

M-55 service info as known by Don

The M-55 steel freestanding stove came out summer of 2009 (a little over a year prior to the M55 cast models) and we have always had a very low amount of “issues” with that model. In fact many long time pellet stove users report that model to be one of the most trouble free pellet stoves they have ever been around.

The cast iron freestanding and cast iron insert were introduced (late summer/fall) in time for hearth season in 2010. Soon we had reports of “blinking error code light on #4 light”. The tricky part is this error code can be two different things:

- 1) hopper lid magnetic switch indicating “open lid” (the circuit board see as an open circuit, so jumping the wires to the switch can help troubleshoot this issue, as can the magnet trick discussed below) the reason for the hopper switch is that the newer testing/listing guidelines require that pellet stoves either have a hopper switch that stops that auger when the lid is open (and if lid is open for more than 2 minutes it will flash the #4 error light) or some type of grid to prevent things from getting into the auger. (please do not try to spend much time figuring out why... we do not write the safety rules)
- 2) High limit / over heat 200 degree temp sensor has tripped (also seen by the board as an open circuit) indicating heat building up for some reason? (note: 200 degrees is about 40+ degrees lower than the temp you can even get wood pellets to smell hot and much lower than any point at which they can smoke or catch on fire)

Let’s consider this issue some more... you can place a big magnet on the top of the upper right corner of the touch pad control panel and if the #4 light goes out you just proved it was the hopper switch that tripped the #4 error code. If that is true there is no need to start monkeying around with the high limit switch. If the magnet trick does not turn the #4 error light off then there is a good chance the high limit has been tripped. Just inside the hopper, under the control pad you will see a small removable round snap-in cover to access this high limit reset switch (this cover was later enlarged for those of us with fat fingers). In the event of a true high limit sensor being tripped it will require this “manual reset switch to be reset” before the #4 light will go out and stove will function again. This is exactly as a high limit is supposed to work. Now let’s look what might cause each of these conditions...

Hopper lid open error

Remember the reason for a hopper lid switch is to prevent someone from starting to load the fuel hopper and their phone rings and they walk off and forget and their toddler climbs up and decides to shove his arm into the hopper and hold it there for about 5 minutes and get his fingers pinched... so if the circuit board sees the hopper switch as “open circuit” it will stop the auger from feeding and if this condition lasts for more than 2 minutes it triggers the #4 light. What if the hopper lid is closed and the circuit board thinks it is open? It is possible the top magnet (should be found on the bottom of the hopper lid) has been lost or is recessed to deeply into a cast lid or for some reason is not aligned over

the other half of the switch which is located under the control panel decal (imagine the type of window/door magnet switches used on burglar alarms... you just need the 2 halves to be close to each other to "close the circuit"). As mentioned above, a quick way to trouble shoot this issue is to apply a reasonably powerful magnet to the corner of the control panel and the #4 light should go right out. In theory the magnet switch (found in the same area as the control panel/daughter board) could go bad and cause this issue, but so far I have not seen that happen. We have had to add a few magnets to cast lids to achieve a strong magnetic field.

High limit switch getting tripped

Remember all pellet stoves have a "high limit switch" to shut down the feed system if the stove starts to get too hot. These switches are manual reset and not discussed in the consumer info because if the 200 degree high limit is truly tripping, a technician should evaluate the reason for this problem.

Are we consuming short pellets? Since early 2011 all M-55 stoves have an adjustable auger feed cover. There is up to a 30% swing in heat consumption between short and long pellets. Short pellets will make the stove run hotter (feeding more pounds per hour) and longer pellets will cause the stove to run cooler (feeding less pounds per hour) if you notice short pellets and we have seen the high limit sensor trip we recommend that you move the adjustable auger cover down about ½ way to bring the heat level back into normal range. You can later adjust it up or down, but this is the most common thing we have found and will quickly get the stove back to normal heat output levels. If you find an original M-55 cast unit that does not have this part and they have experienced a "high limit issue" this part # 50-2365 is a "No Charge" item and can be ordered using a normal warranty form. AES attempts to always have a few of them at each of our warehouses.

Has the convection fan stopped functioning correctly? Perhaps it is not evacuating the heat that the cast iron is trying to absorb? Perhaps the fan needs to be cleaned out? We have seen some very dirty fans that would not be able to perform their function very well... perhaps the wires to the fan have been knocked loose when someone was doing some maintenance cleaning? Maybe the fan is bad? Watch for the earliest versions of the M-55 convection fans (part # 50-2064, we have seen no reason for concern in the steel M55, where they have worked perfectly well for many years) in the cast iron M-55'S... they are not as sturdy as the later "split capacitor" versions (part # 50-2481) and the original convection fans simply move less air (which does make them quieter)... the nature of a steel stove does not trap and hold the heat like the cast iron and in some cases the cast iron stoves could build up heat and possibly trip the high limit switch at higher heat settings. (Or when the cast stove has been operating at high heat level for extended time and the circuit board is turned down to a low fire and the original circuit boards programming allowed for the convection fan to immediately reduce the air flow and this could possibly trip the high limit. Later versions of the circuit board step down the fan speed in 2 minute intervals to allow the heat to be evacuated as the heat level is reduced. (saying this another way: Dropping from maximum heat to lowest heat will immediately affect the amount of fuel being feed, but it will take 8 minutes for the convection fan to slow all the way down to normal low heat level) This has been helpful in a few cases if both of the following conditions are in effect: the stove is being used with "auto/off" t-stat and when the cast stove is being used at heat level #5 as High temp setting...

since in most cases it is a more pleasing for the homeowners to have less temperature swing and also it is more efficient to run the stove with more of a steady heat output, we have simply not seen much issue, but it is possible.

Summary:

-watch for hopper magnet “issues” to cause #4 light

-if truly we have #4 light as a high limit trip... inspect the fan? Is the shaft of the motor straight with the fan? (On the original style convection fan, if motor and fan do not align in a straight line it is an indication the fan will not last forever) Is the fan clogged with dust/carpet fiber? Do they notice the fan changing speed? If so, when does the speed change happen?

Note: there was a brief period of time (stoves produced fall of 2010) where the convection fan part # 50-2064 had occasional issues with the fan putting itself into a “thermo protection” mode, where it might slow down or in a few rare cases even stop itself. Most stove/fireplace electric motors have thermo protection, but it is very rare for this heat sensing system to be defective and slow down or shut down unless truly overheating. There is a tech memo that shows how the wires can be re-arranged at the fan connections to bypass this thermo device.