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## Negative Draft Kit for Amaizablaze 4100 Multi-Fuel Stoves

### **PLEASE READ THIS ENTIRE DOCUMENT BEFORE PROCEEDING WITH THE MULTI-FUEL CONVERSION OF YOUR STOVE!**

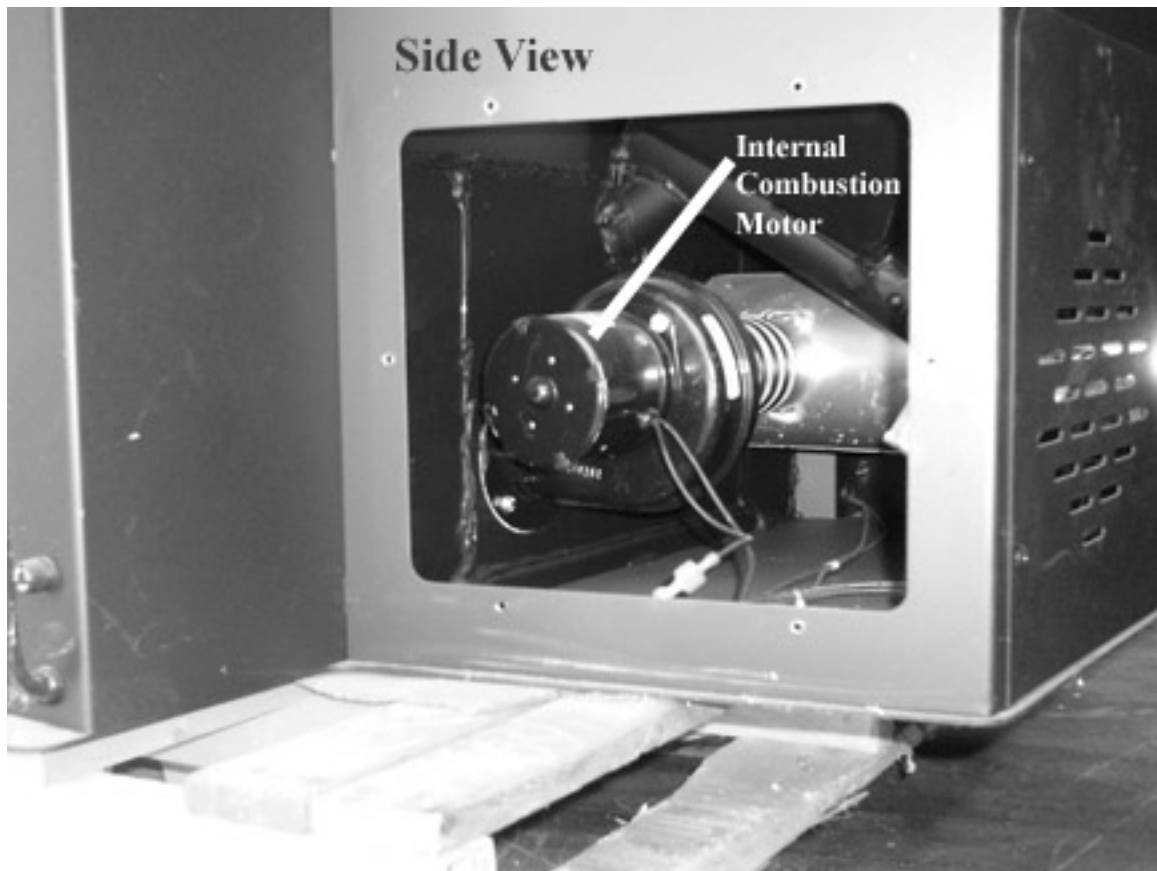
First you must decide how you want to vent the exhaust from your stove. This multi-fuel conversion process will change two things concerning the operation of your stove. First, your stove will now use a negative draft air flow which means the multi-fuel fan on the back of your stove is pulling the air through your stove versus the original configuration that pushed the air into the burning pot of your stove. The second change is that now you are now using inside air for the combustion air for your stove. The original design of the stove uses a pipe within a pipe venting system that has the stainless steel exhaust pipe inside a second pipe, usually galvanized, that brings the cool combustion air into the stove from the outside of the house. (We can help you if you choose to use outside air for combustion. Give us a call.) This keeps the cool air as a buffer between the exhaust pipe and the flammable building materials surrounding the pipe. But this causes its own problems.

As the cool outside air hits the exhaust pipe (because of the moisture level in corn), moisture could condense inside the exhaust pipe and cause the exhaust pipe to corrode. This is especially true where the exhaust pipe is longer than 3 feet. The stainless steel exhaust pipe would require frequent replacement at considerable expense. There are also those who report moisture from the house condensing on the outside of the galvanized pipe and dripping into the home or sometimes onto the stove itself. The second problem with this method is that you are bringing the outside air into your stove and this air must be heated and in the process will steal heat that could have gone into the house. Some of you have heard of stove owners that have used various methods to use air from inside the home as part of their combustion air especially in the coldest part of winter. This is meant to moderate the effect of the cold combustion air stealing the heat from the stove. In researching how other biomass stoves work, we realized that most use the air from inside the home for combustion air (except in mobile homes). This means that we must now use a different system for venting the exhaust from our stoves. The most logical choice is a double-walled exhaust pipe such as is used with wood pellet stoves.

We chose to use the Metal-Fab biomass venting system. The Metal-Fab system uses a double walled exhaust pipe that has an outer galvanized pipe with a stainless steel liner for the inner layer. The stainless steel is much heavier than the flex stainless steel pipe we used in the past. The stainless steel liner is smooth and has no depressions where the moisture can collect and accelerate corrosion. It has a twist and lock system to join the pieces together so if you do need to replace any pieces, you replace only the pieces that need replacing. Metal-Fab also has an approved venting system thimble that goes through the wall and doesn't need the outside air flow to insulate it.

**MAKE SURE YOU USE A BIOMASS APPROVED EXHAUST VENTING SYSTEM AND THAT YOU USE IT ACCORDING TO MANUFACTURER'S DIRECTIONS. WE RECOMMEND AND SELL THE METAL-FAB BIOMASS PRODUCT LINE BECAUSE THEY WORK AND ARE DESIGNED FOR THIS BIOMASS EXHAUST VENTING APPLICATION. METAL-FAB HAS A LIMITED LIFETIME WARRANTY AND A 10 YEAR REPLACEMENT WARRANTY WHEN INSTALLED AND MAINTAINED ACCORDING TO MANUFACTURER RECOMMENDATIONS** (see warranty info at Metal-Fab website listed below). Metal-Fab biomass venting products are UL approved.

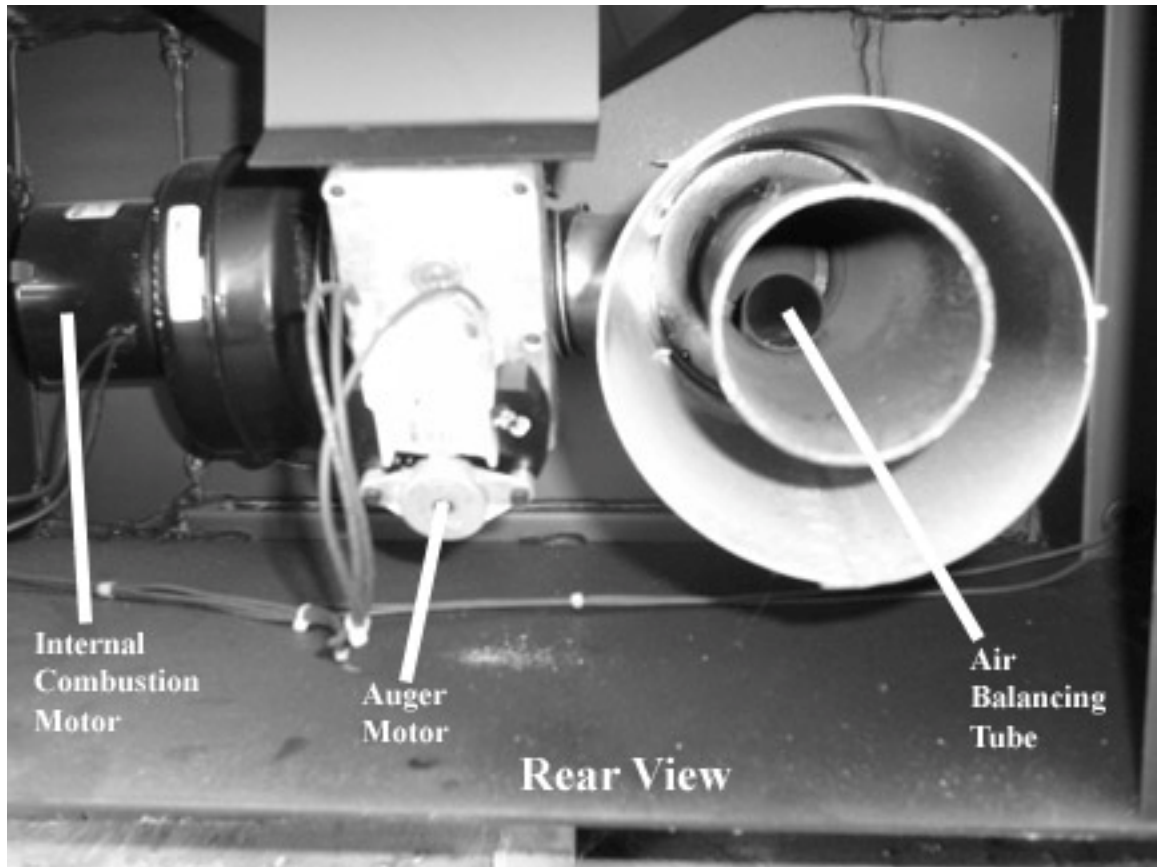
For more information on Metal-Fab biomass venting products go to:  
<http://www.mtlfab.com/biomass.php>



Now let's get to work on your multi-fuel conversion.

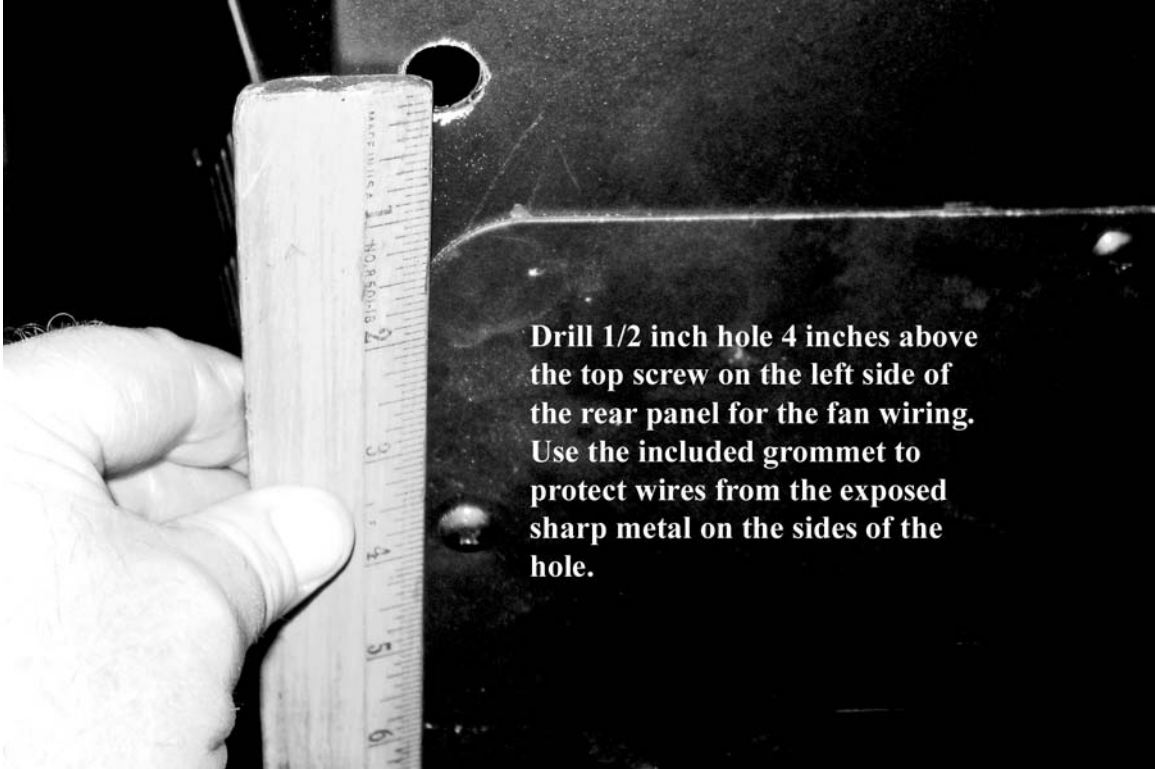
1. Disconnect the power cord from the wall outlet to avoid electrical shock.
2. Remove the 3 inch exhaust tube & 5 inch fresh air tube from the back of the stove.
3. Remove the right side panel (facing the front of the stove).
4. Disconnect the power wires for the internal combustion motor/fan unit.
5. Remove the 2 screws (5/16 hex heads) holding in the internal combustion motor/fan unit and remove from the stove.
6. Install the provided intake air manifold cover in the combustion motor/fan's place. Do not fully tighten these screws.
7. Next we will install the plug into the air balancing tube. Looking into the exhaust tube on the back of the stove, you will be able to see the air balancing tube about 8 inches into the stove. Using a brush and a vacuum, clean out the soot in the exhaust tube as well as possible. Use a brush to clean up the exposed entrance to the air balancing tube. Vacuum the soot out again to get the area as clean as possible. Now we will insert the tube plug. This step is easiest if you have a 10 inch hex head bolt but any piece of metal that has a flat end and is long enough to reach the air balancing tube and fits into the exhaust tube will work. Attach the magnet to the hex head of the bolt and then attach the tube plug to

the magnet. Using a piece of cardboard on the bottom of the inside of the exhaust tube may help in case you touch the metal tube and the plug and magnet come off in the exhaust tube. You may want to put a bead of silicone sealant, from the kit, around the outside edge of the plug head to ensure a good seal. You will now insert the tube plug into the tube using the hex head bolt. Make sure to get the prongs of the plug on the inside of the tube. Once the plug is in place, tap the end of the hex bolt with a hammer to make sure the plug is fully inserted and stopping air flow through the air balancing tube.



8. The multi-fuel fan unit is now ready to be installed. The round tube connector on the side of the multi-fuel fan will fit over the 3 inch exhaust tube. At this point you must plan which direction your exhaust tube will go to exit your house. Using the silicone sealant provided in the kit, apply a bead of silicone about  $\frac{1}{2}$  inch from the end of the stove's exhaust pipe. Also lightly coat the inside of the fan connector just before putting the fan connector on to the stove exhaust pipe. Usually you will either vent the stove up and out or out directly behind the stove using a 90 degree connector. The advantage to going up and out is as long as you have a rise of 3 foot or more, if there is a power outage, there would be enough draft to pull the exhaust gases up and out instead of backing up into the house. But then you are buying more exhaust pipe and have more expense. Secure the fan in the desired position temporarily with duct tape or wire to allow the silicone to dry.

9. Drill a  $\frac{1}{2}$  inch hole 4 inches directly above the top left screw of the removable back panel (see picture). Put the grommet on the wires for the multi-fuel exhaust fan and pull the wires from the Multi-fuel exhaust fan through the  $\frac{1}{2}$  inch hole and secure with the included rubber grommet. The fan wire leads plug directly into the leads that powered the old internal combustion fan. The ground wire (the green wire) from the new multi-fuel fan unit has a loop connector and goes on one of the two screws used to secure the intake air manifold cover. Now these metal screws on the intake air manifold cover can be fully tightened.



10. You may need to set the air using the Combustion Air Screw. It is best to set using an anemometer. The recommended setting is 62 ft/min X 10. Using a 1/4" allen wrench or hex socket, turn clockwise until fully closed. Then turn counter clockwise 2 1/2 to 3 turns for approximate combustion air setting.

**Connect your UL® Approved exhaust venting system to your stove to complete your installation.**

**For more good information go to the Amaizablaze website at:**

**<http://cornstoves.info>**