

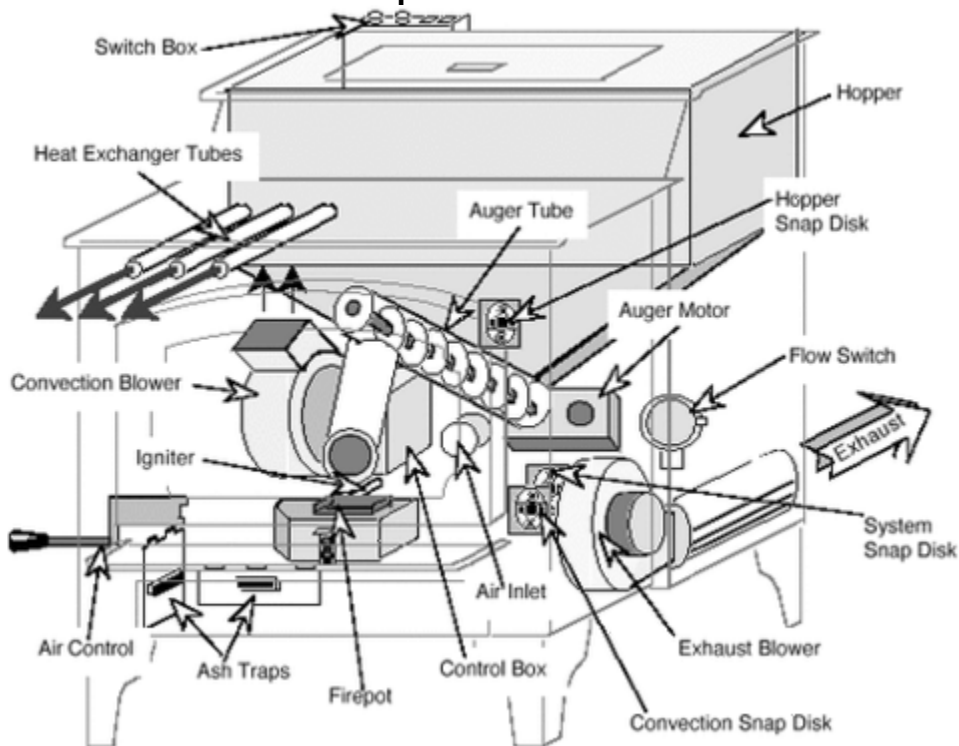
PELLET STOVE MASTER Service Tips

Service Tip Doc Name

Pellet Stoves Normal Operating Sounds VS Sounds That Indicate A Faulty Component

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Pellet Stoves Normal Operating Sounds VS Sounds That Indicate A Faulty Component



As a pellet stove professional, I've found that identifying the sounds a stove makes or doesn't make is essential when diagnosing and fixing it. I always start by determining whether the sound in question is a normal operating sound. If you are the landlord or you are not the person who usually operates the stove, consult with the stove's user since that person will be most familiar with the stove's typical sounds. I have included a chart below that compares normal sounds to problematic ones. I'm going to share some tips on how to identify those sounds based on my experiences.

The other day, one of my customers said there was a strange squealing sound coming from the pellet stove while it was running. He asked me what it might be. After a thorough cleaning we restarted the stove and it made that sound again. The squealing happened intermittently, repeating every few seconds. Since the sound was repetitive and located in the center of the stove, I could identify the auger was making that sound. It squealed during a small part of its 360 degree rotation. I gave the auger a complete servicing, which remedied the issue.

Listening to the sounds your stove makes can resolve many other issues. Doing so may help identify whether the exhaust or convection blower has gone bad. Another customer told me that the pellet stove sounded like a jet plane after it warmed up. Instantly, I knew the convection blower was the issue since it is the only part that starts running

after the stove heats up. The stove gets hot after the start up cycle finishes (approximately 15 minutes). Upon further inspection, I discovered it needed replacing because the bearings were bad. A different stove had a squealing noise that occurred right when the stove was turned on. It came from the left side of the stove where the exhaust blower was located. Of the two blowers, only the exhaust blower starts running right away; therefore, replacing that part was the cure.

No noise at all can also indicate your stove's issue. I came across a unique issue when testing a stove. It ran for 5 minutes, then went silent. All of the lights on the control panel went out the stove died. Having no sounds in this instance helped me pinpoint the AC line cord was the issue. After the stove got warm, one of the line connectors had failed. Replacing the line cord fixed it. Also, a multi-fuel stove I worked on didn't make a sound in the burn pot. After investigating, I found the rod connected to the pot stirrer motor was so loose it prevented the stirrer from turning.

Listening to where the sound is coming from and, if possible, seeing the moving parts helps find problem areas. Knowing where the stove components are located is helpful as well. Determining whether an unusual sound occurs intermittently or constantly, or varies with the component's speed is valuable information. If the sound happens promptly as the stove starts, then the faulty component could be the combustion (exhaust) blower, auger, or auger motor. If the sound is heard after the startup cycle, then the faulty component could be the convection (room) blower. Once you identify the part in need of potential replacement, I recommend using an AC test cord and multi-tester to test this component for abnormal sounds. Sometimes, the noise only occurs when the stove is hot so a test fire is always needed to complete the analysis or assure the repair has been made. I always give the stove a complete cleaning and lubrication first, then perform the test fire.

	Fire pot or Burn Pot	
	Normal operating sounds As pellets slide or are pushed into the fire pot a clinking sound can be heard. Bottom feed stoves that have an automatic slide plate or rotating disk have a louder clinking sound when pellets fall into the auger flight chute. In Multi-fuel stoves there may be a sound of a turning pot stirrer and motor connected to it.	
Sounds that indicate wear or failure	Reason	Cure
A. No sound, especially if pellets are not coming into the fire pot and the fire dies out. B. Grinding sound	A. Auger motor not turning See reason below under auger motor. B. Pot stirrer 1. Stirrer bearing needs lubrication. 2. Stirrer motor is failing or needs lubrication	A. Replace Auger motor. B. Lubricate or replace Pot Stirrer or Stirrer Motor.
	Auger or pellet feed motor	
	Normal operating sounds When the auger feeds pellets into the burn pot you can hear the intermittent sound of the auger turning and the buzz of the auger motor running.	
Sounds that indicate wear or failure	Reason	Cure
A. No sound especially pellets are not feeding into the fire pot. You may also see that the auger motor's shaft is not turning at all.	A. Auger is not turning 1. High limit snap disc failed or tripped. 2. Vacuum switch failed or hose clogged.	A. Clean or Replace Part(s) as follows: 1. Clean or replace hi limit snap disc. 2. Replace Vacuum switch or clean or replace clogged hose.

<p>B. Load scratchy sound of the auger motor bearings rubbing and failing.</p> <p>C A loud squeal or grinding noise as the auger hits one spot in it's 360 Degree rotation.</p>	<p>3. Bad connection to control panel or auger timing module. Check spade clips on auger motor wires by unplugging and plugging back in. Also check connectors on snap discs and vacuum switch.</p> <p>4. Control panel is bad. If all other components are good then the panel maybe bad. Put a volt meter on the auger leads when stove is running to see if there is 120 VAC on it intermittently.</p> <p>5. Auger motor heat failure when stove gets hot.</p> <p>6. Proof or fire snap disc or heat sensor or thermocouple failed.</p> <p>B. Black Carbon on the Auger or inside the auger chute. Maybe due to bad pellets. Maybe a burr on the shaft or tube.</p> <p>C. The Auger bearing may need more grease or lubrication.</p>	<p>3. Clean or replace quick disconnect spade lugs.</p> <p>4. Replace circuit board or control panel.</p> <p>5. Replace tired auger motor with worn gears or coil laminations that have broken down to cause loss in torque.</p> <p>6. Clean or replace proof of fire snap disc or thermocouple or heat sensor maybe loose or need replacement.</p> <p>B. Grease or replace worn or missing auger bearings. Upgrade brass bearing to Nylatron if possible.</p> <p>C. Remove auger and clean with a wire wheel on a drill/driver. Also using a grinding stone, grind down any burrs or splattered pimples of slag from sloppy welding</p>
	Thermostatic Switch (Snap Discs)	
	<p>Normal operating sounds These parts can make a clicking sound as the bi-metal switch opens and closes. Some of these snap discs are used to turn the pellet stove convection blower on and off.</p>	
Sounds that indicate wear or failure	Reason	Cure
No sound, especially if convection blower never turns on. (No heat blowing out the front of the stove).	Failed Disc	Replace Disc
	Heat Exchanger Tubes	
	<p>Normal operating sounds The rush of air being forced though the Heat Exchanger Tubes.</p>	
Sounds that indicate wear or failure	Reason	Cure
No Sound	Bad Low Limit Switch or Bad Convection Blower	Replace Low Limit Switch or Replace Convection Blower
	Convection blower or Room blower	
	<p>Normal operating sounds The modern high efficiency blower may have a slight hum or pulsating sound that increases as the blower speeds up. The rush of air from the flow of heated room air through the heat exchanger tubes or plenum drawn by the squirrel</p>	

	cage blades.	
Sounds that indicate wear or failure	Reason	Cure
<p>A. A loud hum especially when the blades do not turn.</p> <p>B. The squeak and squeal of the bearings failing. Also sounds like metal rubbing against metal</p> <p>Reason</p> <p>A. Squirrel cage not turning</p> <ol style="list-style-type: none"> 1. Blades so full of dust or pet hair, the Squirrel cage does not turn. 2. Shorted motor coil windings that reduce the electromagnetic field so much the squirrel cage does not turn. <p>B. Blower motor</p> <ol style="list-style-type: none"> 1. Bearings re worn or have little grease or lubrication. 	<p>A. Squirrel cage not turning</p> <ol style="list-style-type: none"> 1. Blades so full of dust or pet hair, the Squirrel cage does not turn. 2. Shorted motor coil windings that reduce the electromagnetic field so much the squirrel cage does not turn. <p>B. Blower motor</p> <ol style="list-style-type: none"> 1. Bearings re worn or have little grease or lubrication. 	<p>A. Replace Blower</p> <p>B. Grease or replace motor bearings. If they are sealed then replace blower.</p>
	Exhaust blower (Combustion blower) or draft blower	
	<p>Normal operating sounds</p> <p>The modern high efficiency blower may have a slight hum or pulsating sound that increases as the blower speeds up.</p> <p>The rush of air from the flow of exhaust gases through the ash chambers drawn by the impeller blades.</p>	
Sounds that indicate wear or failure	Reason	Cure
<p>A. A loud hum especially when the impeller blades do not turn.</p> <p>B. The squeak and squeal of the bearings failing. Also sounds like metal rubbing against metal.</p> <p>C. Sometimes an annoying whine can be heard that gets louder as the speed increases</p>	<p>A. Impeller blades not turning</p> <ol style="list-style-type: none"> 1. Blades so full of dust or pet hair, the Squirrel cage does not turn. 2. Shorted motor coil windings that reduce the electromagnetic field so much the squirrel cage does not turn <p>B. Blower motor</p> <ol style="list-style-type: none"> 1. Bearings are worn or have little grease or lubrication <p>C. Closed frame motor case is loose or just out of synchronization</p>	<p>A. Replace Exhaust Blower</p> <p>B. Grease or replace motor bearings. If they are sealed then replace blower.</p> <p>C. Replace closed frame blower with upgraded C-Frame or open frame blower.</p>