

Rinnai

SERVICEMAN TROUBLESHOOTING INFORMATION

RINNAI ENERGYSAVER RHFE-263FA

IMPORTANT SAFETY NOTES:

There are a number of (live) tests that are required to be done in fault finding. Extreme care should be used at all times. You **must** be a qualified service person before proceeding with these test instructions.

Before checking resistance readings, turn off power switch and then isolate items to be checked from circuit (unplug it).

(ACIN)Connector

Black – White	120 VAC		1 – 2 pin #
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(TR2) Transformer: (Connector CN2 AC Out)

Read voltage across:		Read resistance	Pin #'s
Grey - Grey	98 – 125 VAC	4–16 Ω	1 – 7
White – White	98 - 125 VAC	4–14 Ω	2 – 3
Red - Red	35 VAC	1–3 Ω	4 – 10
Black – Yellow	200-220 VAC	250–400 Ω	5-8
Black – Blue	12-20 VAC	1–3 Ω	8-9

(SP) Sparker: (Connector CN4)

Red	-----	While sparking 85 - 100 VAC	N/A	6 - 8	Pin #s on sparker board Red to Blue
Blue	-----	100K - 120K Ω		3 - 6	Pin #s on PCB

(SV1, SV2, POV) Gas solenoids: (Connector CN4)

SV1 – Yellow ~ Black (Hold)	85 - 90 VDC	1,400 - 2,000 Ω	1 – 4
SV2 – Yellow ~ Black (assist)	85 - 90 VDC	1,400 - 2,000 Ω	1 – 4
POV Grey ~ Grey	6 – 16 VDC	80 - 90 Ω	2 – 6

(BL) Combustion fan motor: (Connector CN8) (DC Motor 37 VDC 8 Watts)

White ~ Black	7 - 12 VDC	8 – 10K Ω	7 – 8
White ~Yellow	4.0 – 5.0 VDC	4 – 6K Ω	4 – 8
White ~ Red	10 – 30 VDC	N/A	3-8

(FM) Convection fan motor: (Connector CN3) (AC Motor 60 Hz 100 Volts)

Black to Red	40-105 VAC Firing	100 – 120 Ω	1-2
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Be sure to check obstruction to blades and check capacitor before replacing motor.

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(PS) Pressure switch: CN13

The Pressure switch is an Electronic Switch	125 V, 0.1A @ 8.0mm WC ^o ON	125 V, 0.1A @ 2.8mm WC ^o OFF	5VDC
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NOTE: Insure clear plastic lines from rear of blower housing are not clamped or Blocked in any way, including spider webs.

(RT) Room temperature control:

Integrated into the PCB program and works in conjunction with the thermistor as noted below.

(TH) Thermistor:

Check thermistor by inserting meter leads into each end of thermistor plug. Set your meter to the 200k scale and read resistance. You should be able to apply heat to the thermistor bulb and see resistance decrease. Then apply some ice to the thermistor and the resistance should increase.

Examples: 41DegsF = 91k ohms
50DegsF = 65k ohms
68DegsF = 39k ohms
86DegsF = 23k ohms

(FR) Flame Rod

Located on the combustion chamber, the flame rod proofs flame for proper operations. A PROPER GROUNDED ELECTRICAL SUPPLY IS A MUST. Flame rod current through this rod should range between 4 to 8 micro amps depending on gas type. Low fire flame current should be 1.2 to 2.0 micro amps. You must set your meter up for reading micro amps in series with the flame rod.

Improperly setup and /or converted units can soot and cause hard lockouts. If carbon is found on the flame rod, clean the carbon from it. Then you need to confirm your manifold differential gas pressure on Hi fire and Lo fire is correct. Insure primary and secondary air dampers are correct. Also, check to ensure prop er orifices were placed in the unit..

IMPORTANT INFORMATION CONCERNING HARD LOCKOUTS:

Other items that can cause hard lockouts are: improper sized gas lines, low gas pressures or pressure drops due to other appliances on the gas system, spider webs in the burner and air intake of vent system, improper ground or no ground at receptacle, supply regulators freezing up or defective, voltage drops or bad receptacles, winds in excess of 40 mph causing turbulence inside the vent terminal, etc.

(OHS1, OHS2, TF) Safety Circuit Check: CN8

Check for continuity reading from pin #1 white wire to pin #5 white wire. If you do not read continuity through this circuit, locate defective switch and replace that component. Then determine what caused overheat condition.

(MS) Main Switch: CN11

Disconnect CN11 from PCB, being careful not to break wires. Read Blue to Blue, pin #9 and 10 on 40K Ω . When ON/OFF is in the ON position, you should read 10--18K Ω . When released, you should read open or 0 Ω

Wiring harness, connectors, and fuses should be checked if all above readings are normal.