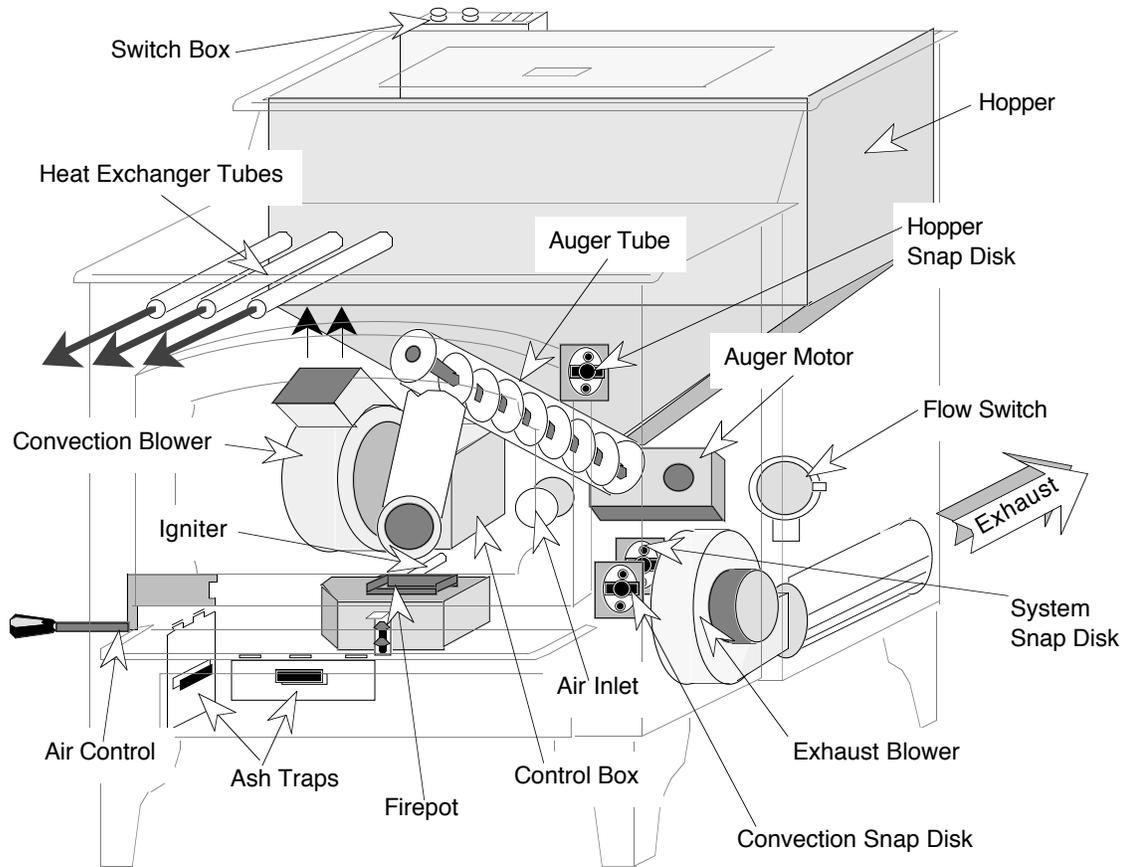


PELLET HEATER TROUBLESHOOTING GUIDE

NOVEMBER, 1994



COVERS:

AVALON 900 PS & PI, LOPI FOX FIRE & 400 PS & PI



Travis Industries, Inc.

10850 117th Place N.E. Kirkland, WA 98033

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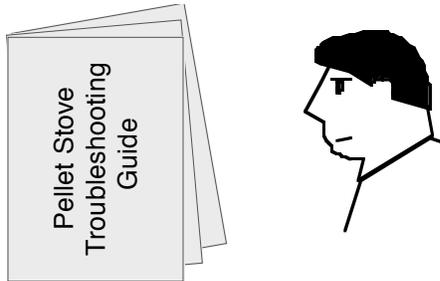
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HOW TO USE THIS GUIDE

This guide is designed to speed you through the pellet repair process. On page 1 you will find a table listing the most common problems and the possible cause. The number to the right details what page to look on for troubleshooting. You will notice this guide is broken up into sections that deal with specific component or system problems. The second section "Removal Instructions" is included to assist in dismantling the stove for service procedures. You will also find an Appendix titled "Insights into Pellet Stoves", which gives those service-people less familiar with pellet stoves the insight necessary to understand this appliance. Appendix 2 includes replacement part numbers for quick reference. Appendix 3 gives important information on Travis Stoves made prior to 1993. Appendix 4 gives electrical diagrams and specifications.



• Who should use this guide

This guide is intended for Travis Industries dealers and service personnel. Because of the inherent danger in working with heating appliances, all work must be done by qualified service personnel.

• Know how to switch out components quickly

Most of the procedures in this guide require a component to be switched out and the stove tested. This allows for quick diagnostics and simple component-ized explanations. Familiarize yourself with the heaters by removing and replacing internal components in your shop.

SHOW UP PREPARED

Service personnel **must** have the following items to perform service on a pellet heater. Without the proper tools and spare components, diagnosis of most problems is nearly impossible.

• Tools

Standard and Phillips-head Screwdrivers

Nut Driver, Wrench, and Socket Wrench in 1/4", 5/16", 3/8", 7/16", and 1/2" Sizes

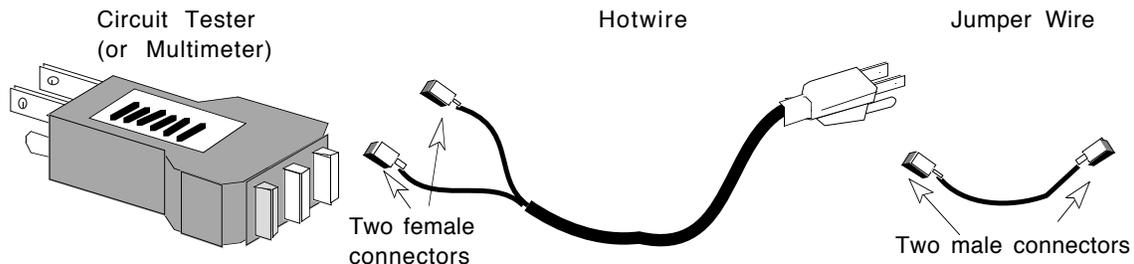
3/32" Allen Wrench

Hotwire (110 Volt Power Supply - Extension Cord With Female Quick Connects)

Jumper Wire (Wire with two Male Quick Connects - Used to Test Electrical Components)

Circuit Tester (Checks hot wire, neutral wire, and ground on outlet) or Multimeter

RTV 500° Silicone



Spare Components

The following items are included in the Travis Industries "Pellet Stove Service Package" (# 99300151).

- Switch Box (Insert & Stove)
- Control Box
- Auger Motor (Insert & Stove)
- Combustion Blower
- Snap Disks (Convection, Hopper, System)
- Wiring Harness
- Convection Blower
- Two Insert Exhaust Tube Gaskets
- 5 Amp Fuses
- Burn Pot
- Exhaust Fan Gasket

Bring along the following items as well:

- Door & Glass Gasket
- Igniter
- Flow Switch

3 Bags of high quality pellets

Many pellet stove problems are due to poor quality pellets. Burning high quality pellets on-site often convinces the pellet heater owner to switch to a higher quality fuel.

ELIMINATING "FALSE FIXES" AND MAKING CORRECT DIAGNOSIS

Often a part is switched out, improving the stove's performance enough to overcome the true problem. This stove with a "false fix" may work for several months, only to fail again. To eliminate false fixes and help make correct diagnosis, keep in mind these principles when diagnosing problems:

Test Components Individually

Before replacing a component, test it against a new component. This is especially important for blowers and auger motors. Simply plug them in directly to a hotwire (see page 3) and compare their performance.

Test the Stove Adequately

Before leaving a customer's home, make sure to operate the stove for at least one-half hour. Use the time to clean up or finish paperwork. Furthermore, test the stove on various burn rates to insure proper operation.

Monitor the Stove's Performance

Become familiar with how a brand new stove performs. Everything from the flame quality, blower noise and velocity, to the airwash should be noted. Then you can test a customer's stove for performance.

WARRANTY PROCEDURE

10850 117TH PL. NE - KIRKLAND, WA 98033

Most components inside Travis Industry stoves are warranted. To receive credit for a component covered on the warranty, follow the PRA (**P**roduct **R**eturn **A**uthorization) procedure below:

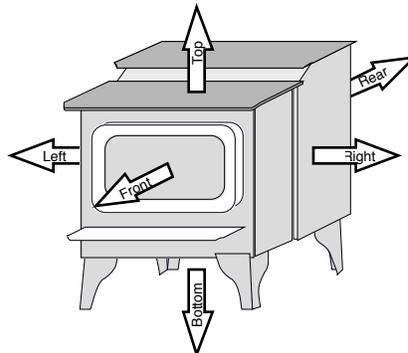
- 1) Fill out a PRA form (white, pink, & gold carbon paper form) - Keep the gold copy for your records.
- 2) Send the other sheets, along with the component, to Travis Industries (see address above)
- 3) When it is tested defective, you will receive full credit.
- 4) Order a new component (if needed to replace existing stock).

NOTE:

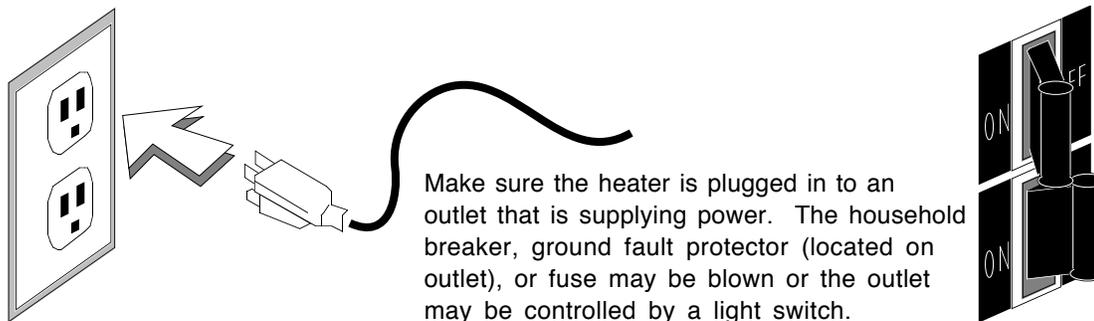
The items must be defective and under warranty to receive credit. If the component is tested and found to be workable, or if it is not under warranty, it will be returned to you at your expense. The items must be accompanied by a PRA form with all the information completed.

CONVENTIONS

When this troubleshooting guide refers to a side or direction, use the following diagram to determine direction.



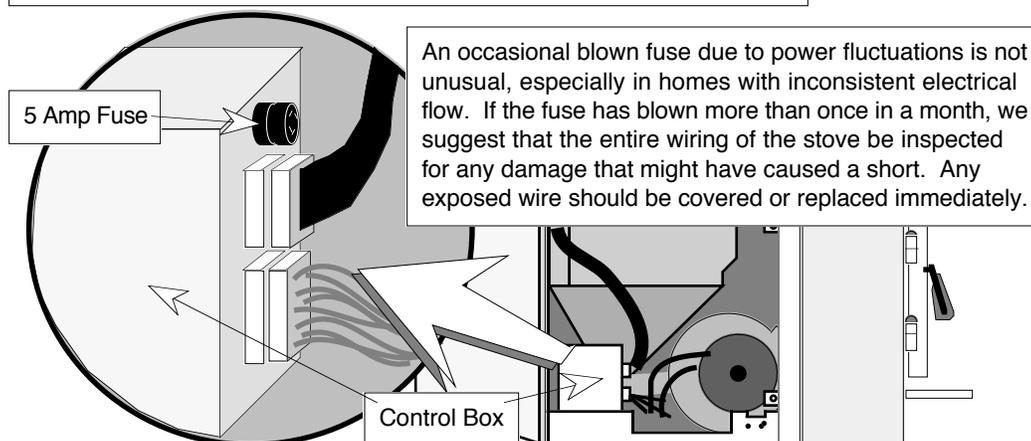
STOVE NOT PLUGGED IN, HOUSEHOLD CIRCUIT BREAKER TRIPPED, OR FUSE BLOWN

**Remedy**

Plug the heater into a grounded outlet that is supplying power. Test the outlet with a lamp if unsure.

FUSE BLOWN ON CONTROL BOX

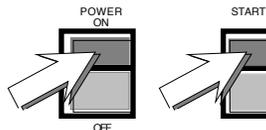
Check the fuse located on the front side of the control box. If it is blown, replace with a quick-blow 5 Amp fuse. IT IS VERY IMPORTANT TO FIND OUT WHY THE FUSE BLEW, ESPECIALLY IF IT BLOWS REPEATEDLY.

**Remedy**

Replace the fuse with a 5 amp quick-blow fuse. There are two fuses taped to the inside of the control box. To access, remove the control box, and take off the cover plate that shields the inside components.

ON/OFF SWITCH NOT TURNED ON OR START BUTTON NOT PRESSED

Make sure the power switch is "ON" and the start switch has been pressed

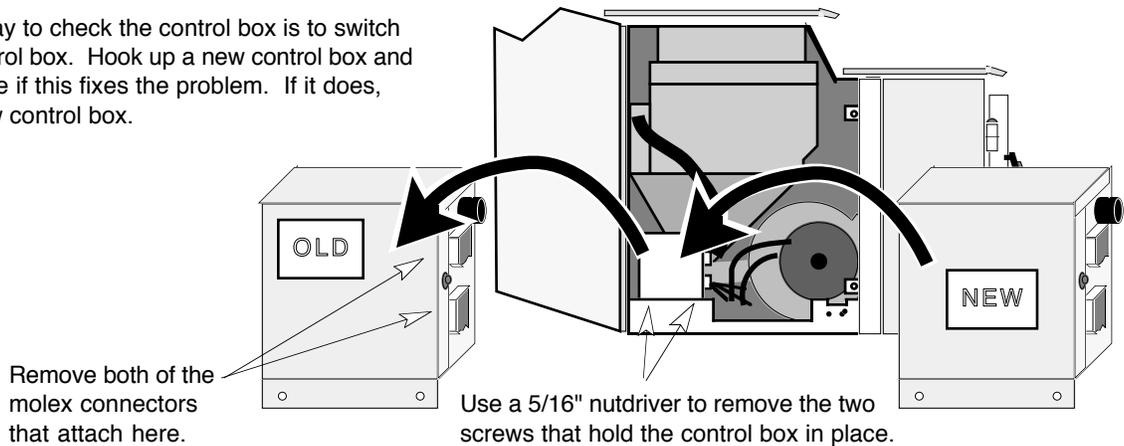
**Remedy**

Press the power button to "ON". Then press the start button. The indicator light should come on. If it does not, listen for the exhaust blower. If the exhaust blower turns on when the power button is on and the start button is pressed, yet the indicator light does not light up, the indicator light (or the wire leading to it) is defective or (first check the moxex connector on the switch box, then replace the switch box if necessary).

CONTROL BOX FAULTY

The control box acts as the "brain" of the stove, timing the intervals of the auger, monitoring the start-up features of the stove, and housing the wiring configuration. Many different problems may be encountered with a faulty control box.

The best way to check the control box is to switch out the control box. Hook up a new control box and check to see if this fixes the problem. If it does, use the new control box.

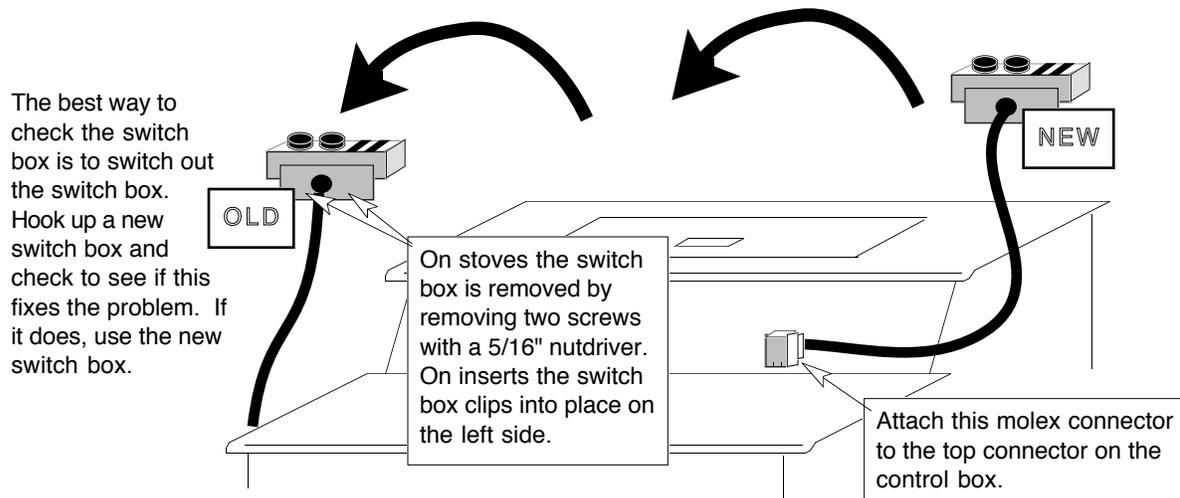


Remedy

If the stove works after replacing the control box, the control box was faulty (check internal fuse).

SWITCH BOX FAULTY

The switch box houses the user controls of the stove. Almost all of the electrical circuits run through the switch box, making its operation crucial to nearly every aspect of the heater's operation.



Remedy

If the stove works after replacing the switch box, the switch box (or wiring) had a faulty component inside.

WRONG MODEL OF CONTROL BOX

New control boxes were introduced in 1993 to accommodate the igniter. When a 1993 or later control box is placed in an older stove it will turn off 15 minutes after starting. When a 1992 or earlier control box is placed in a 1993 or later stove it will not feed pellets or turn on, but the indicator light will come on.

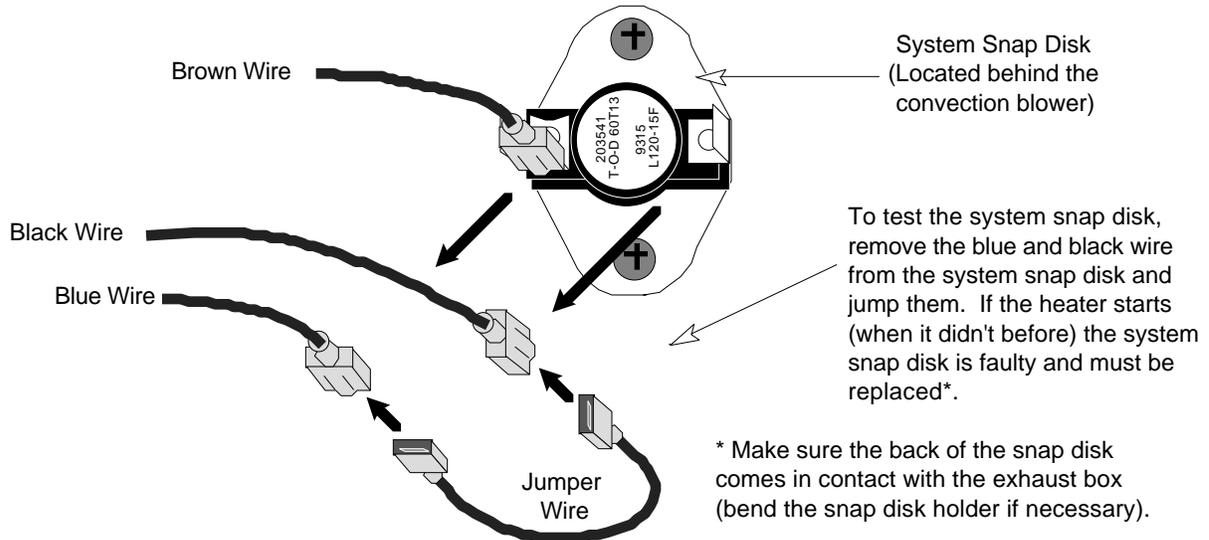
Remedy

Go to Appendix 3 for details on which type of control box should be used and how to retrofit.

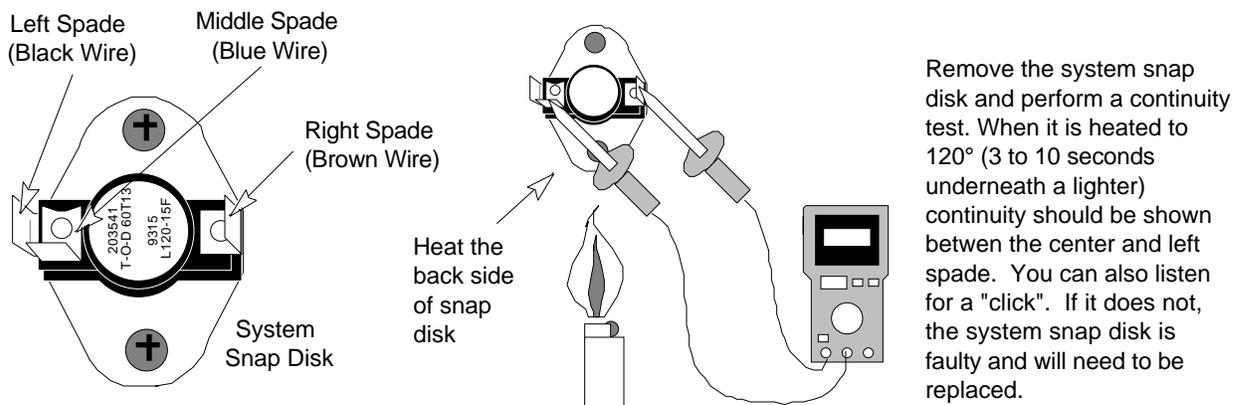
SYSTEM SNAP DISK FAULTY

The system snap disk is an integral part of the exhaust blower circuit. When the stove is starting and still cool, the circuit passes through the blue and brown wire. Once it reaches temperature the circuit passes through the black and blue wire. If the system snap disk is faulty, the exhaust blower will not turn on when the stove is started or the heater will shut off 15 minutes after starting (even if the stove is hot).

Problem # 1 - The exhaust blower does not turn on when the heater is started.



Problem # 2 - The heater shuts off 5 to 15 minutes after starting.



Remedy

Replace the system snap disk.

POWER OUTAGE

If the power goes out for more than one minute while the stove is operating, the stove will automatically shut down and remain off. If outside air is not provided to the heater, some smoke may enter the home.

Remedy

This is normal.

STOVE IS NOT HOT ENOUGH - TRY AGAIN

If the stove does not reach operating temperature within 10 to 15 minutes of startup, the stove will shut down. This will most likely happen on models without auto igniters or stoves with recently primed augers.

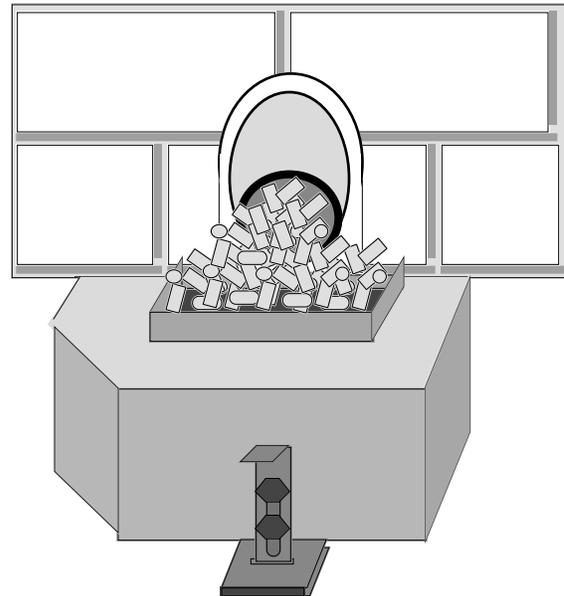
Remedy

Start the stove again. If this happens repeatedly, the startup timing block may be set too low. See the section "Startup Timing Block" in the Wiring Diagrams, Electrical Spec's portion of this guide.

FLAME WAS SMOTHERED OR THE PELLETS BLEW OUT

Whenever the stove turns off it is very important to find out why it turned off. Check to see if the pellets are piled up into the feed tube. Most often this is caused by poor maintenance or incorrect settings. Before any service is conducted on a stove, first make sure the items below have been checked.

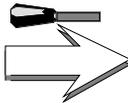
The firepot must receive the correct amount of air to burn properly. This requires the proper air control setting and a properly maintained system. With too little air the flame will smother, with too much air the pellets will blow out of the burnpot. In both cases, the stove becomes cool enough to shut down and pellets pile up into the feed tube.



Smothered Fires

The following problems may lead to a smothered fire:

Air Control Set Too Low



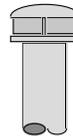
Stove Needs Cleaning



Air Leaks



Vent may be Restricted



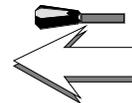
Pellets may be poor quality



The above problems may cause the pellets to pile up inside the firepot, eliminating good air flow and leading to a smothered flame. Eventually the stove shuts off when the temperature drops. Smothered fires leave burnt pellets at the bottom of the firepot with pellets piled up the feed tube. See the appropriate section for instructions on inspection and the proper remedy.

Blown Out Fires

If the air control is set too high, the pellets may burn too quickly and jump out of the firepot, allowing the fire to die out. Then pellets pile up in the firepot and into the feed tube.

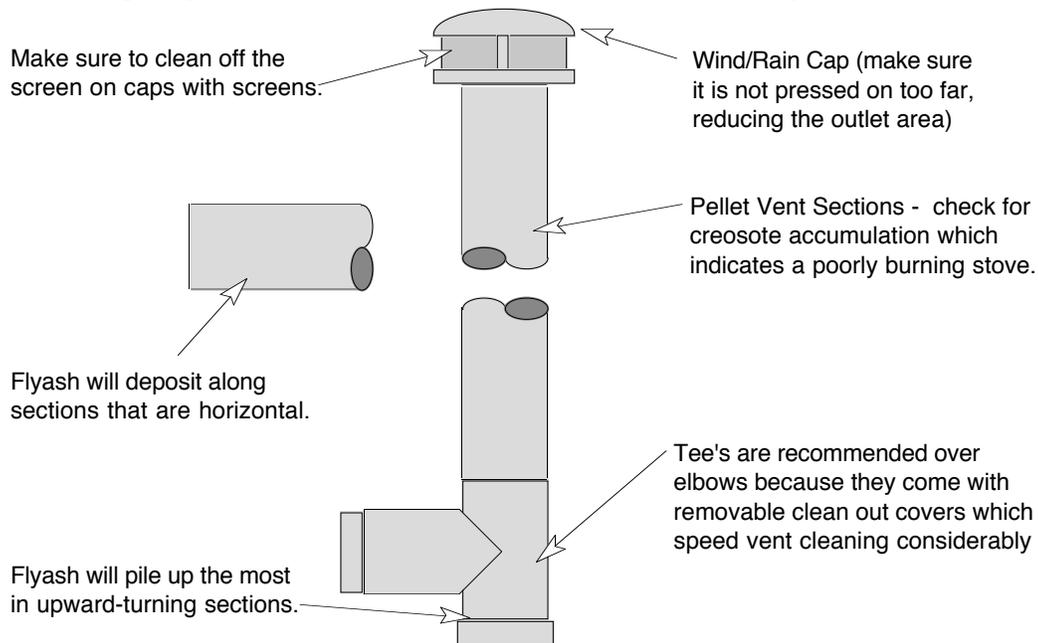


Remedy

Go to the appropriate section listed above or adjust the air control accordingly.

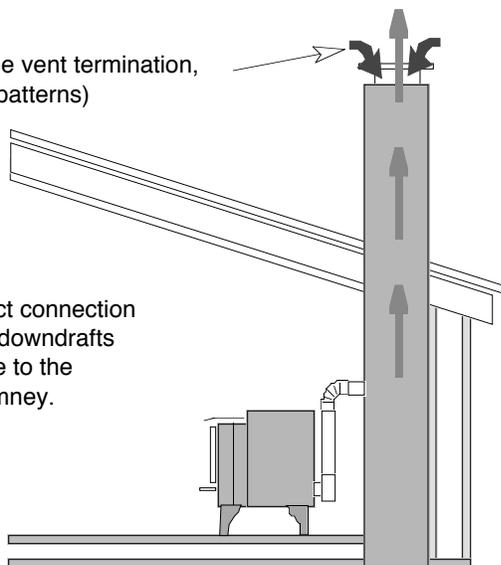
VENT MAY BE RESTRICTED

If the vent becomes restricted, the amount of air flowing through the burnpot will be reduced, leading to a poor burn. In extreme cases the flow switch system will detect the reduced flow and disable the auger, shutting the stove down. One of the best ways to determine a restricted venting system is to detach the stove from the flue and burn it briefly outside. In cases of restricted venting systems, the stove will show a drastic improvement in burn quality. The most common causes of restricted vent systems are listed below.



Downdrafts (caused by tall objects near the vent termination, locations near hills or lakes, or local wind patterns)

A stove attached to a chimney with a direct connection may experience restricted venting due to downdrafts upon the chimney and the lack of draft due to the increased cross sectional area of the chimney.



Remedy

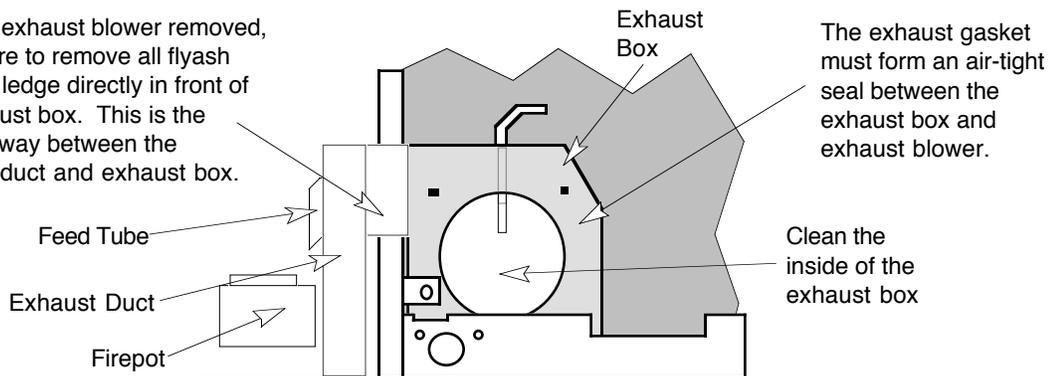
Make sure the vent system is clear of all flyash and the screen on the cap has no obstructions (if applicable). Certain installations may have reduced venting performance due to down drafts and chimneys with large cross sectional area. Check the installation to make sure it conforms to all of the requirements listed in the owner's manual. Try installing a direct vent in installations that show poor venting performance. Keep in mind that a stove requiring cleaning will show compounded difficulties when attached to a vent that is venting poorly.

EXHAUST BLOWER FAULTY

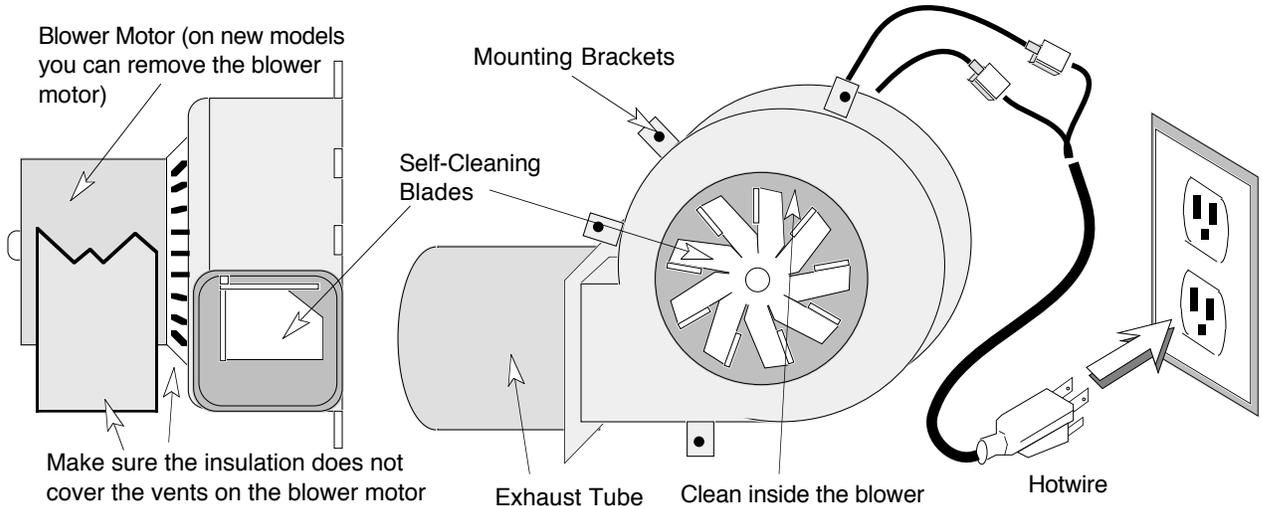
The exhaust blower draws air through the firepot, creating combustion. It also forces the flue products out the vent. If the exhaust blower performance is reduced, the heater will experience poor burning performance. In cases where the blower is disconnected or extremely deficient, the flow switch system will disable the auger and the heater will shut off. Check the following items:

- 1 Make sure the wires to the exhaust blower (brown, green wires) are not damaged or disconnected.
- 2 Remove the exhaust blower (**NOTE:** on newer models you may remove the motor from the blower to access the inside of the exhaust box - use an 11/32" nutdriver to remove the 6 screws that hold it in place - replace the exhaust motor gasket). When replacing the exhaust gasket make sure it is lined up correctly, pliable, and held firmly against the exhaust box when the blower is replaced. If the gasket leaks air, the exhaust blower will draw air from the stove cabinet, not from the firebox, greatly diminishing burning performance.

With the exhaust blower removed, make sure to remove all flyash from the ledge directly in front of the exhaust box. This is the passageway between the exhaust duct and exhaust box.



- 3 First hotwire the exhaust blower to see if it pushes air. If uncertain about performance, place the exhaust blower in a location outside where flyash may be deposited. Clean all flyash inside the exhaust blower and exhaust tube. Keep your fingers away from the impellers and connect the two electrical leads from the exhaust blower to a hotwire and plug it into an electrical outlet. If the blower does not turn on, it will need to be replaced. To gauge whether the exhaust blower pushes enough air, compare it to a brand new exhaust blower for a side by side comparison. If the velocity is significantly less, or the noise level is significantly greater, replace the blower.



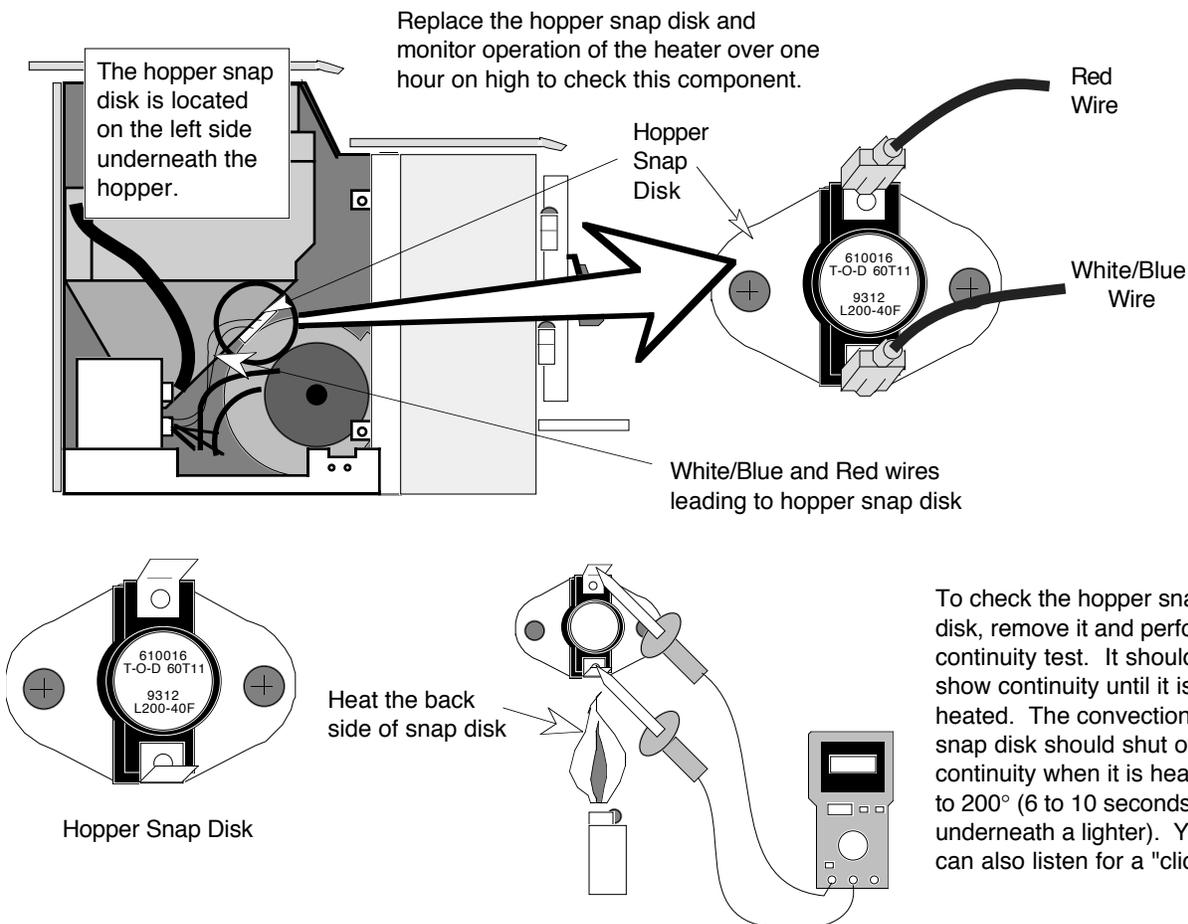
NOTE: Replace all gaskets when re-installing.

Remedy

Fix or replace any wiring. Replace all exhaust gaskets, making sure they are held in place firmly when the blower is replaced. If the exhaust blower does not work when hotwired, or if it pushes little air, replace.

HOPPER SNAP DISK FAULTY OR STOVE OVERHEATED

The hopper snap disk is a safety device that shuts off the auger if the hopper reaches an excessive temperature. When the stove turns off unexpectedly the hopper snap disk may be faulty or the hopper may have reached an excessive temperature. The only way to check the hopper snap disk is to replace it with a new one and monitor the heater's operation.



Remedy

If the heater works correctly after one hour on high with the new hopper snap disk, the hopper snap disk was probably faulty. If the heater shuts down, first make sure the convection blower stayed on when the stove reached its highest temperatures. If the convection blower turned off, the heater probably overheated and the hopper snap disk shut the heater off (go to the section "Convection Blower May Be Faulty"). If the convection blower works correctly, yet the heater shut off, the heater is overheating for some reason. This could be due to pellets piling up the feed tube, heater placement, lack of air for the convection blower, or other factors. Call Travis Industries for information on a remedy for this situation.

AUGER NOT PRIMED

The first time you start your heater, **or** if you completely run out of pellets, the auger will need to be primed.

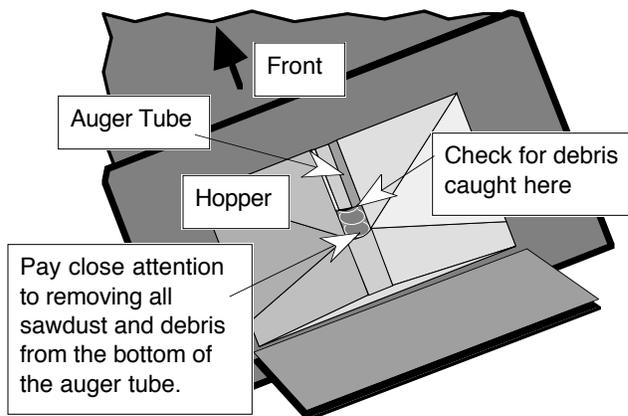
Remedy

Turn the heater on, press the start button, and turn the BURN RATE to "HIGH". This will allow the pellets to feed up the auger and start to fall into the firepot before you start the heater. After this "priming" the stove can be started normally. If this does not work, go on to the next step.

AUGER IS JAMMED

Augers can jam when the pellets are allowed to back-up the feed tube, if pellets are left in the auger over the summer and swell due to absorbed water, or if a piece of debris is allowed into the hopper (a nail or screw especially) and gets caught in the mouth of the auger. To check if the auger is jammed, clean and vacuum out the hopper (see the illustration below). Turn the heater on and turn the BURN RATE to "HIGH". Look into the hopper and check to see if the auger is turning. If it is not, it could be jammed. Dislodge any pellets stuck at the top of the auger tube by following the directions below.

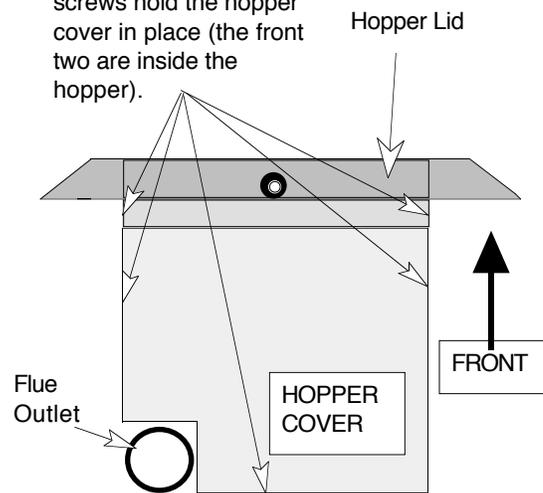
STOVES (Top View)



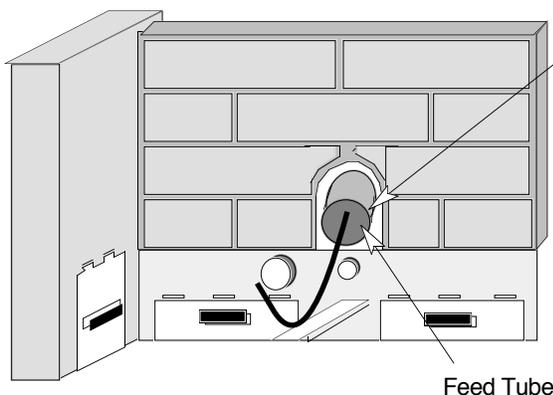
INSERTS (Top View)

For inserts, the hopper cover may need to be removed to check for caught debris.

Five phillips-head screws hold the hopper cover in place (the front two are inside the hopper).

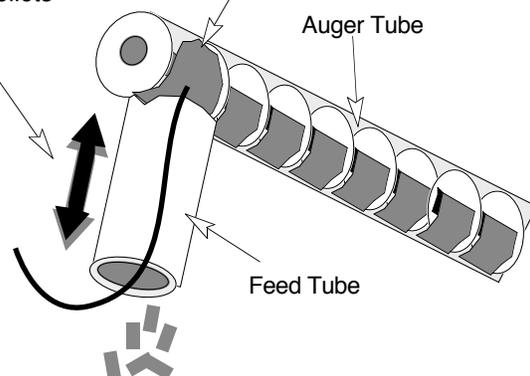


If pellets are allowed to pile up the feed tube, the auger may become jammed.



Insert a piece of large wire up the feed tube and poke it around to dislodge stuck pellets

Pellets pile up and jam at the top of the auger tube.



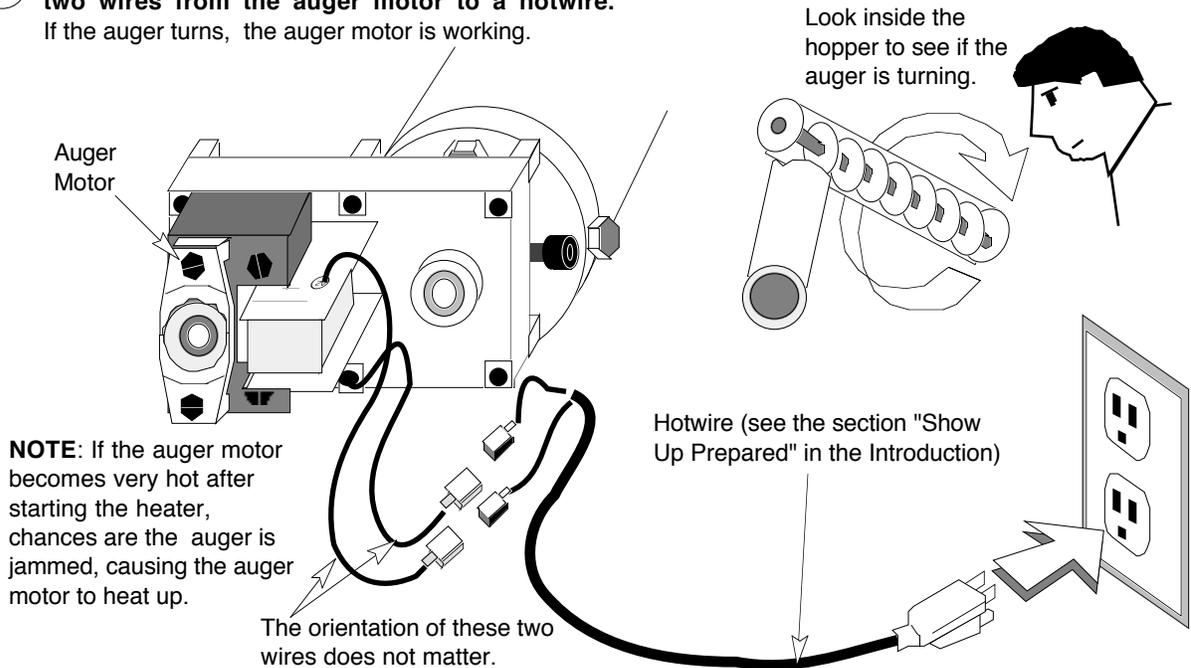
Remedy

Follow the instructions above to free jammed augers. Augers that are severely jammed may be freed by removing the auger motor and manually turn the auger flight (use an allen wrench inserted into the lock screw or a pipe wrench on the drive collar - see "Auger System may be Faulty"). If this does not work, follow the directions under "Removing the Auger Flight" to remove the auger flight for cleaning.

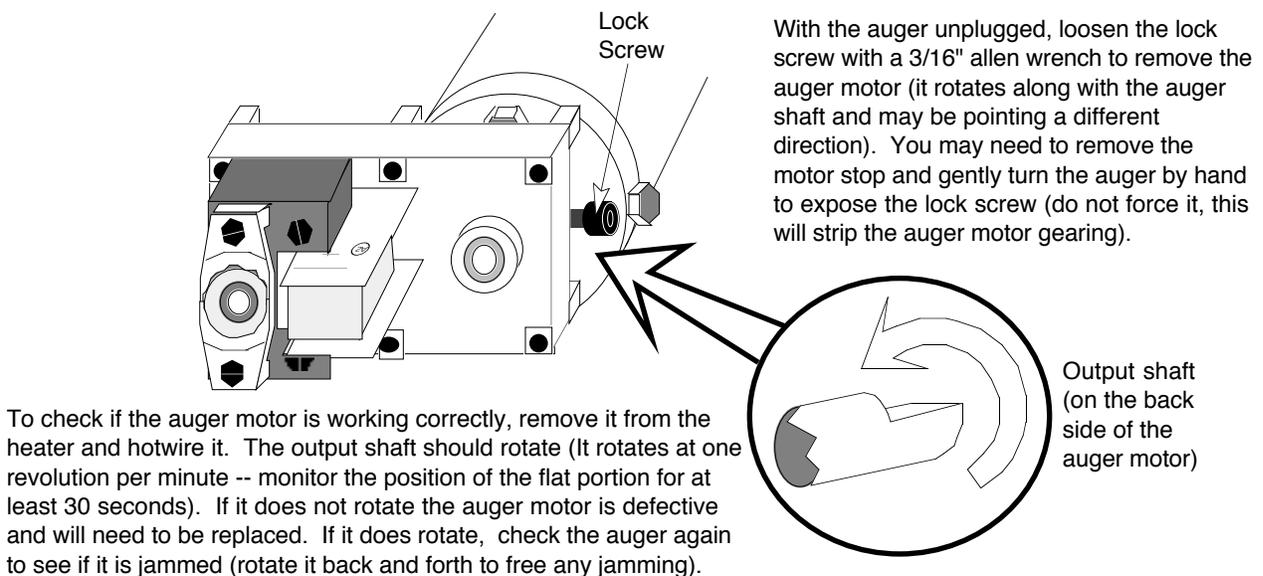
AUGER SYSTEM MAY BE FAULTY

The auger system consists of the auger motor, auger flight, and auger tube. Because these components work together, they are evaluated as one system. The next two pages detail the method to check the auger system. The auger motor, which is a motor attached to a gearbox, is considered one component. It must be correctly attached to the auger flight (the spiral-shaped component inside the auger tube which turns) for the system to work correctly.

- 1 **Access the back of the heater and connect the two wires from the auger motor to a hotwire.**
If the auger turns, the auger motor is working.



- 2 **If the auger does not turn when hotwired, remove the auger motor and check the following:**

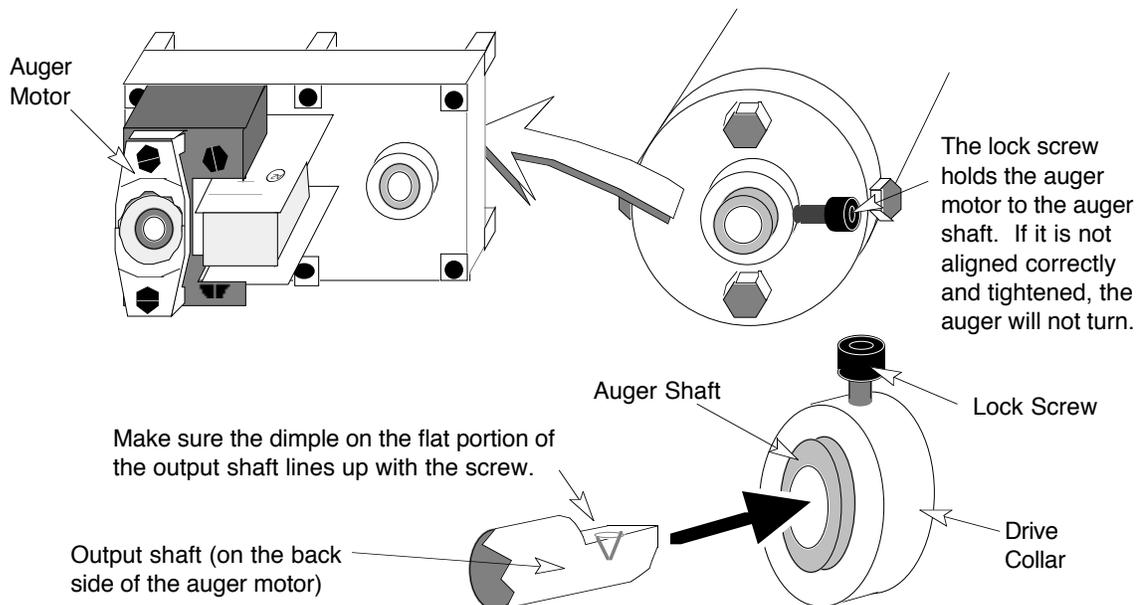


Remedy

Replace the auger motor if it does not turn while hotwired. To clear jammed augers, remove the auger motor and manually turn the auger flight (use an allen wrench inserted into the lock screw or a pipe wrench on the drive collar).

AUGER SYSTEM MAY BE FAULTY (CONTINUED)

- 3 If the auger motor works, and the auger is not jammed, yet the auger does not turn when the auger motor is hotwired, the lock screw that holds the auger motor to the auger shaft is not aligned correctly.



NOTE: On Pre-1993 Models the two allen set screws are used instead of the Lock Screw - See Appendix 3 for details.

Remedy

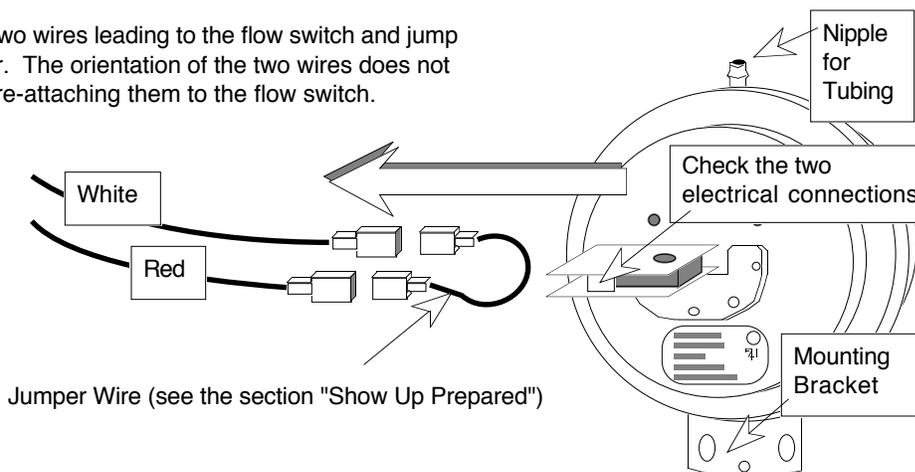
1. Use a 3/16" allen wrench to loosen the screw that holds the auger motor in place.
2. Find the flat portion of the output shaft on the auger motor and line it up with the screw on the auger shaft. Either manually turn the auger shaft to line it up or hotwire the auger motor and let the auger motor turn over until it lines up.
3. Place the auger motor back into place.
4. Tighten the screw until it is secure.

FLOW SWITCH SYSTEM FAULTY

The flow switch is a safety device used to shut off the auger if the vent becomes blocked, the exhaust blower shuts off, or a severe down draft occurs. Follow the directions below to check the flow switch system.

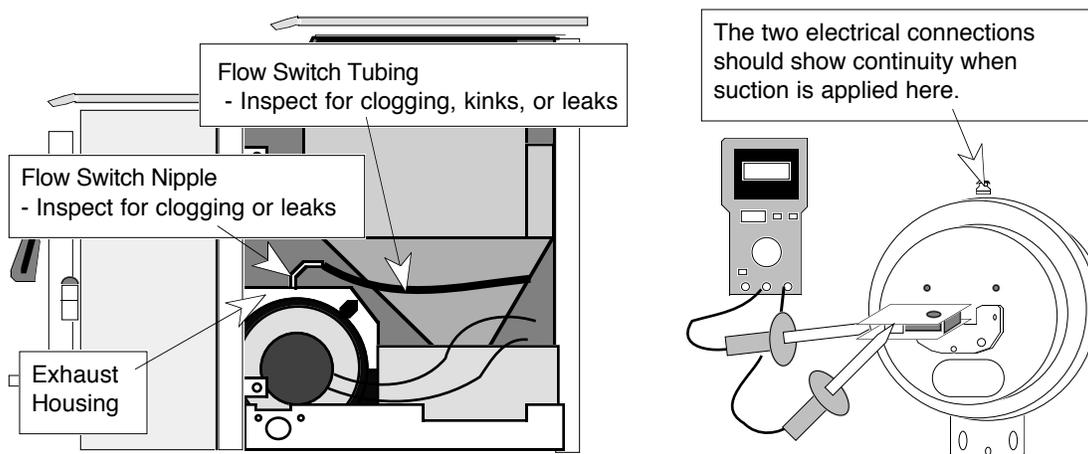
Disconnect the two wires leading to the flow switch and jump them. If the heater works correctly, follow the directions below to check the flow switch system. If the heater does not work, the flow switch system works - go to the next section "Wiring Faulty" (make sure to replace the wires after troubleshooting).

Remove the two wires leading to the flow switch and jump them together. The orientation of the two wires does not matter when re-attaching them to the flow switch.



To check the flow switch system, do the following:

1. Access the right side of the heater and inspect the flow switch nipple on the exhaust box for leaks or clogs. If it is clogged, clean it. If it has leaks, replace it.
2. Inspect the tube running from the exhaust box to the flow switch. If it has leaks, is kinked, or is damaged, replace it.
3. Disconnect the tubing from the flow switch and apply suction to the nipple with a piece of tubing. Then apply a continuity tester to the two electrical connections on the flow switch. If the flow switch does not show continuity when suction is applied, the flow switch will need to be replaced.
4. Check the pellet vent system for clogging. **If the pellet vent is clogged or restricted, the flow switch will shut the power to the auger off.**



Remedy

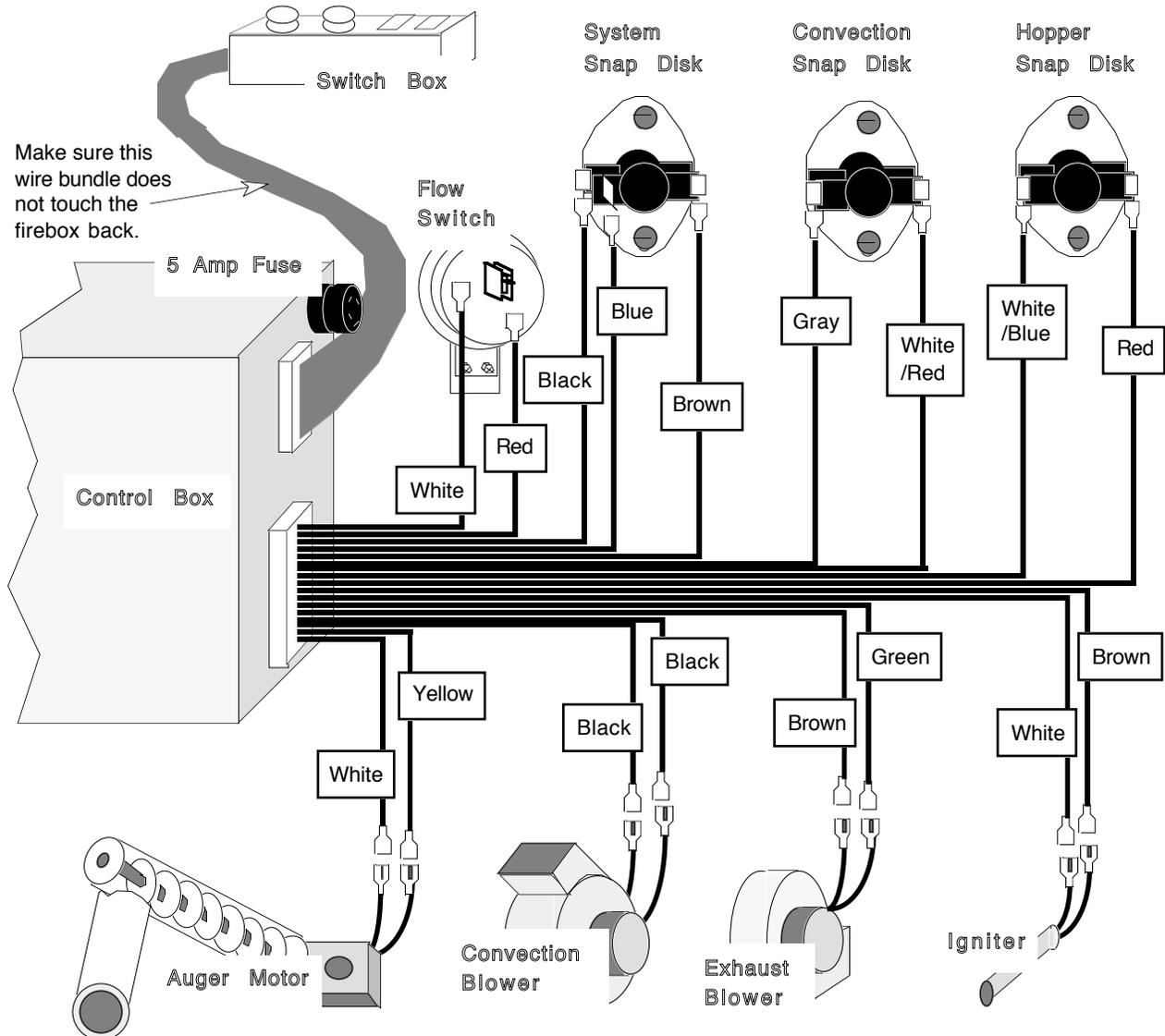
Find the faulty component and replace it. If the tubing or nipple is clogged, remove the clogging.

DAMAGED OR EXPOSED WIRING

Damaged or exposed wiring may interrupt electrical circuits that control the heater's operation. The wiring illustration details the wire coloring on 1993 or later pellet heaters (see appendix 3 for earlier models). Instead of checking every wire, you may wish to focus primarily on the wires on the circuit in question (e.g. if the convection blower goes out - check the convection blower and snap disk wires). Unplug the heater before inspection.

IMPORTANT NOTE:

- Make sure the wires that pass near the auger motor are not loose - they may become caught on the lock screw and become dislodged.
- Make sure the wires do not touch the exhaust tube, exhaust box, or firebox back - if they come in contact with these hot components they may melt and short out on the chassis.



NOTE: The orientation of the wires (except for system snap disk) does not matter when attaching to the components. The system snap disk must be connected as shown above.

Remedy

Replace or repair any damaged wiring.

STOVE NOT UP TO TEMPERATURE

The convection blower turns on when the heater reaches sufficient temperature (120° F. on the exhaust box). This takes 10 to 30 minutes depending upon the burn rate. Poor pellets or especially dirty systems will decrease the heating potential of the stove, leading to longer warm-up times.

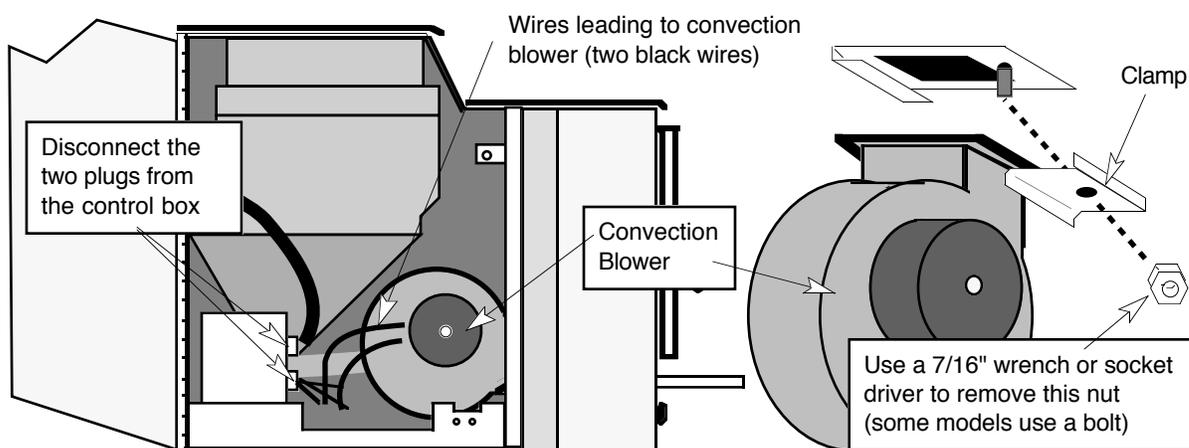
Remedy

Allow the heater to warm sufficiently.

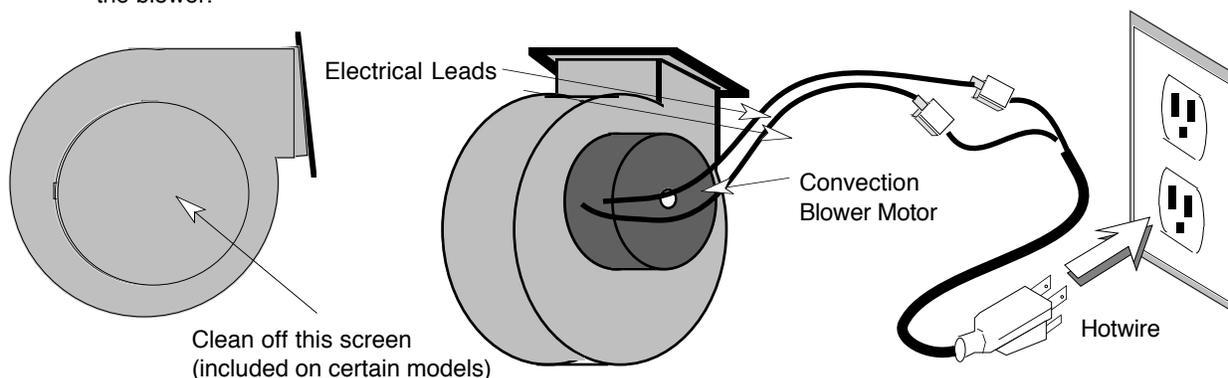
CONVECTION BLOWER FAULTY

The convection blower pushes air through the heat exchanger tubes located along the top of the firebox, transferring heat from the firebox to the room. It also performs a necessary cooling function for the internal components. To check the convection blower, follow the steps below.

- 1 Make sure the wires to the convection blower (two black wires) are not damaged or disconnected. Remove the convection blower.



- 2 Keep your fingers away from the impellers and connect the two electrical leads from the convection blower to a hotwire and plug it into an electrical outlet. If the blower does not turn on, it will need to be replaced. To gauge whether the convection blower pushes enough air, compare it to a brand new convection blower for a side by side comparison. If the velocity of air is considerably less or the noise considerable more, replace the blower.



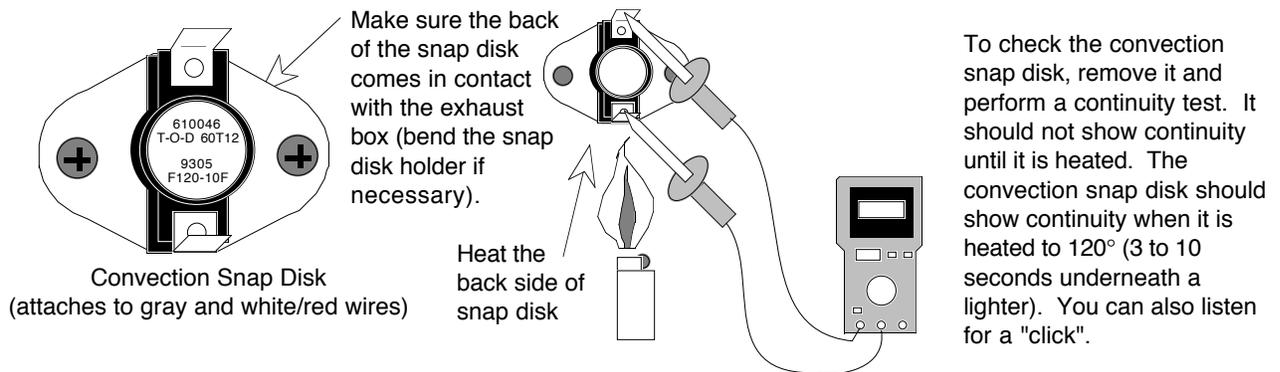
- 3 The blower may shut off only when the stove is at its hottest temperatures. Replace the convection blower and start the stove. With the convection blower on low, let the stove reach maximum temperature. If the blower shuts off, it indicates that the thermal protection on the blower is too sensitive. Replace the blower.

Remedy

Fix or replace any wiring. If the convection blower does not work when hotwired, or if it pushes little air, replace. If it does not work when the heater is at full temperature, replace.

CONVECTION SNAP DISK FAULTY

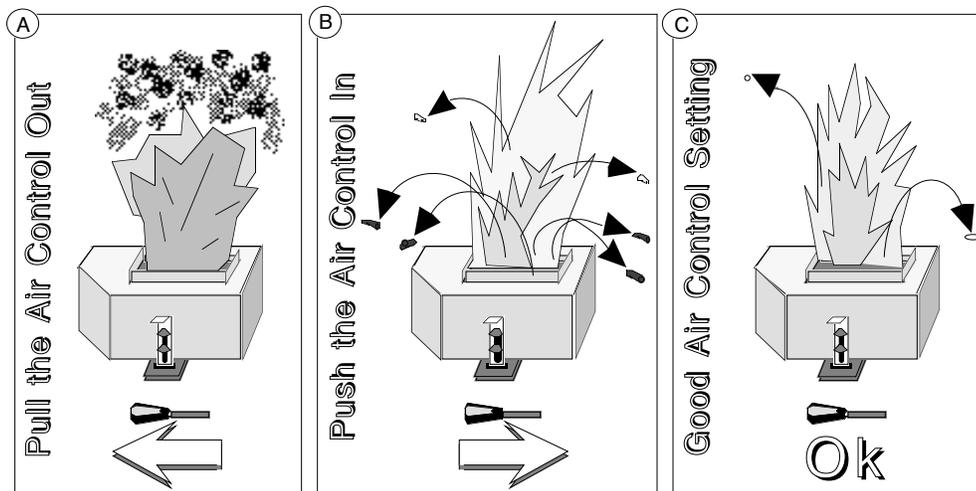
The convection snap disk completes the electrical circuit to the convection blower once the heater becomes warm enough (120° on the exhaust box). Follow the directions below to check this component.



AIR CONTROL TOO FAR IN

The following section is an excerpt from the owner's manual that explains air control settings. Make sure the customer fully understands the air control and its importance. The air control adjusts the amount of air entering the firepot. It is extremely important to adjust it correctly. It must be adjusted every time the burn rate is changed or when using different pellets. With the Burn Rate set to a particular setting, look into the firepot and check the flame. Ideally, the pellets should be agitating slightly, with an occasional ember flying up and a bright, jagged, yellow flame.

- » If the pellets aren't moving and no embers are jumping out of the firepot, and the flame is dark orange with black tips (see drawing "A" below), pull the AIR CONTROL out 1/2". Check again.
- » If the pellets are moving vigorously with many burning pellets jumping out of the firepot (see drawing "B" below) push the AIR CONTROL in 1/2". Check again.
- » If the pellets are moving slightly with some embers jumping out of the firepot, and the flame is bright, jagged, and yellow, (see drawing "C" below) the AIR CONTROL is set correctly. Generally, the higher the BURN RATE, the farther out the AIR CONTROL must be set.

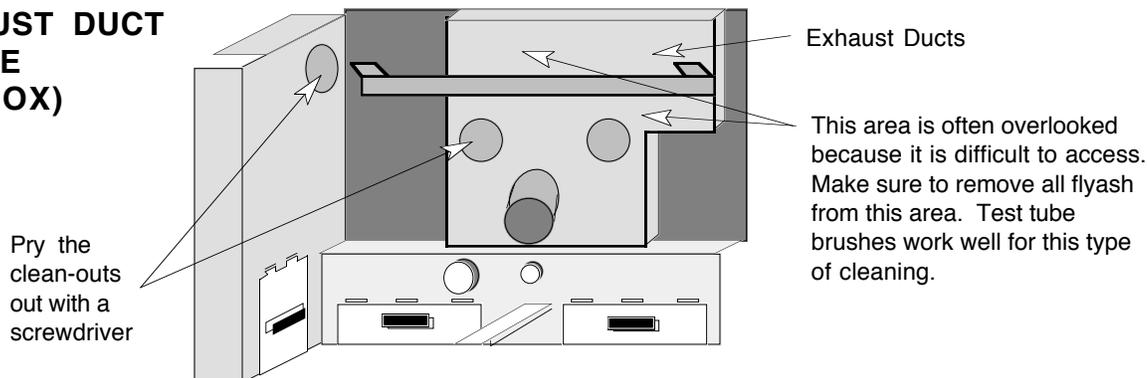


- NOTE:** Every batch of pellets may be different. Certain pellets will be heavier and less likely to move inside the firepot. Some pellets will be wet, and take longer to burn. While other pellets will be "dirtier" and produce a darker smoke. Pellets will even vary from bag to bag. If uncertain on where to set the Air Control, it is best to pull the Air Control out too far than to push it in too far.
- HINT:** Generally, the label on the Air Control should be showing RED on HIGH, ORANGE on MEDIUM, and YELLOW on LOW.

STOVE NEEDS CLEANING

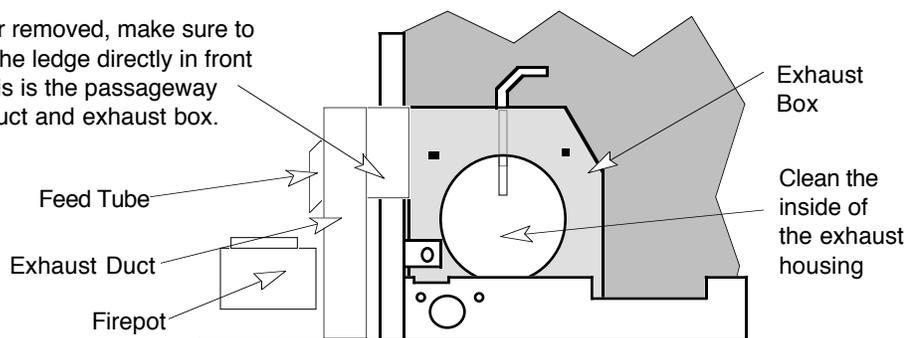
The owner's manual contains information on all of the portions of the stove that require cleaning. Our experience has shown that the following areas are often neglected during cleaning and should be checked:

EXHAUST DUCT (INSIDE FIREBOX)



AREA BETWEEN EXHAUST DUCT AND EXHAUST BOX

With the exhaust blower removed, make sure to remove all flyash from the ledge directly in front of the exhaust box. This is the passageway between the exhaust duct and exhaust box.



NOTE: Replace all gaskets when re-installing.

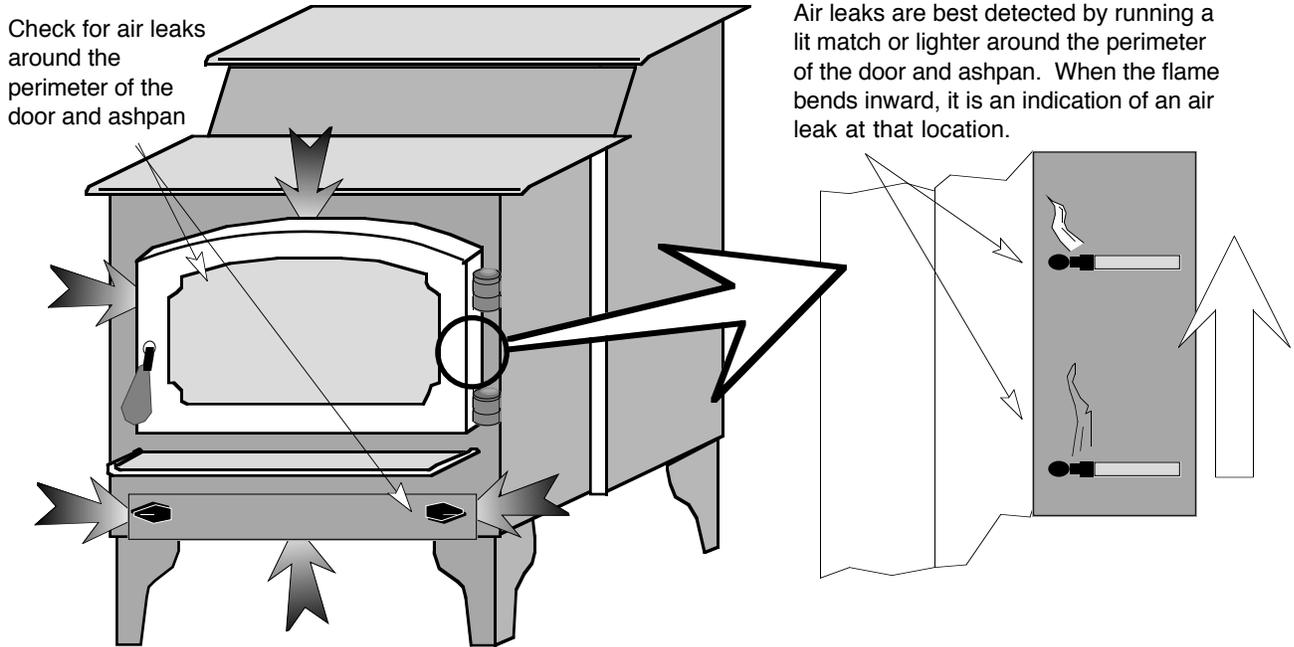
Remedy

Make sure the areas listed in the owner's manual are clean as well as those listed above.

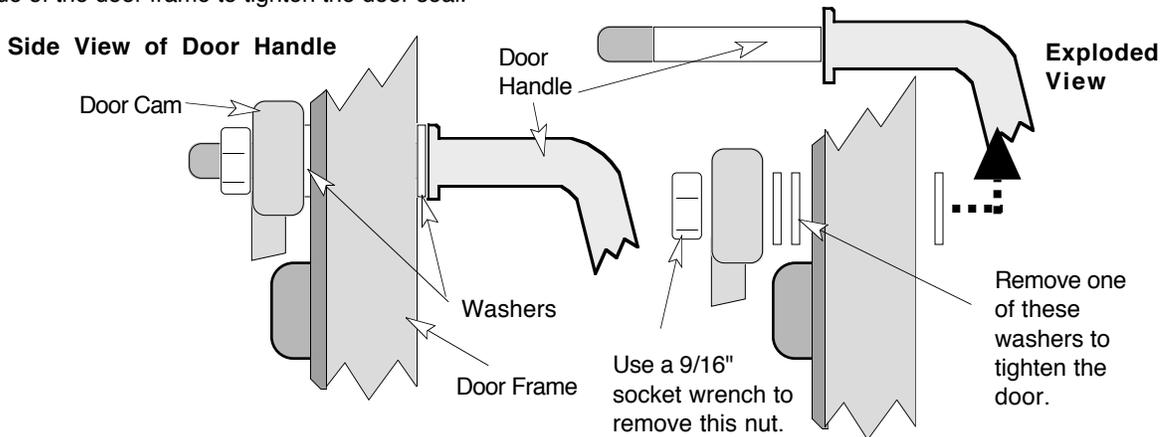
AIR LEAK

Air leaks into the firebox decrease the amount of air flowing through the firepot. A good way to simulate an air leak is to open the door slightly while the heater is burning. You will notice that the flame gets lazy and the brightness decreases. Efficiency with an air leak is poor, flyash increases, and the glass becomes dirtier. If your heater has a lazy, smoky flame or the pellets are stacking up in the firepot and the air control is all the way open, you should first check for a plugged firepot and then for an air leak. The steps on the following two pages demonstrate how to check for air leaks.

NOTE: Stoves installed on pedestals require the bolts used during shipping to be replaced in the front corners of the firebox, otherwise air will enter the firebox from this area.



Air leaks detected along the door near the handle indicate the door will need to be adjusted. Remove a washer from the inside of the door frame to tighten the door seal.

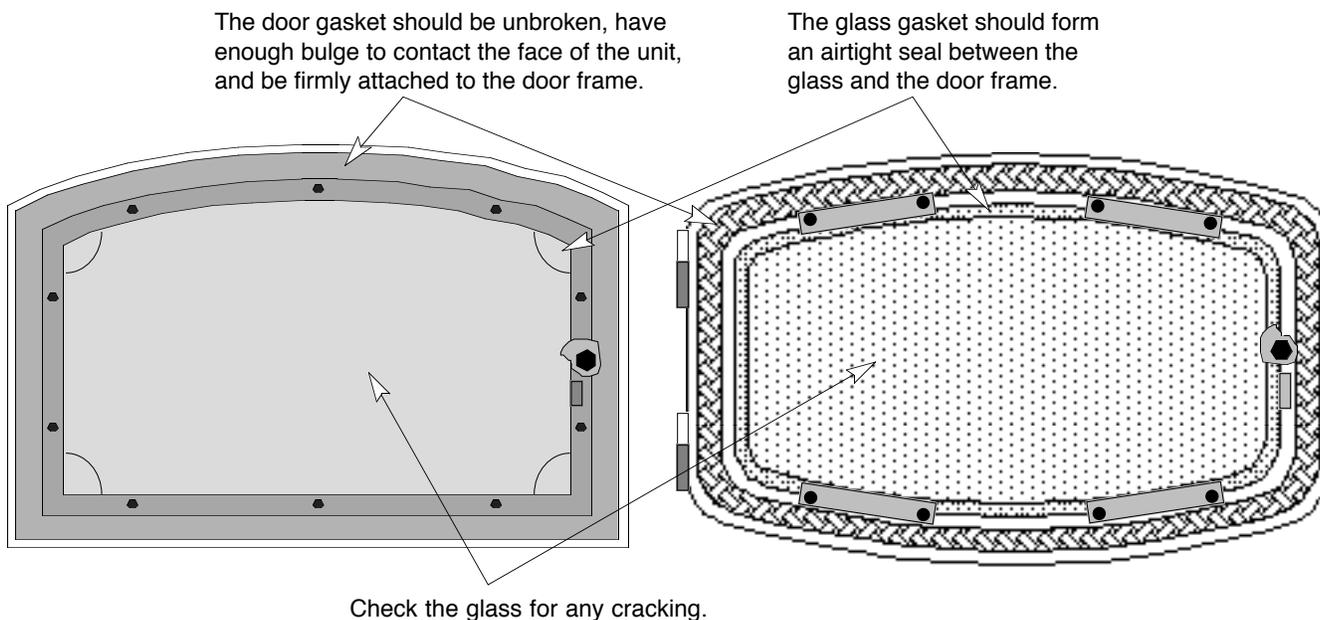


Remedy

See the instructions above.

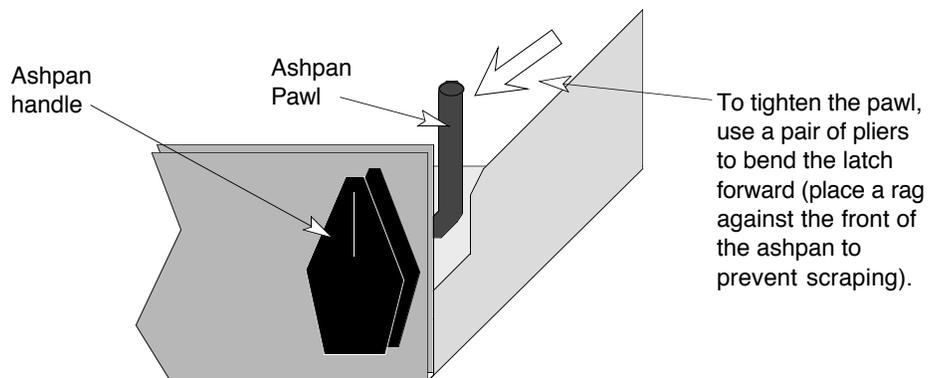
AIR LEAK (CONTINUED)

Air leaks detected along the top, bottom or right side of the door indicate a worn or flattened gasket. Either replace the gasket or "loft up" the gasket so it seals against the face of the stove.



For instructions on repairing or replacing door components, see the section "Door Diagnostics".

Air leaks detected around the ashpan indicate a loose ashpan latch or worn gasket. If the ashpan handle does not have any resistance when it is twisted to secure the ashpan, the latch will need to be tightened (see the instructions below).

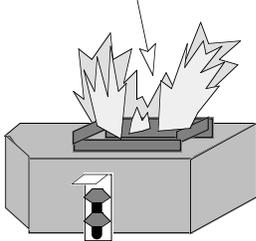
**Remedy**

See the instructions above.

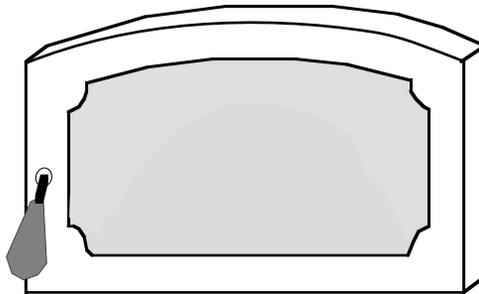
PELLETS ARE POOR QUALITY

With the surge in popularity of pellet heaters came the tremendous increase in pellet demand. Because pellets are made from wood by-products, pellet manufacturing is dependent upon the supply of these by-products and the quality found therein. Unfortunately, this surge in pellet manufacturing has led to a decline in the quality of the raw materials used to produce the pellets. Ideally, pellets should have a very low moisture, ash, dirt, and salt content. Some pellets do not. Pellets should have a consistent diameter of 1/4", 5/16", or 7 mm. Pellets should also be no longer than 1 1/2" long. Some pellets are longer. There is no real pellet monitoring agency, so you must monitor pellet quality yourself. Poor pellets may lead to the symptoms listed below.

Poor quality pellets may lead to clinkers in the firepot (look for dark spots on the burn grate while the stove is burning)



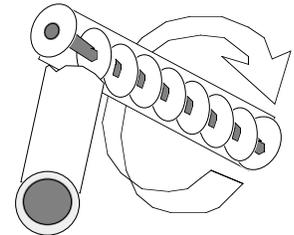
Poor quality pellets may lead to dirty glass, especially if it is black and sooty



Poor quality pellets may lead to excessive flyash, making the stove require more frequent cleaning



Poor quality pellets may lead to the auger jamming frequently

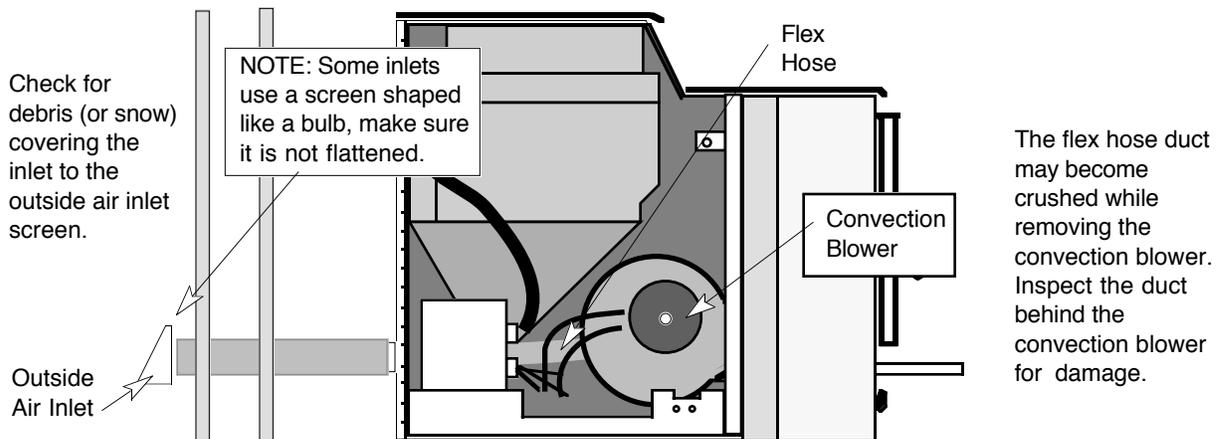


Recommendation:

Buy only 3 bags of pellets before you purchase a large amount. Burn the pellets in your pellet heater and check for these signs of bad pellets: clinkers develop in the air holes on the bottom of the firepot; the auger jams for no apparent reason, and when the hopper is cleaned out, the auger runs again; there is more than one-half cup of sawdust in the bottom of the bag of pellets; or, the pellets don't burn well on a low burn rate, and it seems the air control has to be pulled out all the way for the pellets to burn (a sign of wet or dirty pellets). It is best to check one brand of pellets versus another to see the difference first-hand. The Association of Pellet Fuel Manufacturers has set the following standards for pellets: density of at least 40 lbs. per cubic foot; 1/4" to 5/16" diameter; length no greater than 1 1/2"; 8200 BTU's/lb.; moisture under 8% by weight; ash under 1% by weight; and, salt under 300 parts per million.

AIR INLET IS BLOCKED

In very rare cases the air inlet becomes blocked or the aluminum flex hose becomes crushed. This restricts the amount of air allowed into the burnpot.



Remedy

Remove any blockage and replace any crushed flex hose.

POWER OUTAGE MAY HAVE LEAKED SMOKE INTO HOME

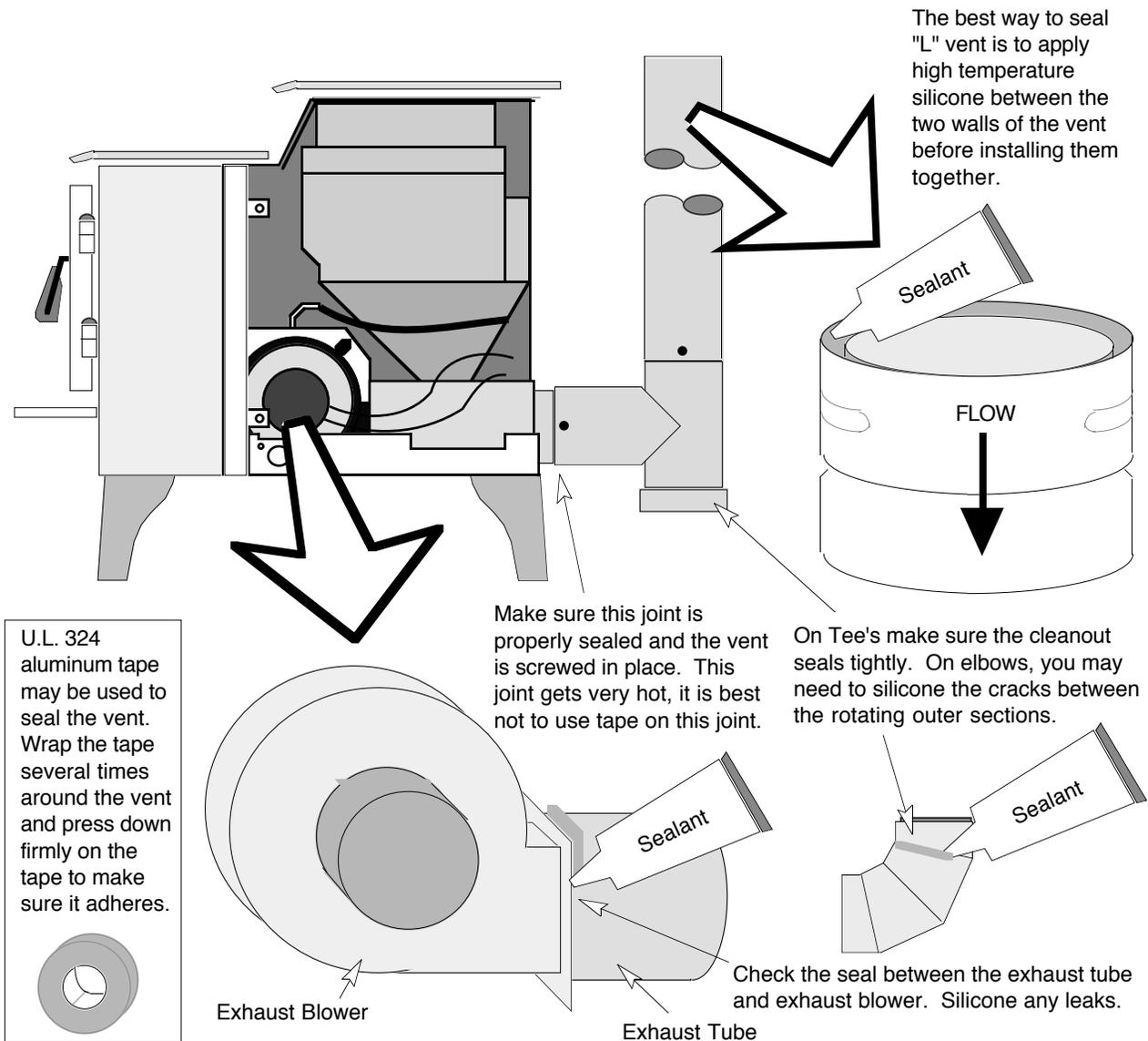
During a power outage smoke may enter the home if outside air is not used. The amount of smoke will be very small.

Remedy

This is normal. If outside air is installed, this situation can be reduced considerably.

CHECK FOR LEAKY EXHAUST SYSTEM

Due to the negative pressure design of this stove, exhaust can only leak from the unit in a location after the flue products reach the exhaust blower. In addition to the items below, check the gaskets on the exhaust tubes on pellet inserts.



NOTE: When inspecting for an exhaust leak, also check for pellet fines (pellet dust) on top of the exhaust box or tube. This may be an indication of a hopper that leaks pellet fines, and when it the fines fall on top of a hot surface, they may smolder, leading to a smoke smell in the home. Seal all leaks in the hopper.

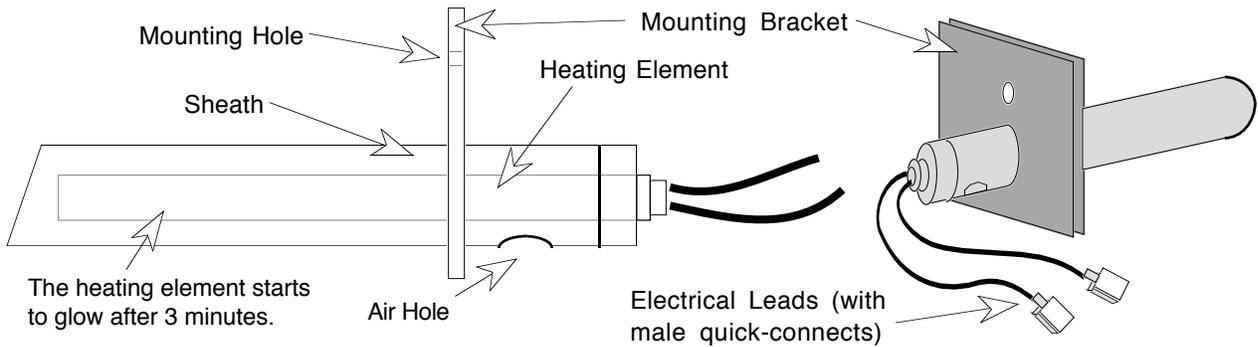
Remedy

Use high temperature silicone sealant to seal any leaks, replace any worn gaskets on pellet inserts.

IGNITER FAULTY

The igniter will start to glow approximately 3 minutes after starting. To inspect this component, remove the burnpot, turn the feed rate off, and start the stove. Look inside the small tube that inserts into the burnpot holder when it is in place. The igniter should be glowing red. If it is not, replace the igniter and check again. The fuse may have blown if the igniter is faulty (check electrical connections and wires before replacing).

NOTE: the igniter may be hotwired if you wish to check it individually (make sure to place it on a non-flammable surface).



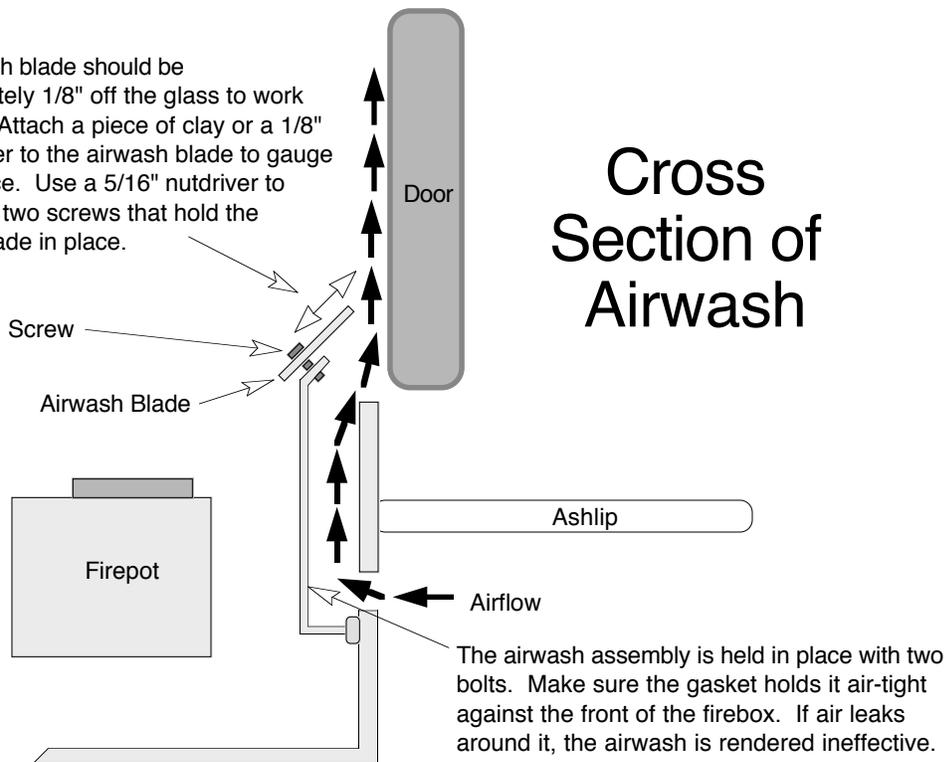
Remedy

Replace the igniter.

AIRWASH FAULTY

The airwash must be set correctly for the glass to remain clean. The steps below detail airwash adjustment and inspection.

The airwash blade should be approximately 1/8" off the glass to work correctly. Attach a piece of clay or a 1/8" thick spacer to the airwash blade to gauge the distance. Use a 5/16" nutdriver to loosen the two screws that hold the airwash blade in place.

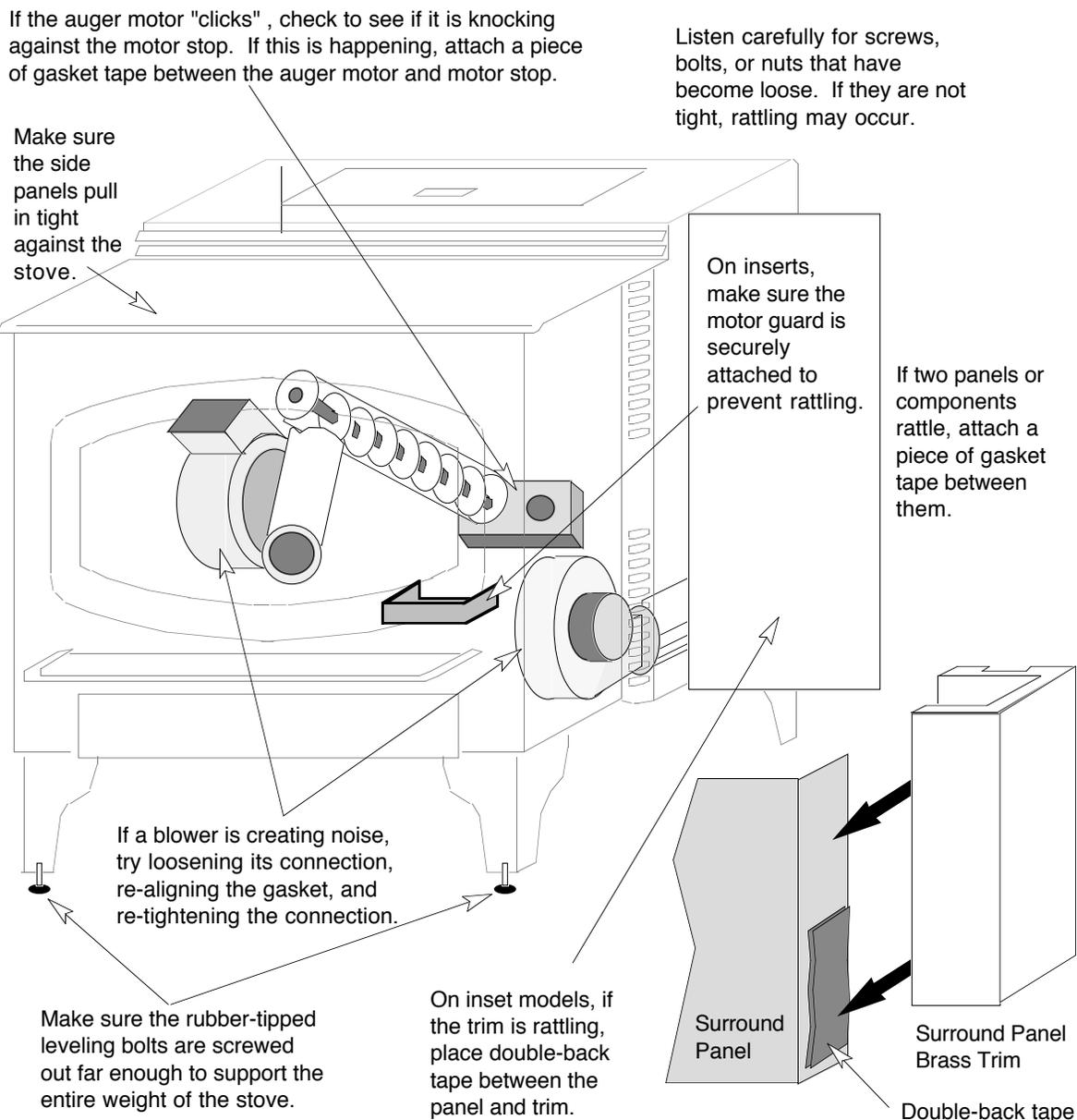


Remedy

Follow the directions above to adjust the airwash.

CHECK FOR VIBRATION, NOISY OR LOOSE COMPONENTS.

Noise may be created by several factors. Moving components (blowers or auger motors) may create noise or a vibration that leads to a rattle. The process of eliminating a noise is to identify which component is creating the noise and either securing it better, placing a piece of gasket to dampen the rattle, or replacing the component.

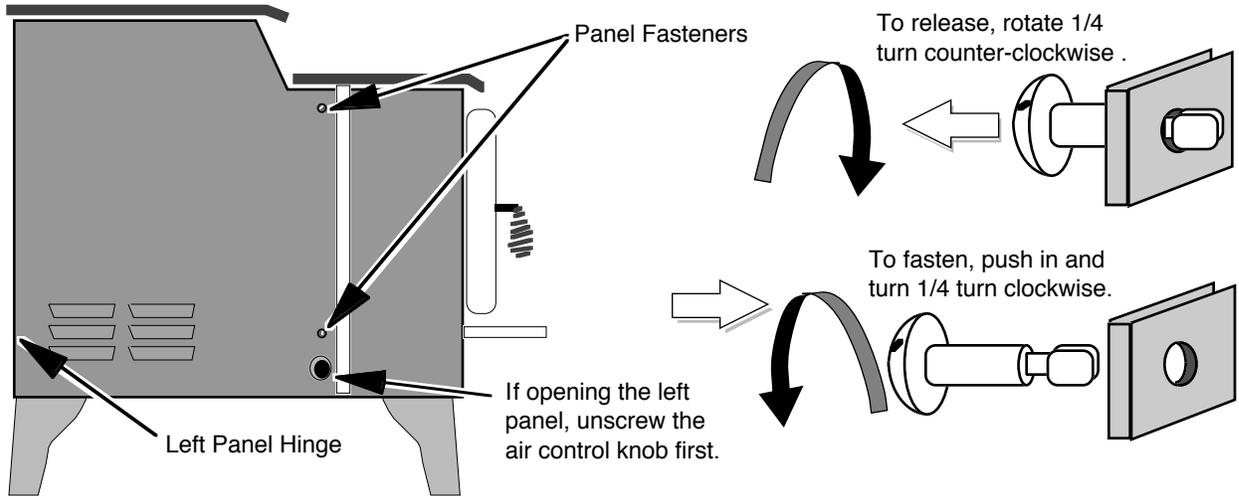


Remedy

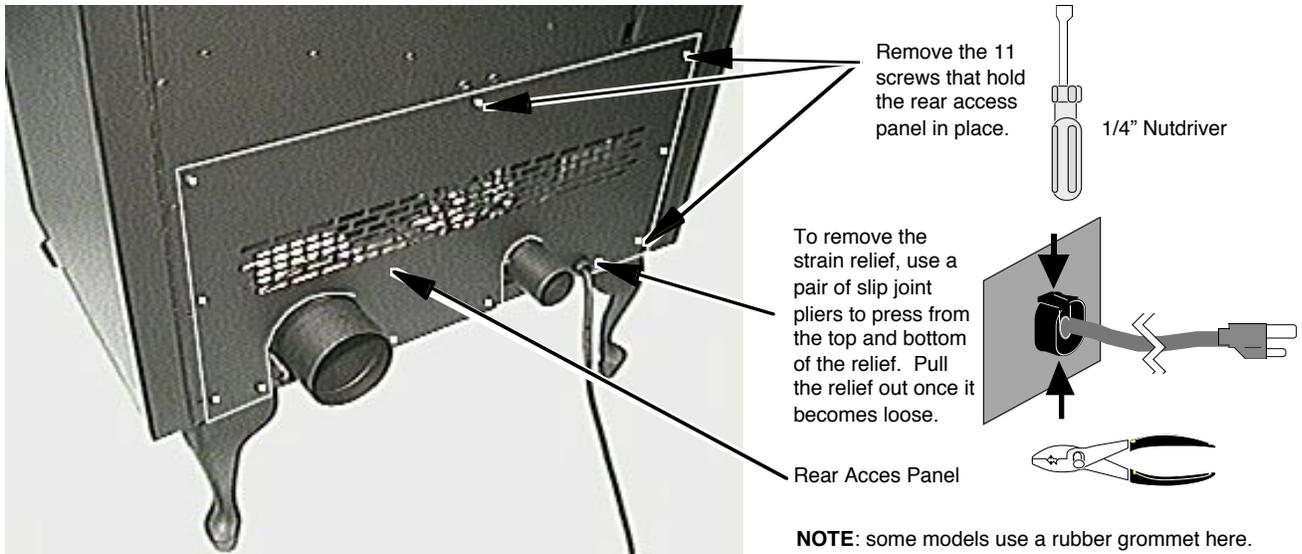
Follow the directions above.

ACCESSING INTERNAL COMPONENTS ON STOVES

On stove models the side panels are opened by unscrewing the two slot-head fasteners.



The rear access panel of the stove is removed by unscrewing the 11 screws that hold it in place.

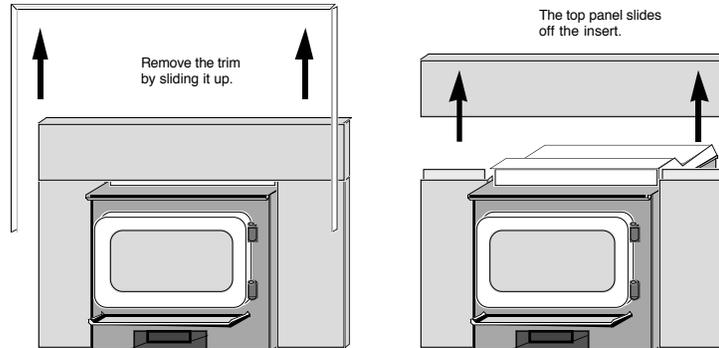


NOTE: some models use a rubber grommet here. The grommet is best removed by sliding it out (you may wish to lubricate it with light oil first).

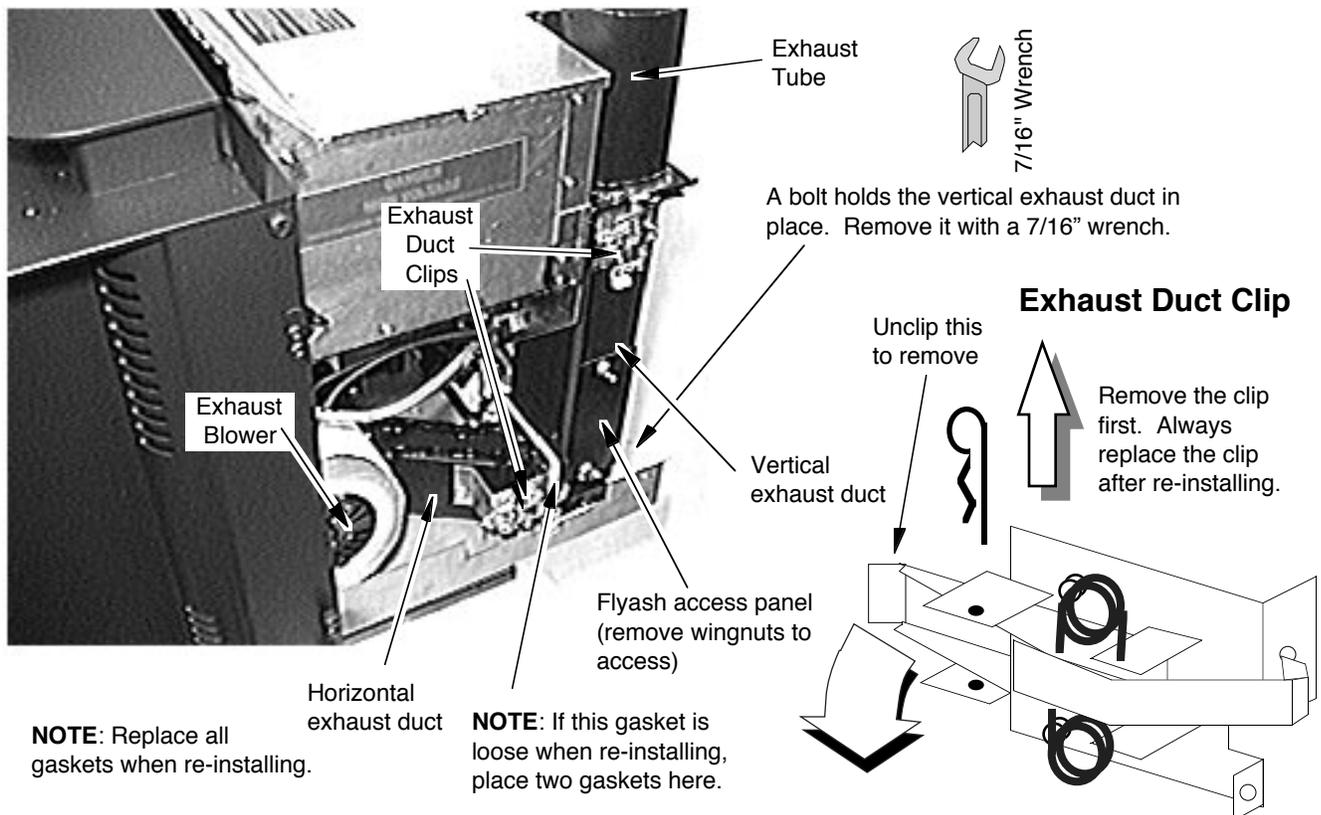
ACCESSING INTERNAL COMPONENTS ON INSERTS

Servicing pellet inserts requires the removal of the insert from the fireplace. The directions below detail one method of removal.

1. Remove the brass trim from the surround panels (if applicable).
2. Remove the top panel from the insert by pulling it upwards.



3. Reach in on the right side and disconnect the clamp that holds the horizontal exhaust duct to the exhaust vent. There may be a locking clip attached through the clamp. This clip requires removal before the clamp can be loosened. If this can not be accessed, remove the side panels (on Avalon inserts the panels are lifted up, Lopi inserts require the ashlip to be removed – see the owner's manual for instructions).



4. With the clamp loosened and the panels removed, the insert can then be pulled from the fireplace. Remove the insert far enough to access internal components.

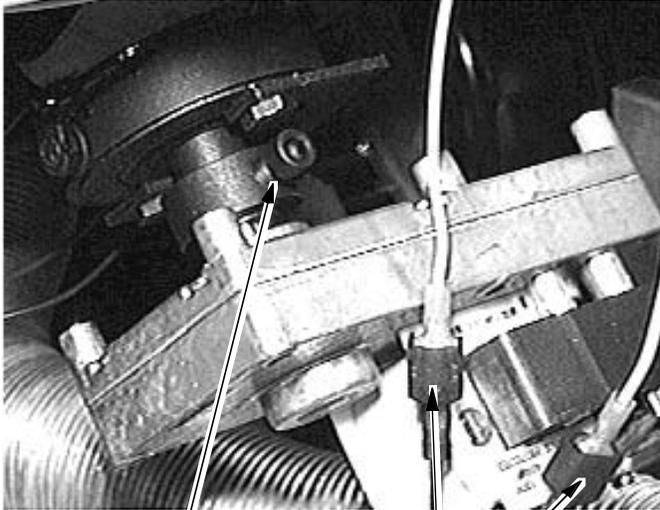
NOTE: When replacing the exhaust duct, check the following items to insure there is no smoke spillage:

- Exhaust ducts must be properly aligned
- Both clamps must be fully closed and pins inserted
- All gaskets must be intact and form an air-tight seal.

AUGER MOTOR

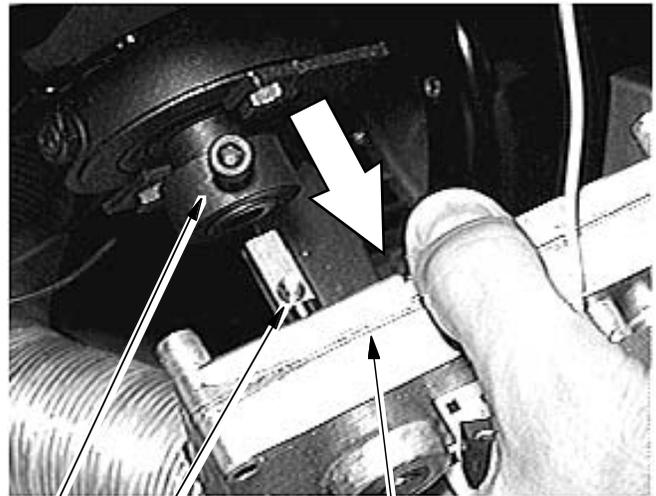
There are different auger motors for the insert and freestanding models. Specify the correct motor when replacing.

1. Access the rear of the heater.
2. Disconnect the two wires leading to the auger motor.
3. Locate the lock screw on the drive collar and loosen it a couple of turns. You may wish to hotwire the auger motor to rotate the lock screw until it is easy to access.



Loosen the lock screw until the auger motor can be pulled free.

Disconnect the two quick connects leading to the auger motor.

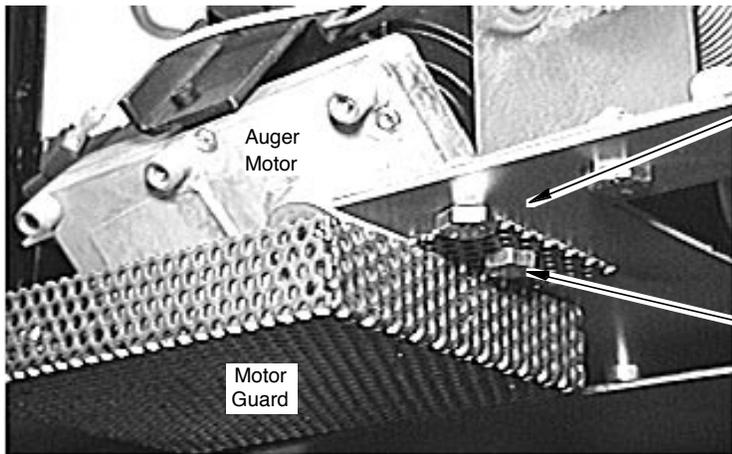


Drive Collar

NOTE: This dimple must line up with the lock screw when re-installing..

Pull the auger motor from the drive collar

4. On inserts, elevate the rear of the insert at least 3". Use a 7/16" wrench to remove the two bolts that hold the motor guard in place.

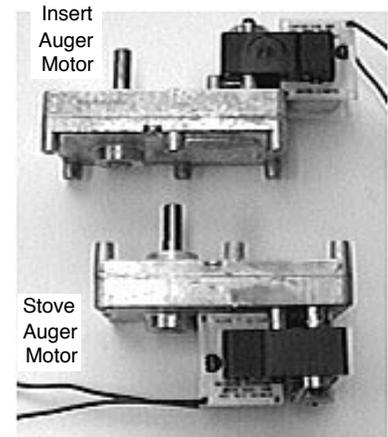


Auger Motor

Motor Guard

Prop up the rear of the insert to access the motor guard.

Remove the two bolts that hold the motor guard in place with a 7/16" nutdriver.



Insert Auger Motor

Stove Auger Motor

5. Slide the auger motor away from the motor stop and out of the stove.

AUGER TUBE

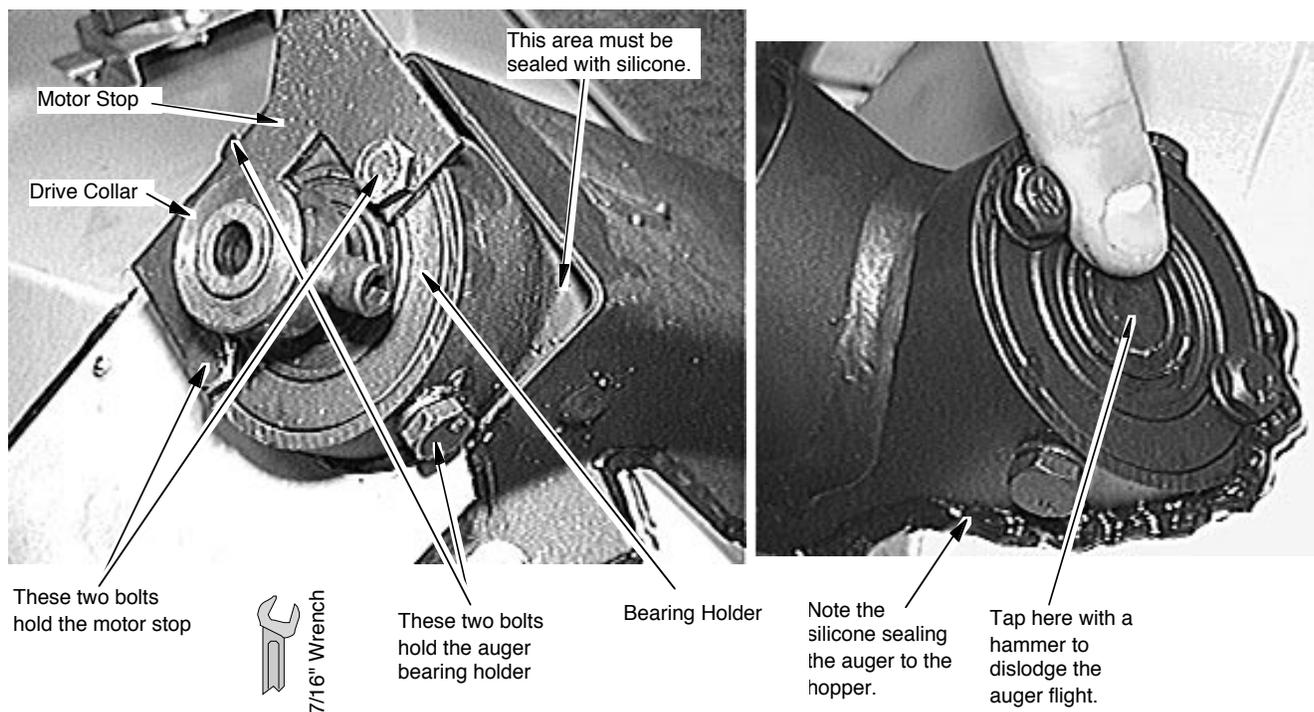
Rarely does the auger tube require removal or replacement. Only in cases in which the auger flight can not be removed from the auger tube should the auger tube be removed and replaced. The auger tube is attached to the hopper and sealed in place with silicone.

1. Remove the hopper.
2. Access the inside of the hopper (on inserts the hopper cover plate will need to be removed). Remove the screws that attach the auger tube to the hopper.
3. Peel the auger tube away from the hopper. Silicone is used to seal the auger tube to the hopper. When replacing the auger tube, apply high-temperature silicon to the perimeter to insure a good seal.

AUGER FLIGHT

Rarely does the auger flight require removal. Jammed augers can usually be freed by inserting a piece of wire up the feed tube to dislodge stuck pellets (see "Auger is Jammed"). Augers that are extremely jammed may not be freed by this method. In these cases, remove the auger motor and manually turn the auger flight (use an allen wrench inserted into the lock screw or a pipe wrench on the drive collar). If this does not work, remove the hopper and try to dislodge pellets with the hopper upside down. If this does not work, remove the auger flight, following the directions below.

1. Remove the hopper from the heater.
2. Remove the auger motor.
3. Place the hopper upside down against a work surface.
4. Remove the four bolts that hold the motor stop and auger bearing holder in place.

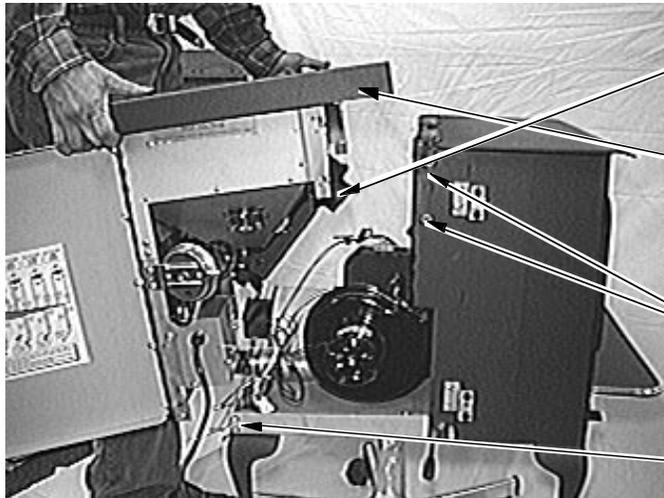


5. Grasp the auger shaft and pull it from the auger tube. If it does not come free, use a hammer and punch to gently tap the auger shaft out of the auger tube from the opposite end. **NOTE:** A pipe wrench may be used on the drive collar to turn the auger and aid in removal.

HOPPER

900 PS

1. Remove all pellets from the hopper. Open both side panels. Remove the rear access panel.
2. Disconnect all wiring leading to the auger motor, hopper snap disk, flow switch, and control box (both molex plugs). Disconnect the flow switch tube from the flow switch. Detach all wiring that is quick-tied or held to the hopper **NOTE:** During re-assembly, it is very important to re-attach this wiring and pull in all slack. If wiring comes in contact with hot portions of the heater or becomes tangled with the auger motor, an electrical short may occur.
3. Follow the instructions below for removing the hopper.



On the Foxfire (400 PS)

Loosen the bolt on the auger drop tube (use a 7/16" socket wrench). Remove the two nuts underneath the top plate with a 5/16" nutdriver.



On the 900 PS

Remove the two bolts here with a 7/16" wrench.

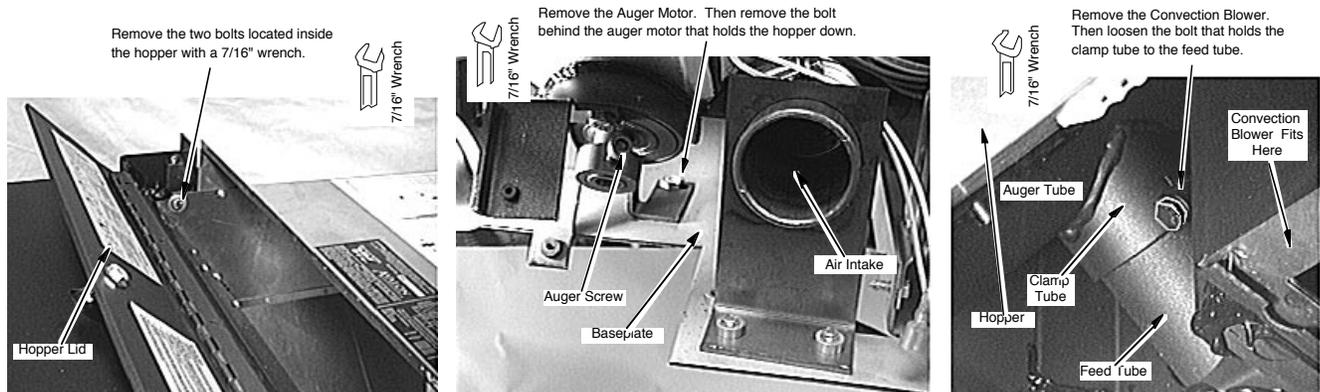


Remove the two bolts here with a 7/16" wrench.

4. Lift the hopper, with side panels attached, off the feed tube and place it to the side. The hopper may require slight twisting to remove the auger clamp tube from the feed tube on the stove.

900 PI, Foxfire (400 PS) and Foxfire PI

1. Remove all pellets from the hopper. Remove the vertical exhaust adapter.
2. Disconnect all wiring leading to the auger motor, hopper snap disk, flow switch, and control box (both molex plugs). Disconnect the flow switch tube from the flow switch. Detach all wiring that is quick-tied or held to the hopper **NOTE:** During re-assembly, it is very important to re-attach this wiring and pull in all slack. If wiring comes in contact with hot portions of the heater or becomes tangled with the auger motor, an electrical short may occur.
3. Follow the instructions below for removing the hopper.

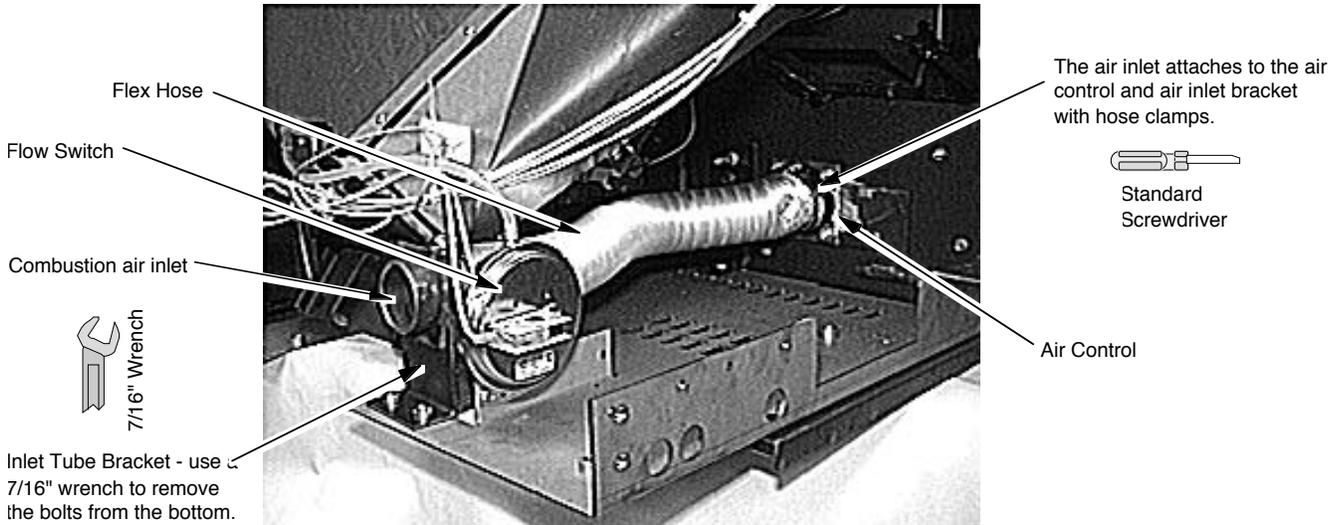


4. Lift the hopper off the feed tube and place it to the side. The hopper may require slight twisting to remove the auger clamp tube from the feed tube on the insert.

AIR INLET

The air inlet routes combustion air to the air control.

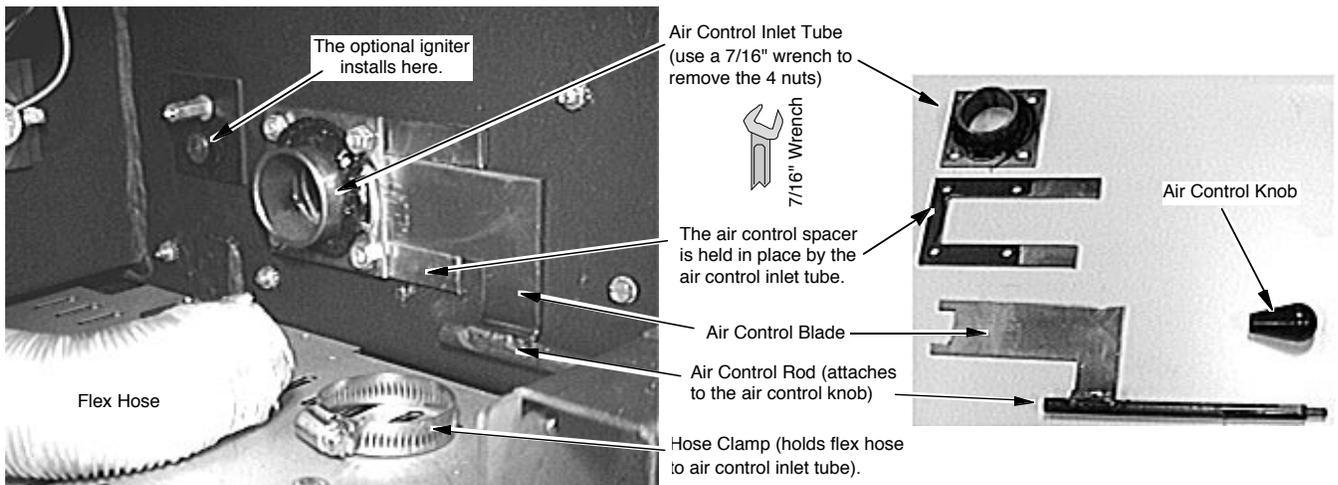
1. Remove the convection blower.
2. See the illustration below for instructions on removing the air inlet components.



AIR CONTROL

The air control adjusts the amount of combustion air that enters the firepot.

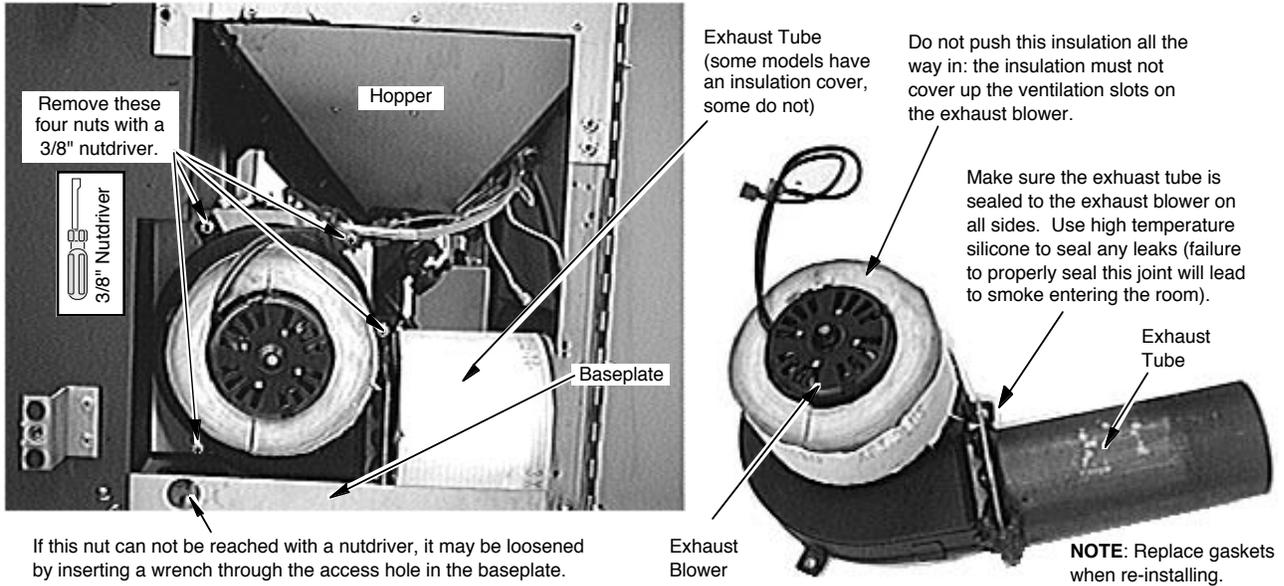
1. Remove the convection blower.
2. See the illustration below for instructions on removing the air control components.



EXHAUST BLOWER AND EXHAUST TUBE

900 PS and Foxfire

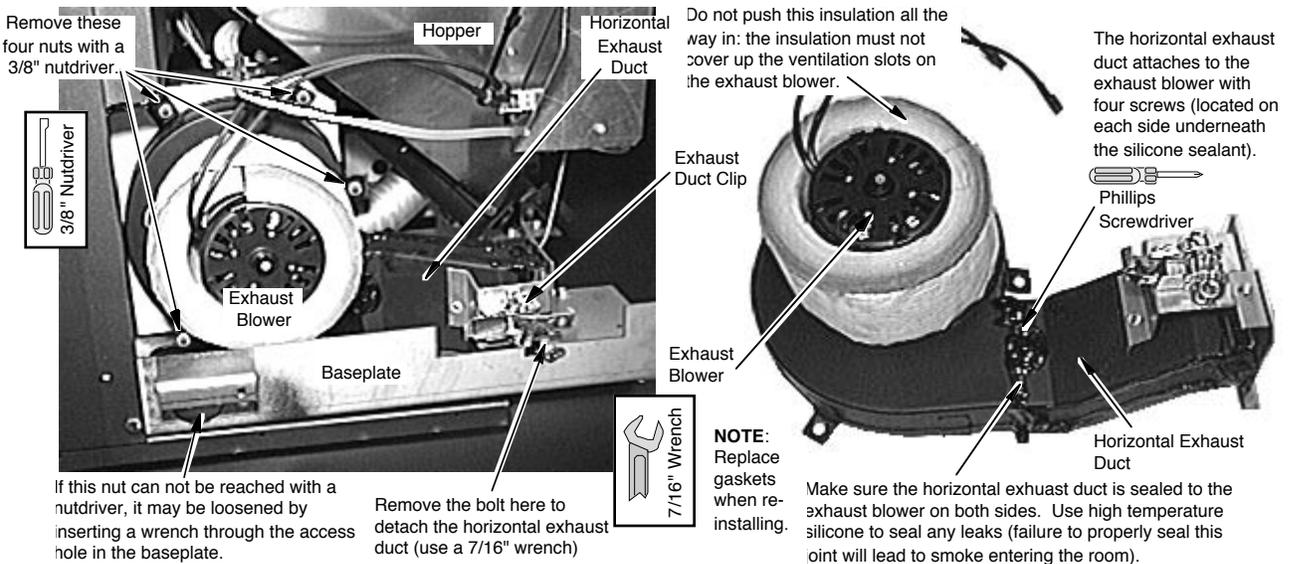
1. Detach the pellet vent from the stove. Open the right side panel.
2. Disconnect the two electrical leads to the exhaust blower (the orientation does not matter when re-attaching). Follow the directions below to disconnect the exhaust blower.



3. Pull the exhaust blower, with exhaust tube still attached, from the stove.
4. Before replacing, make sure the exhaust blower seals to the exhaust tube (use high temperature silicone). Also check the exhaust gasket to make sure it seals the exhaust blower to the exhaust box.

900 PI and Fox Fire Bay

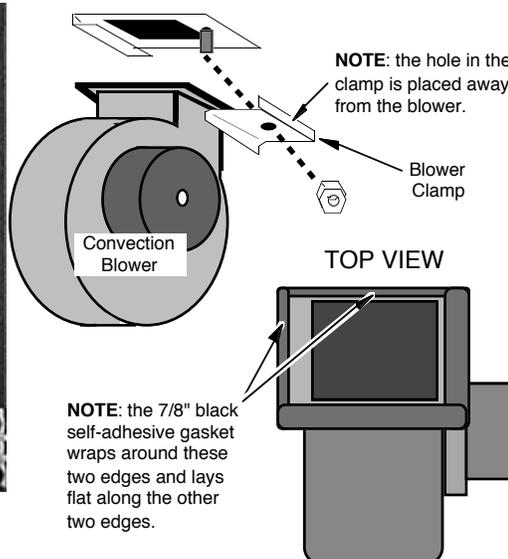
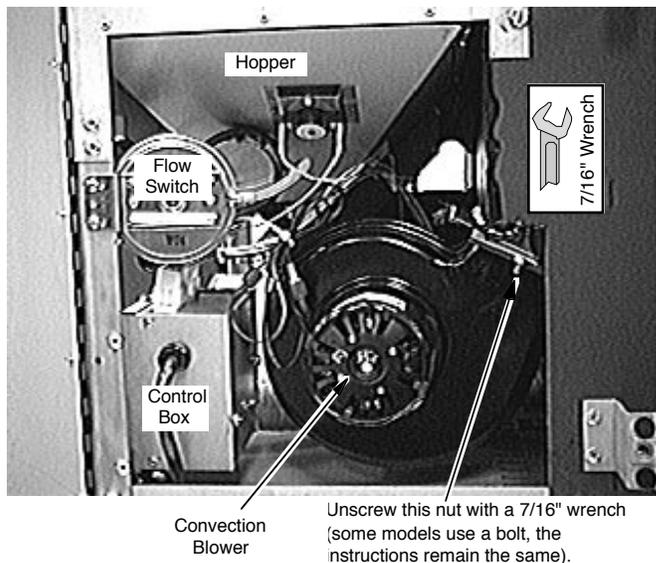
1. Remove the vertical exhaust duct from the insert.
2. Pull the insert out of the fireplace to access the right side. Follow the directions below:



3. Pull the exhaust blower, with exhaust tube still attached, from the stove.
4. Before replacing, make sure the exhaust blower seals to the horizontal exhaust duct (use high temperature silicone). Also check the exhaust gasket to make sure it seals the exhaust blower to the exhaust box.

CONVECTION BLOWER

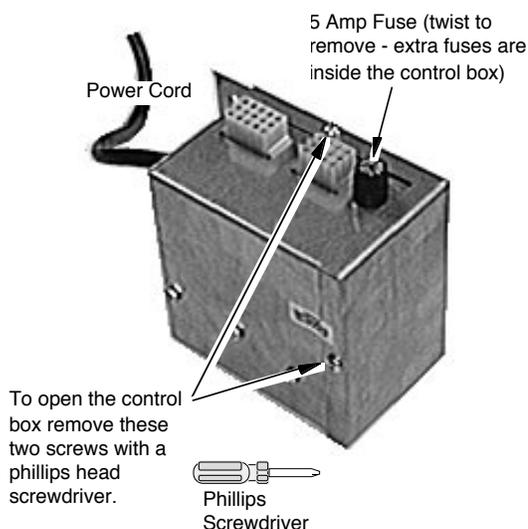
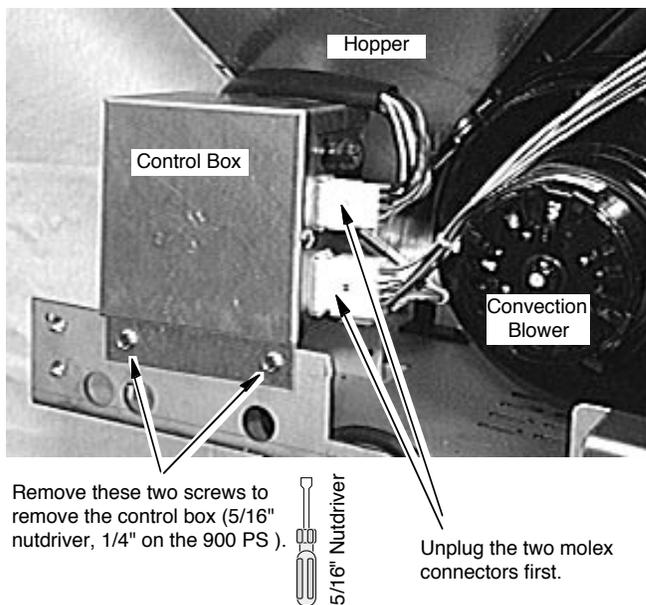
1. Access the left side of the heater.
2. Disconnect the two wires leading to the convection blower
3. Unscrew the nut that holds the convection blower in place with a 7/16" wrench (some models use a bolt - the instructions remain the same).



4. The blower is removed by swinging it inwards and sliding it out (see the illustration below). When replacing the blower, make sure the gasket is intact and the clamp is correctly oriented.

CONTROL BOX (INCLUDES FUSES)

1. Access the left side of the heater.
2. Disconnect the two mox connectors that attach to the side of the control box.
3. Remove the two screws that attach the control box with a 5/16" nutdriver.



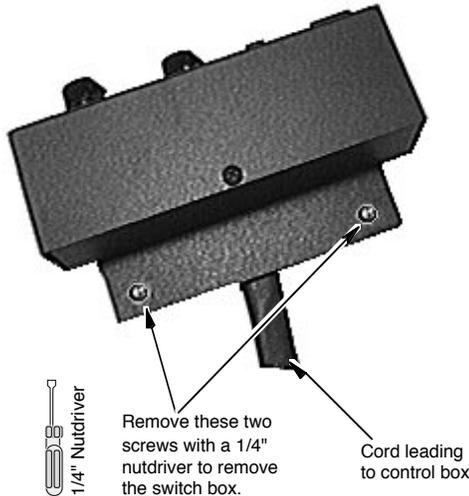
NOTE: To access the internal components of the control box, remove the cover plate on the control box. It is held in place with two phillips-head screws.

SWITCH BOX

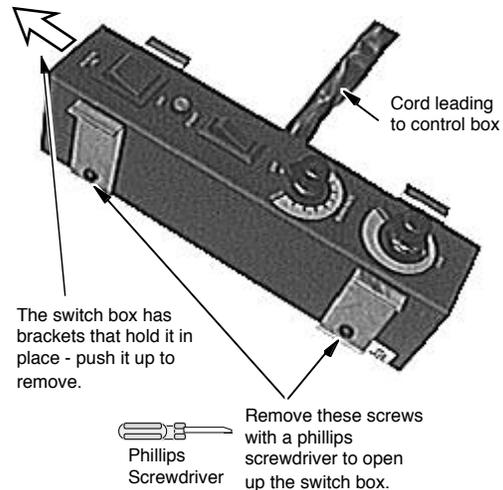
900 PS and Foxfire PS

1. Access the left side of the heater and disconnect the top molex connector from the control box that leads to the switch box.
2. On stoves, unscrew two attachment screws. For inserts, slide the switch box upwards from its holder.
3. Carefully route the cord and molex connector from the switch box away from the heater.

**900 PS and Fox Fire
Switch Box**

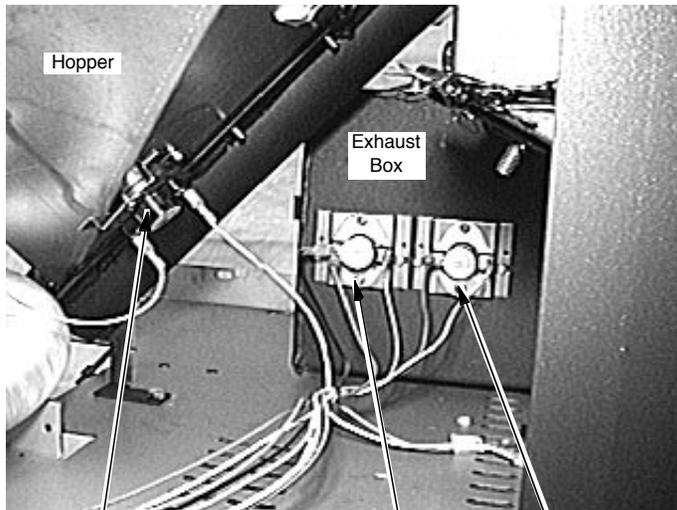


**900 PI and Fox Fire Bay
Switch Box**

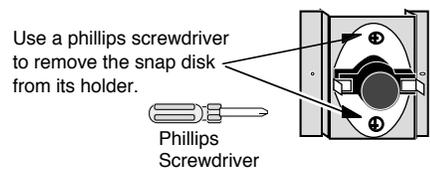


HOPPER, CONVECTION, AND SYSTEM SNAP DISKS

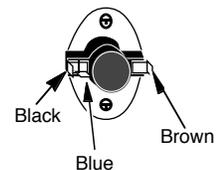
1. Access the left side of the heater.
2. Remove the convection blower (this is not necessary to access the 900 PS hopper snap disk).
3. The snap disk is removed from its holder with a phillips screwdriver.



Hopper Snap Disk (on the 900 PS it is located on the left side of the hopper) System Snap Disk Convection Snap Disk



NOTE: Orientation of the wires leading to each snap disk does not matter, except the system snap disk.



System Snap Disk Markings:	Hopper Snap Disk Markings:	Convection Snap Disk Markings:
203541 T-O-D 60T13 9315 L120-15F	610016 T-O-D 60T11 9312 L200-40F	610046 T-O-D 60T12 9305 F120-10F

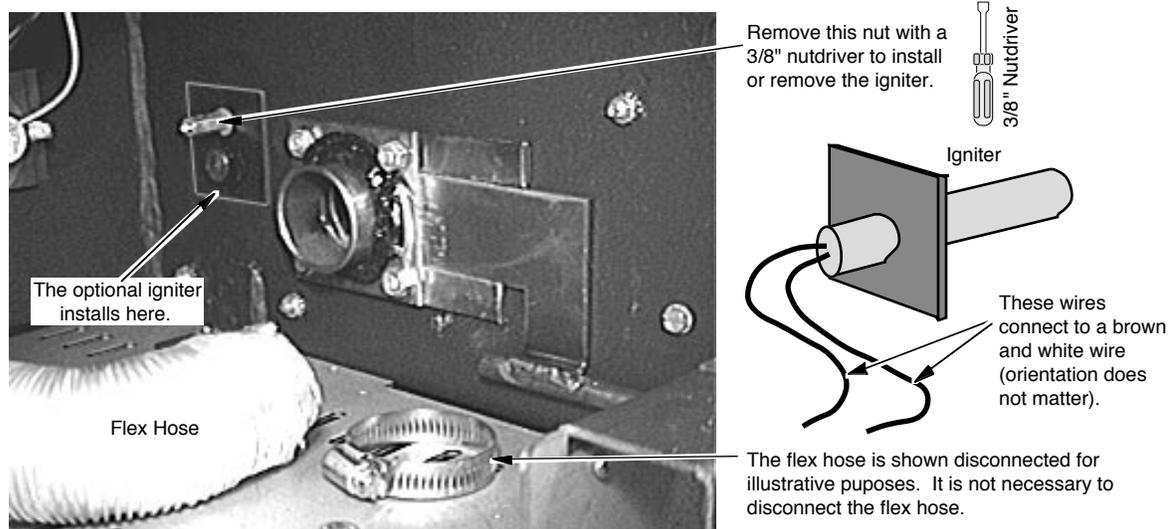
4. When replacing, make sure to correctly connect the wires to the system snap disk.

IGNITER

The optional igniter comes on for 15 minutes after the start button is pressed. Then it turns off until the heater is re-started. If removed, the original plate used to seal the hole for the igniter must be replaced. It is available in the post-1993 pellet stoves listed below:

- AVALON 900 PS with serial # 4300 or greater
- LOPI Fox Fire (400 PS) with serial # 5900 or greater
- AVALON 900 PI with serial # 11500 or greater
- LOPI Fox Fire Bay (400 PI) with serial # 17700 or greater

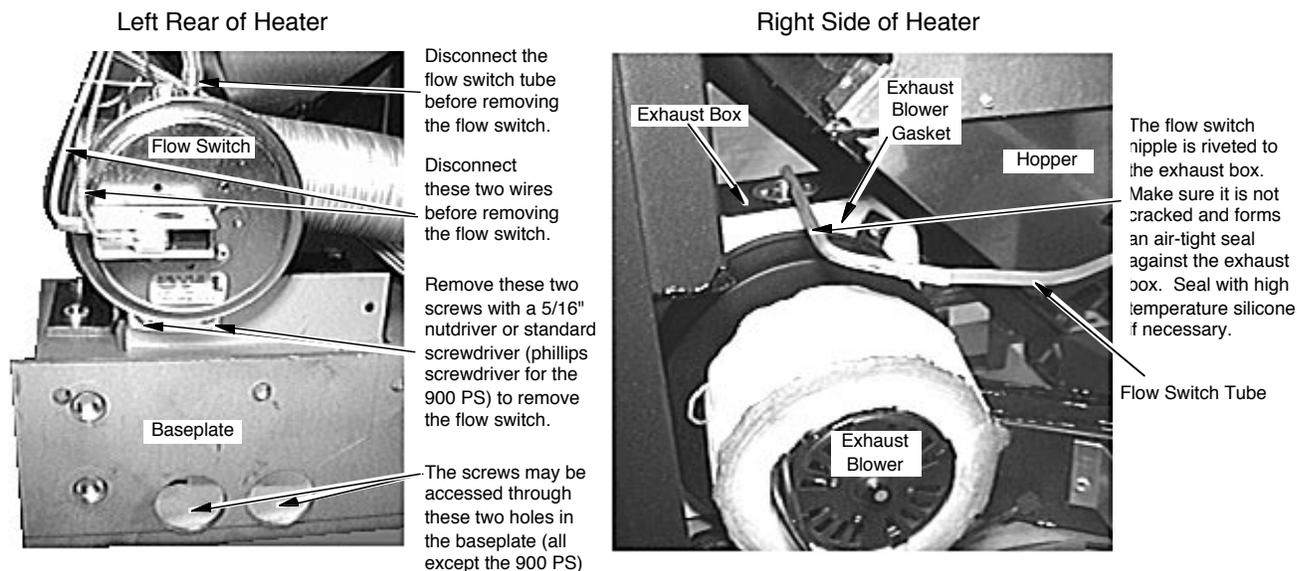
1. Remove the convection blower.
2. Behind the flexible tube you will find the igniter.



FLOW SWITCH, FLOW SWITCH TUBE, FLOW SWITCH NIPPLE

The flow switch, flow switch tube, and flow switch nipple work together to sense negative pressure inside the exhaust box. If no pressure is sensed at the flow switch it will disable the auger motor.

1. The flow switch is located at the rear left of the heater and is held in place with two screws (use a 5/16" nutdriver on all models except the 900 PS, which uses a phillips screwdriver).
2. The flow switch nipple is located above the exhaust box (the exhaust blower attaches to the exhaust box).



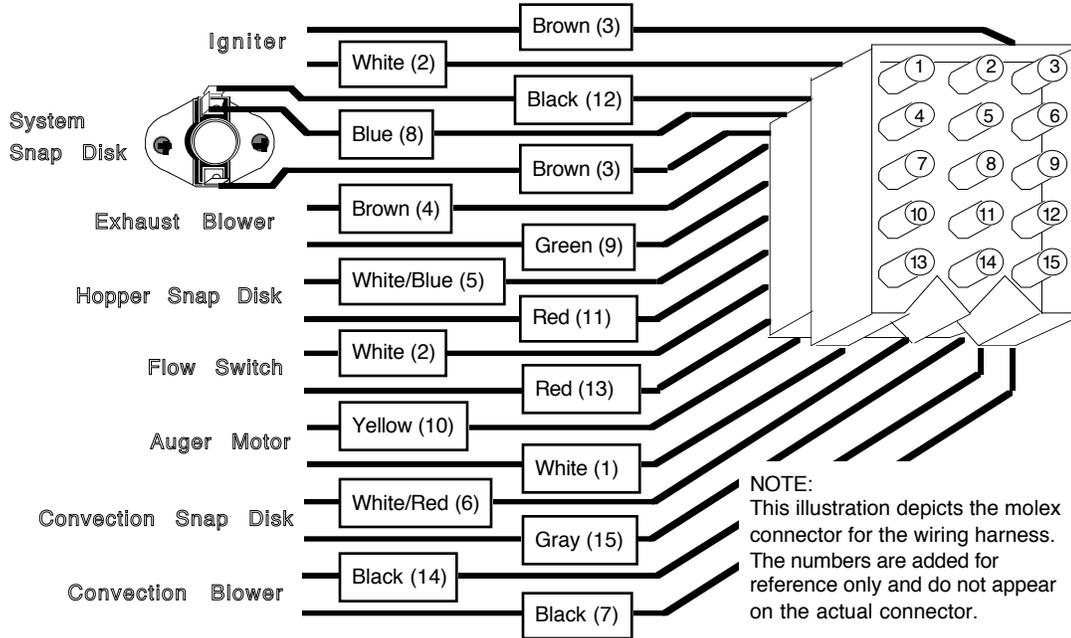
WIRING HARNESS

The wiring harness is a one-piece component that routes the electrical circuits through the internal components. When replacing the wiring harness make sure to check the following:

- Make sure no wires come in contact with the blowers, exhaust tube, exhaust ducts, or exhaust box.
- Tighten wires so they do not become tangled in the auger motor screw (use wire hangers and lock-ties).
- Make sure all wires are connected to the correct component - see the illustration below.

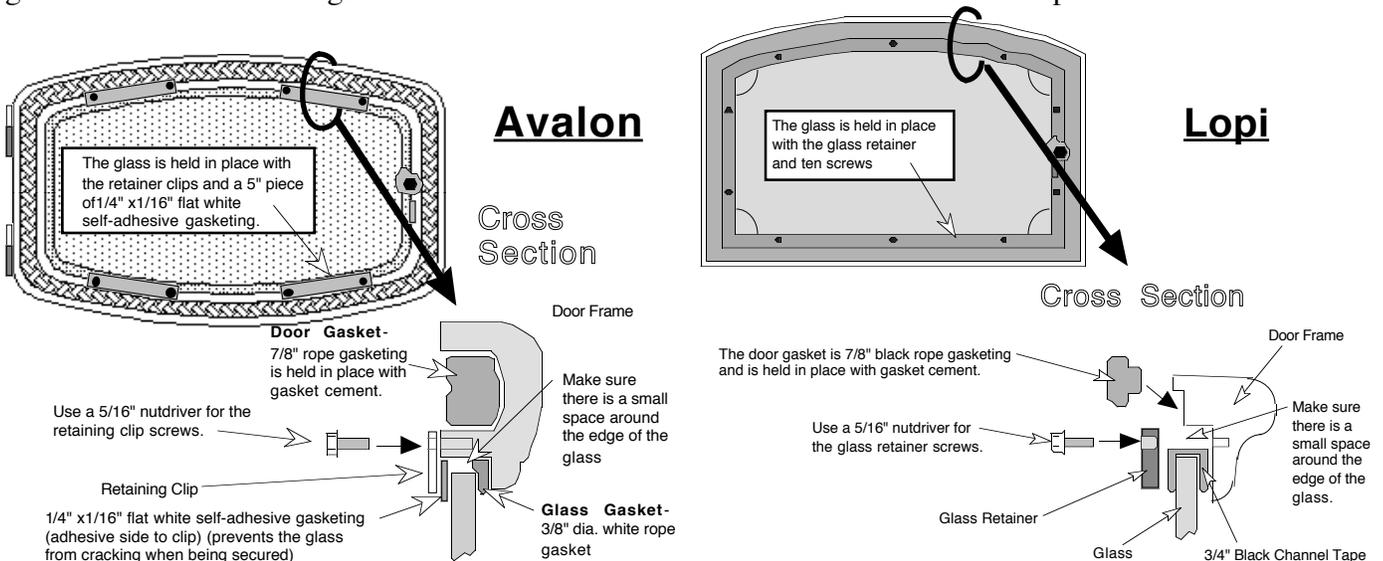
NOTE:

The number in parenthesis corresponds with the numbers placed on the molex connector to the right. The orientation of the wires (except for system snap disk) does not matter when attaching to the components. The system snap disk must be connected as shown below.



DOOR

A door with an old or damaged gasket will leak air into the firebox, causing decreased performance. Check the door gasket to make sure it compresses against the face of the heater when the door is shut. The glass gasket must form an air-tight seal. The illustrations below detail the Avalon and Lopi doors.



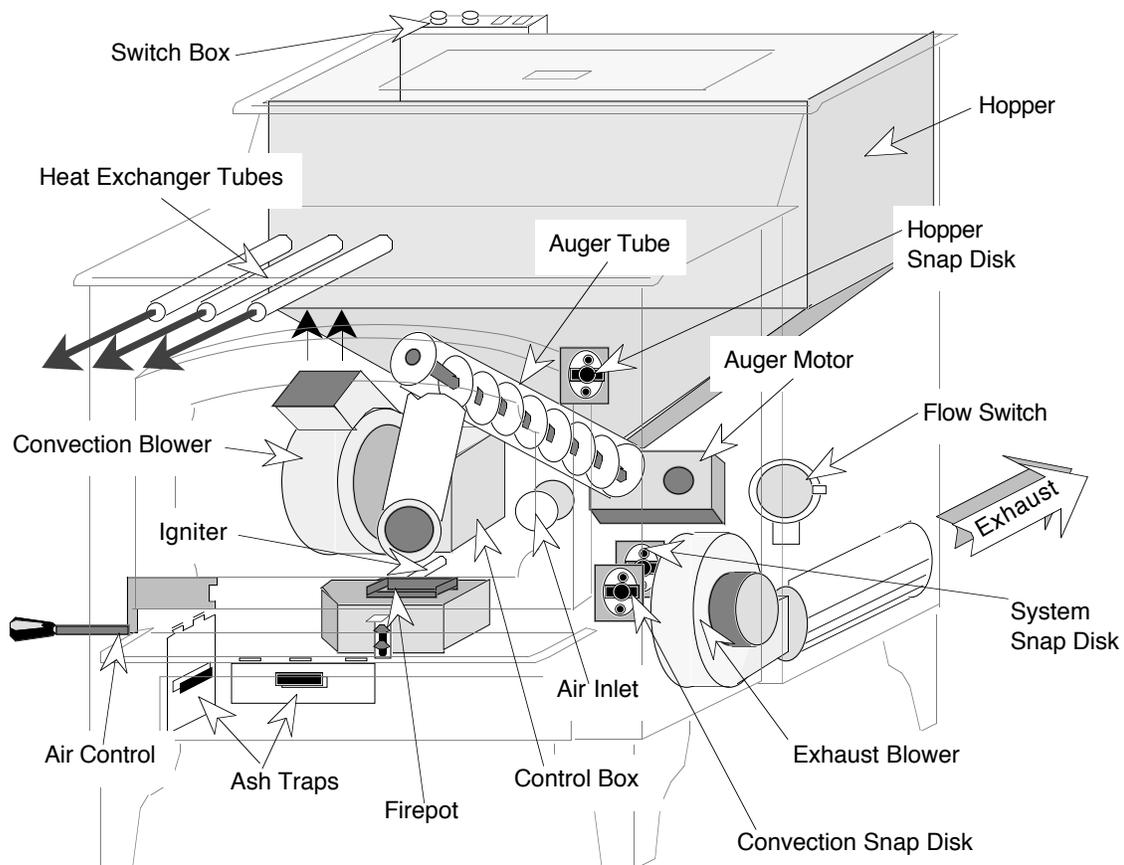
DETERMINING WHICH SYSTEM IS FAULTY

A pellet heater is best thought of as a combination of four systems working together to burn pellets and transfer heat to the room. It will only burn when there is an acceptable amount of air, pellets, and heat present in the firepot. Air is supplied through the **Air/Exhaust System**. Pellets are supplied through the **Pellet Feed System**. Heat comes from combustion and is transferred to the room through the **Convection Heat System**. The last system is the **Safety System**. If any one of these systems does not work correctly, the heater may not work efficiently, start up, or run continually. When troubleshooting any problem with the stove, it is easiest to determine which system is not working correctly and then go through each component of that system until the problem is found. The tables below lists the major components of each system and tips for troubleshooting the heater (see the illustration below for each component's location and appearance).

Air/Exhaust System

Consists of:	Purpose:	Possible Problems
Air Inlet, Flex Hose	Provides air for combustion	Flex Hose crushed or blocked
Air Control	Adjusts the amount of air going to the firepot	Adjusted incorrectly or does not slide in and out all the way
Firepot	Holds pellets during combustion	Firepot holder is on incorrectly, clinkers formed on firepot grate
Firebox (not pictured)	Provides a chamber for combustion	Air leaks - check the door seal, ashpan seal Airwash assembly sealed (check gasket).
Ash Traps	Trap flyash	Ash piled up and not cleaned out
Exhaust Blower	Pull air through firepot and push flue gases out flue	Ash piled up and not cleaned out

HINT: This system is the hardest to troubleshoot and crucial to the heater's operation. It must be air-tight through the entire chain of components. The most common problem is an air leak into the firebox. This will rob air from the firepot, making combustion incomplete.



DETERMINING WHICH SYSTEM IS FAULTY

Pellet Feed System

Consists of:	Purpose:	Possible Problems
Hopper	Stores pellets	Debris caught in mouth of auger tube
Auger Motor	Turns the spiraled auger flight	Not correctly attached
Auger Tube	Pushes pellets to feed tube	See the section "Jammed Auger"
Switch Box	Determines the feed rate	Faulty potentiometer (the component next to the label "BURN RATE") (replace box and check)
Control Box	Turns the auger on and off	Faulty auger timing block (replace box and check)

Convection Heat System

Consists of:	Purpose:	Possible Problems
Convection Blower	Pushes air into heat exchanger tubes	Dirty - this component works in conjunction with the convection snap disk to turn on and off when the heater is up to temperature.
Heat Exchanger Tubes	Draws the heat off of the fire	If ash is found on inside of these tubes, there may be an exhaust leak inside the stove - check for an air-tight seal on the exhaust blower, exhaust tube, and exhaust vent
Switch Box	Determines the convection blower speed	Faulty rheostat (the component next to the label "FAN") (replace box and check)

Electronic Safety System

Consists of:	Purpose:	Possible Problems
Hopper Snap Disk	Turns the heater off for overheating	Faulty component (replace component and check)
Flow Switch	Turns the heater off for blocked vent or exhaust blower failure	Faulty component (replace component and check)

IN ADDITION TO THE ITEMS LISTED ABOVE, HEATERS ALSO INCLUDE THE FOLLOWING SYSTEMS FOR CONVENIENCE PURPOSES

Start Up and Auto Turn Off Feature

Consists of:	Purpose:	Possible Problems
System Snap Disk	Turns the heater off if the heater does not reach operating temperature. This component also shuts off the exhaust blower when the heater goes out.	Faulty component (replace component and check)

Auto Ignition Feature

Consists of:	Purpose:	Possible Problems
Igniter	This heating element super-heats air entering the firepot during startup, igniting the pellets	Faulty component (replace component and check)

THE 5 MOST COMMON PROBLEMS

- Air leaks
- Heaters requiring cleaning (especially in manifold and exhaust blower area)
- Blocked or Restricted Vent (or installed improperly)
- Poor quality pellets
- Jammed Auger (pellet jammed in top of auger tube)

The following list of replacement parts is divided into sections which correspond to the location or function of the parts. The "Mod." column indicates whether the part applies to a stove (St), insert (Ins), or both (All). Those parts which are unique to a production series will have the serial number range following the part. Parts with no ending serial number shown are current production parts (as of print date). If a serial number range is not shown, that part is common to all models. Certain parts are covered under warranty to the original purchaser. The warranty period in years from date of purchase for that part is indicated in the column marked "Warr.". Proof of purchase is required for claims within the warranty period.

Name Of Part	Avalo					Lopi				
	Mod.	Start Serial #	End Serial #	Part #	Warr.	Mod.	Start Serial #	End Serial #	Part #	Warr.
Firebox Parts:										
Fire Pot, Holder Welded Assembly	St	1002	1501	0013-90	1 Yr	St	1005	1779	0013-90	1 Yr
Fire Pot, Removable Cup	St	2500		1291-91	1 Yr	St	2501		1291-91	1 Yr
Fire Pot, Holder Only ("The Forge")	Ins	10003		1291-91	1 Yr	Ins	15005		1291-91	1 Yr
Fire Pot Holder	St	2500		1292-91	1 Yr	St	2501		1292-91	1 Yr
Horizontal Ex. Duct 19" Long	St	2500	3017	1298-A91	1 Yr	St	2501	3790	1293-L91	1 Yr
Horizontal Ex. Duct 17.50" Long	St	3018	4121	1293-92	1 Yr	St	3803	5707	1293-92	1 Yr
Horizontal Ex. Duct 17.50" Long	St	4122		1293-93	1 Yr	St	5708		1293-93	1 Yr
Horizontal Ex. Duct 17.50" Long	Ins	10003	10520	1293-A91	1 Yr	Ins	15005	15895	1293-91	1 Yr
Horizontal Ex. Duct 17.50" Long	Ins	11003	11405	1293-92	1 Yr	Ins	15896	17654	1293-92	1 Yr
Horizontal Ex. Duct 17.50" Long	Ins	11406		1293-93	1 Yr	Ins	17655		1293-93	1 Yr
Hori Ash Doors (Tall Ex) 1293-93 (2 Pc)	St	4122		1280-93	1 Yr	St	5708		1280-93	1 Yr
Hori Ash Doors (Tall Ex) 1293-93 (2 Pc)	Ins	11406		1280-93	1 Yr	Ins	17655		1280-93	1 Yr
Ash Doors For Hori, (Set Of 2)	St	2500	3017	1294-91	1 Yr					
Vert Exh Duct Left Side	St	3018	4121	1294-92	1 Yr	St	2501	3790	1294-91	1 Yr
Vert Exh Duct Left Side	St	4122		1294-93	1 Yr	St	3803	5707	1294-92	1 Yr
Vert Exh Duct Left Side	Ins	10003	10520	1294-91	1 Yr	St	5708		1294-93	1 Yr
Vert Exh Duct Left Side	Ins	11003	11405	1294-92	1 Yr	Ins	15005	15895	1294-91	1 Yr
Vert Exh Duct Left Side	Ins	11406		1294-93	1 Yr	Ins	15896	17654	1294-92	1 Yr
Vertical Exhaust Duct	St	2500	3017	1295-91	1 Yr	Ins	17655		1294-93	1 Yr
Vert Exh Duct Right Side	St	3018	4121	1295-92	1 Yr	St	2501	3790	1295-91	1 Yr
Vert Exh Duct Right Side	St	4121		1295-93	1 Yr	St	3803	5707	1295-92	1 Yr
Vert Exh Duct Right Side	Ins	10003	10520	1295-91	1 Yr	St	5708		1295-93	1 Yr
Vert Exh Duct Right Side	Ins	11003	11405	1295-92	1 Yr	Ins	15005	15895	1295-91	1 Yr
Vert Exh Duct Right Side	Ins	11406		1295-93	1 Yr	Ins	15896	17654	1295-92	1 Yr
Vert Exh Duct Right Side						Ins	17655		1295-93	1 Yr
Exhaust Ducts 1294-93 And 1295-93 (Set Of 2)	St	4121		1281-93	1 Yr	St	5708		1281-93	1 Yr
Exhaust Ducts 1294-93 And 1295-93 (Set Of 2)	Ins	11406		1281-93	1 Yr	Ins	17655		1281-93	1 Yr
Clean Out Plugs, 1 1/2" Dia, (Set Of 2)	St	4121				St	3803		1360-92	1 Yr
Clean Out Plugs, 1 1/2" Dia, (Set Of 2)	Ins	11003				Ins	15896		1360-92	1 Yr
Ashpan, Complete	St	1002	1501	1392-90	1 Yr	St	1005	1867	1392-90	1 Yr
Ashpan, Complete	St	2500		1392-91	1 Yr	St	2501		1392-91	1 Yr
Ashpan, Complete	Ins	10003		1392-91	1 Yr	Ins	15005		1392-91	1 Yr
Cement, Gasket, 2 Oz Tube	All			1490-90	N/A	All			1490-90	N/A
Ashpan, Door Gasket (W/ Cement)	All			1391-90	N/A	All			1391-90	N/A
Ash Pan Knob And Latch	St	1002	1501	1393-90	1 Yr	St	1005	1867	1393-90	1 Yr
Assembly (One Latch Only)	St	2500		1393-91	1 Yr	St	2501		1393-91	1 Yr
Assembly (One Latch Only)	Ins	11003		1393-91	1 Yr	Ins	15005		1393-91	1 Yr
Scraper Rod Replacement Parts	All			1201-90	1 Yr					
Scraper Rod Replace (W/ Pull Ring)	All	1002		1202-90	N/A	All			1201-90	1 Yr
Scraper Tool	Ins	10003		1203-90	N/A	St	1005		1202-90	N/A
Scraper Tool						Ins	15005		1203-90	N/A
Refractory, W/ Bracket & Screws	St	2500		1691-91	1 Yr	St	2501		1691-91	1 Yr
Refractory, W/ Bracket & Screws	Ins	10003		1691-91	1 Yr	Ins	15005		1691-91	1 Yr
Refractory, W/ Bracket & Screws	St			1696-94	1 Yr	St			1699-94	1 Yr
Refractory, W/ Bracket & Screws	Ins			1696-94	1 Yr	Ins			1699-94	1 Yr
Ceroboard (3 Pc), Coated Surface	St	1002	1501	1690-A90	1 Yr	St	1005	1867	1690-L90	1 Yr
Ceroboard, Center (Coated)	St	1002	1501	1693-A90	1 Yr	St	1005	1867	1693-L90	1 Yr
Ceroboard, Left (Coated)	St	1002	1501	1694-A90	1 Yr	St	1005	1867	1694-L90	1 Yr
Ceroboard, Right (Coated)	St	1002	1501	1695-A90	1 Yr	St	1005	1867	1695-L90	1 Yr

Name Of Part	Avalo					Lopi				
	Mod.	Start Serial #	End Serial #	Part #	Warr.	Mod.	Start Serial #	End Serial #	Part #	Warr.
Firebox Parts Continued:										
Flame Deflector, Clip-On	St	1002	1501	1696-90	1 Yr	St	1005	1867	1696-90	1 Yr
Air Wash With Hardware	St	2500		1296-91	1 Yr	St	2501		1296-91	1 Yr
Air Wash With Hardware	Ins	10003		1296-91	1 Yr	Ins	15005		1296-91	1 Yr
Airwash Gasket, Self-Adhesive (1/8"X3/4"X30")	St	2500		1297-91	N/A	St	2501		1297-91	N/A
Sive,1/8" X 3/4" X 30"	Ins	10003		1297-91	N/A	Ins	15005		1297-91	N/A
Exhaust System Parts:										
Horizontal Flue Vent	St	1002	4402	0300-91	5 Yr	St	1005		0300-91	5 Yr
Horizontal Flue Vent	St	4500		0300-93	5 Yr	Ins	15005		0301-91	5 Yr
Horizontal Flue Vent	Ins	10003		0301-91	5 Yr					
Flue Adapter	Ins	10003		0302-91	5 Yr					
Vertical Flue Vent	Ins	10003		0303-91	5 Yr	Ins	15005		0303-91	5 Yr
Flue Vent/Flue Adapter Gaskets (2)	St	2500		0304-91	N/A	Ins	15005		0304-91	N/A
Flue Vent/Flue Adapter Gaskets (2)	Ins	10003		0304-91	N/A					
Draft Flow Switch	All			0791-90	1 Yr	All			0791-90	1 Yr
Draft Flow Tube (Cut To Length)	All			1191-90	1 Yr	All			1191-90	1 Yr
Exhaust (Combustion) Fan	All			0391-90	1 Yr	All			0391-90	1 Yr
Exhaust Fan Gasket	All			0392-90	N/A	All			0392-90	N/A
Exhaust Duct Clamp Pins (2)	Ins					Ins	17461			
Convection System Parts:										
Convection Fan	All			0491-90	1 Yr	All			0491-90	1 Yr
Electrical System Parts:										
Control Box, Igniter Or Retro To Non-Igniter	St	2500		0691-91	1 Yr	St	2501		0691-91	1 Yr
Control Box, Igniter Or Retro To Non-Igniter	Ins	10003		0691-91	1 Yr	Ins	15005		0691-91	1 Yr
Switch Box (Old Style)	St	1002	1501	N/A	N/A	St	1005	1867	N/A	N/A
Switch Box With Molex Connector	St	2500	3017	0591-91	1 Yr	St	2501	3790	0591-91	1 Yr
Switch Box With Molex Connector	St	3018		0591-92	1 Yr	St	3803		0591-92	
Switch Box W/ Molex & Brackets	Ins	10003		0592-91	1 Yr	Ins	15005		0592-91	1 Yr
Switch Box Bracket (2 Pc)	Ins	10003		0593-91	N/A	Ins	15005		0593-91	N/A
Fuse, 5 Amp (For Control Boxes)	St	4300		1792-93	N/A	St	5900		1792-93	N/A
Fuse, 5 Amp (For Control Boxes)	Ins	11406		1792-93	N/A	Ins	17700		1792-93	N/A
Wire Harness	St	1002	1501	0500-90	1 Yr	St	1005	1867	0500-90	1 Yr
Wire Harness	St	2500		0501-93	1 Yr	St	2501		0501-93	1 Yr
Wire Harness	Ins	10003		0501-93	1 Yr	Ins	15005		0501-93	1 Yr
Hopper Snap Disk (200° Overfire Cutoff)	St	2500		1791-91	1 Yr	St	2501		1791-91	1 Yr
Hopper Snap Disk (200° Overfire Cutoff)	Ins	10003		1791-91	1 Yr	Ins	15005		1791-91	1 Yr
170 Degree Snap Switch (Obselete)	St	1002	1501	0891-90	1 Yr	St	1005	1867	0891-90	1 Yr
Convection Snap Disk (120° 2 Prong)	St	1002		0991-90	1 Yr	St	1005		0991-90	1 Yr
Convection Snap Disk (120° 2 Prong)	Ins	10003		0991-90	1 Yr	Ins	15005		0991-90	1 Yr
System Snap Disk (120° 3 Prong)	St	4300		0992-93	1 Yr	St	5900		0992-93	1 Yr
System Snap Disk (120° 3 Prong)	Ins	11501		0992-93	1 Yr	Ins	17700		0992-93	1 Yr
On/Off Switch	All			0510-90	1 Yr	All			0510-90	1 Yr
Start Switch	All			0511-90	1 Yr	All			0511-90	1 Yr
Startup Timing Block (15 Minute)	St	1002	1501	0513-93	1 Yr	St	1005	1867	0513-93	1 Yr
Auger Timing Block (Retro)	St	1002	1501	0512-93	1 Yr	St	1005	1867	0512-93	1 Yr
Indicator Light	All			0514-90	1 Yr	All			0514-90	1 Yr
Blower Switch With Knob	All			0515-90	1 Yr	All			0515-90	1 Yr
Burn Rate Switch With Knob	St	1002	1501	0516-90	1 Yr	St	1005	1867	0516-90	1 Yr
Burn Rate Switch With Knob	St	2500		0516-90	1 Yr	St	2501		0516-91	1 Yr
Burn Rate Switch With Knob	Ins	10003		0516-90	1 Yr	Ins	15005		0516-91	1 Yr
Power Cord (Incl. W/ Control Box)	All			1091-90	1 Yr	All			1091-90	1 Yr
Test Wires (Jumper Wires, Power Cord)	All			1092-90	N/A	All			1092-90	N/A
Wiring Diagram	St	1002	1501	0520-90	N/A	St	1005	1867	0520-90	N/A
Wiring Diagram	St	2500	4220	0520-91	N/A	St	2501	5877	0520-91	N/A
Wiring Diagram	St	4300		0520-93	N/A	St	5900		0520-93	N/A
Wiring Diagram	Ins	10003	11491	0520-91	N/A	Ins	15005	17664	0520-91	N/A
Wiring Diagram	Ins	11501		0520-93	N/A	Ins	17700		0520-93	N/A

Name Of Part	Avalo					Lopi				
	Mod.	Start Serial #	End Serial #	Part #	Warr.	Mod.	Start Serial #	End Serial #	Part #	Warr.
Auger Parts:										
Auger Motor	St	1002		0191-90	1 Yr	St	1005		0191-90	1 Yr
Auger Motor	Ins	10003	11604	0191-90	1 Yr	Ins	15005	17825	0191-90	1 Yr
Auger Motor	Ins	11605		0194-93	1 Yr	Ins	17826		0194-93	1 Yr
Motor Stop	St	1002	1501	0192-90	1 Yr	St	1005	1867	0192-90	1 Yr
Motor Stop	St	2500	3017	0192-91	1 Yr	St	2501	3790	0192-91	1 Yr
Motor Stop	St	3018	4402	0192-92	1 Yr	St	3803	5707	0192-92	
Motor Stop	St	4500		0192-93	1 Yr	St	5708		0192-93	1 Yr
Motor Stop	Ins	10003	10520	0192-91	1 Yr	Ins	15005	15895	0192-91	1 Yr
Motor Stop	Ins	11003	11604	0192-92	1 Yr	Ins	15896	17825	0192-92	
Motor Stop	Ins	11605		0192-93	1 Yr	Ins	17826		0192-93	1 Yr
Auger Assem. (Tube, Flight, Bearings)	St	1002	1501	0291-90	1 Yr	St	1005	1867	0291-90	1 Yr
Auger Assem. (Tube, Flight, Bearings)	St	2500	4402	0291-91	1 Yr	St	2501	5807	0291-91	1 Yr
Auger Assem. (Tube, Flight, Bearings)	St	4500		0294-93	1 Yr	St	5808		0291-93	1 Yr
Auger Assem. (Tube, Flight, Bearings)	Ins	10003	11604	0291-91	1 Yr	Ins	15005	17825	0291-91	1 Yr
Auger Assem. (Tube, Flight, Bearings)	Ins	11605		0291-93	1 Yr	Ins	17826		0291-93	1 Yr
Auger Flight	St	1002	1501	0292-90	1 Yr	St	1005	1867	0292-90	1 Yr
Auger Flight	St	2500	4402	0292-91	1 Yr	St	2501	5807	0292-91	1 Yr
Auger Flight	St	4500		0295-93	1 Yr	St	5808		0292-93	1 Yr
Auger Flight	Ins	10003	11604	0292-91	1 Yr	Ins	15005	17825	0292-91	1 Yr
Auger Flight	Ins	11605		0292-93	1 Yr	Ins	17826		0292-93	1 Yr
Auger Bearing (Upper/Lower)	St	1002	4402	0293-90	1 Yr	St	1005	5807	0293-90	1 Yr
Auger Bearing (Upper/Lower)	St	4500		0293-93	1 Yr	St	5808		0293-93	1 Yr
Auger Bearing (Upper/Lower)	Ins	10003	11604	0293-90	1 Yr	Ins	15005	17825	0293-90	1 Yr
Auger Bearing (Upper/Lower)	Ins	11605		0293-93	1 Yr	Ins	17826		0293-93	1 Yr
Exterior Parts										
Door Glass	All			1491-A90	1 Yr	All	1005		1491-90	1 Yr
Glass Gasket	All			1492-90	N/A	All			1493-90	N/A
Door Gasket And Ashpan Gasket Set	All			1391-90	N/A	All			1391-90	N/A
Air Control Knob, Black Phenolic	St	1002		1300-90	1 Yr	St	1005	6335	2057-82	1 Yr
Air Control Knob, Black Phenolic	Ins	10003	11491	1300-90	1 Yr	St	6336		1300-93	
Air Control Knob, Black Phenolic	Ins	11501		1300-93	1 Yr	Ins	15005	17825	2057-82	1 Yr
Air Control Knob, Black Phenolic						Ins	17826		1300-93	1 Yr
Hopper Lid Handle (Flush Mount)	St	1002		1301-90	1 Yr	St	1005		1301-90	1 Yr
Hopper Cover Handle (Flush Mount)	Ins	10003	11405	1301-90	1 Yr	Ins	15005		1301-90	1 Yr
Hopper Cover Round Knob	Ins	11406		1302-92	1 Yr	Ins	17655		1302-92	1 Yr
Ashlip Trim	All			1353-A91	1 Yr	St	1005		1351-90	1 Yr
Ashlip Trim						Ins	15005		1352-91	1 Yr
Ashlip Assem W/ Bolts						Ins	15005		1350-91	5 Yr
Mirror (Left Or Right)						Ins	15005		1342-91	1 Yr
Mirror Frame Brass (Left Or Right)						Ins	15005		1343-91	1 Yr
Mirror Frame Black (Left Or Right)						Ins	15005		1344-91	1 Yr
Leveling Bolts (2) 3/8-16 X 3"	Ins	10003		2000-A91	N/A	Ins	10003		2000-A91	N/A
Upper Top Brass Trim (23-1/2")	St	1002	3017	1354-A90	1 Yr					
Upper Top Brass Trim (23-7/8")	St	3018		1355-A92	1 Yr					
Upper Top Brass Trim (23-1/2")	Ins	10003	10520	1354-A90	1 Yr					
Upper Top Brass Trim (23-7/8")	Ins	11003		1355-A92	1 Yr					
Manuals										
Manual, Installation/Operation	St	1002	1501	3002-A90	N/A	St	1005	1867	3000-90	N/A
Manual, Installation/Operation	St	2500	3017	3002-A91	N/A	St	2501	3790	3000-91	N/A
Manual, Installation/Operation	St	3018	4121	3002-A92	N/A	St	3803	5707	3000-92	N/A
Manual, Installation/Operation	St	4122		3002-A93	N/A	St	5708		3000-93	N/A
Manual, Installation/Operation	Ins	10003	10520	3002-A91	N/A	Ins	15005	15895	3000-91	N/A
Manual, Installation/Operation	Ins	11003	11405	3002-A92	N/A	Ins	15896	17654	3000-92	N/A
Manual, Installation/Operation	Ins	11406		3002-A93	N/A	Ins	17655		3000-93	N/A

CONTROL BOX CHANGES

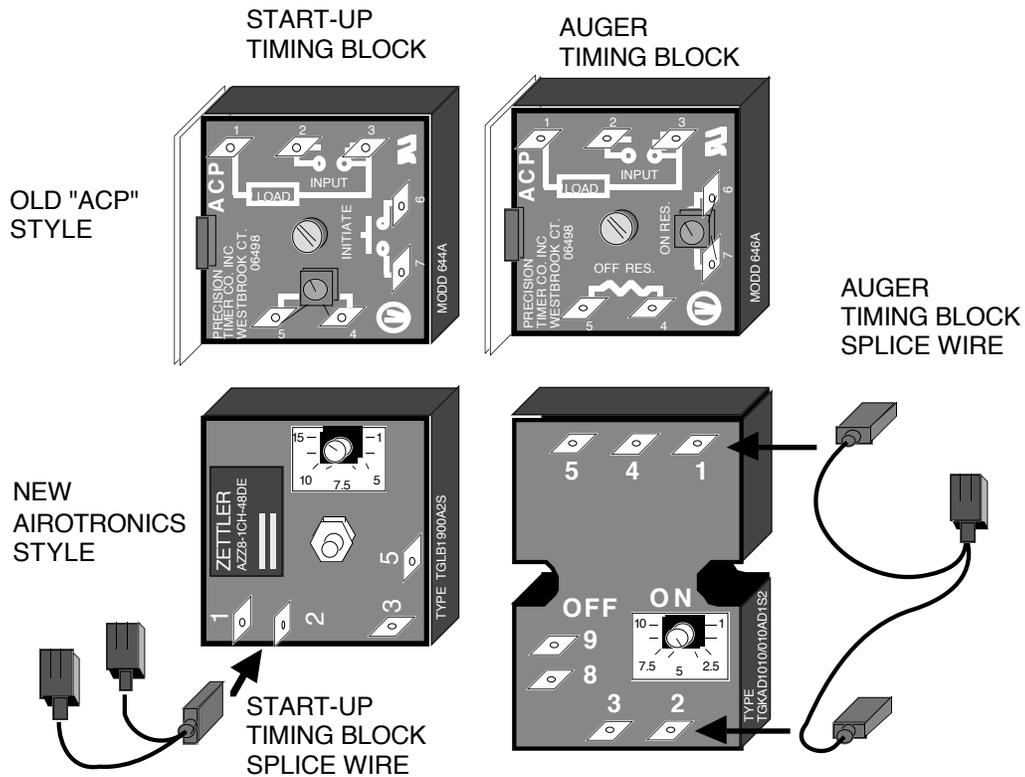
The control box was modified twice. The first modification was a sealed control box instead of having the timing blocks exposed. The second modification was to make the control box igniter-ready. If you have a heater with exposed timing blocks, the new timing blocks are different. Follow the directions below to hook up new timing blocks to the old stoves.

Start-Up Timing Block - see the illustration below

Wire Attached to ACP 644 Timing Block	Post # 1	Post # 2	Post # 3	Post # 4 (Not Used)	Post # 5 (Not Used)	Post # 6	Post # 7
GOES TO	↓	↓	↓			↓	↓
New "Airotronics" Timing Block	Post # 1	Post # 2 (Splice Wire)	Post # 3			Post # 5	Post # 2 (Splice Wire)

Auger Timing Block - see the illustration below

Wire Attached to ACP 646 Timing Block	Post # 1	Post # 2	Post # 3	Post # 4	Post # 5	Post # 6 (Not Used)	Post # 7 (Not Used)
GOES TO	↓	↓	↓	↓	↓		
New "Airotronics" Timing Block	Post # 4	Post # 1 and # 2 (Splice Wire)	Post # 3	Post # 8	Post # 9		

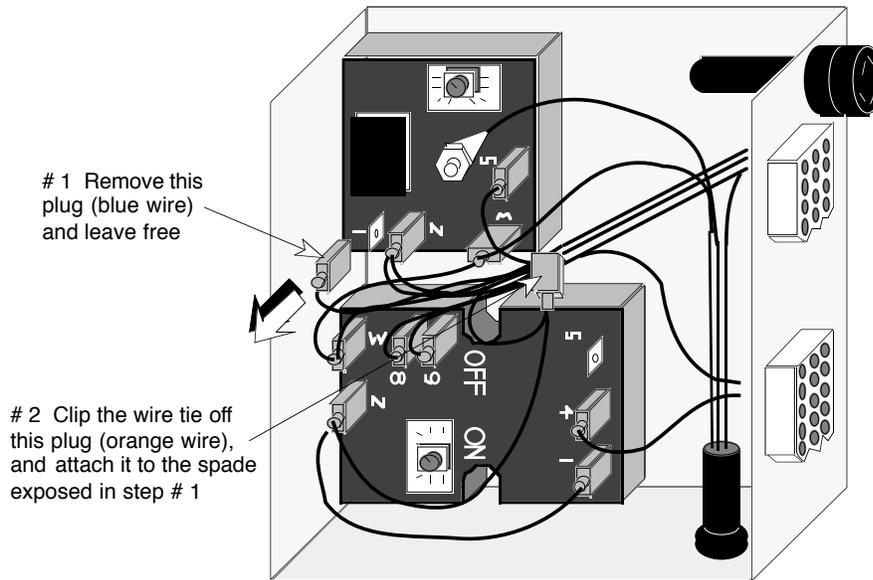


CONTROL BOX CHANGES (CONTINUED)

Igniter Ready Control Box

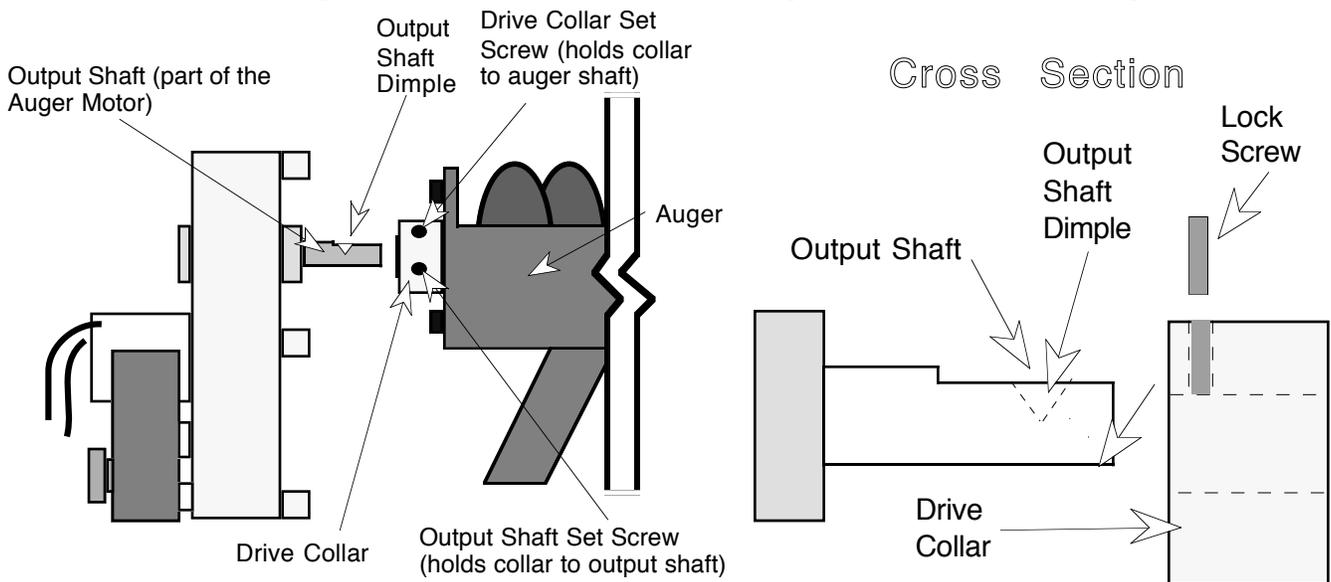
If you are replacing a control box in a stove with a serial number less than listed below, and are using a new control box, follow the instructions in the illustration below to retrofit the control box.

	Avalon 900 PS	Avalon 900 PI	Lopi 400 PS	Lopi 400 PI
Serial #	4300	11500	5900	17700



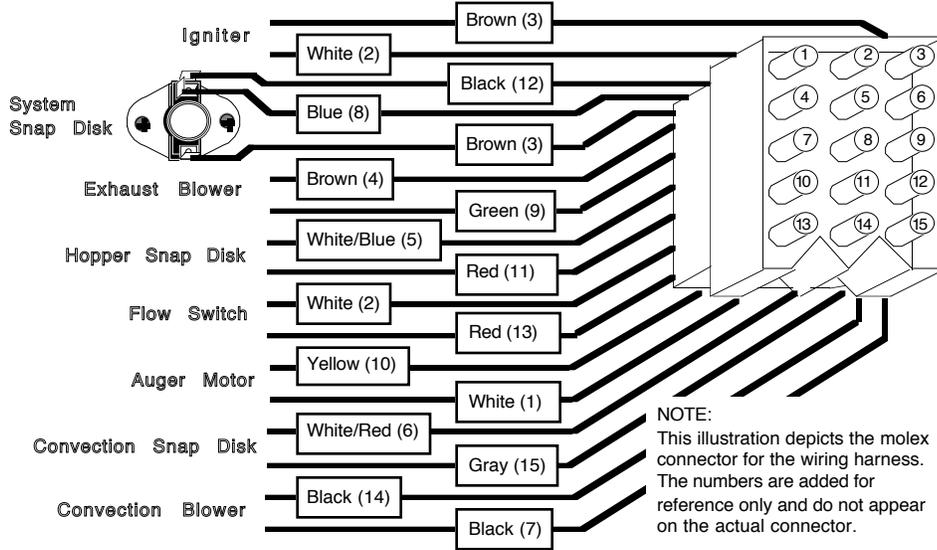
LOCK SCREW CHANGE

New lock screws are single hex socket cap screws. On earlier models this attachment was done with two set screws. One set screw holds the drive collar to the auger shaft. This set screw goes through the drive collar and attaches to the auger shaft. The other set screw connects the output shaft of the auger motor to the auger shaft. It goes through the collar and connects to the dimple of the output shaft. If the second set screw is not in correctly the auger motor will turn without making the auger turn, rendering the whole assembly ineffective. This set screw must line up when it is in the collar with the dimple that is located in the output shaft.

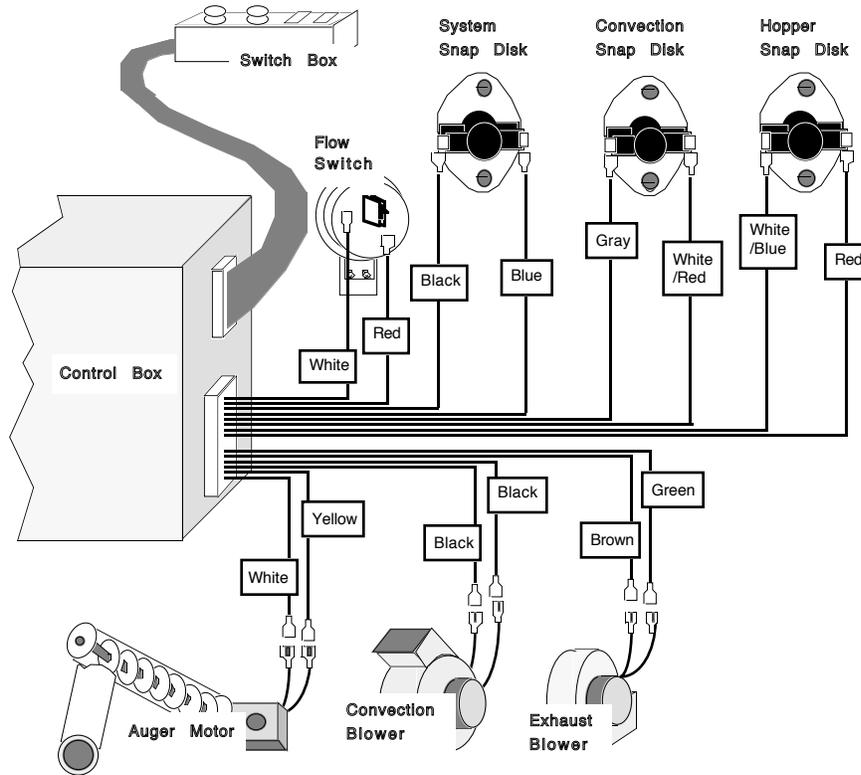


WIRING HARNESS DIAGRAM FOR 1993 OR LATER MODELS

NOTE:
The number in parenthesis corresponds with the numbers placed on the molex connector to the right. The orientation of the wires (except for system snap disk) does not matter when attaching to the components. The system snap disk must be connected as shown below.

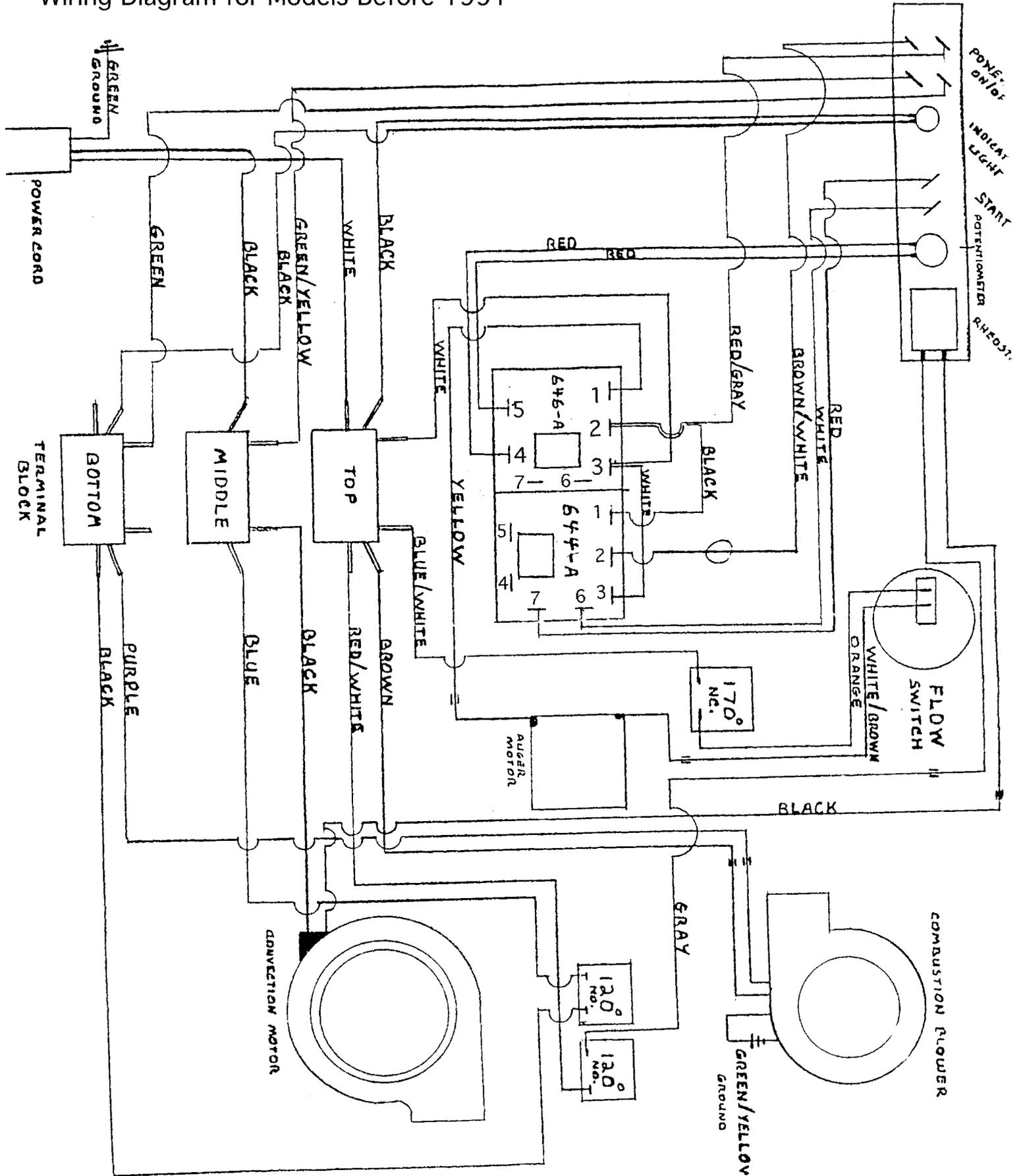


WIRING HARNESS DIAGRAM FOR 1991 AND 1992 MODELS

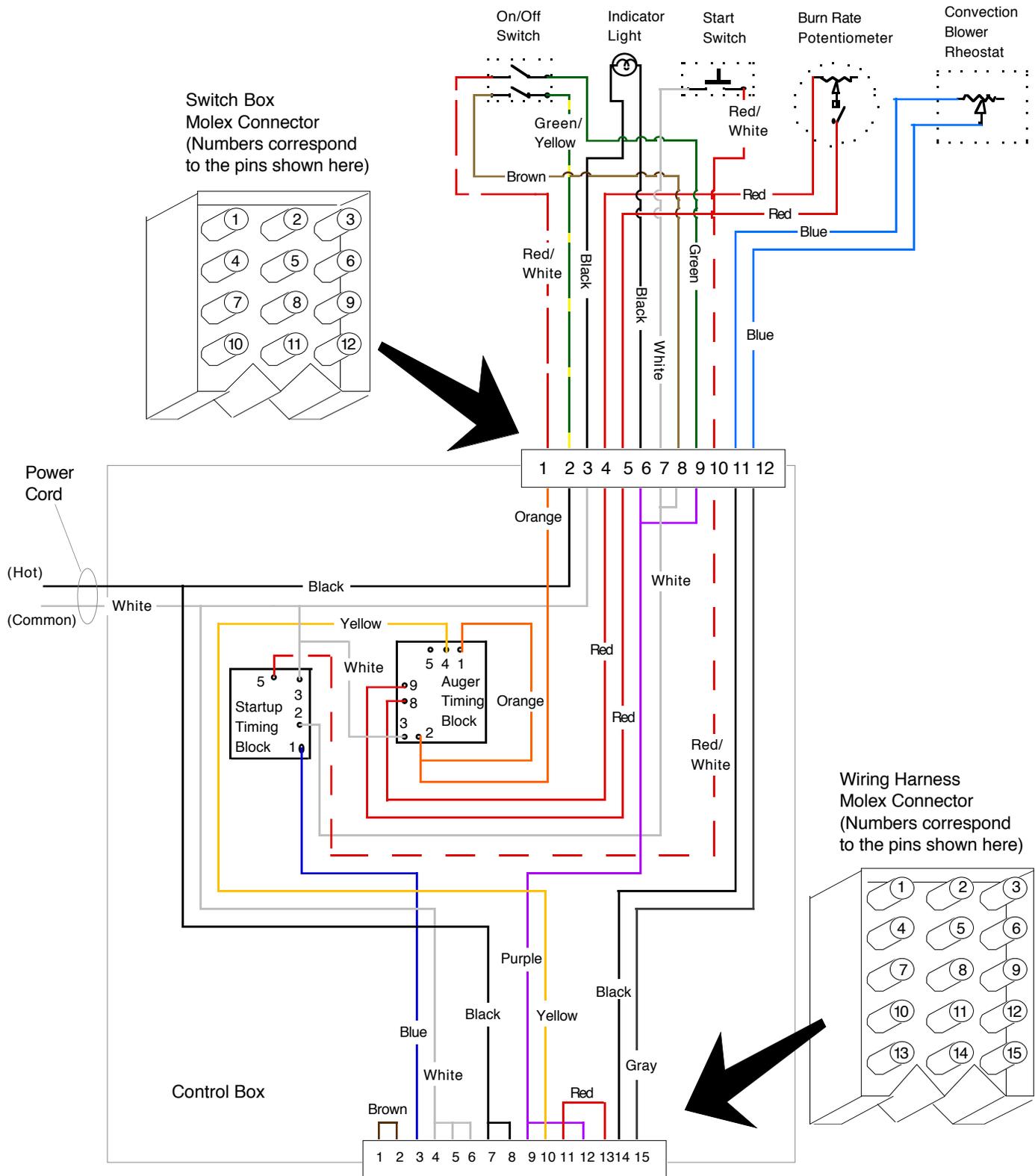


NOTE: The orientation of the wires does not matter when attaching to the components. The system snap disk and convection snap disk are located next to each other on the back of the exhaust housing.

Wiring Diagram for Models Before 1991



WIRING DIAGRAM FOR MODELS AFTER 1993



AUGER MOTOR

There are different auger motors for the insert and stove. Both rotate at 1 rpm (make sure to put a slight amount of load on the output shaft if testing). Both are rated at .42 amp and are impedance protected.

CONVECTION BLOWER

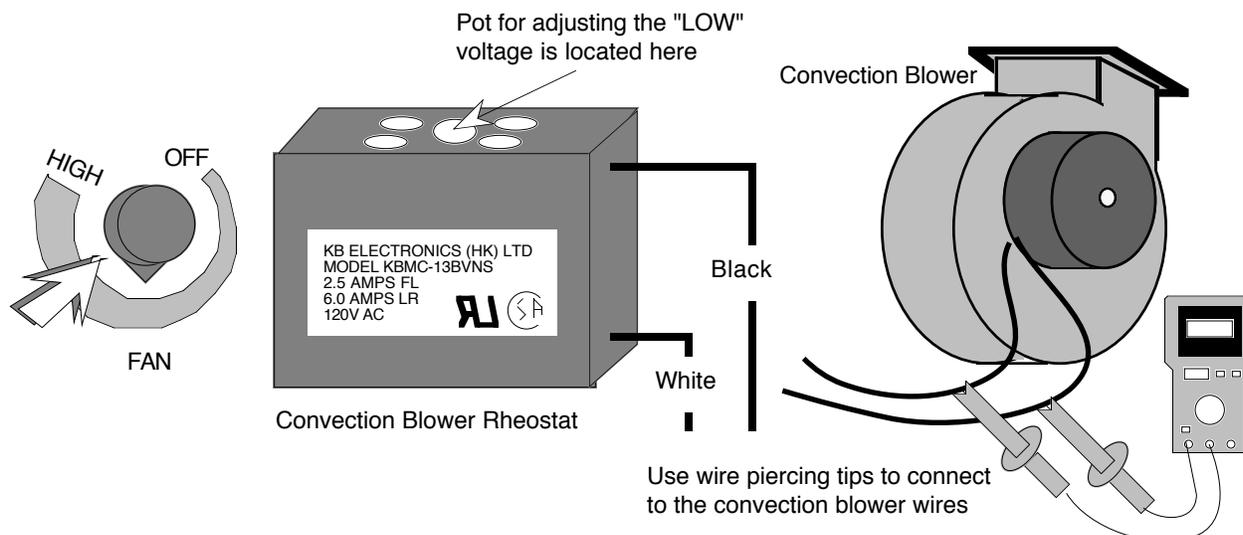
1.1 Amp - Impedance Protected - Approximately 150 c.f.m.

EXHAUST BLOWER

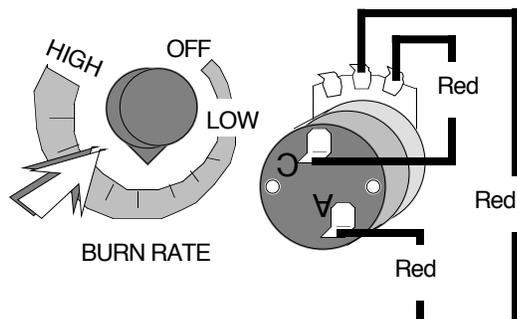
.95 Amp - Impedance Protected - Approximately 80 c.f.m.

BLOWER RHEOSTAT

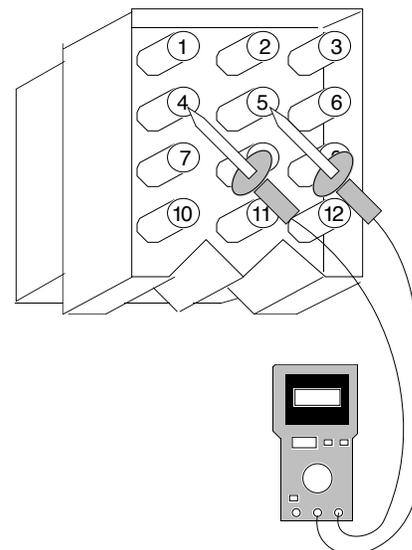
To check this component, check the voltage going to the convection blower while it is running. Attach piecing points to the multimeter probes and pierce the two wires running to the convection blower. On "HIGH" the multimeter should read 110-120 volts (the same voltage as the outlet). On "LOW" the multimeter should read 60-70 volts. The "LOW" voltage is adjusted by turning the pot inside the rheostat housing. The "HIGH" voltage can not be adjusted. If the voltage does not fall within the numbers listed above, replace the convection blower rheostat.



BURN RATE POTENTIOMETER

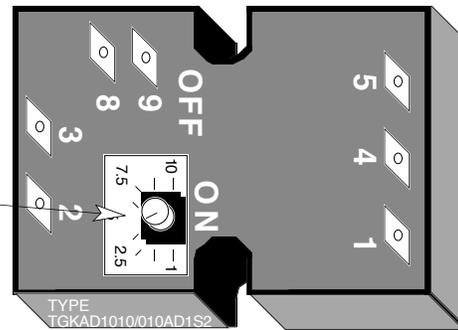


To check this component, use a multimeter to measure the ohms (Ω) between terminals 4 and 5. The following ohm values should be read when the BURN RATE knob is adjusted to:
 "OFF" 0 ohms
 "LOW" 800 to 1,200 ohms
 "HIGH" 1 to 10 ohms
 If the ohm values do not fall within the above values, the burn rate potentiometer will need to be replaced.



AUGER TIMING BLOCK

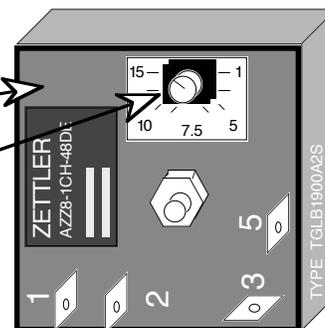
The auger timing block has a pot to adjust the off time. On HIGH the auger should be on for 3 seconds, and off for a split second. On LOW the auger should be on for 3 seconds, and off for approximately 10 seconds.



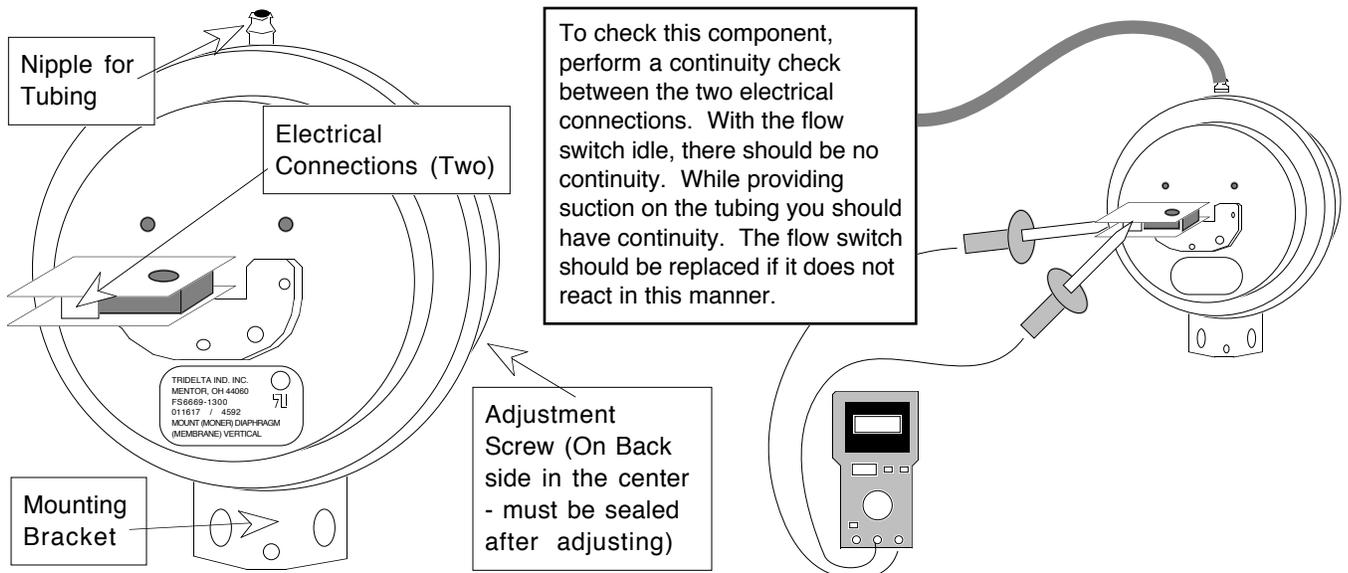
STARTUP TIMING BLOCK

START-UP TIMING BLOCK

The Start-Up timing block provides power to the exhaust, igniter and auger circuits for the first 15 minutes. If the start-up time is too short, make sure this pot is turned all the way clockwise (15 minutes)



FLOW SWITCH



Altitude Considerations for the Flow Switch

The flow switch monitors the pressure in the exhaust system. The pressure in the firebox on our pellet heaters is approximately .9" to 1" (water column static pressure) hot at sea level, .7" to .8" hot at 5,000 to 9,000 feet, 1.3" to 1.5" cold at sea level, and 1" to 1.2" cold at 5,000 to 9,000 feet. The flow switch shuts off the auger circuit when the pressure drops below .5" (approximate). When the stove is hot at high altitudes the flow switch is closest to switching off. Small blockages or long pellet vent runs may trigger the flow switch in this situation. If the flow switch shuts off the auger regularly, it can be adjusted. There is an adjustment screw on the back of the flow switch (standard screw or allen head screw - re-seal with silicone after adjusting). Adjust this screw inwards (clockwise) to make the flow switch less sensitive. After making any adjustment make sure the flow switch disables the auger motor when the flow switch tube is disconnected.

Air Control Blade:	The steel plate that slides over the air inlet, controlling air entering the firepot.	Combustion Air Intake:	The tubing used to attach outside air for combustion to the pellet appliance. It must not be made of combustible materials (P.V.C. tubing can not be used). Required for mobile home installations.
Air Control Inlet Tube:	The air control inlet tube is the steel component which attaches to the back side of the firebox. It connects to the flex hose and holds the air control blade in place.	Combustion Blower:	See 'Exhaust Blower'.
Air Control Slider:	See 'Air Control Blade'.	Control Box:	The control box is the aluminum box that contains the timing blocks that controls the feed rate, shut-off system, and internal wiring for the appliance. It is located on the left side of the appliance and has one electrical connector (molex) that attaches to the wiring harness and one electrical connector that attaches to the cord that comes off of the switch box. It also has the 110 Volt A.C. power cord exiting it.
Air Control:	The air control is the assembly that controls the amount of air coming into the firepot. The air control knob is the black knob on the lower left side of the appliance. It connects to the air control slider which acts as a shutter for the incoming air.	Convection Blower:	The blower that pushes heated air out of the holes on the front of the stove. It is located on the left side of the appliance and is turned on and off by temperature sensitive electronics (convection snap disk). Its speed is controlled by the knob on the control box (blower rheostat).
Airwash:	The airwash is the removable plate in the front of the firebox, below the door which distributes air across the window to keep it clean.	Convection Snap Disk:	The convection snap disk is located on the back side of the exhaust box and senses any temperatures above 120 ^o . It is used to turn on the convection fan automatically once the appliance has reached the proper temperature.
Alcove Installations:	Any installation in an area where the ceiling is 7' or lower is considered an alcove and must follow alcove installation requirements. Alcove installations require more stringent clearances because of the alcove's confined area that leads to greater heat build-up.	Down Tube:	See 'Feed Tube'.
Ash Traps:	The ash traps are located inside the firebox. They have two channels along the walls of the firebox and one channel along the bottom. These channels help transfer heat and also cause the flyash to accumulate near the floor of the firebox. The ash trap doors can then be opened to access the ash accumulation for removal.	Drop Tube:	See 'Feed Tube'.
Ashpan:	The ashpan is the removable tray below the firebox which catches the flyash from the firepot. The gasket on the ashpan must press firmly against the face of the stove to prevent air leaks.	Exhaust Blower:	Located on the right side of the appliance, it pulls air through the firepot and pushes it out the pellet vent. The air pulled through the firepot is necessary for pellet combustion. The exhaust fan works at one speed, regardless of feed rate. To adjust the amount of air, the air control is moved in or out. Also called the combustion fan.
Auger Flight:	The spiral-shaped piece that spins within the auger tube. By rotating, it forces pellets upwards and eventually into the firepot.	Exhaust Box:	The exhaust box is the steel box located directly behind the firebox on the right side. The exhaust box holds the exhaust fan in place and channels air from the firebox to the exhaust blower.
Auger Motor:	The auger motor consists of a motor and gearbox. It is attached at the bottom of the auger and provides the rotation to the auger, which feeds the pellets. It spins at one speed, but turns on and off intermittently to control feed rate. It is located at the bottom rear of the appliance.	Exhaust Manifold:	The channel behind the firebrick. It acts as a duct to direct air from the firebox to the exhaust box.
Auger Drive Collar:	The auger drive collar connects the output shaft to the auger flight. It has a screw (use a 3/16" allen wrench) that inserts through the auger shaft and tightens on the output shaft of the auger motor.	Exhaust Pipe:	The tube extending backwards from exhaust fan that connects to the pellet vent. On insert models the exhaust pipe connects in either a horizontal or vertical fashion. On stove models the exhaust pipe exits through the rear of the stove.
Auger Tube:	The auger tube is the 2 1/2" diameter tube that surrounds the auger flight. At each end are the auger bearings (which are encased in holders). It, in conjunction with the spinning auger flight, helps feed the pellets into the feed tube, and then into the firepot.	Feed Tube:	The feed tube is welded into the firebox and can be seen directly above the firepot. It directs pellets from the clamp tube to the firepot. Also called a 'drop tube'.
Burn Rate:	Burn rate refers to the amount of pellets fed during a certain period. 1992 and later Travis pellet appliances are designed to feed 1.2 lbs. of fuel on a low burn rate and 4.8 lbs. of fuel on a high burn rate. Because of pellet differences and electronic differences from site to site, this feed rate may vary slightly.	Firebrick Refractory:	The firebrick refractory is a cement-based component used to enhance the appearance of the appliance and to direct radiant heat out the window. It hangs above the firepot on two hangers.
Center Flue Adapter Chimney:	See 'Vertical Pipe Adapter'.	Firepot Holder:	The firepot holder holds the firepot in place and channels the combustion air into the firepot. The firepot holder must be properly placed for the heater to work correctly.
Clamp Tube:	The 2 1/2" diameter tube coming off the auger tube at a 90° angle.	Firepot:	The firepot is the removable box with grating on the bottom where combustion takes place inside the appliance. Because of the high temperatures of pellet combustion, the firepot may deteriorate over time. Improvements in the grate pattern, hole placement, and material have increased the combustion efficiency in the more recent Travis pellet appliances as well as the durability.
Combustible Material:	All materials that will ignite. Any material containing wood, paper (drywall is combustible), or other ignitable material is combustible. For installation purposes that includes walls (other than non-combustible), furniture, wood door or window frames, or doors that swing towards the heater. See 'Non-combustibles' for more information.	Floor Protection:	The floor protection is installed underneath the appliance and is used to protect against hot flyash or other material. It must consist of non-combustible materials (typically tile, brick or steel) with a minimum thickness of .018". NOTE: A pellet stove may not be installed without legs or a pedestal, regardless of floor protection. Also called 'Hearth Pad'.
		Flow Switch Nipple:	The flow switch nipple is the aluminum tube that extends out of the exhaust box and connects to the tubing that goes to the flow switch. See 'Flow Switch'.

Flow Switch:	The flow switch is a pressure-sensitive device which detects if the exhaust fan quits or if the flue becomes blocked. It is an aluminum cylinder located in the rear of the appliance. It connects to two wires and one rubber tube that goes to the flow switch nipple. It is required for safety purposes. Because of its sensitivity, it may need to be adjusted for high altitude installations (call Travis for more information).	Output Shaft:	The output shaft is the shaft extending from the auger motor that connects to the drive collar. It is geared to the auger motor and transfers the energy to the auger flight.
Front Leg Bolts:	The front leg attachment bolts penetrate into the firebox on pellet stoves. Because these bolts are not used for pedestal installations, it is very important that the installer replace these bolts when installing the pedestal to eliminate an air leak.	Pellet Quality:	Pellets are made of wood by-products (sawdust), making them inexpensive and environmentally correct. Because they burn in a controlled environment, they are much less polluting for the amount of heat given off. Pellet quality varies in terms of moisture content, ash, purity (dirt or salt), length, and diameter (7 mm or 1/4"). There are no monitoring agencies to control pellet quality, therefore the consumer should test a bag of pellets before buying a significant amount.
Hearth Extension:	The hearth extension is the non-combustible area extending beyond the face of the fireplace insert. When installing a pellet insert, make sure the hearth extension is long enough to accommodate the space the insert extends into the room.	Pellet Vent:	The venting system for pellet stoves. The system can be horizontal (direct) or vertical for stoves. For inserts and hearth stoves the venting can be positive, direct, or horizontal. Refer to the owner's manual for details.
Hearth Pad:	See 'Floor Protection'.	Priming the Auger:	When the appliance is new, or if the stove has been run until the pellets run out, the auger will need priming. It takes about ten minutes for the pellets to travel from the base of the auger tube to the burnpot (on high feed rate). So if there are no pellets in the auger tube, the auger will need to be run on high for about ten minutes before pellets start falling into the burnpot. This process of running the stove before lighting it is called 'Priming the Auger'.
Heat Exchanger Scraper:	The heat exchanger scraper (also called 'rake') is a steel piece with holes for each of heat exchanger tubes. When the handle above the door is moved back and forth (make sure the doors are closed) the flyash is removed from the tubes, increasing heating efficiency.	Rain Cap:	See 'Chimney Cap'.
Heat Exchanger:	The heat exchanger is the set of 12 horizontal pipes running along the top of the firebox with the ends exiting into the room. Air is pumped from the convection fan, through the heat exchanger pipes where the air is heated, and then into the room.	Rear Access Panel:	The panel at the rear of the pellet stove which allows access to several components including the auger motor, and flow switch. Also called the Inspection Plate'.
Hopper Snap Disk:	The hopper snap disk is located underneath the hopper and senses any temperatures above 200°. It is used as a safety feature to shut off the auger if the hopper becomes too hot.	Rear Panel:	The panel on pellet stoves located on the rear. Remove this panel to access components at the rear of the stove.
Hopper:	Storage area for pellets. Designed to hold maximum amount of pellets for space allowed and still feed every pellet. Located on the top rear of the stove.	Snap Disks:	Pellet appliances contain three snap disks. Snap disks are electronic devices that sense when the temperature rises above a certain level. The three snap disks are the hopper snap disk, the convection snap disk, and the system snap disk.
Igniter:	The igniter is a cylindrical heating element positioned directly behind the firepot. During the 15 minute startup period it heats the air entering the burnpot which causes the pellets to ignite.	Switch Box:	The switch box contains the controls for the pellet appliance. Coming off of the switch box is an electrical cord that connects to the control box. Contained in the switch box is wiring, a potentiometer for feed rate, a potentiometer for the convection fan, an on/off switch, and a start switch (momentary rocker switch).
Inspection Plate:	See 'Rear Access Panel'.	System Snap Disk:	The system snap disk is located on the back side of the exhaust box and senses any temperatures above 120°. It turns the stove off once the pellets stop burning.
Leveling Bolts:	The leveling bolts are used for insert installations to level the appliance inside the fireplace. They insert through press nuts at the rear of the baseplate. Many fireplaces have stepped up hearths, making leveling bolts necessary.	Vertical Exhaust Vent:	The vertical exhaust vent is the vent that extends along the right rear corner of the insert. It is clipped in and can be removed to facilitate a horizontal venting scheme.
Mantle:	Fireplace mantles are designed for aesthetic reasons. Because it is directly above a heat source, it can become extremely hot during operation. Combustible mantles must meet certain clearances. Non-combustible mantles are exempt from clearances for pellet stoves.	Vertical Pipe Adapter:	The vertical pipe adapter attaches to the exhaust pipe and allows for a centered pellet vent directly behind the appliance. Also called a 'Center Flue Adapter'. Part # 99300138.
Mobile Home:	Mobile home installations require certain items not required in normal residences because they are air-tight. The appliance must be installed as a stove with a permanent outside air inlet. The stove must also be grounded to the chassis of the mobile home. And in certain states, the stove must be permanently bolted to the floor.	Zero-Clearance:	Pellet inserts can be installed into a zero-clearance fireplace or as a built-in unit (often called a zero-clearance installation). When the insert is installed as a built-in unit the Travis Industries floor shield is required. It is placed directly on the floor and the surrounding wall is framed up to it. See the owner's manual for full details.
Motor Guard:	The steel grate which extends below the baseplate on pellet inserts. It can be removed to facilitate the removal of the auger motor and auger flight.		
Motor Stop:	The motor stop is attached near the bottom of the auger and keeps the auger motor from spinning.		
Non-combustible:	Materials that will not ignite when subjected to flame for extensive time. Includes steel, iron, brick, tile, concrete, slate, asbestos, glass, plaster, or any combination thereof. If there is uncertainty as to the construction of a wall or ceiling, assume it is combustible. Drywall is combustible.		

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