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**STEP 1** – Check in coming power (make certain filter pump motor is ON).

240 or 120 VAC between Black (A) wire and Red (B) wire?  
Make certain filter pump is on. Correct wiring.

**STEP 2** – Check Transformer

24 VAC between Red (2) wire and Yellow (1) wire on Transformer?  
Replace Transformer

**STEP 3** – Check Fuse

24 VAC between Red (3) wire on PIB and Yellow (1) wire on Transformer?  
Locate and correct short circuit, replace Fuse.

Make certain Universal Control is calling for heat (red LED on).

**STEP 4** – Check power to Water Press. Sw.

24 VAC between Purple (4) wire on PIB and Yellow (1) wire on Transformer?  
Recheck voltage at Red (3) wire. If voltage is 24 VAC replace PIB.

**STEP 5** – Check thru Water Press. Sw.

24 VAC between Gray (5) wire on PIB and Yellow (1) wire on Transformer?  
Do a Back Pressure Test. If pressure is higher than 2 PSI, replace Water Pressure Switch. If less, clean filter baskets or repair pressure problem.

**STEP 6** – Check thru Vent Temp Limit

24 VAC between Orange (6) wire after Vent Temp Limit and Yellow (1) wire on Transformer?  
Correct blockage in vent. Replace Vent Temp Limit

**STEP 7** – Check thru Fusible Link

24 VAC between Blue (7) wire on PIB and Yellow (1) wire on Transformer?  
Check wires to Fusible Link, replace Fusible Link. Correct excessive heat problem in cabinet. Possible rollout.

**STEP 8** – Check power to High Limits

24 VAC between Black (8) wire on PIB and Yellow (1) wire on Transformer?  
Recheck power at Blue (7) wire. If 24 VAC at Blue but not Black, replace PIB.

**STEP 9** – Check thru High Limits

24 VAC between Black (9) wire on PIB and Yellow (1) wire on Transformer?  

**STEP 10** – Check power to Ignition Control

24 VAC between Black/Yellow (10) at W terminal of Ignition Control and Yellow (1) wire of Transformer?  
Recheck power at Black (9) wire. If 24 VAC at Black, but not Black/Yellow (10), replace PIB.

**STEP 11** – Check power at Ignition Control

24 VAC between Black/Yellow (11) at W terminal of Ignition Control and Yellow (1) wire of Transformer?  
Correct problem with Black/Yellow wire or its connectors.

**STEP 12** – Check Hot Surface Igniter (Igniter)

Is Igniter (12) glowing?  
Turn heater OFF. Disconnect Igniter at C & D. Turn heater ON. Check voltage in the connector ends of C & D going to the Ignition Control (not to the Igniter). If your meter is a true RMS meter the voltage should read 105 to 130 VAC. If your meter is not a true RMS meter the voltage should read 64 to 130 VAC. If the voltage is within range replace the Igniter. If the voltage is low recheck incoming power. If the voltage is above 130 VAC replace both the Igniter and Ignition Control.

**STEP 13** – Go to back page

Is Igniter (12) glowing?
After the Igniter begins to glow, wait approximately 40 seconds. Did the burners ignite?

Check voltage between Brown (13) wire at Gas Valve and Yellow (1) wire of transformer. Is there 24 VAC?

Check supply gas pressure (see chart below). Did burners ignite?

Check voltage at VAL of Ignition Control. If 24 VAC, replace brown wire. If no voltage replace Ignition Control.

Check manifold pressure (see chart below). If supply was correct but there is no pressure on manifold replace the Gas Valve. If pressure is high check for plugged or wrong orifices. If pressure exists but is low correct supply problem.

Heater is not recognizing the flame (flame rectification). Any of the following can prevent flame rectification:
- Low gas pressure.
- Plugged burner orifice.
- Poorly connected or missing ground wire.
- Corroded or dirty Flame Sense Rod.
- Ignition Control not receiving flame sense signal.

Or there is insufficient current when the gas valve is powered. Current loss can be caused by any of the following:
- Excessive corrosion on wire terminals.
- Frayed or over heated wires.
- Pitting of contact points of the Water Pressure Switch or corrosion on connectors of the High Limits.

To determine whether the problem is lack of rectification or loss of current, check voltage at the Black/Yellow (11) wire at the Ignition Control. Keep the meter probe at this location and watch the reading. If, after the gas valve receives power, the voltage slowly drops until the gas valve shuts off, then returns to normal, the problem is due to loss of current.

Check supply gas pressure (see chart below). Did burners ignite?

Check manifold pressure (see chart below). If supply was correct but there is no pressure on manifold replace the Gas Valve. If pressure is high check for plugged or wrong orifices. If pressure exists but is low correct supply problem.

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- Ignition Control not receiving flame sense signal.

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Set gas valve knob to the Pilot position. Set thermostat rocker switch to OFF. Set meter to VDC above one.

Does pilot light?

1. Verify gas is on.
2. Check for air in gas line.
3. Check for clogged pilot tube or orifice.

Does pilot stay on when gas valve knob is released?

1. Check P/G output.
2. Check for shorted wires.
3. Check pilot coil (yellow wires).

STEP 1 – Try to light pilot
Does pilot light? NO
YES

STEP 2 – Check pilot operation
Does pilot stay on when gas valve knob is released? NO
YES

STEP 3 – Check pilot output
Is there 500+ mV between PP and PP-TH terminals? NO
YES

For the following tests leave the Red probe on the PP terminal.
Move the Black probe to each test position.

STEP 4 – Check Fusible Link
Is there 500+ mV through Fusible Link? NO
YES

STEP 5 – Check Vent Temp Limit
Is there 500+ mV through Vent Temp Limit? NO
YES

STEP 6 – Check Fireman’s Switch
Is there 500+ mV through Fireman’s Switch? NO
YES

STEP 7 – Check High Limits
Is there 500+ mV through at White wire of Pressure Switch? NO
YES

STEP 8 – Check Pressure Switch
Is there 500+ mV @ Black Wire of Pressure Switch? NO
YES

Make certain filter pump is ON. Perform Back Pressure Test. If 2.5 PSI or more, replace switch. If less, check pump, filter, etc. for pressure problem.

STEP 9 – Check Thermostat
Is there 200+ mV @ Black Wire of Temp. Board on terminal TH/PP? NO
YES

Zero volts - Replace rocker switch. 500+ mV do the tests below .

STEP 10 – Check Gas Valve
Is there 200+ mV @ TH terminal of the Gas Valve? NO
YES

Move rocker switch to OFF. Rotate Gas Valve Knob to ON. Move rocker switch to ON. Does heater fire?

Check #1 burner and orifice. Check gas pressure. If all OK replace Gas Valve.

Perform Thermistor Test (see back pg.)
Disconnect pot wires (orange) and jump pot terminals. If voltage drops to 200+ mV, replace Temp. Control.

Replace Temp. Board

After correcting problem return to Step 9 and proceed.
LRZM TROUBLESHOOTING

### Total Millivolt (mV) Loss Test
After the heater is completely operational and firing, do a Total Millivolt Loss Test by place one meter probe on PP-TH and the other probe on TH of the Gas Valve. The meter will now read the total millivolts lost in the entire circuit. Maximum allowable loss for the LRZM is 80 mV.

If the loss is greater than 80 mV, test each wire and component by placing one probe at one end and the other probe at the other end of each item. Ideally all wires should have a zero reading and each component, except the Rocker Switch and Temperature Board should have no more than a 5 mV loss. The Rocker Switch can have up to 10 mV and the Temperature Board up to 50 mV. Any item which shows higher than allowable loss should be cleaned, repaired or replaced.

<table>
<thead>
<tr>
<th>Supply Pressure</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas</td>
<td>10.0&quot; WC (2.5 kPa)</td>
<td>14.0&quot; WC (3.5 kPa)</td>
</tr>
<tr>
<td>LP Gas</td>
<td>5.5&quot; WC (1.4 kPa)</td>
<td>9.0&quot; WC (2.2 kPa)</td>
</tr>
</tbody>
</table>

### Manifold Pressure Chart

<table>
<thead>
<tr>
<th>Model</th>
<th>Minimum Temp Rise, °F (°C)</th>
<th>Maximum Temp Rise, °F (°C)</th>
<th>Minimum System Flow GPM (lps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>3 (2)</td>
<td>7 (4)</td>
<td>30 (1.9)</td>
</tr>
<tr>
<td>175</td>
<td>5 (3)</td>
<td>10 (6)</td>
<td>30 (1.9)</td>
</tr>
<tr>
<td>250</td>
<td>7 (4)</td>
<td>15 (8)</td>
<td>30 (1.9)</td>
</tr>
<tr>
<td>325</td>
<td>9 (5)</td>
<td>17 (9)</td>
<td>30 (1.9)</td>
</tr>
<tr>
<td>400</td>
<td>11 (8)</td>
<td>20 (11)</td>
<td>30 (1.9)</td>
</tr>
</tbody>
</table>

### Thermistor (Water Temperature Sensor) Chart

<table>
<thead>
<tr>
<th>WATER TEMP IN HEADER ºF (ºC)</th>
<th>APPROX. RESISTANCE IN 1,000'S OF OHMS (kOhms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 (10)</td>
<td>19.9</td>
</tr>
<tr>
<td>60 (15)</td>
<td>15.3</td>
</tr>
<tr>
<td>70 (21)</td>
<td>11.9</td>
</tr>
<tr>
<td>80 (26)</td>
<td>9.3</td>
</tr>
<tr>
<td>90 (32)</td>
<td>7.3</td>
</tr>
<tr>
<td>100 (38)</td>
<td>5.8</td>
</tr>
</tbody>
</table>

### Symptom | Cause | Remedy
---|---|---
Pump not operating. | A. No power | A. Check circuit breaker and power.
| B. Pump defective | B. Replace.
| C. Incorrect wiring | C. Recheck wiring.

Pilot outage. | A. Inlet gas pressure low | A. Consult gas utility company. Inlet gas pressure to heater should be 5.5" to 10.0" WC for Natural Gas or 10.0" to 14" for Propane Gas.
| B. Inlet gas pressure too high causing an unstable blowing pilot | B. Pressure should be regulated within limits shown above.
| C. Weak or defective thermocouple | C. Replace thermocouple.
| D. Damaged pilot or thermocouple | D. Replace.
| E. Dirty pilot | E. Blow dust or lint out of pilot.
| F. Plugged or undersized pilot orifice | F. Clean or replace pilot orifice.

Flame roll-out at startup. | A. Check burner orifices for blockage (spider webs) | A. Remove and clean each orifice.
| B. Blocked flue | B. Remove blockage.
| C. Pilot out of position (delayed ignition) | C. Correct pilot position.
| D. Blocked heat exchanger | D. Clean or correct as necessary.
| E. Fiber board out of place | E. Clean or correct fiber board as necessary.
| F. Altered vent cap | F. Install factory provided vent cap.
| G. Low gas pressure | G. Check and correct gas pressure.

Spillage at draft hood. | A. Cold chimney | A. Allow heater to operate five (5) minutes to create draft action.
| B. Vent pipe pitches down to chimney | B. Reinstall vent cap to pitch up from heater to chimney.
| C. Blocked chimney | C. Remove blockage.
| D. Altered draft hood | D. Install factory provided draft hood.
| E. Prefabricated chimney with incorrect cap | E. Install UL listed vent cap.

Lazy flame with yellow tip. | A. Low primary air | A. Check for blocked louvers or openings to heater.

Not enough heat | A. Inadequate gas supply | A. Gas meter too small. Gas line from meter to heater too small.
| B. Low manifold gas pressure | B. Gas pressure on heater manifold should be adjusted to 4.0" WC Natural Gas, 9.0" WC Propane.
| C. Heater size inadequate | C. Replace with heater of higher input rating.
| D. Low Temperature Rise | D. Check and correct water flow.

Heater pounding or knocking. | A. Inadequate water flow through heater | A. Check Temperature Rise (see chart above). If temperature rise is above the maximum check for damaged or incorrectly set bypass.

Heater condensing | A. Low water temperature | A. Flue product moisture will condense at the start-up until the water temperature reaches normal operating conditions.

Pressure relief valve opens. | A. Restriction in water flow system at or downstream of heater | A. Check for proper operation of all valves, bypass valve and any equipment between pool and heater outlet.

Pilot is lit but main burners will not come on. | A. Gas valve not at “ON” position | A. Turn knob to “ON” position.
| B. Hi-Limit switches failed | B. Investigate reason for overheating and replace Hi-limit switches.
| C. Pressure switch failed or out of adjustment | C. Adjust pressure switch or replace as necessary.
| D. Fusible Link failed | D. Investigate reason for flame rollout and replace Fusible Link as necessary.
| E. Gas valve failed | E. Check and replace Gas Valve as necessary.
| F. Broken wire in thermostat circuit or defective thermostat | F. Check continuity through thermostat circuit with wires disconnected.
| G. Heater wired incorrectly | G. Check heater wiring against wiring diagram.

Heater short cycles | A. Low water flow through heater | A. Increase size of pump or increase piping size as necessary.
| B. Failed High-limit switch | B. Check Hi-limit switches and replace as necessary.

---

5
LXi Troubleshooting Guide — Serial Number G11LB0001 or newer

STEP 2 – Check Transformer
24 VAC between Red (2) wire and Yellow (1) wire on Transformer?
YES
NO
If wired 240 VAC check voltage between Black (E) wire and Blue (F) wire. If wired 120 VAC check voltage between Black (E) and White (D) wires. If the correct voltage is present, replace Transformer, if not check Conversion Board position.

STEP 1 – Check Power at Dist. Brd. (make certain filter pump motor is ON).
240 or 120 VAC between Black (C) wire and Red (B) wire on Power Dist. Brd.?
YES
NO
Make certain filter pump is on. Correct wiring.

STEP 3 – Check Fuse
24 VAC between Red (3) wire on PIB and Yellow (1) wire on Transformer?
YES
NO
Locate and correct short circuit, replace Fuse.

STEP 4 – Check power to Water Press. Sw.
24 VAC between Purple (4) wire on PIB and Yellow (1) wire on Transformer?
YES
NO
Recheck voltage at Red (3) wire, if voltage is 24 VAC replace PIB.

STEP 5 – Check Water Pressure Switch
24 VAC between Gray (5) wire on PIB and Yellow (1) wire on Transformer?
YES
NO
Do a Back Pressure Test, if pressure is higher than 2 PSI, replace Water Pressure Switch, if less clean filter, baskets or repair pressure problem.

STEP 6 – Check power to Fusible Link
24 VAC between Orange (6) wire on PIB and Yellow (1) wire on Transformer?
YES
NO
Recheck voltage at Gray (5) wire, if voltage is 24 VAC replace PIB.

STEP 7 – Check Fusible Link
24 VAC between Blue (7) wire on PIB and Yellow (1) wire on Transformer?
YES
NO
Check Fusible Link Air Box and Vent Temp Limit individually. Replace failed part. Correct excessive heat problem in vent or air box.

STEP 8 – Check power to High Limits
24 VAC between Black (8) wire on PIB and Yellow (1) wire on Transformer?
YES
NO
Recheck power at Blue (7) wire. If 24 VAC at Blue but not Black, replace PIB.

STEP 9 – Check High Limits
24 VAC between Black (9) wire on PIB and Yellow (1) wire on Transformer?
YES
NO
Replace both High Limits. Do a Temp. Rise Test.

STEP 10 – Check power to Ignition Control
24 VAC between Black/Yellow (10) wire on PIB and Yellow (1) wire on Transformer?
YES
NO
Recheck power at Black (9) wire. If 24 VAC at Black, but not Black/Yellow (10), replace PIB.

STEP 11 – Check power at Ignition Control
24 VAC between Black/Yellow (11) at W terminal of Ignition Control and Yellow of Transformer?
YES
NO
Correct problem with Black/Yellow wire or its connectors.

STEP 12 – Check Blower
Is Blower ON?
YES
NO
Check voltage between F2 terminal of Ignition Control and ground (A). Is voltage 105 VAC or higher?

STEP 13 – Go to back page

STEP 13 – Go to back page

Note: If Blower is ON, go to Step 13 on back page.

Is Blower ON?
YES
NO
Correct incoming power problem.

Check voltage between F1 terminal of Ignition Control and ground (A). Is voltage 105 VAC or higher? If no, replace Ignition Control, if yes check voltage between Black(L) wire to Blower on PDB and ground (A). If voltage is 105 VAC or higher replace Blower, if lower check wires, replace PDB.

STEP 14 – Go to back page

STEP 14 – Go to back page
**STEP 13 – Check Air Pressure Switch**

- Make certain Blower is on and combustion chamber is sealed. Check air tubes for kinks or holes. Make certain front air tube is connected to the positive (+) side and back/lower air tube is connected to negative (-) side of the Air Pressure Switch. If all are OK replace the Air Pressure Switch.

- **24 VAC between Orange (NO) wire at the Air Pressure Switch and Yellow (1) wire on Transformer?**
  - **NO**
  - **YES**

**STEP 14 – Check Power to PSW**

- Check wire connections. Replace Orange wire.

- **24 VAC between Orange (12) wire at the Ignition Control and Yellow (1) wire on Transformer?**
  - **NO**
  - **YES**

**STEP 15 – Check Hot Surface Igniter**

- Check voltage between K and J of the Ignition Control. If 105 to 130 VAC, check wires and connectors to the Igniter, if OK, replace Igniter. If voltage is less than 105 VAC check incoming voltage between L1 and L2, if voltage is 105 to 130 VAC replace Ignition Control.

- After Blower comes on wait at least 15 seconds (Pre-Purge). Is Igniter glowing?
  - **NO**
  - **YES**

**STEP 16 – Check for Ignition**

- **CHECK HOT SURFACE IgNITIer**
  - After the HSI begins to glow, wait approximately 40 seconds. Did the burners ignite?
    - **NO**
    - **YES**

- **CHECK For IGIgnITION**
  - Check voltage on Brown (13) wire at terminal VAL of the Ignition Control. Is there 24 VAC at VAL?
    - **NO**
    - **YES**

- **STEP 17 – Check Burners operation**

- Do Burners stay on beyond 7 seconds?
  - **NO**
  - **YES**

- Heater is operating.

**Note:** If the blower runs continuously, unplug F1/F2 connector from the Ignition Control, if the blower goes off replace the Ignition Control. If the blower stays on, check for shorted wires between the Ignition Control and PDB or from the PDB and the Blower.

**Service Codes**

<table>
<thead>
<tr>
<th>DISPLAY FAULT</th>
<th>CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAULT-PUMP</td>
<td>1. Pump is not running.</td>
<td>1. Check breakers and power source, recheck wiring, set time clock and current time.</td>
</tr>
<tr>
<td>NO FLOW</td>
<td>1. Pump is not running.</td>
<td>2. Clean filter or clear blockage, check position of valve in plumbing system.</td>
</tr>
<tr>
<td></td>
<td>2. Low pump pressure.</td>
<td>3. Adjust or replace pressure switch. Refer to qualified service personnel.</td>
</tr>
<tr>
<td></td>
<td>3. Pressure switch fault.</td>
<td></td>
</tr>
<tr>
<td>FAULT-HIGH LIMIT</td>
<td>1. Water temperature in heater exceeds the internal limit.</td>
<td>1. Verify function of high limit switches. Perform temperature rise test. Identify and correct cause of overheating. Refer to qualified service personnel.</td>
</tr>
<tr>
<td></td>
<td>2. Limit switch fault.</td>
<td>2. Identify and correct loose connections or replace switches. Refer to qualified service personnel.</td>
</tr>
<tr>
<td>FAULT-FUSELINK/FIELD</td>
<td>1. Fusible link fault.</td>
<td>1. Identify and correct loose connections or replace fusible link. Refer to qualified service personnel.</td>
</tr>
<tr>
<td></td>
<td>2. Vent limit fault.</td>
<td>2. Identify and correct loose connections or replace vent limit switch. Refer to qualified service personnel.</td>
</tr>
<tr>
<td>FAULT-CHECK IGN CONTROL</td>
<td>1. Broken, split, pinched or disconnected fan/switch tubing.</td>
<td>1. Check tubing and replace if necessary.</td>
</tr>
<tr>
<td></td>
<td>2. Fan not operating.</td>
<td>2. Correct fault or replace fan. Refer to qualified service personnel.</td>
</tr>
<tr>
<td></td>
<td>3. Fan running slow or premature fan failure.</td>
<td>3. Verify proper wiring for 120 VAC or 240 VAC. Refer to qualified service personnel.</td>
</tr>
<tr>
<td></td>
<td>4. Air flow restricted at intake or discharge.</td>
<td>4. Check for proper clearances around heater and for adequate room ventilation if enclosed. Inspect for blockage or restriction at discharge of flue. Refer to qualified service personnel.</td>
</tr>
<tr>
<td></td>
<td>5. Oscillating pump pressure.</td>
<td>5. Clean filter or identify and repair cause of pump oscillation.</td>
</tr>
<tr>
<td></td>
<td>6. Low gas supply pressure.</td>
<td>6. Identify and repair incorrect supply pipe size or pipe line blockage.</td>
</tr>
<tr>
<td></td>
<td>7. No flame at burners.</td>
<td>7. Identify and correct loose wiring connections, or problems with igniter, flame sensor, gas valve, or ignition control. Refer to qualified service personnel.</td>
</tr>
<tr>
<td>FAULT-SHORTED H2O SENSOR or FAULT-OPEN WATER SENSOR</td>
<td>1. Faulty wiring or connection.</td>
<td>1. Inspect sensor wiring. Ensure sensor is connected into Power Interface Board.</td>
</tr>
<tr>
<td></td>
<td>2. Failed sensor.</td>
<td>2. Replace temperature sensor. Refer to qualified service personnel.</td>
</tr>
</tbody>
</table>

**TEMPERATURE RISE**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MIN.</th>
<th>MAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>7 °F</td>
<td>10 °F</td>
</tr>
<tr>
<td>300</td>
<td>8 °F</td>
<td>11 °F</td>
</tr>
<tr>
<td>400</td>
<td>13 °F</td>
<td>17 °F</td>
</tr>
</tbody>
</table>

**GAS PRESSURE**

<table>
<thead>
<tr>
<th>Inches of Water Column</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manifold</strong></td>
</tr>
<tr>
<td>2.5</td>
</tr>
<tr>
<td><strong>Supply</strong></td>
</tr>
</tbody>
</table>
1) Check incoming Power Supply.
2) Check Transformer Wiring.
3) Replace Transformer.

**STEP 1**

```
YES
NO
```

24 VAC at Transformer

```
YES
NO
```

24 VAC at Red Wire of Fuse Link?

```
YES
NO
```

24 VAC at White Wire of Fuse Link?

```
YES
NO
```

**STEP 2**

1) Check incoming Power Supply.
2) Check Transformer Wiring.
3) Replace Transformer.

**STEP 3**

```
YES
NO
```

24 VAC at Red Wire of Fuse Link?

```
YES
NO
```

24 VAC at White Wire of Fuse Link?

```
YES
NO
```

**STEP 3a**

```
YES
```

24 VAC at both Fireman Switch terminal's

```
YES
NO
```

**STEP 4**

```
YES
NO
```

24 VAC at White Wire of Pressure Switch?

```
YES
NO
```

**STEP 4a & 4b**

1) Check each limit individually.
2) Check if damage to disc, heads, or exchanger.
3) Take Temperature Rise.

**STEP 5**

```
YES
NO
```

24 VAC at Black Wire of Pressure Switch?

```
YES
NO
```

Perform back pressure test. If 2 PSI or more, replace switch. If less, check pump, filter, etc., for water flow problems.

1. Is Ignition Control wired for proper voltage?
2. Is Ignitor properly connected?
3. Do Ignitor Test. Is Ignitor within range?

**STEP 6**

```
YES
NO
```

24 VAC at Black/Yellow wire at the IND of Ignition Control?

```
YES
NO
```

Is temperature Board calling for heat?

```
YES
NO
```

Do a Thermistor Test. Is thermistor within range? See chart on back page.

```
YES
NO
```

Remove the connector at F1 & F2 of the Ignition Control. Perform a continuity test between F1 & F2 terminals on the Ignition Control. Is there continuity?

```
YES
NO
```

Wait for 15 second delay.

```
YES
NO
```

Check wire connectors. Replace Ignition Control.

1. Does Ignitor heat up?
2. Is Ignitor properly connected?
3. Do Ignitor Test. Is Ignitor within range?

**STEP 7**

```
YES
NO
```

Does Ignitor heat up?

```
YES
NO
```

Replace Ignition Control.

**STEP 8**

```
YES
NO
```

24 VAC at VAL of the Ignition Control?

```
YES
NO
```

Remember, the VAL terminal will only have power for 7 seconds after the Ignitor has heated for 35 seconds. If there is never 24 VAC at the VAL, even after the Ignitor has heated and shut down, replace the Ignition Control.

**STEP 9**

```
YES
NO
```

Does heater fire?

```
YES
NO
```

Verify Ignitor wiring. Are all gas valves open? Is gas pressure correct?

```
YES
NO
```

Replace Gas Valve.
**Safety Circuit Test**
Leave black probe on Transformer terminal with yellow wire. Move red probe to each component.

**Hot Surface Ignitor Test**
Ignitor must be disconnected from the Ignition Control and cool to the touch. Resistance through the Hot Surface Ignitor should be 40 to 75 Ohms.

**Thermistor Test**
Remove thermistor leads from temperature board. Set meter to test resistance above 20 K Ohms. Using chart at the right, compare the actual water temperature to the resistance reading to determine if the thermistor is OK.

**Temperature Rise Test Chart**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Btu</th>
<th>Temperature Rise</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Minimum</td>
</tr>
<tr>
<td>Lite, Lite 2, Series 1 &amp; Series 2 with 2&quot; header connections</td>
<td>125</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>175</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>325</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>400</td>
<td>30</td>
</tr>
<tr>
<td>Series 1 with 1½&quot; header connections</td>
<td>125</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>175</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>24</td>
</tr>
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</tr>
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**Thermistor Test Chart**

<table>
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<tr>
<th>Temp</th>
<th>Resistance</th>
<th>Temp</th>
<th>Resistance</th>
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<tbody>
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<tr>
<td>77°F</td>
<td>10.000 K Ohms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LITE 2 LJ TROUBLESHOOTING

STEP 1 - Check Transformer - Set meter to ACV above 240


YES


YES

STEP 2 - Check Fuse (insert common probe in with blue[1] wire, touch other probe to far end of fuse)

24 VAC at far end of fuse? NO

YES

For the next tests insert and leave the common probe in with the blue[2] wire.

STEP 3 - Check Fireman’s Switch Circuit

24 VAC at 3a? NO

YES

Power Control is not sending power. Replace Power Control Board.

24 VAC at 3b? NO

YES

Fireman’s switch circuit is open. Make sure the external control is calling for heat.

STEP 4 - Check Fusible Link

24 VAC on red wire at Fusible Link? (4a) NO

YES

Check wires for loose connections. Replace Ignition board.

24 VAC on white wire at Fusible Link? (4b) NO

YES

Too much heat in control area. Look for down drafting, Roll-out, Soot, or Low Gas Pressure. Replace Fusible Link.

STEP 5 - Check High Limits

One or both of the limits are open. (5b & 5c)

1) Check for damage to bypass disc, heads, or exchanger.
2) Jandy recommends replacing both limits.
3) Do Temperature Rise Test.

STEP 6 - Check Pressure Switch

Perform Back Pressure Test. If 2.5 PSI or more, replace Pressure Switch. If less, check pump, filter, etc., for water flow problems.

STEP 7 - Check Hot Surface Ignitor

Does Ignitor heat up? NO

YES

Turn power off, disconnect Ignitor at 7a and 7b. Perform Ignitor Test. Is resistance between 25 and 300 Ohms?

YES

NO

Remove each fuse (7c & 7d). Check each for continuity. If either is blown, check for shorted wires, then replace fuse. If neither fuse is blown replace the ignition control.

For Gas Valve test reinsert the common probe in with the blue[2] wire.

STEP 8 - Check Gas Valve

After 10 seconds of Ignitor heat up, is there 24 VAC at brown wire to gas valve? NO

YES

Replace Power Control Board.

Make certain all gas valves are open, the correct fuel is provided to the heater, gas pressure and volume are correct.

OK

Replace Gas Valve.

For Thermostat troubleshooting refer to the installation manual.
**Temperature Rise Test Chart**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Btus</th>
<th>Temperature Rise MINIMUM</th>
<th>Temperature Rise MAXIMUM</th>
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<tbody>
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<td>125</td>
<td>27</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>175</td>
<td>33</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>33</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>325</td>
<td>28</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>400</td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>Series 1 with 1½” header connections</td>
<td>125</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>175</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>24</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>325</td>
<td>28</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>400</td>
<td>30</td>
<td>38</td>
</tr>
</tbody>
</table>

**Hot Surface Ignitor Test**

Ignitor must be disconnected from the Ignition Control and should be cool to the touch.

Depending on the temperature of the ignitor, the resistance between the two leads of a good ignitor will be 25 to 300 Ohms, typically 60 to 80 Ohms.

**Thermistor Test**

Remove thermistor leads from ignition board. Set meter to test resistance above 20 K Ohms. Using chart at the right, compare the actual water temperature to the resistance reading to determine if the thermistor is OK.

**HEATER SERVICE CODES**

FL0: Open switch in safety circuit.

FL1: Temperature Sensor is open or shorted.

FL2: Failed Ignition.

FL3: Flame detected when no flame should exist.

FL4: Hot Surface Ignitor problem.

FL5: Brown-out condition exist.

FL6: Signal to energize gas valve is not being sent by controller.

FL7: Fireman switch circuit is open.
LITE (LG - MILLIVOLT) TROUBLESHOOTING

Set gas valve knob to pilot position. Set thermostat toggle to OFF.

Try to light the pilot.

Does pilot light?

No

Yes

1. Verify gas is on.
2. Check for air in gas line.
3. Is pilot tube clogged?

Does pilot stay on when gas valve knob is released?

No

Yes

1. Check P/G output.
2. Check for shorted wires.
3. Check broken wires.

500+ mV @ PP and PP-TH terminals? (1)

No

Yes

1. Check for low Pilot Generator output.
2. Check for partial shorts or loose wires.
3. Replace Pilot Generator.

500+ mV @ and both terminals of Fuse Link? (2)

No

Yes

Check that a control system (if installed) is calling for heat or Fireman’s Switch is closed.

500+ mV @ White wire of Pressure Switch? (3)

No

Yes

1. Check each High Limit individually. (3a & b)
2. Check if damage to disc, heads, exchanger.
3. Take Temperature Rise. (Water Flow?)

500+ mV @ Black Wire of Pressure Switch? (5)

No

Yes

Perform Back Pressure Test. If 2 PSI or more, replace switch. If less, check pump, filter, etc. for pressure problem.

Set rocker switch to ON

Is there 200+ mV @ Black wire of Pressure Switch?

No

Yes

Is there 500+ mV @ TH/PP on Temp. Board?

No

Yes

Check rocker switch

Is there 200+ mV @ TH terminal of the Gas Valve?

No

Yes

Is there 500+ mV @ Valve (TH) on Temp. Board?

No

Yes

Check and/or replace black wire from Valve (TH) terminal of Temp. Board and TH terminal of Gas Valve.

Move rocker switch to OFF. Rotate Gas Valve Knob to ON. Move rocker switch to ON. Does heater fire?

No

Yes

Replace Gas Valve

Perform Thermistor Test.

No

Yes

Disconnect Pot wires and jump pot terminals. If voltage drops to 200+ mV, replace Temp. Control (P/N R0058200).

Replace Temp. Board
**Temperature Control Testing**

Set Gas Valve Knob to PILOT position. Move heater rocker switch to ON. Set thermostat to maximum.

Is there 200+ mV @ Black wire of Pressure Switch?  
- No  
  - Is there 200+ mV @ TH terminal of the Gas Valve?  
    - No  
      - Is there 500+ mV @ TH/PP on Temp. Board?  
        - No  
          - Check rocker switch  
        - Yes  
          - Perform Thermistor Test, see below.  
      - Yes  
        - Disconnect Pot wires and jump pot terminals. If voltage drops to 200+ mV, replace Temp. Control (P/N R0058200).  
  - Yes  
    - Replace Gas Valve

Is there 200+ mV @ TH terminal of the Gas Valve?  
- Yes  
  - Move rocker switch to OFF. Rotate Gas Valve Knob to ON. Move rocker switch to ON. Does heater fire?  
  - No  
    - Is there 500+ mV @ Valve (TH) on Temp. Board?  
      - No  
        - Check and/or replace black wire from Valve (TH) terminal of Temp. Board and TH terminal of Gas Valve.  
      - Yes  
        - Replace Gas Valve
  - Yes  
    - Replace Temp. Board

**Thermistor Test**

Remove thermistor leads from temperature board. Set meter to test resistance above 20 K Ohms. Using chart below, compare the actual water temperature to the resistance reading.

<table>
<thead>
<tr>
<th>Temp</th>
<th>Resistance</th>
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</tr>
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**Total Millivolt Loss Test**

Set meter to 2 VDC. Place one probe on PP-TH and the other probe on TH. The meter will display the total millivolt loss through the safety loop.

- Series One or older - 20 Millivolts loss or less.
- Series 2 - 30 Millivolts loss or less.
LX OR LT TROUBLESHOOTING w/Digital Ignition Control

STEP 1 - Check Transformer
24 VAC at red wire of Transformer?
12 VAC at white/yellow wire of Transformer?

STEP 2 - Check Fuse
24 VAC at red wire of transformer terminal bar?

STEP 3 - Check Safety Loop
24 VAC at first wire (black) of safety loop terminal bar?
24 VAC at second wire (white) of safety loop terminal bar?
24 VAC at third wire (white) of safety loop terminal bar?

For 24 VAC tests, common probe (black) can be left on yellow wire of transformer or any chassis ground.

High Limit Switch(es) open
Replace both limits.
Perform Temperature Rise Test.

Check wire connections.
Check for down draft, soot, and/or low gas pressure.
Reset Exhaust Temp Limit. Check for lock in flue and/or vent.
STEP 4 - Check Fan

Is Fan on?

YES

NO

Replace Ignition Control

Check Fan wiring. Replace Fan.

Perform these steps if fan never goes off.

Remove connector at F1 & F2 of Ignition Control. Does Fan go off?

YES

NO

Remove connector at F1 & F2 terminals of Ignition Control. Is there continuity?

YES

NO

Replace Ignition Control

Check Fan wiring. Replace Fan.

Turn power off to heater, check for shorted wires, especially grey and black wires at F1 & F2.

STEP 5 - Start Ignition Sequence

24 VAC at purple wire of Ignition Control Terminal bar

YES

NO

Check wire connections. Replace thermostat.

24 VAC at purple wire in terminal TH of the Ignition?

YES

NO

Check wire and connections.

STEP 6 - Check Ignitor

Is Hot Surface Ignitor glowing?

YES

NO

Turn power off. Disconnect Ignitor at 6a. Perform resistance test. Is resistance between 40 and 75 Ohms?

YES

NO

Reconnect ignitor wires. Carefully check wiring. Turn power on. If ignitor does not glow after pre-purge, replace Ignition Control.

If resistance test shows Ignitor is open, replace the Ignitor.

If resistance test shows the Ignitor is shorted, locate and correct short, before replacing Ignitor. Note if the Ignitor is shorted it might damage the Ignition Control.

STEP 7 - Check Gas Valve

After 35 seconds of ignitor heat up, is there 24 VAC at VAL terminal of the Ignition Control?

YES

NO

Replace Ignition Control.

24 VAC at brown wire Ignition Control Terminal bar?

YES

NO

Check wire and connections.

24 VAC at brown wire in Gas Valve Terminal bar?

YES

NO

Replace Thermostat.

24 VAC at brown wire at Gas Valve?

YES

NO

Check wire and connections.

Does the heater fire?

YES

NO

Make certain all gas valves are open. The correct fuel is provided to the heater, gas pressure and volume are correct.

SERVICE CODES

LOW PRESSURE - Water pressure related problem or blown fuse. Clean filter and all baskets. Do a back pressure test.

Check Fuse. If the fuse is blown, check for short circuits in the control wiring.

HI LIM SW. Low water flow problem. High limit(s) open.

Replace limit(s), do a Temperature Rise Test.

EXT. SW. 1 - Fusible Link or Exhaust Temp. Limit Switch open. Too much heat in the cabinet (Fusible Link) or flue (Exhaust Temp. Limit Switch).

Fusible Link open; check for sooted heat exchanger, low gas pressure, down draft condition and or water flow problem. Do a Gas Pressure Test and Temperature Rise Test.

Exhaust Temp Limit Switch check for blockage of vent.

AIR FLOW SW - Insufficient vacuum to close the air pressure switch. Make certain the fan is running. Check the air hose from the fan to the Air Pressure Switch for holes and kinks.

If the fan never switches to high speed replace the Ignition Control.

AGS - Automatic Gas Shutdown simply means the Ignition Control did not sense flame rectification. Make certain all gas cocks are open, and there is sufficient gas pressure and volume (gas line sized properly). If the heater fires and then the flame goes out quickly, it indicates the rectification signal is not returning to the Ignition Control. Check for poor or missing ground wire.

Temp Sensor - Water temperature sensor open or shorted. The sensor is a 10 K Ohms thermistor. A sensor failure may indicate poor water chemistry. Carefully test the water, concentrating on Total Alkalinity and pH.

TEMPERATURE RISE

<table>
<thead>
<tr>
<th>MODEL</th>
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</tr>
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<tbody>
<tr>
<td></td>
<td>MINIMUM</td>
</tr>
<tr>
<td>LX or LT</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>40</td>
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Replace the Gas Valve
LX OR LT low NOX TROUBLESHOOTING

STEP 1 - Check Transformer

24 VAC at red wire on Transformer?

24 VAC at white/yellow wire of Transformer?

12 VAC at white/yellow wire of Transformer?

STEP 2 - Check Fuse

24 VAC at red wire of transformer terminal bar?

STEP 3 - Check Safety Loop

Note: If fan is on skip to Step 4 at top of page 2.

24 VAC at first wire (black) of safety loop terminal bar?

24 VAC at second wire (white) of safety loop terminal bar?

24 VAC at third wire (white) of safety loop terminal bar?

24 VAC at fourth wire (white) of safety loop terminal bar?

24 VAC at fifth wire (white) of safety loop terminal bar?

24 VAC at sixth wire (white) of safety loop terminal bar?

24 VAC at seventh wire (purple) of safety loop terminal bar?

24 VAC at eighth wire (yellow/black) of safety loop terminal bar?

For 24 VAC tests, common probe (black) can be left on yellow wire of transformer or any chassis ground.
### SERVICE CODES

**LOW PRESSURE** - Water pressure related problem or blown fuse. Clean filter and all baskets. Do a back pressure test. Check Fuse. If the fuse is blown, check for short circuits in the control wiring.

**HI LIM SW.** Low water flow problem. High limit(s) open. Replace limit(s), do a Temperature Rise Test.

**EXT. SW. 1** - Fusible Link or Exhaust Temp. Limit Switch open. Too much heat in the cabinet (Fusible Link) or flue (Exhaust Temp. Limit Switch). Fusible Link open; check for sooted heat exchanger, low gas pressure, down draft condition and or water flow problem. Do a Gas Pressure Test and Temperature Rise Test. Exhaust Temp Limit Switch check for blockage of vent.

**AIR FLOW SW** - Insufficient vacuum to close the air pressure switch. Make certain the fan is running. Check the air hose from the fan to the Air Pressure Switch for holes and kinks. If the fan never switches to high speed replace the Ignition Control.

**AGS** - Automatic Gas Shutdown simply means the Ignition Control did not sense flame rectification. Make certain all gas cocks are open, and there is sufficient gas pressure and volume (gas line sized properly). If the heater fires and then the flame goes out quickly, it indicates the rectification signal is not returning to the Ignition Control. Check for poor or missing ground wire.

**Temp Sensor** - Water temperature sensor open or shorted. The sensor is a 10 K Ohms thermistor. A sensor failure may indicate poor water chemistry. Carefully test the water, concentrating on Total Alkalinity and pH.

### TEMPERATURE RISE

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<td>LX or LT</td>
<td>250</td>
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<td>400</td>
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</table>

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**STEP 4 - Check Fan**

- **Is Fan on?**
  - **NO**
    - **Replace Ignition Control**
    - **Check Fan wiring.**
    - **Replace Fan.**
  - **YES**

- **Perform these steps if fan never goes off.**
  - **Remove connector at F1 & F2 of Ignition Control.**
  - **Does Fan go off?**
    - **NO**
      - **Turn power off to heater, check for shorted wires, especially grey and black wires at F1 & F2.**
    - **YES**
      - **Plug connector at F1 & F2 back in.**

**STEP 5 - Start Ignition Sequence**

- **24 VAC at purple wire of the Ignition Control Terminal bar?**
  - **NO**
    - **Check wire connections.**
    - **Replace thermostat.**
  - **YES**

- **24 VAC at purple wire in terminal PS of the Ignition Control?**
  - **NO**
    - **Check wire and connections.**
  - **YES**

- **Has fan speed slowed?**
  - **NO**
    - **Check for shorted wires, especially grey and black wires at F1 & F2.**
  - **YES**

**STEP 6 - Check Ignitor**

- **Is Hot Surface Ignitor glowing?**
  - **NO**
    - **If resistance test shows Ignitor is open, replace the Ignitor.**
    - **If resistance test shows the Ignitor is shorted, locate and correct short, before replacing Ignitor. Note if the Ignitor is shorted it might damage the Ignition Control.**
    - **Reconnect ignitor wires.**
    - **Carefully check wiring.**
    - **Turn power on. If ignitor does not glow after pre-purge, replace Ignition Control.**
  - **YES**

**STEP 7 - Check Gas Valve**

- **After 35 seconds of Ignitor heat up, is there 24 VAC at VAL terminal of the Ignition Control?**
  - **NO**
    - **Replace Ignition Control.**
  - **YES**

- **24 VAC at brown wire in Ignition Control Terminal bar?**
  - **NO**
    - **Check wire and connections.**
  - **YES**

- **24 VAC at brown wire in Gas Valve Terminal bar?**
  - **NO**
    - **Replace Thermostat.**
  - **YES**

- **24 VAC at brown wire at Gas Valve?**
  - **NO**
    - **Check wire and connections.**
  - **YES**

- **Does the heater fire?**
  - **NO**
    - **Make certain all gas valves are open. The correct fuel is provided to the heater, gas pressure and volume are correct.**
    - **Replace the Gas Valve.**
HiE2 TROUBLESHOOTING w/ Digital Ignition Control

**STEP 1**
24 VAC at Transformer? No
1. Check incoming power
2. Check Transformer wiring.
3. Replace Transformer.

**STEP 2**
24 VAC at Black/Yellow wire of Ignition Control? No
1. Is Temp Board calling for heat?
   - Good: Do Thermistor Test
   - Failed: Replace Thermistor

**STEP 3**
24 VAC at Red wire of terminal block? No
24 VAC at White wire of terminal block? No
Check Fireman’s switch, if a remote is installed make sure it is calling for heat.

**STEP 4**
24 VAC at Black/Yellow wire of Ignition Control? No
   - If 2 PSI or more replace pressure switch.
   - If less, check pump, filter, plumbing and heat exchanger for water flow restrictions.

**STEP 5**
24 VAC at Black/Yellow wire of Ignition Control? No
- If 2 PSI or more replace pressure switch.
- If less, check pump, filter, plumbing and heat exchanger for water flow restrictions.

**STEP 6**
24 VAC at Black/Yellow wire of Ignition Control? Yes
Is Ignitor glowing
- Yes: Check Ignitor and supply wiring.
  - Perform Ignitor Resistance Test.
  - Replace Ignitor

**STEP 7**
Is Ignitor glowing
- Yes: Check Ignitor and supply wiring.
  - Perform Ignitor Resistance Test.
  - Replace Ignitor

**STEP 8**
24 VAC at TH of Ignition Control? No
1. Check for vent blockage or dirty air filter.
2. Perform Air Flow Test.
3. Replace Venturi Pressure Switch.

**STEP 9**
Is gas valve On? Yes
Is there 120 VAC at F2? Yes
Check supply wire.

**STEP 10**
Is gas Valve On? Yes
Check Burner and Vent Limits. Yes
Does heater fire? No
Is Gas Valve On? Yes
Check supply side gas pressure test.
Replace Gas Valve.

Yes, but goes out after a few seconds. Heater is not sensing rectification.
Check commons, make sure combustion chamber is grounded.
If all is OK replace Ignition Control.
Safety Circuit Test
Leave black probe on Transformer terminal with yellow wire.
Move red probe to each component

Hot Surface Ignitor Test
Ignitor must be disconnected from the Ignition Control and cool to the touch.
Resistance through the Hot Surface Ignitor should be 40 to 75 Ohms.

Thermistor Test
Remove thermistor leads from temperature board. Set meter to test resistance above 20 K Ohms. Using chart at the right, compare the actual water temperature to the resistance reading to determine if the thermistor is OK.

Thermistor Test Chart

<table>
<thead>
<tr>
<th>Temp (°F)</th>
<th>Resistance (K Ohms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>19.898</td>
</tr>
<tr>
<td>51</td>
<td>19.435</td>
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<tr>
<td>52</td>
<td>18.871</td>
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<tr>
<td>53</td>
<td>18.382</td>
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<tr>
<td>54</td>
<td>17.902</td>
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<td>55</td>
<td>17.473</td>
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<tr>
<td>56</td>
<td>16.988</td>
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<tr>
<td>76</td>
<td>10.250</td>
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<tr>
<td>77</td>
<td>10.000</td>
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</table>

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<tr>
<th>Temp (°F)</th>
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<tr>
<td>78</td>
<td>9.735</td>
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<td>79</td>
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<td>103</td>
<td>5.449</td>
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<tr>
<td>104</td>
<td>5.327</td>
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</table>

Temperature Rise Test

<table>
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</tr>
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<tbody>
<tr>
<td>EHE (HI E2)</td>
<td>350</td>
<td>20</td>
<td>29</td>
</tr>
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</table>

Test Hot Surface Ignitor at Ambient Temperature - range 40 to 75 Ohms.
HOT SHOT (100K) HEATER TROUBLESHOOTING

Set gas valve knob to pilot position. Set rocker switch to OFF.

Try to light the pilot. Does pilot light?

Yes

1. Verify gas is on.
2. Check for air in gas line.
3. Is pilot tube clogged?

No

Does pilot stay on when gas valve knob is released?

Yes

1. Check P/G output (1).
2. Check for partial shorts or loose wires.
3. Replace Pilot Generator.

No

500+ mV @ Red wire of from Hi-Limits to Pressure Switch (4a)

1. Check each High Limit individually. (3a & b)
2. Check if damage to bypass or heat exchanger.

No

Yes

500+ mV @ Red wire of from Hi-Limits to Pressure Switch (4a)

500+ mV @ PP and PP-TH terminals? (1)

Yes

1. Check for low Pilot Generator output.
2. Check for partial shorts or loose wires.
3. Replace Pilot Generator.

No

If voltage is found at one and not the other, replace Fuse Link. Check for Roll out, Soot, Downdrafting, Low Gas Pressure, etc.

No

Yes

500+ mV @ Red wire of from Hi-Limits to Pressure Switch (4a)

Perform Back Pressure Test. If 2.5 PSI or more, replace switch. If less, check pump, filter, etc. for pressure problem.

No

Yes

Set rocker switch to ON

Is there 200+ mV @ Red wire of Pressure Switch? (4b)

No

Check rocker switch

Yes

Is there 500+ mV @ TH terminal of Gas Valve?

No

Is there 500+ mV @ Valve (TH) on Temp. Board?

Yes

Move rocker switch to ON. Does heater fire?

No

Replace Gas Valve

Yes

Is there 500+ mV @ TH terminal of Gas Valve?

No

Check and/or replace black wire from Valve (TH) terminal of Temp. Board and TH terminal of Gas Valve.

Yes

Replace Temp. Board

No

Disconnect Pot wires and jump pot terminals. If voltage drops to 200+ mV, replace Temp. Control (P/N R0058200).

Mat #0754, Rev. C 09/05
HOT SHOT (100K) HEATER TROUBLESHOOTING

Temperature Control Test

Set Gas Valve Knob to pilot position
Set heater rocker switch to On
Set thermostat to maximum

Is there 200+ mV @ Red wire of Pressure Switch? (4b)
No
Yes
Is there 200+ mV @ TH terminal of the Gas Valve?
No
Yes
Is there 500+ mV @ TH/PP on Temp. Board?
No
Yes
Check rocker switch
Is there 500+ mV @ Valve (TH) on Temp. Board?
No
Yes
Check and/or replace black wire from Valve (TH) terminal of Temp. Board and TH terminal of Gas Valve.
Move rocker switch to OFF. Rotate Gas Valve Knob to ON. Move rocker switch to ON. Does heater fire?
No
Yes
Replace Gas Valve

Perform Thermistor Test, see below.
Disconnect Pot wires and jump pot terminals. If voltage drops to 200+ mV, replace Temp. Control (P/N R0056200).
Replace Temp. Board

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Thermistor Test

Disconnect the thermistor from the T-Stat Board before performing test. Place a good thermometer in the pool skimmer and turn on the filter pump. Set your meter to Resistance (20 K Ohms or above). Measure the resistance between the two leads of the thermistor. Compare this reading to the chart.

Ω at 20 K

77°F.
JANDY DP OIL FIRED POOL HEATER TROUBLESHOOTING

Caution; Possible Electrocution: This circuit is high voltage, take extremely care when checking.

Check voltage at A

Check circuit breaker

Check voltage at B

Bad ON/OFF Switch (E782)

Check voltage at C

• Loose Twist Lock Plug
• Short in Wire Harness (R575)
• Bad Twist Lock Plug

Check voltage at D

Bad Hi Limit (E771)

Check voltage at E

• Loose Twist Lock Plug
• Short in Wire Harness (R575)
• Bad Twist Lock Plug

Check voltage at F

• Water flow problem
• Bad Pressure Switch
• Misadjusted Pressure Switch
• Blocked Siphon Loop Connection

Check voltage at G

Bad wire in Armored Cable (BX)

Heater Doesn’t Fire

Press RESET button on Primary Control Once
1) If unit fire and stays on, unit lost prime to Oil Pump
2) If unit fires and goes out, or doesn’t stay lit, or goes into RESET after 45 seconds .... this is a Oil Burner or combustion problem CALL QUALIFIED OIL SERVICE

If you press RESET on Primary Control, and RESET button on Oil Burner Motor, and nothing happens
1) Turn off power to heater, then temporarily place a jumper from T to T on the Primary Control and turn power on. If unit fires, either the Thermostat (E971) or the High Limit (E722), or the Fireman’s Switch has a problem.
2) If unit doesn’t fire, remove one of the yellow wires from either terminal marked F on the Primary Control. If unit fires now, either:
   Bad Cadmium Cell (N061)
   Bad Primary Control, or there is a fire in the combustion chamber.... CALL OIL SERVICE

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