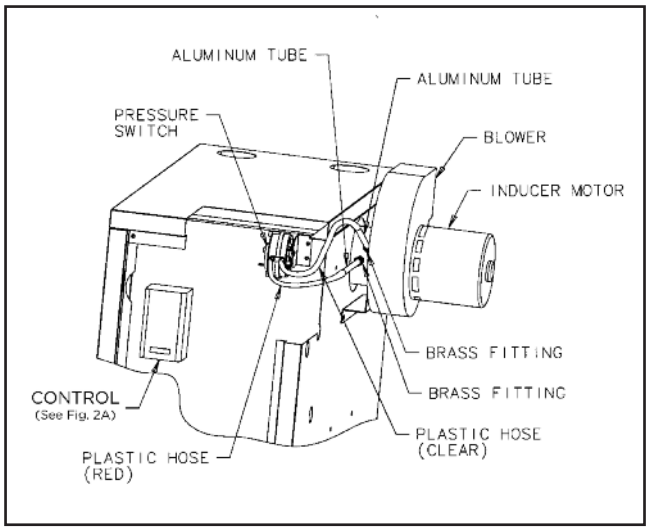

Figure 21. Location and identification of pressure switch and hoses.

CARE AND MAINTENANCE

This section must be brought to the attention of the owner by the installer so that the owner can make the necessary arrangements with a qualified service agency for the periodic care and maintenance of the boiler. The installer must also inform the owner that the lack of proper care and maintenance of this boiler and any fuel burning equipment may result in a hazardous condition. Installer should discuss contents of the User's Information Manual (Publication VSPH-UIM) with the owner.

A trained and qualified service technician should perform the inspection listed in these instructions before each heating season and at regular intervals.

I. General Maintenance

A. Safety check, see page 23.

B. Vent and air intake system inspection
   1. Check for obstruction, condensation, corrosion and physical damage.
   2. Check outside termination. Screen and louvers should be free of any debris and must be cleaned as required.
   3. Perform "Venting and Air intake System Regular Inspection", see page 15.

C. Piping
   Check the following:
   1. Water piping and accessories for leaks. Slightest leaks should be corrected.
   2. System to be full of water and pressure to remain stable at correct setting on gauge.
   3. Air-control system. Noise and air binding in radiation should not occur.
   4. Low water cutoff for operation (see instructions furnished with unit).

D. Boiler Room Air Supply
   Check air vents for continuous positive supply of air as required. Air needs are greatest in cold weather if boiler installation is non-direct vent method. Air vents must open and free of obstruction.

Warning: The flow of combustion and ventilating air to the boiler should not be obstructed.

II. Inspection During Heating Season

A. Check water pressure regularly and add water slowly to system when needed. If much water is added, venting may be necessary. Regular loss of water from boiler system may indicate either a system leak, or a faulty air control system, or a faulty automatic fill valve.
B. Check venting system. See "Venting and Air Intake System Regular Inspection" on page 15.

C. Check condensation drain trap to be full of water. Check for deterioration of the tubing. Check that the trap is not plugged.
D. With main burner firing all LED's mst be steady "on". See "Normal operation-status of indicator lights" on page 22.

E. To prolong the life of the inducer motor, lubricate with Anderol 465 or SAE 20 motor oil annually Turn off power and place 4-6 drops of above mentioned lubricant in each of two oil holes. Lubricate circulator per manufacturer's instruction. DO NOT over oil any motor.

WARNING:

The ceramic combustion chamber in the burner box contains crystalline silica.

Wear proper dust mask and gloves when servicing combustion chamber or burners.

Crystalline Silica has been identified as a carcinogenic or possibly carcinogenic to humans.

CLEANING

A. Flue passage cleaning See Figure 22
   1. Turn off power to the boiler
   2. Remove front jacket panel
   3. Remove air box front panel
   4. Remove jacket top
   5. Remove inducer assembly
   6. Remove flue collector
   7. Remove combustion air screen
   8. Use wire brush to clean flue passages. It is suggested that paper be placed on burners to collect any foreign material in cleaning flue passage.
   9. Replace flue collector and re-seal with high temperature sealer or with furnace cement.
   10. Remove and dispose of paper and accumulated material.
   11. Replace all removed items.
   12. Check boiler operation.

B. Cleaning of burners
   1. Turn off power to the boiler.
   2. Remove jacket front, air box front panel, air intake screen and combustion air screen located inside the air box.
   3. Disconnect ignitor/sensor cable from the boiler control.
   4. Remove pilot gas line from brass fitting located inside the air box.
   5. Lift burners and remove from orifices.
   6. Clean burners. To clean burners, run a clean flue brush up the tube until all foreign matter is removed.
   7. Replace all removed items.
   8. Check boiler operation.

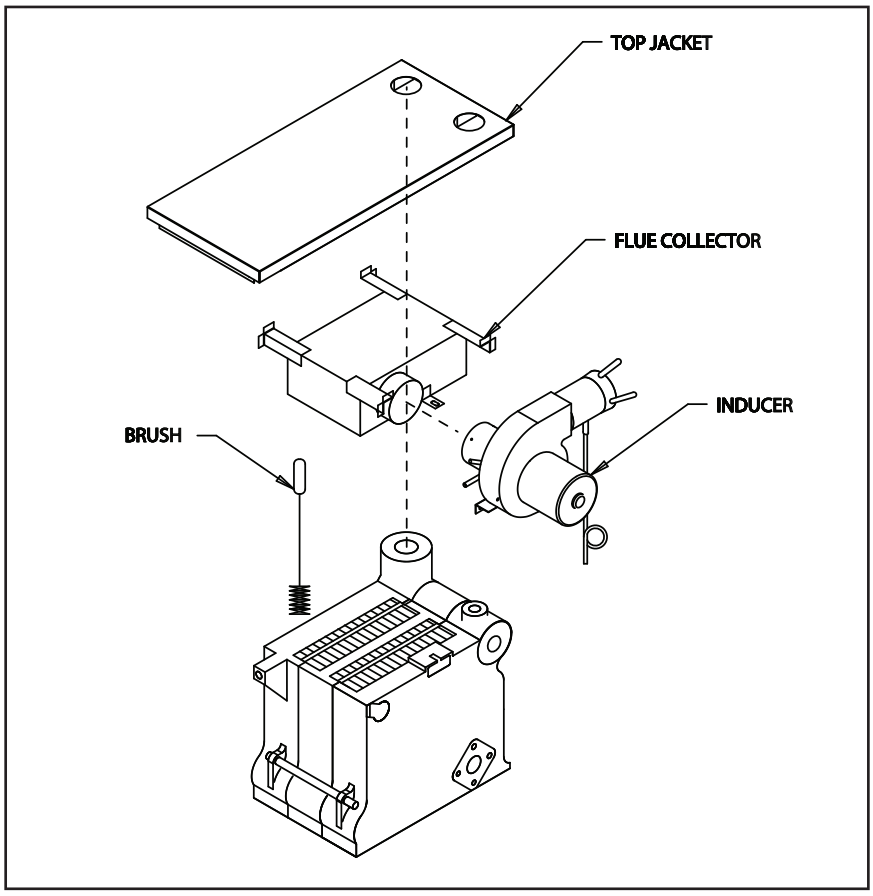

Figure 22. Flue passage cleaning illustration

General Troubleshooting Guide For Service Personnel

WARNING: Only a trained, experienced service technician should perform troubleshooting. Turn off all electric power to the boiler before servicing.

A. BURNERS FAIL TO OPERATE- NO HEAT

CAUSE	REMEDY
1. No power, POWER LED off. Main electric switch open. Blown or defective line fuse.	1. Close switch. Check and replace
2. Gas supply valve shut off. Gas valve knob is on “off” position. FLAME LED flashing.	2. Open gas supply valve. Turn gas valve knob to “on “ position. Check gas pressure.
3. Flame sensor contaminated.	3. Clean sensor.
4. Pilot flame too low.	4. Adjust pilot flame.
5. Roll-out switch open. POWER and TSTAT/CIRC LED’s are on.	5. Check roll-out switch for continuity replace if blown out (inspect flue passages prior to replacement).
6. Harnesses plug-in connectors are not securely connected	6. Check connectors on boiler control.
7. Defective transformer.	7. Remove P2 connector from boiler control. Check transformer terminals for 24V. Replace defective transformer.

CAUSE	REMEDY
8. Defective pressure switch. POWER and PRES SWITCH LED's flashing	8. Check pressure switch. Replace defective pressure switch.
9. Defective high limit control	9. Set high limit setting above boiler water temperature, LIMIT LED should turn on. If not, turn off power to the boiler, remove wires to high limit and check continuity across high limit contacts. If contacts are open, replace high limit.
10. Defective inducer motor	10. With thermostat calling for heat and high limit setting above boiler water temperature, remove blower motor plug from boiler control (P4 connector). Check for 120 V between terminally 3 and 5 of P4 on control (See Figure 13a and 13b). If voltmeter indicates 120V, replace inducer assembly.
11. Defective gas valve	11. a. Check all above causes. b. check the gas supply pressure (at the inlet of gas valve) as shown on the boiler rating plate for the type of gas used. c. With thermostat calling for heat and high limit setting above water temperature, check the voltage across terminal PV & PV/MV, if 24 VAC presents, replace the gas valve
12. Defective boiler control module	12. Check all above causes. If all red indicator lights are off while there is call for heat replace control module.

B. NOT ENOUGH HEAT

CAUSE	REMEDY
1. Thermostat setting is too low	1. Set thermostat at higher setting
2. Boiler water maintained at too low temperature.	2. Set Aquastat at higher setting.
3. Circulator not running.	3. With thermostat calling for heat, check for power to circulator. If power is O.K but circulator is not running, replace circulator.
4. Boiler water level too low.	4. Carefully snap open relief valve handle to determine if boiler is full of water, if not full of water, check for system leaks and check water pressure regulator. Repair any system leaks. Adjust or replace water pressure reducing valve.
5. Restriction or obstruction in air intake or venting system.	5. Inspect flue and air intake piping. Inspect termination.

C. BURNER WILL NOT SHUT OFF

CAUSE	REMEDY
1. Defective Aquastat (high limit control)	1. Turn off power to the boiler. Remove red and blue wire from Aquastat terminals. Restore power. Check boiler operation, if burners stop firing, replace Aquastat.
2. Aquastat sensor is not properly inside Aquastat well.	2. Insert the sensor into the well.