FUNCTIONAL CHECK FOR ELECTRIC COIL UNITS

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FUNCTIONAL CHECK TO BE PERFORMED BY A QUALIFIED PERSON - with Product Data Sheet (PDS) in hand for unit. If any faults are found, complete entire functional check again after repairs.

(1) Check if correct line voltage is supplied to unit between L1 and L2 or N. Compare to PDS and fan markings

No →
- Incorrect breaker (wrong voltage)
- Tripped breaker or local disconnect off (no voltage)

Yes ↓

(2) Check that control voltage is correct between thermostat terminals 1 and 2. Refer to PDS.

No →
- Blown insert fuse
- Tripped (overheated) or faulty insert internal thermostat
- Faulty transformer

Yes ↓

(3) Actuate each room thermostat individually (turn other zones off), referring to Owner's Certificate or Design Drawing and insert zone legend (if applicable), and check for control voltage at the corresponding relay for each zone. Refer to PDS for terminal numbers for each zone.

No →
- Faulty wiring
- Dead room thermostat battery (if applicable)
- Faulty room thermostat
- Tripped (overheated) or faulty control voltage overheat protector

Yes ↓

(4) Check that relay has been activated - look for indicator or motion in relay in response to applied control voltage.

No →
- Faulty relay

Yes ↓

(5) Check for line voltage across the individual heating coil (or indicator lamp response) and line voltage across fan. Fan may stay running if timer circuit is present.

No →
- Faulty relay
- Tripped (overheated) or faulty line voltage overheat protector

Yes ↓

(6) With one zone actuated, check for a current draw that matches the zone output, plus the fan. Complete steps 3-6 for each zone. Finally, with all zones actuated, check for a current draw that matches total output plus the fan.

No →
- Faulty element

Yes ↓

(7) Check that the fan responds to voltage applied by the relay, is running within 15% of the rated speed (use an optical tachometer, available from Legalett) and is not overheating. Refer to markings on fan. -1 stands for RPM.

No →
- Faulty capacitor (causes overheating, slow fan speed, or failure to start) - one capacitor lead must be disconnected to measure capacitance, using Canadian Tire 52-0052-2 or equivalent digital voltmeter with capacitance scale
- Fan internal overheat protection tripped - cycle power
- Faulty fan

Yes ↓

(8) Check if room thermostats lose power intermittently while the thermostats are still calling for heat, and if so, check if fan was running while thermostats lost power. Note - it is normal for the thermostats to briefly lose power once or twice immediately after the thermostat stops calling for heat (and the fan will run briefly to dissipate residual heat in the box).

Yes →
- Insert internal thermostat out of adjustment or unit was overheated (fan was running) - see below
- Intermittant power supply (fan was not running)

No ↓

Unit is functioning properly, continue to Troubleshooting Guide if problem is not resolved

Before adjusting internal thermostat, check baffles and gasketing for leaks that cause hot air recirculation and overheating, which may cause a false trip of the internal thermostat.

Insert Internal Thermostat Adjustment Procedure

The internal thermostat is designed to power the transformer (and room thermostats) if the return air temperature is below 50°C (122°F) during normal operation, and disconnect the transformer (and room thermostats) and apply power to the fan above 50°C (122°F), which is an overheat condition.

- Place the internal thermostat bulb in 50°C (122°F) water.
- If internal thermostat does not apply voltage to the fan, adjust the internal thermostat so that it applies voltage to the fan at 50°C (122°F) and disconnects voltage from the fan (and connects voltage to the transformer) at 47°C (117°F). 5° of adjustment is approximately 1°C (2°F).
- Note that internal thermostat response may take several minutes