increase or decrease the minimum speed of the convection blower motor (see page # 6A for location of trim knob). NOTE: **SERIAL NUMBER 31083 or greater the control board trim adjustments are accessible from the front of the board.**

5) The fuel feed rate is controlled by the heat output switch. There are five positions on this switch to give a wide range of heat output. Position one is minimum and position five is maximum. The heat output switch essentially controls the "Off" time of the auger motor and the trim adjustment is located on the back of the control board to provide the ability to increase or decrease the "On" time of the auger motor (see page # 6A for location of trim knob). The trim is preset at the factory at 1.8 to 2 seconds "ON". The L.E.D. light on the control will allow you to measure the actual "ON" time and cycle time of the auger motor using a digital stop watch.

6) The combustion air is also controlled by the heat output switch. After the damper has been properly set and the collar on the damper rod tightened, turning the heat output switch will change the amount of combustion air supplied to the fire. Trim adjustment is provided on the back of the control board to provide the ability to increase or decrease the speed of the combustion blower motor (see page # 6A for location of trim knob). The damper will not need to be manually adjusted every time the fuel feed is increased or decreased. However, the damper is in place to allow the air-to-fuel ratio to be "fine-tuned" after the stove is installed (see page # 6A for the proper set up procedures for Advantage II-T stoves).

7) If the high limit snap switch (located on the convection fan transition duct) opens due to overheating, power is lost to both blowers and the auger motor until the snap switch cools . At this point, the stove systems will restart and the pellets will re-ignite if there is sufficient heat in the grate. If not, pellets will feed until the low limit snap switch opens and shuts down the stove.

8) If the high limit switch located on the air inlet tube overheats, only power to the auger motor will be interrupted.

9) The auger motor pressure switch will cut power to the auger motor if the exhaust pipe becomes more than 75% restricted (see page # 18 for more details).

10) A current sensing relay is installed in series to the combustion blower motor. If the current sensing relay detects 90 milli amps (or less) current being drawn by the combustion blower motor (ie.. blower motor is shorted or thermal protector on the fan has tripped out) the relay will turn the power to the auger motor off (see page # 19 for more details).

11) If either the convection blower or the combustion blower develops a short in the motor, the low voltage fuse will protect the solid state circuit board from shorting. Also, if the low limit snap switch is mis-wired, it will also blow this fuse rather than the board (see page 20 for more details).

12) When the ON/OFF switch is switched off, the fuel feed ceases and the blowers continue to operate until the low limit switch shuts down the stove on cool down.

2) AUGER MOTOR - Advantage, Advantage II, Advantage II-T

Motor specification:

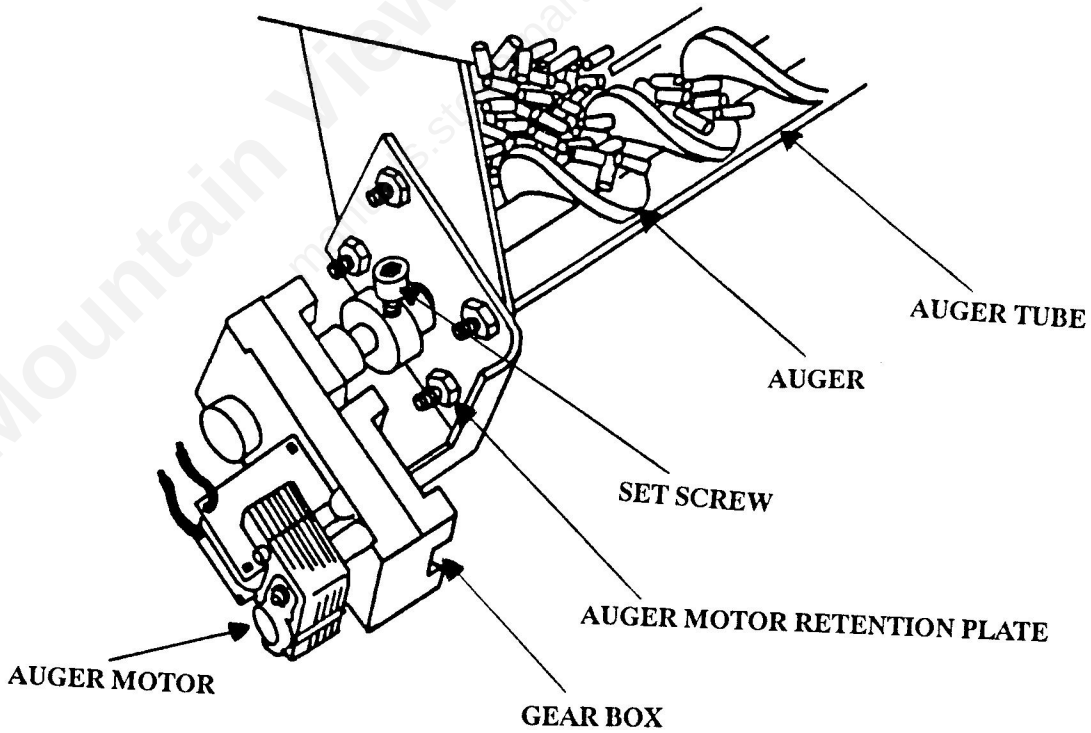
Speed . . 1 rpm (nominal)
Torque . . . . . 150 in Lb
Current . . . . . 0.55 amp
Shaft dia . . . . . 0.375 in.

AUGER MOTOR (ECM brand)

Part Order # 12026300

The motor is impedance protected (i.e. it will withstand locked rotor conditions without burning out the windings). It is direct mounted to the auger shaft, and can be removed by releasing the set screw. If the auger gets jammed with fines (sawdust) or a foreign object, the motor and gearbox can be rocked back and forth by hand to release the auger.

Little or no maintenance is required as the gearbox is lubricated for life. If the gearbox gets very cold, then the motor will be sluggish until it heats up.

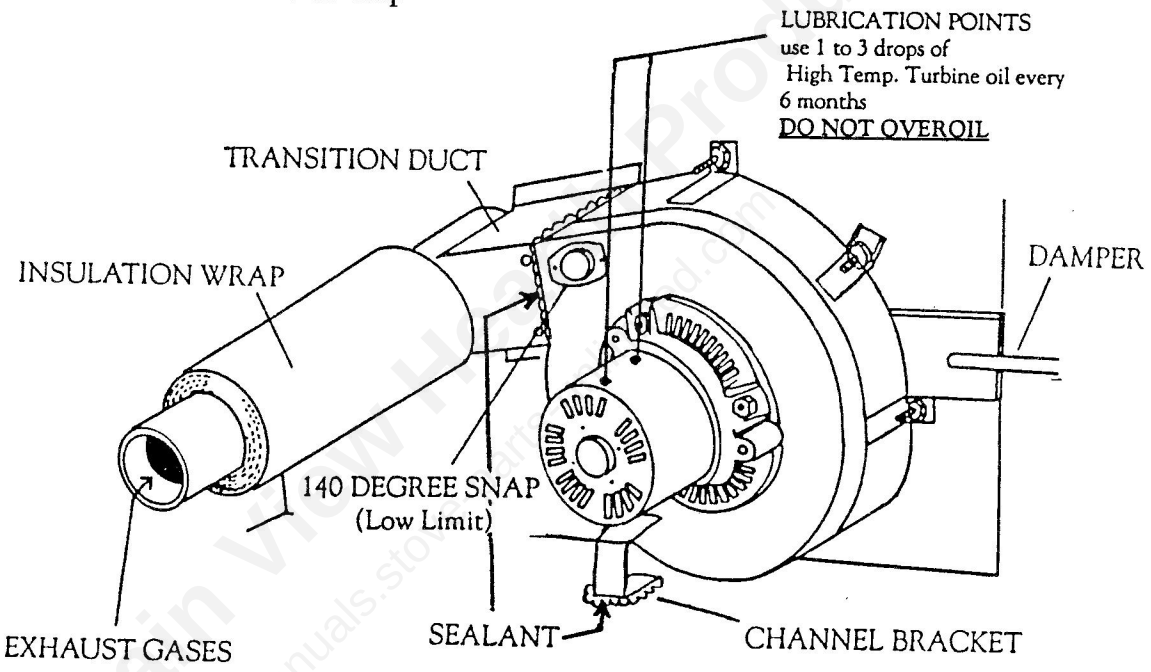


3) COMBUSTION FAN - Advantage (serial # 1001 - 7107)

Part Order #12026009

Specifications:

Speed . . . . . 3000RPM (nominal)
Airflow . . . . . 80 cfm @ free air
. . . . . 15 cfm @ 0.6 inches WG static pressure and 400 deg F
Max gas temp . . . . . 550 deg F
Current . . . . . 1.25 amp



The motor is mounted on sleeve bearings which require lubrication with turbine oil (high temp) after every 6 months of continuous operation. Bearing life will be extended by regular lubrication and by keeping the dust levels around the blower to a minimum. The blower is mounted to the back of the firebox with 5 bolts. A flat rope gasket is attached by means of high temperature RTV adhesive to the blower to seal the inlet and around the damper. An exhaust transition duct is attached to the outlet of the blower and the joint must be sealed with RTV.

A radial vane impellor is used to provide proper air flow. This type of impellor is normally self-cleaning.. Cleaning of the impellor should not be necessary on a regular basis, unless the stove is operated improperly and collects creosote in the blower. The impellor should be mounted with a clearance of 1/4 in to the back wall of the blower. A channel bracket is mounted between the motor casing and the stove bottom plate. This bracket grounds out motor vibration to the stove, thus reducing vibration noise.

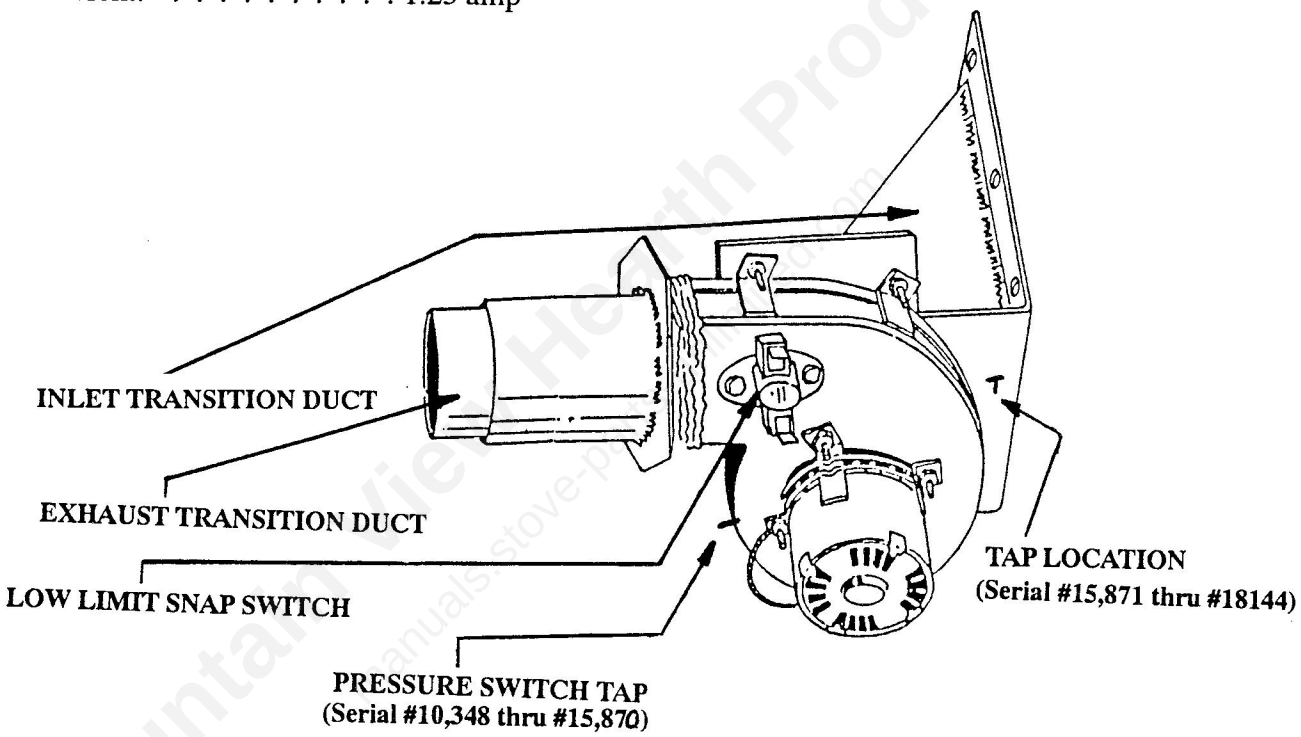
The low limit snap switch is flush mounted on the blower outlet. Removal of this snap switch will leave a 1 in hole in the side of the blower, and exhaust gases will leak if stove is operated without the snap switch in place.

3A) COMBUSTION FAN - Advantage II (serial # 7108 - 18,144)

Part Order # 12026009 (or 12126009. See next page)

Specifications:

Speed: . . . . . 3000RPM (nominal)
Airflow: . . . . . 80 cfm @ free air
15 cfm @ 0.6 in WG static pressure and 400 deg F
Max. Gas Temperature: . . 550 deg F
Current: . . . . . 1.25 amp



The motor is mounted on sleeve bearings which require lubrication with turbine oil (high temp) after every 6 months of continuous operation. Bearing life will be extended by regular lubrication and by keeping the dust levels around the blower to a minimum. The blower is mounted to the back of the firebox with 5 bolts. A flat rope gasket is attached by means of high temperature RTV adhesive to the blower to seal the inlet and around the damper. An exhaust transition duct is attached to the outlet of the blower and the joint must be sealed with RTV.

A radial vane impellor is used to provide proper air flow. This type of impellor is normally self-cleaning.. Cleaning of the impellor should not be necessary on a regular basis, unless the stove is operated improperly and collects creosote in the blower. The impellor should be mounted with a clearance of 1/4 in to the back wall of the blower. A channel bracket is mounted between the motor casing and the stove bottom plate. This bracket grounds out motor vibration to the stove, thus reducing vibration noise.

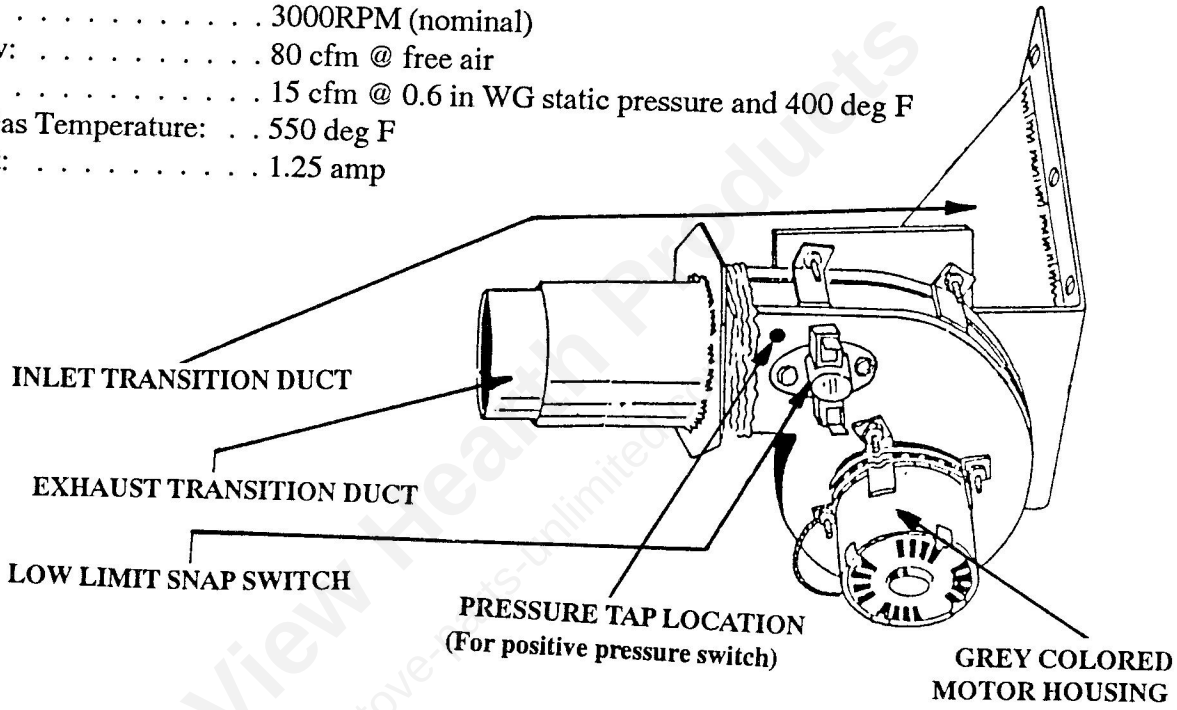
The low limit snap switch is flush mounted on the blower outlet. Removal of this snap switch will leave a 1 in hole in the side of the blower, and exhaust gases will leak if stove is operated without the snap switch in place.

3B) COMBUSTION FAN - Advantage II-T (serial # 18,145 or greater)

Part Order # 12126009

Specifications:

Speed: . . . . . 3000RPM (nominal)
Airflow: . . . . . 80 cfm @ free air
. . . . . 15 cfm @ 0.6 in WG static pressure and 400 deg F
Max. Gas Temperature: . . 550 deg F
Current: . . . . . 1.25 amp



The motor contains a high resistance rotor that is suitable for use with a speed control. The Advantage or Advantage II combustion blower motor (Black motor housing) should never be used on an Advantage II-T.

The motor is mounted on sleeve bearings which require lubrication with turbine oil (high temp.) after every 6 months of continuous operation. Bearing life will be extended by regular lubrication and by keeping the dust levels around the blower to a minimum. Do not over-oil. 1-2 drops maximum, once per year, is sufficient.

The blower is accessible from the left hand side of the stove (looking at the stove from the front). An exhaust transition duct is attached to the outlet of the blower and the joint is sealed with RTV.

A radial vane impellor is used to provide proper air flow. This type of impellor is normally self-cleaning. Cleaning of the impellor should not be necessary on a regular basis, unless the stove is operated improperly and collects creosote in the blower. The impellor should be mounted with a clearance of 1/4 in to the back wall of the blower. A channel bracket is mounted between the motor casing and the stove bottom plate. This bracket grounds out motor vibration to the stove, thus reducing vibration noise.

The low limit snap switch is flush mounted on the blower outlet. Removal of this snap switch will leave a 1 in. hole in the side of the blower, and exhaust gases will leak if stove is operated without the snap switch in place.

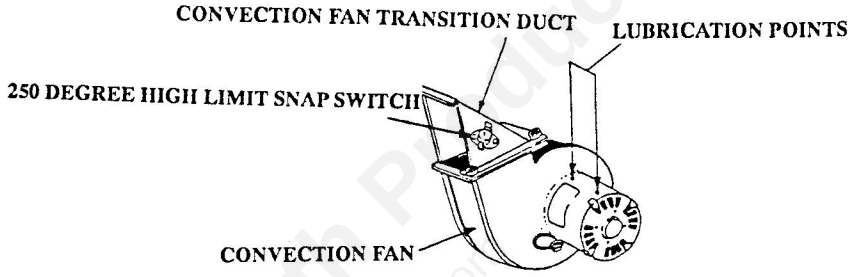
4A) CONVECTION FAN - Advantage II, Advantage II-T (serial # 7108 or greater)

Specifications:

Speed Range: . . . . . 3000 - 1500 RPM
Airflow: . . . . . 150 cfm free air, 105 cfm @0.6 WG static pressure

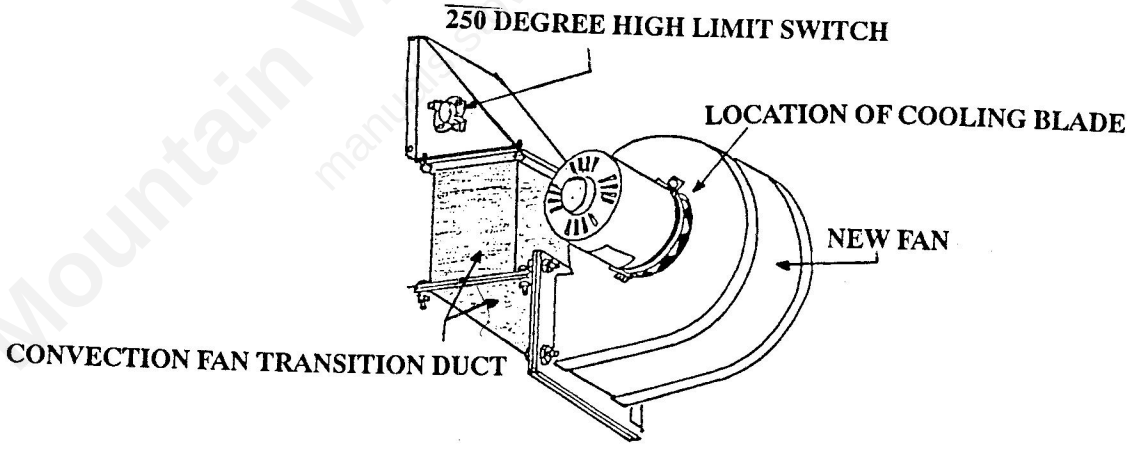
Current: . . . . . 1.25 amps

Convection Fan



The convection fan for the Advantage II and II-T stove is mounted to the back of the firebox by way of a 45 degree transition duct. Room air is drawn into the back of the stove through vented panels or shrouds and is then blown into the rear cavity of the firebox, through the tubular heat exchanger and out into the room as a strong stream of heated air.

4B) **CONVECTION FAN TRANSITION DUCT ADAPTER** (For Freestanding Advantage II stoves

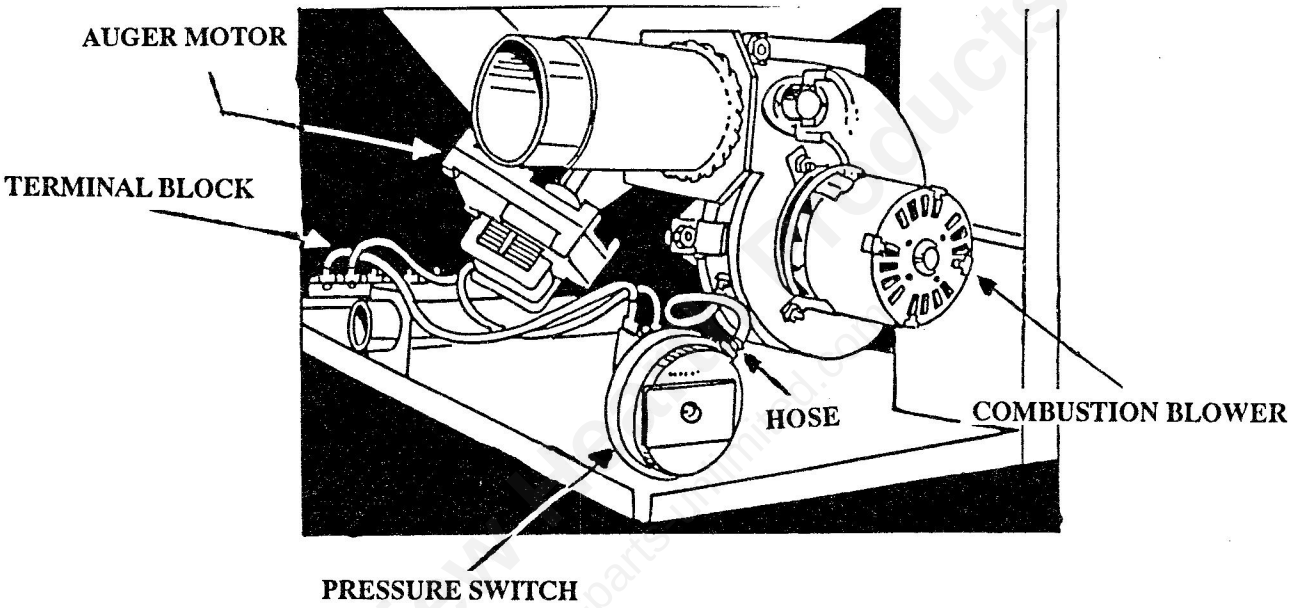


with serial #7108 thru #12,102). The convection fan (Part Order #12126109) will not fit directly on the transition duct welded on the back wall of the firebox on the Freestanding stoves with serial #7401 thru #12,102. The blower motor will contact the control board on the side of the stove this contact must be avoided to prevent the control board from shorting. An additional transition duct (Part Order #25294202) will need to be attached that will move the motor towards the rear of the stove 1 $^{1}/_{2}$ inches to prevent this contact. The convection fan (Part Order #12126109) will fit all Advantage II and II-T inserts without the use of this additional duct. NOTE: DUCT SHOULD BE ATTACHED TO FAN BEFORE BOLTING THE ASSEMBLY TO THE STOVE.

5) PRESSURE SWITCH - NEGATIVE PRESSURE (serial # 10,348 - 18,144)

Part Order #25225903

Specifications: Normally open switch. Switch closes when pressure reaches minus 0.3 inches WG.



THERE IS A YELLOW SPECIFICATION LABEL ON THIS PRESSURE SWITCH.

Looking at the stove from the front, the pressure switch is located in the left, rear corner of the stove. On freestanding stoves the pressure switch can be accessed by removing the left-hand side panel or the rear panel. On insert stoves the pressure switch can be accessed by removing the left-hand shroud panel.

This pressure switch is in series with one of the wires of the auger motor and is connected (via an orange rubber hose) to a pressure 'tap' located on either the combustion fan (on stoves with a serial #10348 through #15870) or on the inlet transition duct to the combustion fan (on stoves with a serial #15871 through #18144). When the combustion fan is running, this pressure switch diaphragm will close on a NEGATIVE pressure reading and will complete the circuit of the auger motor allowing the auger motor to operate.

This pressure switch will shut off the auger motor if any of the following occurs:

- -Combustion fan failure
- -Exhaust pipe becomes restricted or plugged
- -Rubber hose that connects the pressure switch to the combustion fan becomes disconnected or gets a hole in it
- -Pressure 'tap' for the rubber hose (located on either the housing or the inlet transition duct) becomes plugged with creosote or ash
- -Pressure switch has failed

IF ANY OF THE PREVIOUS OCCURS, THE 'L E D' LIGHT ON THE CONTROL PANEL WILL BLINK 'BRIGHT, DIM, BRIGHT, DIM' RATHER THAN 'BRIGHT, OFF, BRIGHT, OFF.'

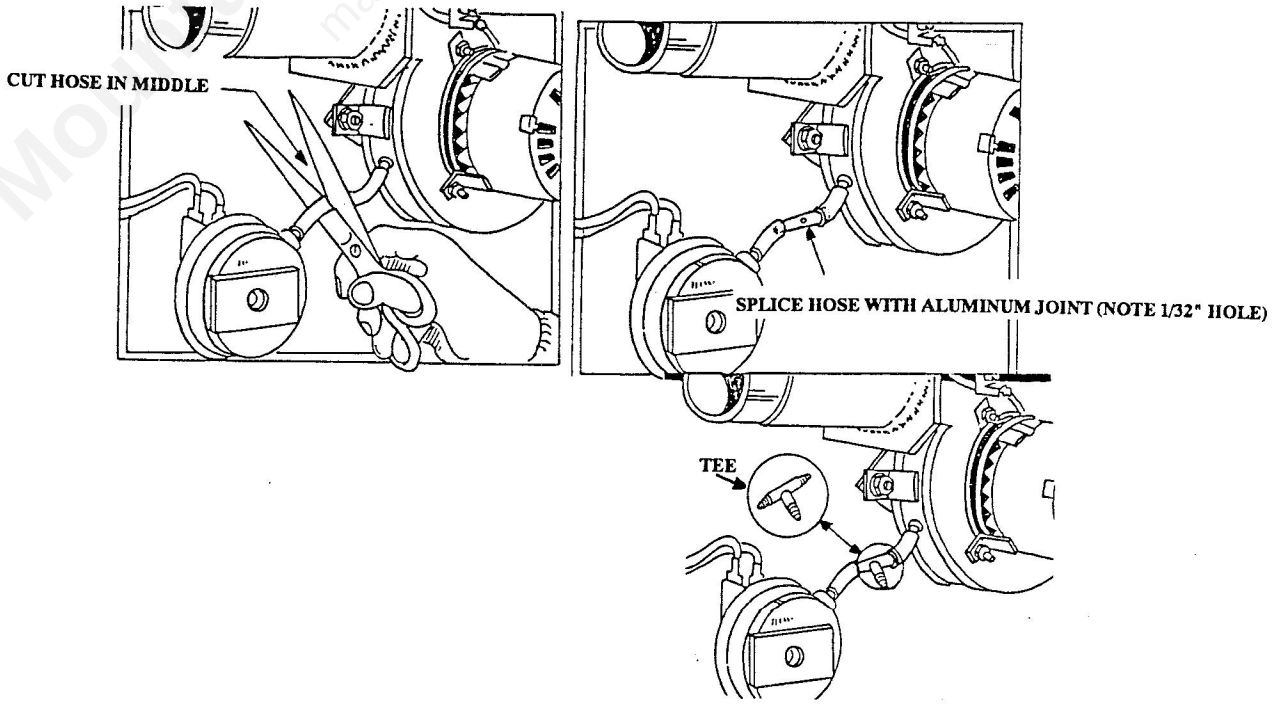
5A) BLEED JOINT (OR TEE) - Advantage II STOVE ONLY

Part Order # 25220204

The pressure switch will inadvertently shut off the auger motor if the orifice on the combustion fan (or the inlet transition duct) becomes plugged with fly ash or creosote. The 1/32nd inch hole in the bleed joint will allow just enough air to pass through the orifice to keep it clear. Install the bleed joint (or tee) as per the diagram below.

Serial #	Configuration	Factory Installed bleed hole	Should Tee be installed in field
10,348 - 15,659	Pressure tap located on combustion fan housing	none	yes
15,660 - 15,870	Pressure tap located on combustion fan housing	1/32" hole drilled into pressure switch	no
15,871 - 17,181	Pressure tap located on combustion inlet transition duct	1/32" hole drilled into pressure switch	no
17,182 - 18,144	Pressure tap located on combustion inlet transition duct	Tee installed in rubber hose (1/32" hole no longer in Pressure Switch)	no

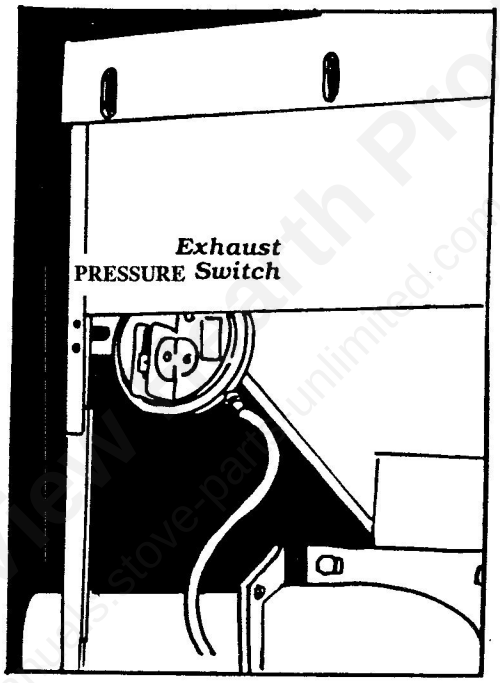
A DIAGRAM OF THE PRESSURE TAP LOCATIONS IS ON PAGE 15A.



6) PRESSURE SWITCH - POSITIVE PRESSURE - (serial # 18,145 or greater)

Part Order # (25225903)

Specifications: Normally closed switch. Switch opens when pressure reaches +0.1 in WG.



THERE IS A RED SPECIFICATION LABEL ON THIS PRESSURE SWITCH.

Looking at the stove from the front, the pressure switch is located in the left, rear corner of the stove mounted under the hopper. On freestanding stoves the pressure switch can be accessed by removing the left-hand side panel or the rear panel. On insert stoves the pressure switch can be accessed by removing the left-hand shroud panel.

This pressure switch is in series with one of the wires of the auger motor and is connected (via an orange rubber hose) to a pressure 'tap' located on the combustion fan housing. When the combustion fan is running, this pressure switch diaphragm will open on a POSITIVE pressure if the exhaust becomes restricted or blocked and will switch off the auger motor.

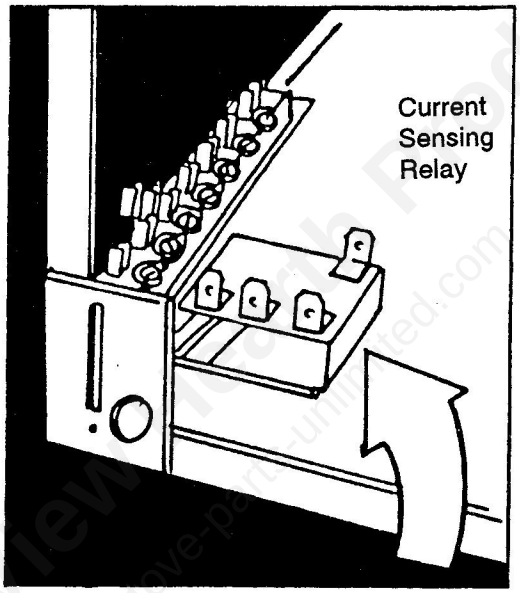
The pressure switch will shut off the auger motor if the following occurs.

- Blocked exhaust pipe
- Pressure switch fails.

7) CURRENT SENSING RELAY - Advantage II-T (serial # 18,145 or greater)

Part Order #12125902

Specifications: A sensed current less than 0.09 amps will switch off load to the auger motor.



Looking at the stove from the front, the current sensing relay is located in the right, rear corner of the stove mounted near the terminal block. On freestanding stoves the current sensing relay can be accessed by removing the right-hand side panel or the rear panel. On insert stoves the current sensing relay can be accessed by removing the right-hand shroud panel.

The current sensing relay is wired in series with the combustion blower motor on one side, and the air inlet high limit switch, the positive pressure switch and the auger motor on the other side. If the current sensing relay senses insufficient current being drawn by the combustion blower motor, the relay will automatically turn off the power to the auger motor.

The current sensing relay will turn off the auger motor if any of the following occurs; and the light on the control board will flash "Bright, Dim, Bright, Dim":

-Combustion blower motor wires not properly connected to the correct terminals
-Combustion blower motor windings burn out (short out)
-Thermal overload on combustion blower motor trips

If the combustion blower is operating but the auger motor is not running, disconnect the wire from ter #2 on the current sensing relay and attach the wire to #6 on the terminal strip. If the auger motor begins to operate, replace the current sensing relay. If the auger motor still won't operate, check the inlet high limit switch and the exhaust pressure switch and the combustion fan then replace the defective part.

8) FUSE - ADVANTAGE II-T (serial # 19,912 - #31,037)

Part Order #12125908

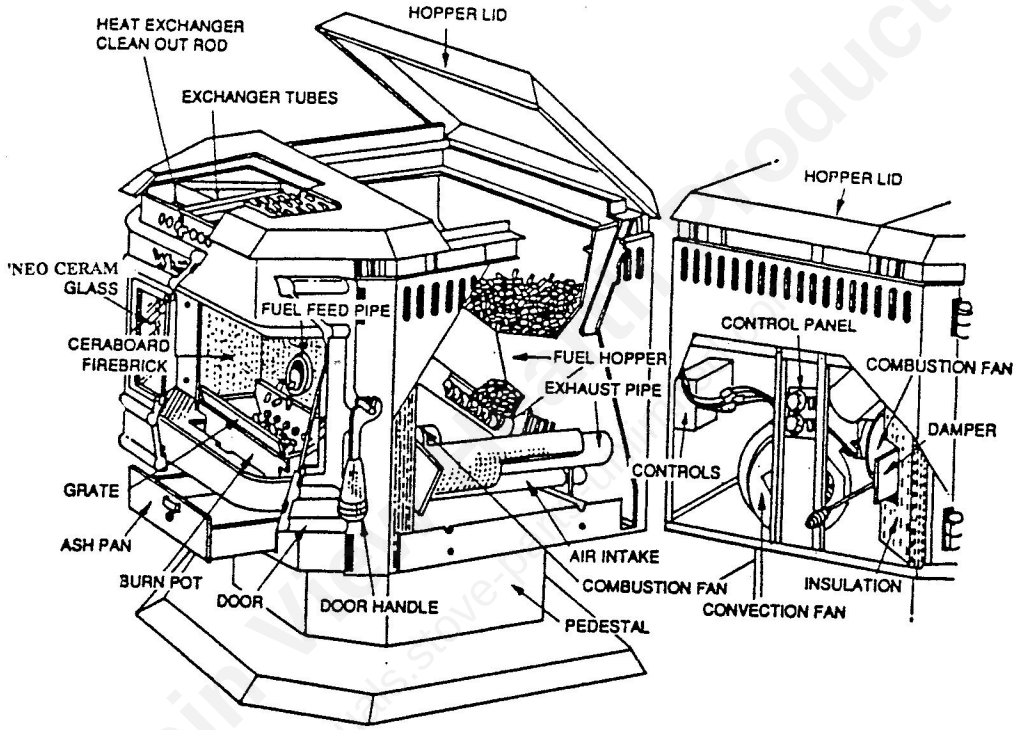
Specifications: 3.5 amp, in-line fuse - will protect the board from a dead short in the combustion or convection blower motor windings. It will also protect the solid state circuit board from shorting if the low limit snap switch is wired incorrectly or develops a short to ground.

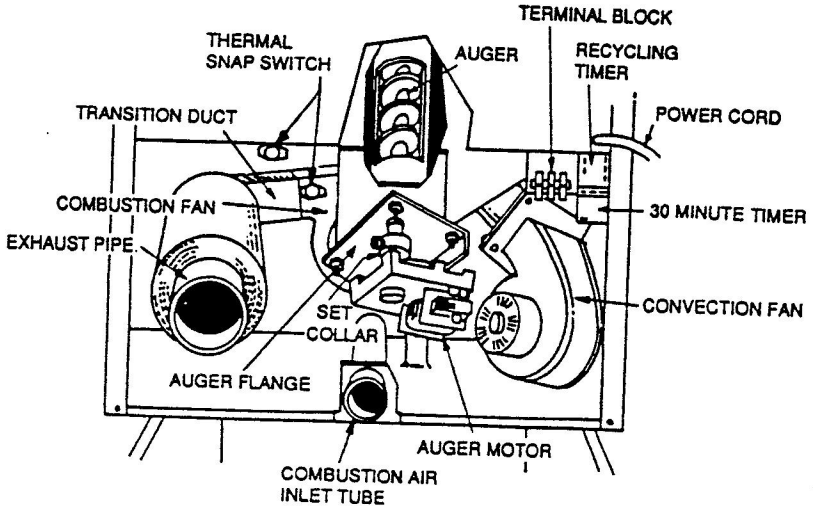
Looking at the stove from the front, the fuse is located on the right hand side of the stove mounted on the terminal block. It is attached to terminal numbers 1 and 8 in a black fuse holder.

If the stove is plugged into the wall but the blowers will not operate when the start switch is pressed, check the fuse to see if it has blown. If so, using an Ohm meter, check both blower motor windings for a short (see page 10B for more information on Ohm readings). If both motors are all right, inspect the yellow wires from the low limit snap switch to see if they are shorting to ground (correct if necessary). Replace fuse if components and wiring check out. Replace control board if new fuse does not correct the problem.

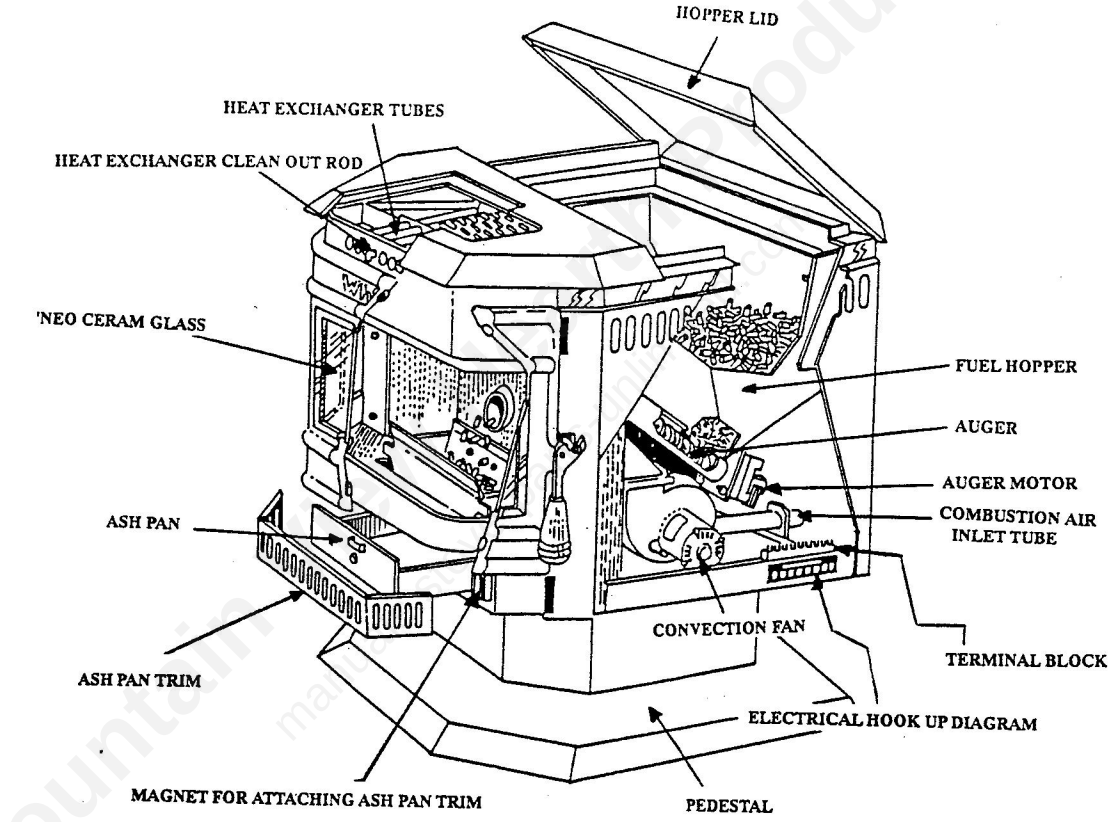
NOTE: A 6 amp fuse is located on the SSAC board after serial #31038.

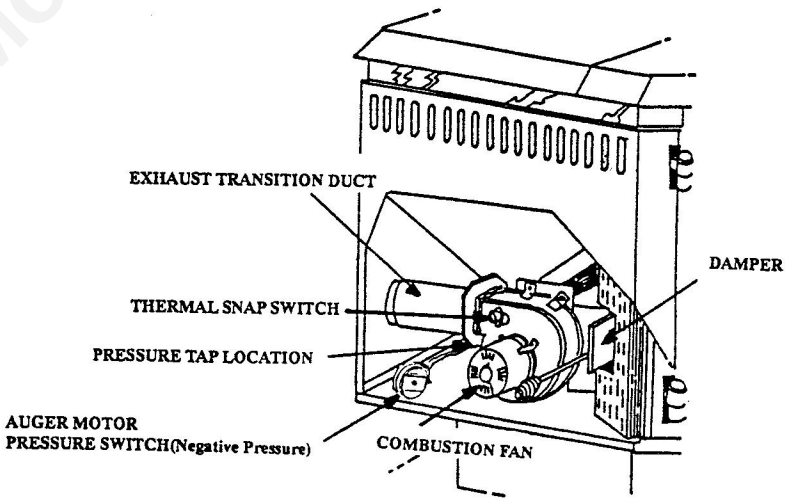
Cutaway Diagram, Advantage (Stoves with serial #1001 - 7400)



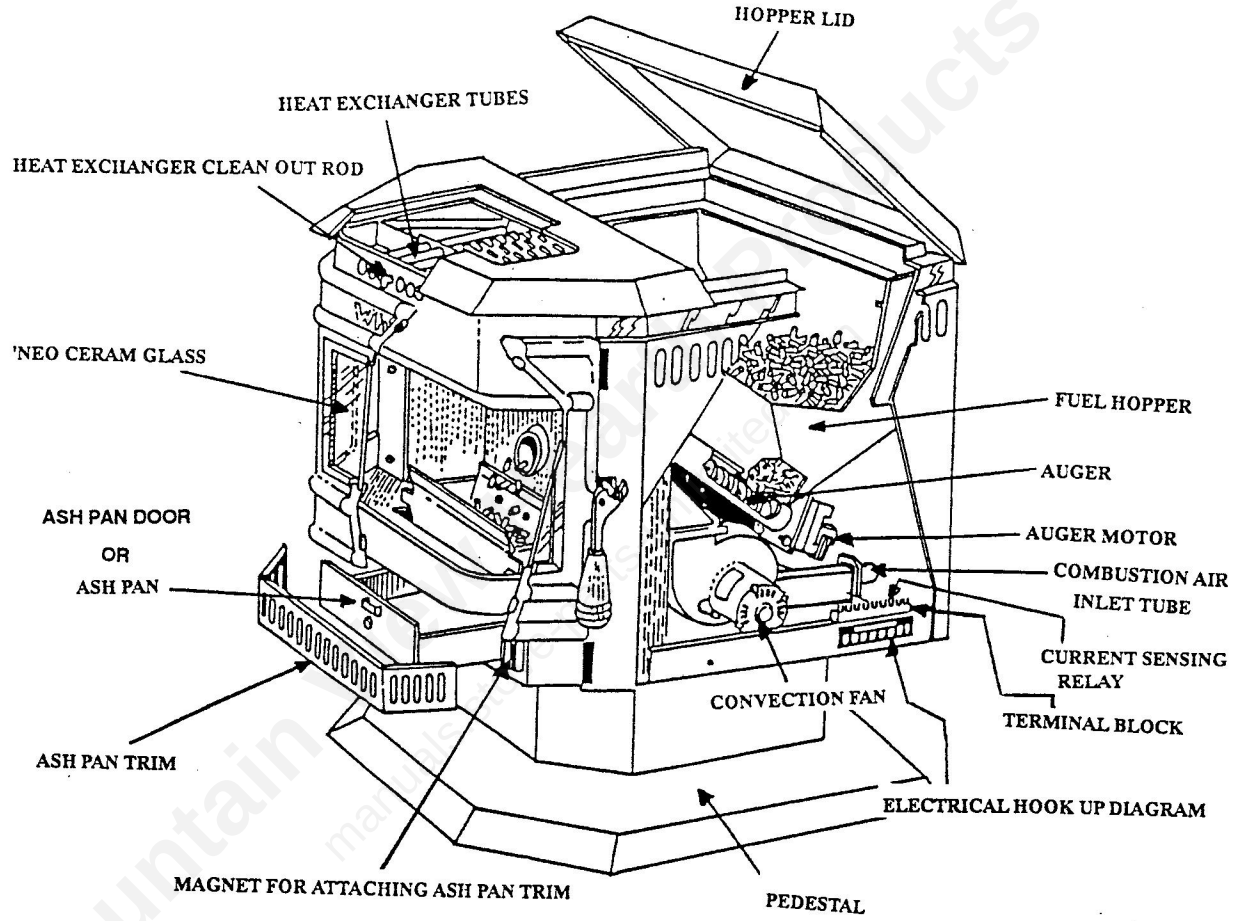


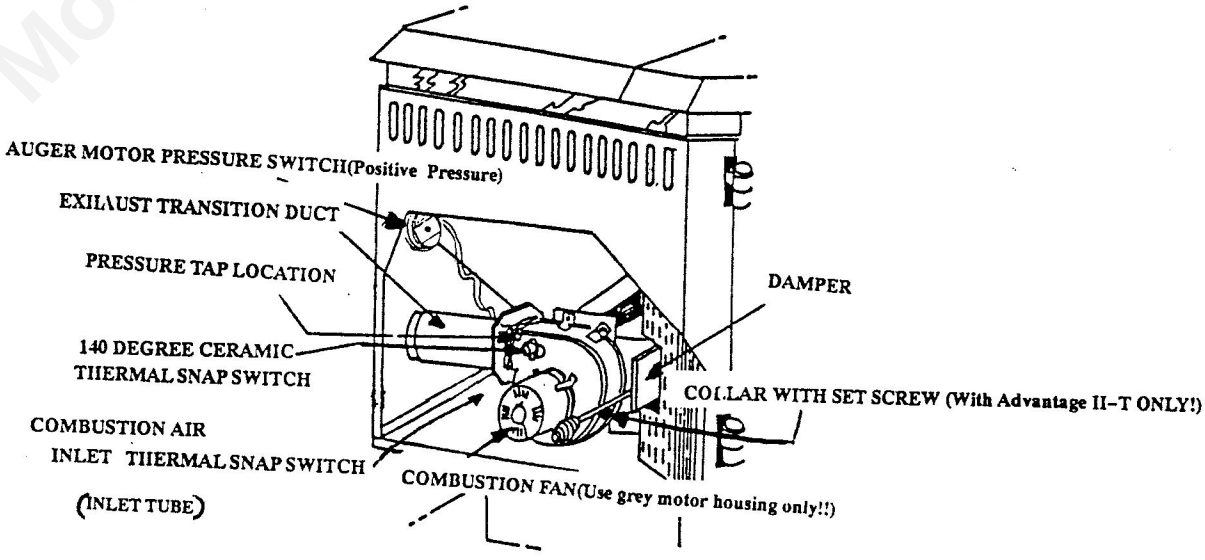
Cutaway Diagram, Advantage II (Stoves with serial #7401 - 18144)



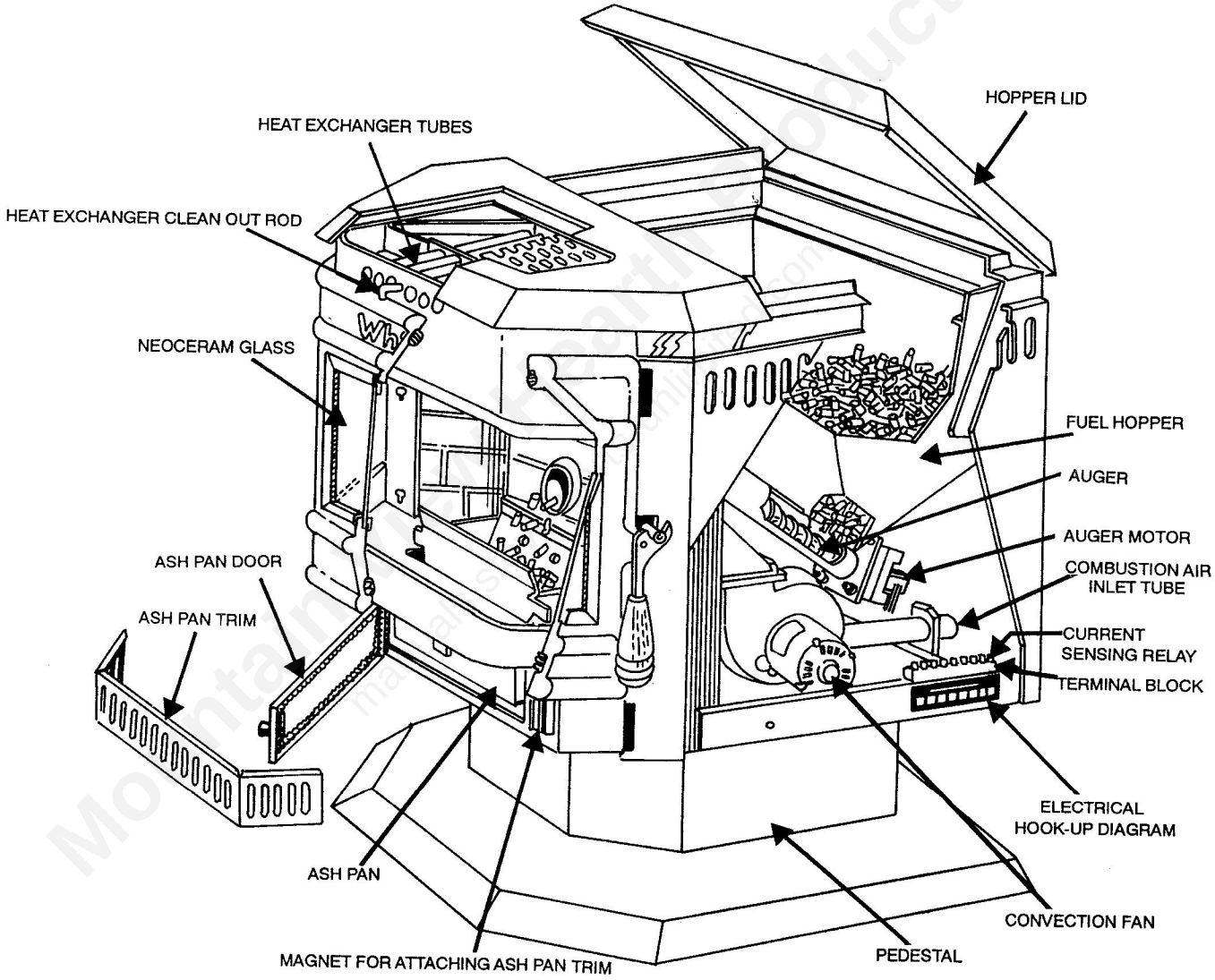


Cutaway Diagram, Advantage II-T (Stoves with serial #18145 or greater)



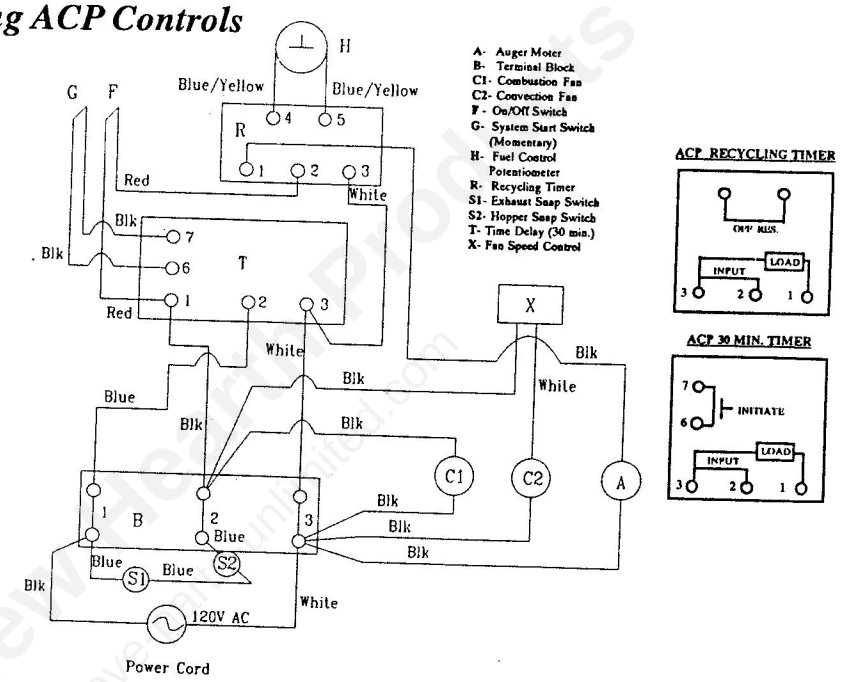


Cutaway Diagram, Advantage II–T (Stoves with serial #32211 or greater)

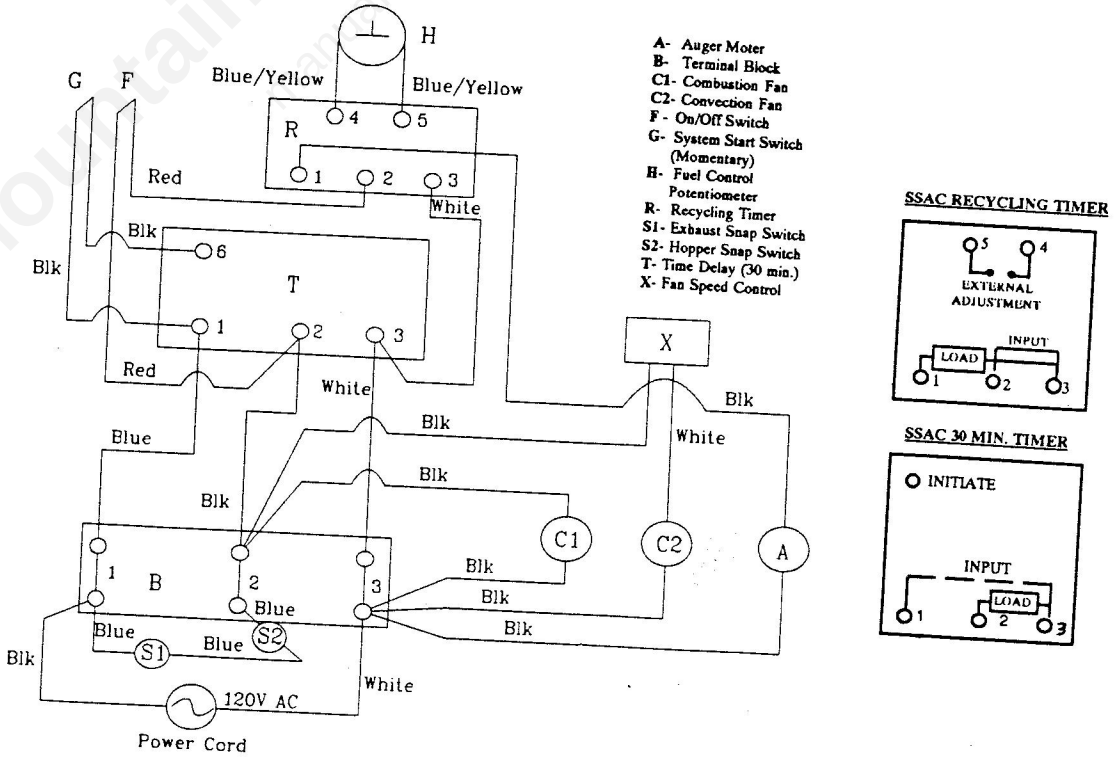


ADVANTAGE WIRING DIAGRAMS
(Stoves with serial numbers 1001-7400)

WP-2 Wiring Diagram Using ACP Controls



WP-2 Wiring Diagram Using SSAC Controls

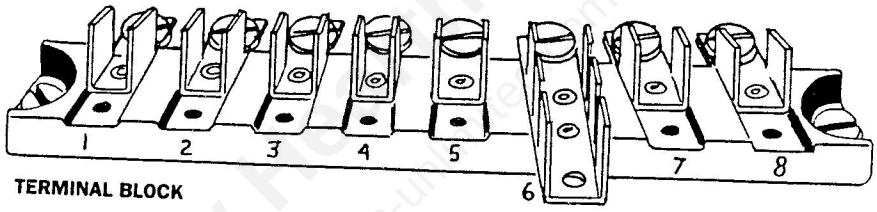


ADVANTAGE II ELECTRICAL HOOK UP DIAGRAM AND CONTROL PANEL

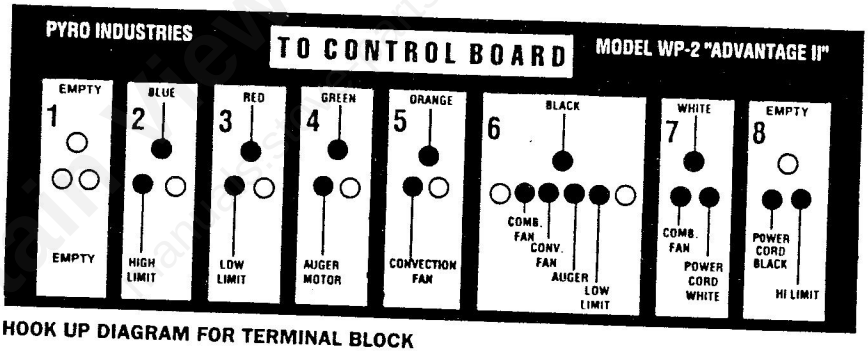
INSTALLATION (serial # 7401 - 18,144)

The electronic control board is mounted to a aluminum bracket for easy installation into the stove or side shroud using a single fastener. The control board can be removed or replaced without removing the side panel or the side shroud., see diagram below. Be sure to unplug the stove before removing the control panel

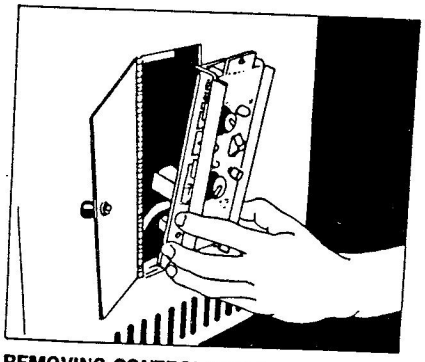
The control cable (grey) is fitted with a white quick-disconnect Molex plug that plugs into the back of the control board. The other end of the control cable is permanently attached to the screw terminals. The blower and auger motor wires attach directly to quick disconnects on the terminal block as indicated on the hook-up diagram below.



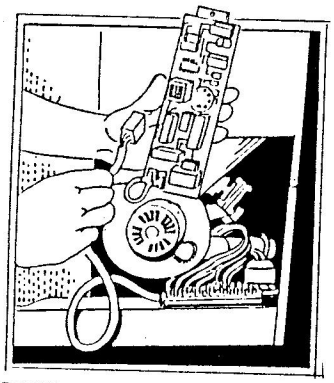
TERMINAL BLOCK



HOOK UP DIAGRAM FOR TERMINAL BLOCK



REMOVING CONTROL PANEL



QUICK DISCONNECT FROM CONTROL PANEL

ADVANTAGE SERVICE MANUAL

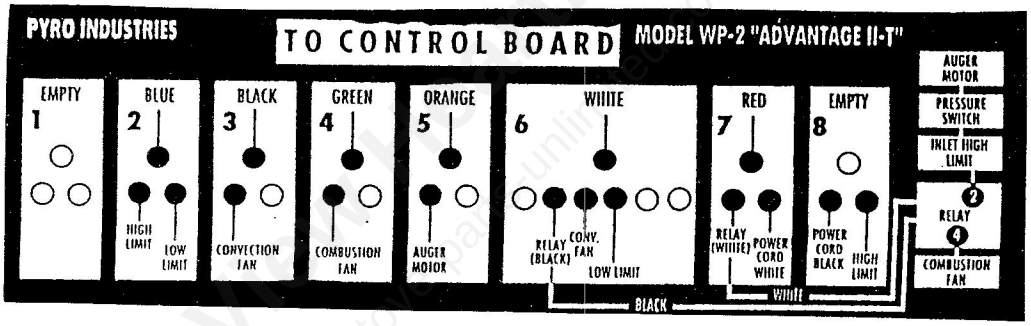
ADVANTAGE II-T ELECTRICAL HOOK UP DIAGRAM AND CONTROL PANEL

INSTALLATION (serial # 18,145 or greater)

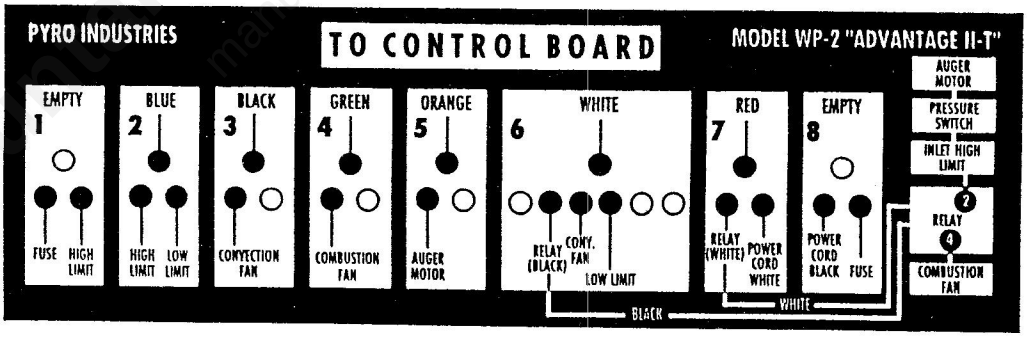
The electronic control board is mounted to a steel bracket for easy installation into the stove or side shroud using a single fastener. The control board can be removed or replaced without removing the side panel or the side shroud., see diagram below. **Be sure to unplug the stove before removing the control panel.**

The control cable (black) is fitted with a black quick-disconnect AMP connector that plugs into the back of the control board. The other end of the control cable is permanently attached to the screw terminals. The blower and auger motor wires attach directly to quick disconnects on the terminal block as indicated on the hook-up diagram below. **NOTE**: Care should be taken not to touch the back of the board and it's components. A protective cover (Valox) is attached to the back of the control board to prevent the possibilty of damaging the components.

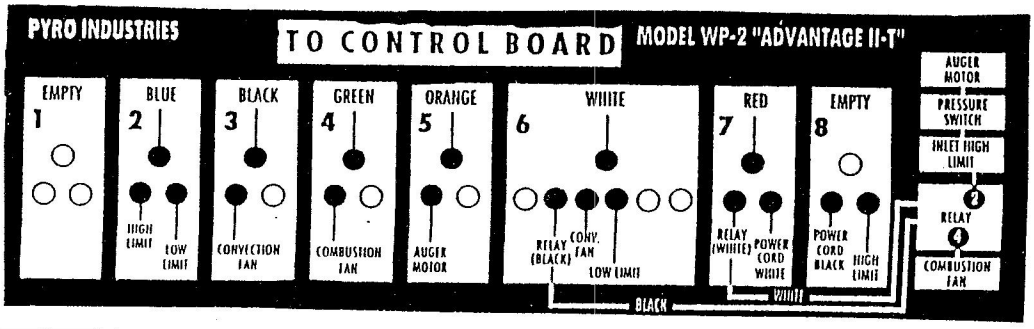
Serial Numbers 18,145 - 19911



Serial Numbers 19,912 - 31,037



Serial Numbers 31,038 or greater



PARTS LIST - MODEL WP-2: Advantage, Advantage II, Advantage II-T

ELECTRICAL

12026300	Auger Motor (ECM)
12026009	Combustion Fan (for stoves with serial #1001 thru #18,144)
12126009	Combustion Fan (for stoves with serial #18,145 or higher)
24220302	Convection Fan (for stoves with a serial number less than #6432)
24220304	Convection Fan (For stoves with serial #6432 thru #7107)
12126109	Convection Fan (For stoves with serial #7108 or higher)
12020403	Recycling Timer (SSAC Brand, 1 second)
12020404	30 minute Timer (SSAC Brand)
24220405	30 minute Timer (ACP Brand)
12020504	Blue/Yellow Wire Potentiometer (SSAC timer)
12020701	Start Switch, (momentary)
12020702	ON/OFF Switch
24220901	Convection Blower Speed Control
25220801	Advantage II Control Board (Serial #7401 or higher)
25220803	Advantage II Control Cable (grey with white molex quick disconnect)
25225903	Auger Motor Pressure Switch (stoves with serial #10,348 thru #18,144)
12195900	Advantage II-T Control Board (stoves with a serial #18,145 or higher)
12025901	Advantage II-T Control Cable (black with black molex quick disconnect)
25225903	Auger Motor Pressure Switch (stoves with serial # 18,145 and higher)
12125902	Current Sensing Relay
12127601	Ceramic Low Limit Snap Switch, 140 deg F (attaches to combustion fan)
12127705	High Limit Snap Switch, 250 deg F
12127601	Inlet High Limit Snap Switch, 250 deg F
12125908	Fuse - Low Voltage (Adv. II-T)
12028001	Advantage II/ Advantage II-T Terminal Block
12028200	8 Foot Power Cord

GRATES & BURN POTS

24290700	Burn Grate, (1988-89 configuration- Advantage I)
24290800	Burn Pot, (1988-89 configuration - Advantage I)
61027206	Burn Pot Gasket ('O' ring)
24290700	Burn Pot & Grate Advantage II and Advantage II-T Serial #7217 or higher

AUGER & AUGER PARTS

12192202	Auger With Set Screw & Set Collar
12021100	Oilite Bushing
12193900	Auger Motor Retention Plate

WINDOWS & GASKETING

12126400	Center Glass Window - Neo-Ceram
12126401	Side Glass Window- Neo-Ceram
61072704	1/8th in x 3/8 in Flat Window Gasket
61027100	1/2 in Round (Firm) Door Gasket

TRIM & TRIVETS

12125202	Side Brass Window Frame (+1 clip)
12025205	Window Trim Spring Clip
12195011	Trivet (Designate Color)

ADVANTAGE SERVICE MANUAL

CERABOARD (FIREBRICK)

24220201	Ceraboard Back Piece - Advantage I (8 1/2" x 13 7/8")
24220202	Ceraboard Side Piece - Advantage I (5 3/8" x 13 7/8")
12126503	Ceraboard Back Piece - Advantage II and Advantage II-T(8 1/2" x 13)
12126504	Ceraboard Side Piece - Advantage II and Advantage II-T (5 3/8" x 13")
12126500	Brick Back
12126501	Brick Right Side
12126502	Brick Left Side

MISCELLANEOUS

09920201	1/4" Magnehelic Draft Pressure Gauge
09920200	1" Magnehelic Draft Pressure Gauge
12095500	Ash Pan/ Grate Scraper Tool
12292502	Freestanding Right Hand Side Panel
12202501	Freestanding Left Hand Side Panel
12291405	Freestanding Hopper Lid
12201400	Freestanding Top Panel
12302504	Insert Right Hand Side Panel
12302503	Insert Left Hand Side Panel
12301406	Insert Hopper Lid
12301401	Insert Top Panel
12301407	Insert Hopper Cover
12100500	Cast Iron Door
12125400	Damper Spring Coil Handle
12191300	Damper
12202600	Freestanding Back Inspection Panel
12190600	Ash Pan
12193101	Exhaust Transition Duct (Specify Model)
12120700	Exhaust Pipe Insulation (Specify Model)
5-400-304	Blower Inspection Plate
12140607	Ash Pan Trim Kit with Magnets
25220306	5/16" Door Hinge Swing Bolts
12020508	3/8" Door Hinge Swing Bolts
12020507	Door Hinge Pins

FURNACE CEMENT, RTV, PAINT

73027209	**RTV**
73020301	Stove Bright Spray Paint - Charcoal
73020302	Stove Bright Spray Paint - Satin Black
73020303	Stove Bright Spray Paint - Golden Fire Brown
73020304	Metallic Black Enamel Paint (Case Lot Only, 12 ea/case)
73020305	Brown Enamel Paint (Case Lot Only, 12 ea/case)
73020306	Slate Enamel Paint (Case Lot Only, 12 ea/case)

(The majority of Stoves with Serial #7401 or greater will have enamel paint.)

ADVANTAGE SERVICE MANUAL

Trouble–Shooting Guide – Advantage (stoves with serial # 1001 –7400)

Problem	Cause	Solution
Fire burns with a yellow, lazy flame. Pellets build up in the grate and window gets sooted up.	1) Insufficient combustion air.	• Check the firebox draft pressure with a magnehelic pressure gauge. With the damper OUT, no fire burning, and fuel in the hopper, the gauge should read –0.4 in water gauge or greater. • Check gasket seal around the door. Use a thin strip of paper, 1in wide. Open the door and close it on the paper strip. A slight friction should be felt when the paper strip is pulled. Repeat at various positions around the door gasket. A small adjustment can be made to the door seal by bending the latch rod backwards a little. Replace the door gasket if necessary. • Check gasket seal around the ash pan in the same manner as above and make sure its locked in the correct position. • Check combustion blower impellor by removing the ceraboard firebrick and the inspection plate located behind the center brick. Clean impellor or remove blower for further cleaning if necessary. • Check for blockage in the air inlet tube or exhaust pipe.
	2) Low grade fuel.	• Remove any clinkers or ash from the bottom of the grate that might be obstructing the primary air holes. Change to a better grade fuel.

ADVANTAGE SERVICE MANUAL

Continued/Trouble-Shooting Guide-Advantage (stoves with serial # 1001 - 7400)

Problem	Cause	Solution
Fire goes out.	1) Hopper is empty.	• Refill hopper.
	2) Fuel setting too low and/or damper too far out.	• Re-light stove with higher setting on fuel control. It may not be possible to operate the stove on the minimum setting due to the wide range of fuel feed rates and different pellets the stove is designed to operate with. The minimum feed rate that the stove will normally operate with is approximately 1 to 1.5 lb. per hour.
	3) Pellets not feeding.	• See "Pellets will not feed" below.
	4) High limit temperature switch has tripped.	• Allow stove to cool for 1 hour and re-light. If the stove has been operating at a medium to high burn and the convection fan has been turned down low, then the fan should be turned up higher. If this problem persists particularly at lower burn rates then the high limit, snap action switch should be replaced. (Part Order #12127705)
	2) Auger is jammed.	• Remove rear inspection panel (freestanding model). Hold auger motor gearbox in both hands and rock it back and forth to release the auger. If this is unsuccessful, then remove the auger by first removing the auger motor and the auger tube flange, clear the auger of the foreign material, and reassemble the auger system.
	3) Auger motor is defective	• Check that there is power to the auger motor with a volt meter across terminals 2 & 3 on the recycling timer. If there is power and the auger is not jammed, but the motor will not turn, then replace the auger motor. (Part Order #12026300)
	4) No power to the auger motor.	• Check input power to the recycling timer across terminals 1 & 3 of the timer. If there IS input power but NO output, then check the connection of the potentiometer across terminals 4 & 5. Disconnect the potentiometer and check the resistance with an Ohm meter. The resistance should vary when the potentiometer is turned from Max to Min. (See page #10 for the correct Ohm readings.)
	5) Auger motor set screw is loose.	• Tighten auger motor set screw.

Continued/Trouble-Shooting Guide-Advantage (stoves with serial # 1001 - 7400)

Problem	Cause	Solution
Pellets feed at maximum, whatever the control setting.	1) Recycling timer is defective. The normal timing cycle is as follows: Control on MAX - 1 sec ON, 0 sec OFF (1 sec OFF with blue wire potentiometer) Control on MIN - (1 sec ON, 10 sec OFF.)	• Replace recycling timer. If on time varies. (Part Order # 12020403 SSAC only) Replace potentiometer if off time is wrong. (Part#12020504 blue and yellow only)
Recycling timer turns on for 1 sec and does not come back on.	1) Potentiometer not properly connected to the timer.	• Check potentiometer connections to the recycling timer.
		• Replace potentiometer with like potentiometer.
Stove runs for 30 minutes and then shuts down.	1) Exhaust gas temperature has not reached 140 deg F.	• Press start switch again.
	2) Low limit snap switch not operating correctly.	• Replace low limit switch. (Part Order # 12127601)
	3) Blue wires to low limit snap switches are disconnected.	• Check blue wires between snap switches and terminal block. Make sure there are good connections and there is no break in this Blue wire series.
	4) High limit snap switch stuck open.	• Replace high limit snap switch. (Part Order #12127705)
Stove shuts down automatically when it is operating at a low to medium burn.	1) High limit switch is opening at too low a temperature.	• Replace high limit switch. (Part Order # 12127705)
	2) Pellets are feeding too fast.	• Replace recycling timer. (Part Order # 12020403)
	3) Convection fan operating at too low a speed.	• Increase speed of convection fan.
Blowers will not shut off after the fuel has been switched off and the stove has cooled down.	1) Low limit snap switch has failed in the closed position.	• Replace low limit snap switch. (Part Order # 12127601)
	2) 30 minute timer may be leaking voltage to the fans.	• Replace 30 minute timer. (Part Order # 12020404 - SSAC) (Part Order # 24220405 - ACP)

ADVANTAGE SERVICE MANUAL

Continued/Trouble-Shooting Guide-Advantage (stoves with serial # 1001 - 7400)

Problem	Cause	Solution
Blowers will not operate when the start switch is depressed.	1) Start switch is defective or not properly connected.	• Check wiring connections between the start switch and the 30 minute timer, or replace start switch. (Part Order # 12020701)(Also see page 'D' for proper wiring.)
	2) 30 minute timer is defective.	• Replace 30 minute timer. (Part Order # 12020404 (SSAC) Part Order # 24220405 (ACP))
Both blowers operate when the stove is plugged into the wall.	1) 30 minute timer is defective.	• Check voltage across load terminals of 30 minute timer. If line voltage is indicated then replace 30 minute timer. Part Order # 12020404 (SSAC) Part Order # 24220405(ACP)
	2) Low limit snap switch has failed in the closed position.	• Unplug stove from wall. Remove the 2 blue wires from the terminals of the low limit snap switch mounted on the combustion fan and measure the resistance across the terminals. If resistance is indicated, then replace the low limit snap switch. (Part Order # 12127601.)
Blowers will only operate when the start switch is held depressed	1) Start and ON/OFF switches have been connected to the wrong wires.	• Connect black wires to the start switch, and the red wires to the ON/OFF switch.
Soot or dust from the stove.	1) Cleaning the window, particularly when the stove is operating.	• Turn off the convection fan before cleaning to prevent dispersion into the room, or turn off stove completely.
	2) Leakage at the joints between the combustion fan, transition duct, exhaust pipe, and 'L' vent. This will be evidenced by dust on the impellor of the convection fan, and in the heat exchanger tubes.	• Seal up any leaks with RTV silicone sealer. (Part Order # 73027209)
	3) Leakage around the motor shaft of the combustion fan where it penetrates the blower housing.	• Replace combustion fan. (Part Order # 12026009)
	4) Fine soot & creosote in fireplace cavity.	• Pull insert away from fireplace opening. Thoroughly clean the fireplace cavity & paint the inside of the opening with latex or an inexpensive spray paint to hold down the finer particles of dust.

ADVANTAGE SERVICE MANUAL

Trouble-Shooting Guide - Advantage II (stoves with serial # 7401 - 18144)

Problem	Cause	Solution
Fire burns with a yellow, lazy flame. Pellets build up in the grate and window gets sooted up.	1) Insufficient combustion air.	• Check the firebox draft pressure with a magnehelic pressure gauge. With the damper OUT, no fire burning, and fuel in the hopper, the gauge should read -0.4 in water gauge or greater. • Check for blockage in the air inlet tube or exhaust pipe. • Check gasket seal around the door. (Use a thin strip of paper, 1in wide. Open the door and close it on the paper strip. A slight friction should be felt when the paper strip is pulled. Repeat at various positions around the door gasket.) A small adjustment can be made to the door seal by adjusting the latch rod and/or the door hinges (See diagram, page 7). Replace the door gasket if necessary. • Check that the ash pan is locked into the correct position and check the gasket seal around the ash pan in the same manner as the door. Replace the ash pan gasket if necessary. • Check combustion blower impellor by removing the ceraboard firebrick and the inspection plate located behind the center brick. Clean impellor or remove blower for further cleaning if necessary. • Check ash build-up behind the side ceraboard firebricks. Clean out if necessary.
	2) Low grade fuel.	• Remove any clinkers or ash from the bottom of the grate that might be obstructing the primary air holes. Change to a better grade fuel if necessary.

Continued/Trouble-Shooting Guide - Advantage II (stoves with serial # 7401 - 18144)

Problem	Cause	Solution
Fire goes out.	1) Hopper is empty.	• Refill hopper.
	2) Fuel setting too low and/or damper too far out.	• Relight stove with higher setting on fuel control or adjust auger ON timer from 1 to 3 seconds (see page 6). It may not be possible to operate the stove on the minimum setting due to the wide range of fuel feed rates and different pellets the stove is designed to operate with. The minimum feed rate that the stove will normally operate with is approximately 1 lb. per hour.
	3) Pellets not feeding.	• See "Pellets will not feed" below.
	4) High limit temperature switch has tripped.	• Allow stove to cool for 1 hour and re-light. If the stove has been operating at a medium to high burn and the convection fan has been turned down low, then the fan should be turned up higher. If this problem persists particularly at lower burn rates then the high limit, snap action switch should be replaced.(Part Order #12127705)
Pellets will not feed.	1) Hopper is empty.	• Check contents of the hopper. Add fuel if necessary.
	2) Auger is jammed	• Remove rear inspection panel (freestanding model). Hold auger motor gearbox in both hands and rock it back and forth to release the auger. If this is unsuccessful, then remove the auger by first removing the auger motor and the auger tube flange, clear the auger of the foreign material, and reassemble the auger system.
	3) No power to the auger motor. 4) Auger motor is defective.	• Check that there is power to the auger motor with a volt meter across terminals 4 & 6 on the terminal block. If there is power and the auger is not jammed, but the motor will not turn, check to see that the orifice for the pressure switch isn't plugged or that the pressure switch isn't defective. Replace auger motor if necessary. (Part Order #12026300)
	5) Auger Motor Set screw is loose.	• Tighten auger motor set screw.
	6) Pressure switch is defective or orifice on fan for pressure switch is light will be flashing bright, dim, bright, dim).	• Remove left side panel (freestanding mode) and locate the orange rubber hose that attaches the pressure switch to the combustion blower. Disconnect rubber hose from orifice on fan housing and clean out the hole of the orifice. Reconnect the orange hose to the fan housing.
	7) Solid state control board is defective.	• Control Board may be defective. Replace if necessary. (Part Order #25220801)

Continued/Trouble-Shooting Guide - Advantage II (stoves with serial # 7401 - 18144)

Problem	Cause	Solution
Pellets feed at maximum, whatever the control setting.	1) Fuel Control knob is loose and fuel feed is set on high.	• Tighten fuel control knob at the proper position on the post with a small screwdriver.
	2) Solid state control board is defective.	• Replace solid state control board. (Part Order #25220801)
Stove runs for 30 minutes and then shuts down.	1) Exhaust gas temperature has not reached 140 deg F.	• Press start switch again and re-light stove if necessary.
	2) Low limit snap switch not operating correctly.	• Replace low limit switch. (Part Order #12127601)
	3) Wires to the low limit snap switch are loose or disconnected.	• Check wires between snap switches and terminal block. Make sure there are good connections between the wires and their terminals.
	4) High limit snap switch stuck open.	• Replace high limit snap switch. (Part Order #12127705)
Stove shuts down automatically when it is operating at a low to medium burn.	1) High limit switch is opening at too low a temperature.	• Replace high limit switch.
	2) Convection fan operating at too low a speed	• Increase speed of convection fan.
Blowers will not shut off after the fuel has been switched off and the stove has cooled down.	1) Low limit snap switch has failed in the closed position.	• Replace low limit snap switch. (Part Order #12127705)
	2) Solid State control board is defective.	• Replace solid state control board if necessary. (Part Order #25220801)
Convection fan (room air circulating fan) shuts off for no apparent reason.	1) Both the convection fan and combustion fan have an over-heat protector (high limit switch) built into them. If the temperature of the blower motor exceeds the high limit temperature, the fan will shut off.	• Be certain that the convection fan is turned up at least as high as, or higher than the fuel feed. If the blower motor continues to shut down inadvertently, replace the fan . (Part Order # 12126109)

ADVANTAGE SERVICE MANUAL

Continued/Trouble-Shooting Guide - Advantage II (stoves with serial # 7401 - 18144)

Problem	Cause	Solution
Blowers will not operate when the start switch is depressed.	1) Stove is not plugged in	• Plug the stove into the wall outlet.
	2) The wires from the power cord are not properly connected to the terminal block.	• Check that the power cord wires are properly connected to the terminal block. (See page 'E' for proper wiring configuration.)
	3) The wire(s) from the fan(s) are not properly connected to the terminal block.	• Check that the fan wires are properly connected to the terminal block. (See page 'E' for proper wiring configuration.)
	4) The wire(s) to the 250 degree high limit snap switch are not connected correctly or snap switch is stuck i the open position.	• Check that the wires are connected correctly. Replace the snap switch if necessary (Part Order #12127705).
Both blowers operate when the stove is plugged into the wall.	5) Solid state control board is defective.	• Replace the solid state control board if necessary. (Part Order #25220801)
	1) Solid state control board is defective.	• Replace the solid state control board if necessary.(Part Order #25220801)
Soot or fly ash from the stove .	2) Low limit snap switch has failed in the closed position.	• Unplug stove from wall. Remove the 2 blue wires from the terminals of the low limit snap switch mounted on the combustion fan and measure the resistance across the terminals. If resistance is indicated , then replace the low limit snap switch. (Part Order #12127601)
	1) Cleaning the window, particularly when the stove is operating.	• Turn down the convection fan before cleaning to prevent dispersion into the room or turn stove off completely.
	2) Leakage at the joints between the combustion fan, transition duct, exhaust pipe, and 'L' vent. This will be evidenced by dust on the impellor of the convection fan, and in the heat exchanger tubes.	• Seal up any leaks in the exhaust with RTV high temperature silicone sealer. (Part Order #73027209)
		•

Continued/Trouble-Shooting Guide - Advantage II (stoves with serial # 7401 - 18144)

	3) Leakage around the motor shaft of the combustion fan where it penetrates the blower housing.	• Replace combustion fan. (Part Order #12026009)
	4) Fine soot & creosote in fireplace cavity.	• Pull insert away from fireplace opening. Thoroughly clean the opening and paint the inside of the opening with latex or an inexpensive spray paint to hold down the finer particles of dust.

ADVANTAGE SERVICE MANUAL

Trouble–Shooting Guide – Advantage II–T (Stove with serial # 18,145 or greater)

Problem	Cause	Solution
Fire burns with a lazy, orange flame. Pellets build up in the grate and window gets sooted up.	1) Insufficient combustion air.	• Check the firebox draft pressure with a magnehelic pressure gauge. See page 6A for details. • Check for blockage in the air inlet tube or exhaust pipe. Clean out as necessary.Check that the heat exchange tubes are not clogged with ash (See page 9). • Check gasket seal around the door. (Use a thin strip of paper, 1in wide. Open the door and close it on the paper strip. A slight friction should be felt when the paper strip is pulled. Repeat at various positions around the door gasket). A small adjustment can be made to the door seal by adjusting the latch rod and/or the door hinges (See diagram, page 7). Replace the door gasket if necessary. • Check that the ash pan is locked in the correct position and check the gasket seal around the ash pan in the same manner as above. Replace the ash pan gasket if necessary. • Check combustion blower impellor by removing the ceraboard firebrick and the inspection plate located behind the center brick. Clean impellor or remove blower for further cleaning if necessary. (S/N 18145–32211) • Check ash build–up behind the side ceraboard firebricks. Clean out if necessary. Use ash release slide plates (after S/N 32211) (See page 9) • Check to see that the combustion fan is firmly mounted to the transition duct and that the transition duct is firmly mounted to the stove.
	2) Low grade fuel.	• Remove any clinkers or ash from the bottom of the grate that might be obstructing the primary air holes. Change to a better grade fuel if necessary.

Continued/Trouble–Shooting Guide – Advantage II–T (stoves with serial # 18,145 or greater)

Problem	Cause	Solution
Fire goes out and/or pellets do not feed.	1) Hopper is empty.	• Refill hopper.
	2) Fuel setting too low and/or damper too far out and/or combustion fan speed is set to high.	• Increase the 'ON' time of the auger motor using the trim pot on the back of the control board or loosen the collar and push the damper in slightly or reduce the speed of the combustion fan using the trim pot on the back of the board. (See page 6A for more details)
	3) High limit temperature switch has tripped.	• Allow stove to cool for 1 hour and re–light. If the stove has been operating at a medium to high burn and the convection fan has been turned down low, then the fan should be turned up higher. If this problem persists particularly at lower burn rates then the high limit, snap action switch should be replaced. (Part Order #12127705)
	4) No power to the auger motor or auger motor is defective (with reference to current sensing relay, air inlet high limit 250^0 snap switch, and the pressure switch).	• Check that there is power to the auger motor with a volt meter across terminals 5 on the terminal block & 2 on the current sensing relay. If there is power and the auger is not jammed, but the motor will not turn,then disconnect wire from terminal 2 on the current sensing relay and connect it to 6 on the terminal block. If the motor begins to operate replace the current sensing relay. (Part Order #12125902) If the auger motor still doesn't operate then bypass the air inlet high limit switch. Then if the auger motor begins to operate replace the air inlet high limit switch (Part Order #12127601). If the auger doesn't begin to operate when the air inlet has been bi–passed then go to the pressure switch and bi–pass it as well. Replace the pressure switch if defective (Part Order #25225903). If all the above steps have been completed and the auger motor still doesn't operate then replace the auger motor (Part Order #12026300). See wiring diagram on page F.
	5) Auger Motor Set screw is loose.	• Tighten auger motor set screw.
	6) Pressure switch is defective.	• Bi–pass pressure switch. If auger motor then begins to operate, replace pressure switch. (Part Order #25225903)
	7) Solid state control board is defective.	• Replace the control board if necessary

ADVANTAGE SERVICE MANUAL

Continued/Trouble-Shooting Guide - Advantage II-T (stove with serial # 18145 or greater)

Problem	Cause	Solution
Pellets feed at maximum, whatever the control setting.	1) Fuel Control knob is loose and fuel feed is set on high.	• Tighten fuel control knob at the proper position on the post with a small screwdriver.
	2) Solid state control board is defective.	• Replace solid state control board. (Part Order #12195900)
Stove runs for 30 minutes and then shuts down.	1) Exhaust gas temperature has not reached 140 deg F.	• Press start switch again and re-light stove if necessary.
	2) Low limit snap switch not operating correctly.	• Replace low limit switch. (Part Order #12127601)
	3) Wires to the low limit snap switch are loose or disconnected.	• Check wires between snap switches and terminal block. Make sure there is are good connections between the wires and their terminals.
	4) High limit snap switch stuck open.	• Replace high limit switch. (Part Order #12127705)
Stove shuts down automatically when it is operating at a low to medium burn.	1) High limit switch is opening at too low a temperature.	• Replace high limit switch.(Part Order #12127705)
	2) Convection fan operating at too low a speed	• Increase speed of convection fan.
	3) Fuel Feed set too low.	• Increase auger motor "on" time.
Blowers will not shut off after the fuel has been switched off and the stove has cooled down.	1) Low limit snap switch has failed in the closed position.	• Replace low limit snap switch. (Part Order #12127601)
	2) Solid State control board is defective.	• Replace solid state control board if necessary. (Part Order #12195900)
Convection fan (room air circulating fan) shuts off for no apparent reason.	1) Both the convection fan and combustion fan have an over-heat protector (high limit switch) built into them. If the temperature of the blower motor exceeds the high limit temperature, the fan will shut off.	• Be certain that the convection fan is turned up at least as high as, or higher than the fuel feed. If the blower motor continues to shut down inadvertently, replace the fan. (Part Order #5-100-308)

Continued/Trouble-Shooting Guide - Advantage II-T (stove with a serial # 18145 or greater)

Problem	Cause	Solution
Blowers will not operate when the start switch is depressed.	1) No power to stove.	• Plug the stove into the wall outlet.
	2) The wires from the power cord are not properly connected to the terminal block.	• Check that the power cord wires are properly connected to the terminal block. (See Page 'F')
	3) The wire(s) from the fan(s) are not properly connected to the terminal block.	• Check that the fan wires are properly connected to the terminal block. (See Page 'F')
	4) The wire(s) from the 250 degree high limit snap switch are not connected correctly or the switch is stuck in an open position.	• Check that the wires are connected correctly. Replace the snap switch if necessary (Part Order #12127705).
	5) The low voltage fuse is missing or has blown due to a short in either of the blower motors or because the low limit snap switch is mis-wired.	• Using an Ohm meter, check the resistance of the blower motor windings. Combustion fan = 18-20 ohms, convection fan = 10-12 ohms. Replace blowers if readings aren't correct. Inspect low limit (yellow) wires and correct wiring if necessary. Replace fuse.
	6) Solid state control board is defective.	• Replace the solid state control board if necessary. (Part Order #12195900)
Both blowers operate when the stove is plugged into the wall.	1) Solid state control board is defective.	• Replace the solid state control board if necessary.)(Part Order #12195900)
	2) Low limit snap switch has failed in the closed position.	• Unplug stove from wall. Remove the 2 blue wires from the terminals of the low limit snap switch mounted on the combustion fan and measure the resistance across the terminals. If no resistance is indicated (0 Ohms), then replace the low limit snap switch. (Part Order #12127601)
Soot or fly ash from the stove .	1) Cleaning the window, particularly when the stove is operating.	• Turn down the convection fan before cleaning to prevent dispersion into the room or turn off the stove completely.