

## **Trouble Shooting – Full Modulation Evolution Boilers** **BLINKING CODES**

### **Fault Code 1-1, Low Line voltage**

Check incoming line pressure at back of boiler in junction box

### **Fault Code 1-2, AC Quality Problem**

Check phase imbalance, check voltage, check for noise.

### **Fault Code 2-1, Unexpected Flame Signal**

Make sure there is no flame present in combustion chamber

Remove the UV scanner from pilot still wired up and see if it is strobing. If it is, it is bad. Replace it.

Remove the amplifier and check connections

### **Falut Code 2-2, Flame Signal Absent,**

#### **Could be at main flame:**

Check the main gas valves for proper operation

Check the gas supply for proper pressure

Confirm all manual gas shut-off valves are open (inside and outside boiler jacket)

Confirm flame is bright orange when firing on high and low fire

If not, adjust combustion to obtain O<sub>2</sub> readings to match the sticker in the boiler for both

High fire and low fire

Check flame signal on high fire and also low fire. Should be 5 volts steady.

If flame signal is unsteady only at low fire check the following:

Remove pilot assembly and make sure insulation above the burner is not in way of UV scanner

If so, use large screwdriver to push insulation back (be careful not to damage burner)

UV scanner could be getting hot

Check heat block below UV scanner for cracks (only on older boilers without air cooled pilot)

Make sure UV scanner connection is tight

#### **OR could be at ignition:**

Confirm all manual gas shut-off valves are open (inside and outside boiler jacket)

Check the main gas valves for proper operation

Check the gas supply for proper pressure (see sticker on front of boiler for min. pressure)

Check for proper gas line sizing (if main gas line is too small pilot could be extinguished when main gas valves open – observe pilot when main gas valves open, confirm it remains burning)

If fan was replaced, be sure air orifice between fan and mixer was re-installed.

**Or could be pilot failure:**

Check flame signal during 1<sup>st</sup> 5 seconds of pilot ignition (PFEP is 10 seconds)

If it is 0vdc, no spark is present

Check ignition transformer and ignition cable

Check ignition electrode for cracked ceramic insulator

Remove pilot assembly and check for carbon build-up or carbon thread between electrode and pilot assembly (clean and replace) If carboning, you are over fired, adjust gas down on pilot reg.

Check and tighten pilot assembly ground wire

If it is 5vdc for 5 seconds then drops to 0vdc for 6 thru 10 seconds, spark is present, but not gas

Boiler has early spark termination, ignition transformer shuts off after 5 seconds

Confirm pilot manual gas cock is open (rear of boiler)

Check and measure pilot gas pressure at solenoid – adjust as needed to assure blue pilot flame

Check operation of pilot solenoid valve

Remove gas tubing going to pilot assembly and check gas orifice in brass elbow fitting

Remove and clean gas orifice (set screw with hole drilled in it)

**Fault Code, 3-1 Running Interlock Switch Problem (air switch circuit )**

If the fan doesn't even attempt to start with a call for heat:

Watch VFD with display to see if it displays a fault code. If so call factory for troubleshooting.

If old open faced TB woods XFC, is it blinking red? Reset at main breaker and try again.

If it remains blinking red, drive could be bad. Call to troubleshoot.

If you have a drive with a display, is it lit? If it is dark, call to troubleshoot.

Check the connections between the vfd and the fan motor

Check the fan motor for high amperage.

Check CRA1 relay to make sure it is closing with a call for heat.

If the fan starts but drops out after 10 seconds:

Probably a bad air switch or not enough air to make the switch

If the boiler drops out only in low fire:

Put the boiler in manual mode (press and hold the exit button on RWF40 for 8 seconds)

Run the boiler on low fire or 0 % firing rate. Does it lock out? Could be a dirty filter.

Take the filter out and hit the reset button and try again. Now it runs at 0% change the filter.

If it locks out again it could be the air switch. Start the boiler and jump out the air switch.

Using a manometer check the flow at the air switch.

The air switch for a modulating boiler makes at .5" w.c.

The air switch for an on/off or 2 stage boiler makes at 1" w.c.  
If flow is above these settings on your manometer, replace the air switch.

Sporadic lockouts:

Check CRA1 & CRA2. If they are faulty, replace with MY2's.

### **Fault Code 3-2, Running ILK On**

Airflow switch is closed when it should be open.

Airflow switch could be closed when it should be open (faulty)

or if you were troubleshooting with jumpers you may have left the jumper on the airflow switch.

You cannot start the boiler with a jumper on the switch. remove it.

### **Fault Code 4-1, No Purge Card**

The purge card is missing. Replace it. When you get a new Honeywell flame safeguard as a replacement part, it does not come with the purge card or amplifier card. You must move the original card to the new control.

### **Fault Code 4-4, Jumper Wrong**

Jumper configuration was changed after the 200 hr. burn it time. The control has to be replaced.

You can not cut the jumpers after 200 hrs. of operation.

### **Fault Code 5-1, Pre-Ignition ILK**

Occurs with IRI POC if the POC switches are not working or making in time. Check POC on valves to determine which one is bad. Replace actuator. You can not repair the switches.

### **Fault Code 5-2, High Fire Switch, Low Fire Switch On**

If you have a low proven start option on the boiler, make sure the gap on the spark plug is 1/8".

If you have a 2000S, 2500 or 3000 model boiler and it is not a low proven start boiler and you replaced the Honeywell Flame Safeguard base, make sure there is a jumper from 18 to 19.