

## Electric Boiler Troubleshooting Guide

**Call for heat and boiler doesn't start, no lights on circuit board. Try the following:**

1. Confirm that the boiler is connected to 240/1 power, main panel breakers are ON, breakers supplying boiler in panel are ON.
2. Boiler circuit breakers are ON.
3. Check line side of transformer for 240 volts. If yes, continue. If no, check for 240VAC at circuit breaker.
4. Check low voltage side of transformer for 24 VAC. If yes, continue. If no, change transformer.
5. Check for 24 VAC from fuse to circuit board. If yes, continue. If no, change fuse.
6. If outdoor sensor is attached to OT/OT on boiler circuit board, is outdoor temperature below 68°F? If outdoor temperature is 68°F or more, disconnect one leg of wires to OT/OT. Do not jumper OT/OT.
7. Confirm that load management control contact is wired to S1/S2 terminals on boiler circuit board and load management contact is closed, or jumper S1/S2. Boiler will not start if S1/S2 is open.
8. Confirm that thermostat or zone valve end switch is wired to C/W1 terminals on boiler circuit board and that boiler is getting a good call for heat, or jumper C/W1.
9. Turn OFF circuit breakers at boiler. On upper left corner of circuit board are two red wires connected to supply water sensor on boiler tank. Carefully disconnect red wire connections from board. Turn ON circuit breakers. If boiler starts, turn OFF circuit breakers and replace supply water sensor. If boiler doesn't start, replace circuit board.

**Call for heat, circuit board lights come on but no heat or insufficient heat. Try the following:**

1. Check amp draw at boiler circuit breakers. If amp draw is less than rating on boiler label, continue to next step. If amp draw is correct, turn OFF circuit breakers and check pump operation, confirm system design, heat loss, boiler sizing, system water level, etc.
2. Check back-up contactor. Set meter to volts AC and measure for voltage on power wires out of contactor going to elements/relays. If 240VAC, go to next step. If not 240VAC, check for 24VAC at coil of back-up contactor. If no 24VAC, check for 24VAC across high limit sensor on tank. If 24VAC, reset manual high limit or, if auto high limit, change high limit. If no 24VAC, check wiring at high limit.
3. Check for 24V DC from circuit board to coil of element relays - smaller two screws on solid state relay, terminals labeled coil on DC relays. Make sure + probe on meter to + terminal on SSR and - to -. If no DC voltage to relays, check wiring harness connection to circuit board. If DC voltage at relay, set meter to volts AC and check contact side of relay. If solid state relay, put probes on SSR L1 and T1 - larger two screws on SSR. If DC relays, put probes on terminals labeled contacts. If 0 voltage, relay contact is closed, go to step 4. If 240VAC at relay contact, it is failed open, change relay.
4. Turn OFF circuit breakers. Check for continuity at boiler elements. If no continuity, change element.