


RP2027 (MagnuM DC models)	PP-353 (Country Flame models)	MF3542 (MagnuM Standard)	CF3542 (MagnuM High Output)

AES Technical Bulletin
Combustion/Draft/Exhaust Blower

Product models covered: All models of Biomass/Corn/Wood Pellet MagnuM & Country Flame Appliances.

Topic: This technical bulletin will be addressing what the combustion blower does, what causes it to act differently or to fail, how the combustion blower and the control board work together, why a combustion blower is not delivering the air needed for combustion, how repairs/replacements are handled so that normal operation can be resumed.

What a combustion/draft/exhaust blower does: A combustion blower controls a great deal of the performance of the stove; it delivers the air for combustion and rids the stove of exhaust. Proper operation of the stove will give you years of trouble free operation. Its biggest enemies are wet and dirty fuel, neglected cleaning of the stove, improper venting, and cold fires for extended periods of time. All of these items put undo stress on the combustion motor and its parts.

Causes that contribute to a combustion blower to act differently or to fail:

- Speeds – Voltage changes with settings.
- Cold fires – They plug up systems, prematurely wear out the motor.
- Motor is running hard – Plugged, negative or positive pressure in the exhaust system.
- Motor is running slow – Plugged, low voltage, motor wore out. (Control board bad, replace every couple of years.)
- Poor and/or dirty burn – Lack of proper maintenance and poor quality fuel.
- Ash is being release into home – Check combustion motor gasket.
- A dirty exhaust blower, a power failure, or a straight out the wall venting installation with no rise, can lead to smoke in the home.
- Pet hair and dust will overheat the motor.
- Incomplete combustion – stop the stove, check the system out, was the motor working correctly, was there a slow lazy fire, check amp., was there buildup in the burning chamber, was there buildup in the firepot?

Combustion blower and the control board work together: An example of this relationship: on the MagnuM Countryside the control board acts as the on switch and voltage regulator for the draft motor. As soon as the heat setting switch on the control board is turned on the draft motor will start. On heat settings 1-3 the control board will increase or decrease the motor speed. If you listen as you turn the control higher you will note the increased speed of the motor. This only occurs on these

settings. In order to burn on the higher settings you need additional air for combustion that the draft motor is not designed to deliver, and then requires a manual air adjustment. When you change the heat level to a higher setting on the control board, you are delivering additional voltage to the motor to increase its speed. The control board and draft blower are designed to work with each other to deliver the right amount of fuel and air to maintain the desired burn level. The settings for these can be changed slightly with the fine tune adjustments on the control board (See Technical Bulletin P-0012).

Combustion blower not delivering the air needed for combustion: This does not always indicate that the motor is bad. If the motor is new, it may need a break in period. More voltage needs to be delivered to the motor to make that happen. This is done through the fine tune settings on the control board (See Technical Bulletin P-0012).

A motor that is running slow after the stove has been in operation for a period of time is an indication that a cleaning is due, or that the motor needs replacing.

Repair/replacement procedure: For the MagnuM Countryside, the tools needed are a 5/16 inch socket, tube of high temp red silicone and caulking gun, ¼ inch socket, utility knife for cutting out old caulking, and a scraping tool for removing old caulking and housing gasket. **Unplug the stove**. Open the left side panel. (It will be necessary to unscrew the knob from the manual draft control). Open the right side panel to access the electrical connections. Unplug the motor. One of the electrical wires is fastened to a group of wires with a wire nut. The other has a terminal connection. (It will most likely be necessary to cut 1 or 2 of the wire straps). Remove the two (2) screws from the vent tube where it hooks onto the draft blower. (Depending on the venting arrangement you may need to disconnect or temporarily support the vent pipe). Remove the five (5) 5/16 inch screws from the motor housing and exhaust housing. Scrape the old gasket from the exhaust housing and remove any silicone from the starter pipe on the exhaust. When putting in the new motor, be very careful to get a good seal on the new gasket and properly seal the starter exhaust with the silicone. If you have cut any of the wire straps make sure the wires are secured, away from any high temperature parts. When putting in the ¼ inch screws to the new motor housing you will notice that there is plenty of play with it. This is to give you adequate adjustment space to make sure you can line up the exhaust again. After you have installed the new motor wait approximately one hour to let the silicone set. At that point start the motor and check for any air leaks. Run the stove on the number 3 heat setting to verify that the motor is running at the proper speeds. (It is advisable to start the new motor before installing it). It will be necessary to wait 24 hours before firing the stove up to insure that there has been enough time for the silicone to cure.

This is a picture of an exhaust blower that was not maintained correctly, which caused the stove to run in-effectively. This blower was replaced.