

Trouble Shooting – Full Modulation Evolution Boilers **WITH A KEYBOARD DISPLAY MODULE**

Fault Codes 9, 15, or 18 - Flame sensed when not expected

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

Fault Code 17 - Main flame failure during RUN

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 O₂ readings to match the original readings on the sticker in the boiler

Check flame signal on high fire and also low fire (you should have 5 volts)

If flame signal is unsteady 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 (older models before 2003 that did not have air cooled pilot)

- Check heat block below UV scanner for cracks (older models that did not have air cooled pilot)

- If older pilot make sure heat block is in place and UV scanner connection is tight

Fault Code 19 - Main flame failure during 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

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

Check stack pressure to make sure you don't have a high negative that could blow out main

Flame when transferring from pilot.

Fault Code 28 - Pilot flame failure

Check flame signal during 1st 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)

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 – 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 Codes 29, 30, 31, or 32 - Lockout interlock (air switch circuit)

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

Watch VFD 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.

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 boiler in manual mode (press and hold the exit button on the 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 in low fire? Replace filter.

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

Sporadic lockouts:

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

Fault Code 13 - Airflow switch on

There are jumpers on the air switch from testing. Remove them.

If not, the air switch is fused in the closed position, replace it.