



6.3 Mechanical Components

6.3.1 Pressure Relief Valves Leaking Intermittently or Steadily

Possible Cause	Remedy
A. Static pressure in system exceeds setting of relief valve.	A. Calculate height of water in system above heater. Install new valve with psi setting 25% above required static system working pressure. Do not exceed 160 psi.
B. Expansion tank is waterlogged (if installed).	B. Drain expansion tank, then reopen it to the system. Look for leaks in expansion tank or fittings. Calculate required volume of expansion tank in relation to system to determine that tank is adequate.

6.3.2 Heater is Pounding, Knocking or Emitting Steam from Relief Valves

A. Low or no water flow.	A. This condition is usually caused by lack of adequate water flow through heater. Check the following: 1. Is the heater wired into the pump circuit so that the heater cannot fire unless the pump is running? 2. Check to see that all valves in system are open to be sure that water can circulate through the heater and the system. 3. If the system has automatic water valves (2-way or 3-way) that can cut off the water flow through the heater, check to see that they are equipped with end-switches which shut the heater down when the water flow through the heater is reduced by 70% from full flow 4. Examine pump for clogged impeller.
B. Low or no system pressure.	B. Clean strainer in pressure reducing valve. Look for closed valve water line or a leak in the system.
C. Clogged "Y" strainer.	C. Remove strainer element and clean screen.
D. Debris from system piping is blocking tubes.	D. Remove header covers. Examine all tubes and waterways. Use new gaskets when reassembling. Clean out tubes.
E. Scale has formed in tubes.	E. This is always caused by the inflow of raw water into the system. Clean tubes with tube cleaning kit. Determine hardness. Check water flow, replace pump for modified flow if necessary.

6.3.3 Soot in Flueways or in Tubes, or Noxious Fumes Indicative of Bad Combustion

A. Combustion air supply to heater room is inadequate.	A. Check air supply opening. Look for debris in screen or louver which covers combustion air opening, or for material blocking the opening.
B. Stack or vent is blocked or restrictive.	B. Look for blocked stack and excessive number of elbows in stack or excessive length of horizontal runs.
C. Severe down draft is causing spillage of flue products into room.	C. Check for (1) proper vent cap on stack; (2) adequate height of stack above roof; (3) equipment exhausting air from inside of building; and (4) proper installation of draft diverter.
D. Gas pressure to burners is excessive.	D. Check gas pressure with manometer, and adjust with heater firing at full rate.
E. Heater not fitted for the fuel being supplied.	E. See nameplate for correct fuel.

6.3.4 Water Dripping in Firebox

A. Tube in heat exchanger has overheated and ruptured.	A. A tube failure is almost always caused by (a) scale formation in the tube or (b) inadequate water flow through the boiler.
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