PROCEDURE FOR FINDING A BLOCKAGE IN THE OIL SUPPLY SYSTEM

Paul recommended these tools:

- Multimeter
- ¼, ½, 5/8 and 9/16 open-end wrenches
- #2 Phillips screwdriver
- #74 drill bit
- 3/16 flat screwdriver
- 1/8 allen wrench
- Wire stripper and terminal crimper
- Crescent wrench
- Needle nose pliers
- Pipe sealant (Swak MS-PTS-50) or anaerobic sealant with PTFE
- Rags
- Brake Cleaner in aerosol

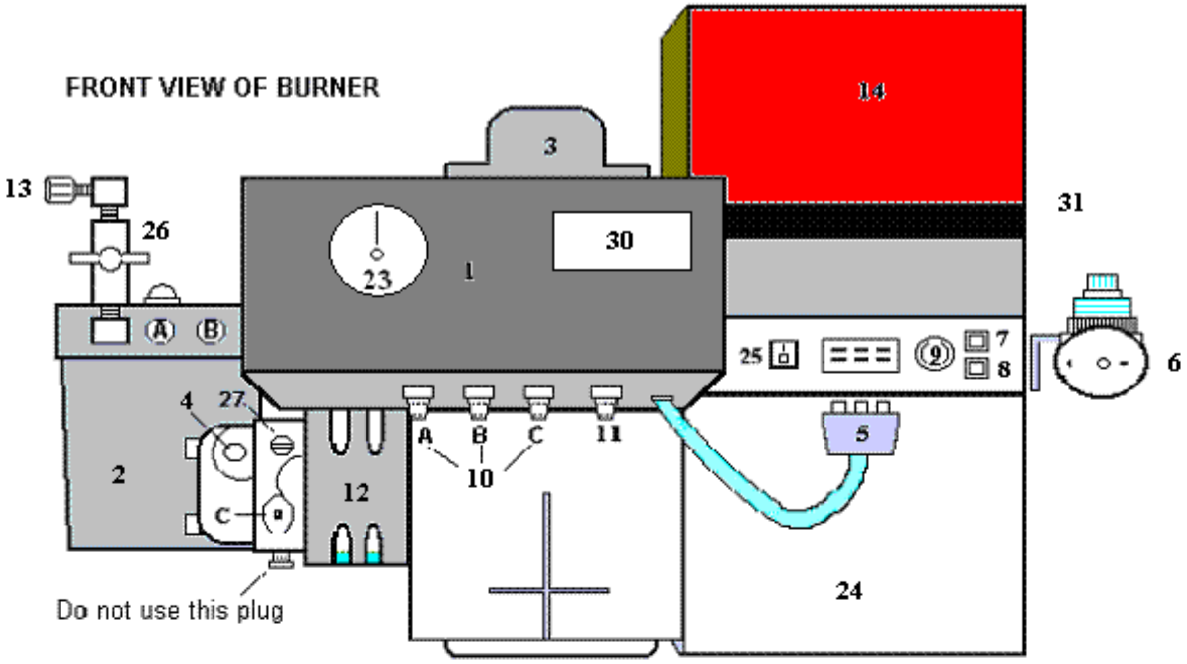
1. Make sure there is at least 30 psig registering on the air regulator pressure gauge.
2. The next thing to check is the nozzle for a possible blockage. Remove the nozzle using 5/8" wrench being careful with the inner part – we call a spinner. On the end of the spinner is a small aluminum gasket that cannot be lost. Make sure the inner part of the spinner is clean using a #74 drill bit.
3. Start the burner by pushing the Fireye reset button and allow the burner to preheat the oil in case there is any solidified oil within the system. Feel the VE filter housing, the hoses and module to see if they are getting warm. If not, check the on/off switch that it is in the UP position for heat. If it is and there is no heat, then check the fuse on the side of the burner – it is the blue 8 amp fuse. If everything is getting warm, then proceed.
4. After about five minutes, check to see if the Bimba cylinder is pulling back when the burner is trying to fire (during PTFI on the Fireye) It should push an 1/8" rod or small screwdriver backward about ½" very rapidly. If it does not do this, then:
    a. It's either because the needle is stuck in the nozzle and needs to be loosened with higher air pressure – i.e. 50 psig, (this is very unlikely) return the air pressure to 30 psig.
    b. Or the Bimba cylinder has failed (unlikely at this point as they normally last 3 to 5 years).
5. Remove the left-most oil hose from the bottom of the module using a 9/16 wrench and point it into a bucket. Start the burner again, the pump will start running immediately, so be careful and observe a strong flow of oil with no bubbles. If there is a strong flow of hot oil into the bucket (with no air bubbles) then everything is open from the filter, the oil pump strainer, and the oil lines. Replace the oil hose as everything in the oil circuitry appears to be performing normally. If no oil, replace the oil hose to the left port and check the following items in this order:

a. the coupling on the motor that drives the pump – if the burner has back-pressure it may get overheated and melt preventing the pump from working.
b. check the vapor eliminator filter that it is not blocking the flow,
c. check the strainer inside the cap of the pump. Attached is another procedure for opening the pump cap. If there is good oil, proceed to next step.
d. The next thing to check is the oil solenoid. It is item 21 in the drawing below.
e. Remove the oil solenoid (on the left-side of the module block) using a crescent wrench and remove the coil leaving the wires attached. Insert into the opening of the solenoid coil a small screwdriver and during the start-up of the burner the magnetic coil will cause the screwdriver to jump around. This proves the coil is working normally. If the screwdriver doesn't jump, then check the orange (4 amp) fuse and replace if bad. If still bad, then proceed to f.
f. Check for 120 volts on both terminals of the air proving switch. It is the white plastic switch that has a small air line running to it with two terminals and a wire connecting it to the oil solenoid. If power is only on one terminal that may mean the air switch is failed. Connect the two wires together that are on the air proving switch to by-pass the switch. This will deliver power directly to the oil solenoid and allow the burner to operate without the air proving switch until it can be replaced.
g. If there is no voltage on the air proving switch, then check the Fireye that it has voltage. Remove the red box cover on the Fireye and on the right side of the Fireye control is a terminal post. Place one probe on the #2 terminal and one probe on the #3 terminal, and observe that you have 120 volts going into the Fireye and that it is ok.
h. If the solenoid has power but doesn't move, remove the tube and plunger, clean and make sure the plunger moves freely. Look inside the solenoid seat to make sure there is no debris. If debris is present then spray with the brake cleaner and reassemble the coil.

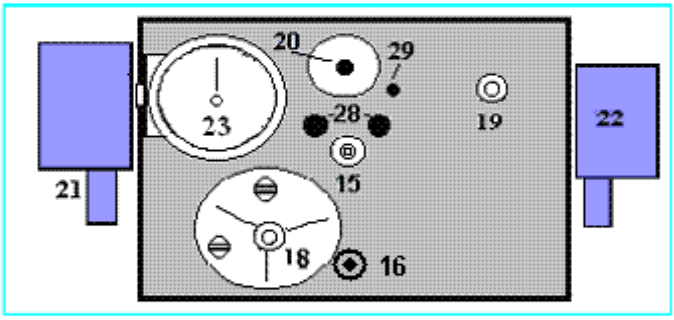
6. If the burner checks out, then you need to check the upstream oil supply – starting with the next item – likely the inline oil filter, and then make sure the oil pickup is in the oil supply.

There are many more details in the instruction manual. Please let us know if you need assistance.

FRONT VIEW OF BURNER



EXPANDED VIEW OF MODULE CONTROLS



KEY

1 - Module
2 - Oil filter & vapor eliminator
3 - Ignition transformer
4 - Oil supply (port) connection on pump
5 - Module plug
6 - Regulator for shop air supply
7 - Safety shutdown light - red
8 - Dirty filter light - amber
9 - Ignition transformer test switch (red button)
10 - Oil line connections
11 - Air connection from regulator
12 - Secondary air adjustment
13 - Return vent line connection
14 - Combustion controller
15 - Heating element
16 - Temperature controller probe
17 -
18 - Dirty filter pressure switch
19 - Air connection to Air proof switch
20 - Bimba cylinder & needle
21 - Oil solenoid
22 - Air solenoid
23 - Oil pressure gauge (0-60)
24 - Burner motor
25 - Heater rocker switch (black)
26 - Pressure relief valve
27 - Oil pressure adjusting screw
28 - U-bend cleanout holes
29 - Air apportioning adjusting screw
30 - LED temperature controller (new in 8/07)
31 - Fuse & circuit breaker location