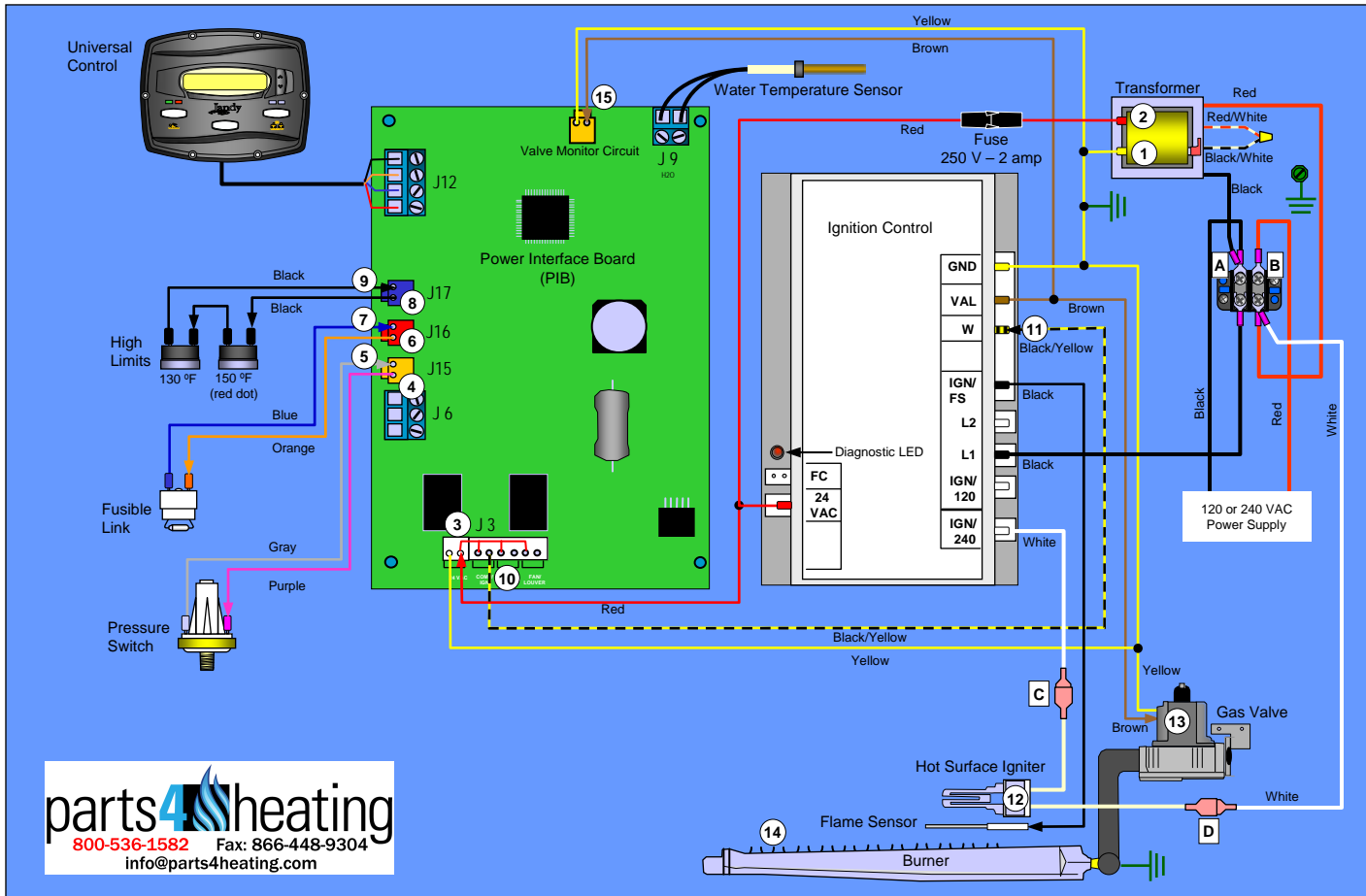


LRZE TROUBLESHOOTING



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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?

NO

Make certain filter pump is on. Correct wiring.

↓ YES

STEP 2 – Check Transformer

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

NO

Replace Transformer

↓ YES

STEP 3 – Check Fuse

24 VAC between Red (3) wire on PIB and Yellow (1) wire on Transformer?

NO

Locate and correct short circuit, replace Fuse.

↓ YES

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?

NO

Recheck voltage at Red (3) wire. If voltage is 24 VAC replace PIB.

↓ YES

STEP 5 – Check thru Water Press. Sw.

24 VAC between Gray (5) wire on PIB and Yellow (1) wire on Transformer?

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.

↓ YES

STEP 6 – Check power to Fusible Link

24 VAC between Orange (6) wire on PIB and Yellow (1) wire on Transformer?

NO

Recheck voltage at Gray (5) wire, if voltage is 24 VAC replace PIB.

↓ YES

STEP 7 – Check thru Fusible Link

24 VAC between Blue (7) wire on PIB and Yellow (1) wire on Transformer?

NO

Check wires to Fusible Link, replace Fusible Link. Correct excessive heat problem in cabinet. Possible rollout.

↓ YES

STEP 8 – Check power to High Limits

24 VAC between Black (8) wire on PIB and Yellow (1) wire on Transformer?

NO

Recheck power at Blue (7) wire. If 24 VAC at Blue but not Black, replace PIB.

↓ YES

STEP 9 – Check thru High Limits

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

NO

Replace both High Limits. Do a Temp. Rise Test. Correct flow problem.

↓ YES

STEP 10 – Check power to Ignition Control

Make certain control is calling for heat. 24 VAC between Black/Yellow (10) wire on PIB at J3 and Yellow (1) wire on Transformer?

NO

Recheck power at Black (9) wire. If 24 VAC at Black, but not Black/Yellow (10), replace PIB.

↓ YES

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?

NO

Correct problem with Black/Yellow wire or its connectors.

↓ YES

STEP 12 – Check Hot Surface Igniter (Igniter)

Is Igniter (12) glowing?

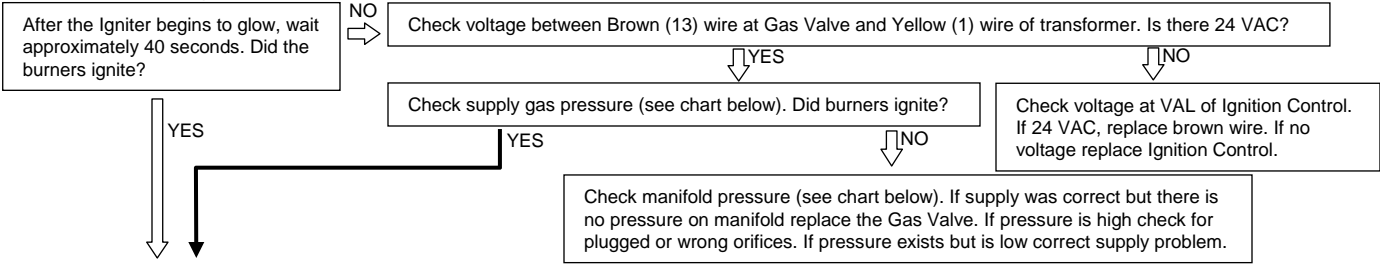
NO

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.

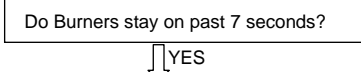
↓ YES

STEP 13 – Go to back page

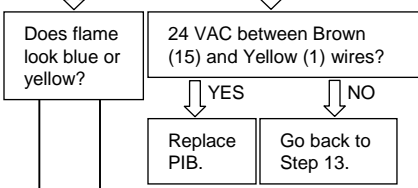
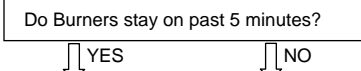
STEP 13 – Check for Ignition



STEP 14 – Check Burners operation



STEP 15 – Check Burners operation



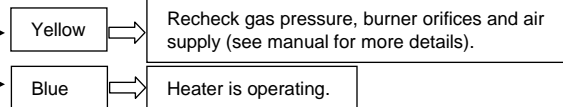
Heater is not recognizing the flame (flame rectification). Any of the following can prevent flame rectification:

- 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.



Fault Codes		
DISPLAY FAULT	CAUSE	REMEDY
Display shows NO FLOW	1. Pump is not running. 2. Low pump pressure. 3. Pressure switch fault.	1. This is normal display when the pump is OFF. No service required. 2. Clean filter or clear blockage, check position of valves in plumbing system. 3. Adjust or replace pressure switch.
FAULT-HIGH LIMIT	1. Water temperature in heater exceeds the internal limit. 2. Limit switch fault.	1. Verify function of high limit switches. Perform Temperature Rise Test (see chart below). Identify and correct cause of overheating. 2. Identify and correct loose connections or replace switches.
FAULT-FUSELINK/FIELD	1. Fusible link fault.	1. Identify and correct loose connections or replace Fusible Link.
FAULT-CHECK IGN CONTROL	1. Air flow restricted at intake or discharge. 2. Oscillating pump pressure. 3. Low gas supply pressure. 4. No flame at burners. 5. Check Ignition Control LED.	1. Check for proper clearances around heater and for adequate room ventilation if enclosed. Inspect for blockage or restriction at discharge of flue. 2. Clean filter or identify and repair cause of pump oscillation. 3. Identify and repair incorrect supply pipe size or pipe line blockage. 4. Identify and correct loose wiring connections, or problem with Igniter. Flame Sensor, Gas Valve or Ignition Control. 5. If the LED is on continuously, replace the ignition control. If the LED is blinking, check for causes of the unrecognized flame.
FAULT-SHORTED H2O SENSOR OR FAULT-OPEN WATER SENSOR	1. Faulty wiring or connection. 2. Faulty sensor.	1. Inspect Sensor wiring. Ensure Sensor is connected into Power Interface Board (PIB). 2. Inspect Sensor wires. Replace Temperature Sensor.

Model	Minimum Temp Rise, °F (°C)	Maximum Temp Rise, °F (°C)	Minimum System Flow GPM (lps)
125	3 (2)	7 (4)	30 (1.9)
175	5 (3)	10 (6)	30 (1.9)
250	7 (4)	15 (8)	30 (1.9)
325	9 (5)	17 (9)	30 (1.9)
400	11 (6)	20 (11)	30 (1.9)

Supply Pressure	Minimum	Maximum
Natural Gas	5.5 inches W.C. (1.4 kPa)	10.0 inches W.C. (2.5 kPa)
LP Gas	10.0 inches W.C. (2.5 kPa)	14.0 inches W.C. (3.5 kPa)
Manifold Pressure		Nominal
Natural Gas	4.0 inches W.C. (1.0 kPa)	
LP Gas	9.0 inches W.C. (2.2 kPa)	