

SERVICEMAN'S TROUBLESHOOTING INFORMATION
for the
RINNAI "RCE590-A SILENT SERVANT HEATER

IMPORTANT SAFETY NOTES:

There are a number of (live) tests that are required when fault finding this product. Extreme care should be used at all times to avoid contact with energized components inside the unit.

Only trained and qualified service agencies should attempt to repair this product.

Remember, before checking for resistance readings, you should disconnect the power source to the unit and isolate the item to be checked from the circuit (unplug it).

(TR) Transformer:

Wire color	Voltage	Resistance	Connector #	Pin #'s
Red ~ Greg (Primary)	110 ~ 120 VAC	24 ~ 27 ohms	CN17	1 ~ 3
White ~ Black	100 ~ 120 VAC	24 ~ 27 ohms	CN2	8 ~ 9
Blue ~ Blue	8 ~ 10 VAC	2 ~ 3 ohms	CN2	6 ~ 7
Brown ~ Brown	17.5 ~ 19.5 VAC	0.8 ~ 1.2 ohms	CN2	3 ~ 4
Purple ~ Purple	11 ~ 13 VAC	0.4 ~ 0.6 ohms	CN2	1 ~ 2

(SV1, SV2, and POV) Gas valve and Modulating solenoids:

(SV1) Red ~ Red	80 ~ 100 VDC	1.7K ~ 2.1K ohms	CN3	3 ~ 4
(SV2) Red ~ Red	80 ~ 100 VDC	1.7K ~ 2.1K ohms	CN3	3 ~ 4
(POV) White ~ Red	4 ~ 12 VDC	72 ~ 76 ohms	CN7	7 ~ 8

(FM) Plasma Cluster Motor:

Blue ~ White	30 ~ 38 VAC	60 ~ 64 ohms	CN16	1 ~ 3
Blue ~ Yellow	70 ~ 100 VAC	39 ~ 44 ohms	CN16	1 ~ 5
Yellow ~ White	N/A	99 ~ 105 ohms	CN16	3 ~ 5

(PCM) Plasma Cluster Module:

Black ~ White	98 ~ 102 VAC	N/A	CN5	1 ~ 2
Red ~ Green	0.5 VAC	725 ~ 735 ohms	CN14	1 ~ 2

(IG) Ignition System:

White ~ White	95 ~ 105 VAC	N/A	CN3	1 ~ 2
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(FM) Combustion Fan Motor:

Blue ~ Yellow	Lo. 50 ~ 55 VAC Hi. 95 ~ 105 VAC	144 ~ 150 ohms	CN18	1 ~ 2
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(TF & OHS) Thermal Fuse & Overheat Switch:

White ~ White	12 VDC (See below)	Below 1 ohm	CN7	4 ~ 6
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You should have 12 VDC from terminal 4 to ground at connector CN7 and terminal 6 to ground.

(ODS) Thermocouple:

Yellow ~ Blue	16 ~ 35 milli volts DC	N/A	CN7	3 ~ 5
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TH. Thermistor:

Black ~ Black	N/A	See example #1 below	CN6	1 ~ 2
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(OH. TH.) Overheat Thermistor:

Black ~ Black	N/A	See example #1 below	CN7	1 ~ 2
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Example #1:

When checking the **TH. and OH. TH. Thermistors** insert your meter leads into each end of the thermistor plug at connector CN7, terminals 1 and 2. Set your meter to the 400K resistance scale. Apply a small amount of heat against the thermistor bulb. When the thermistor senses heat the resistance value will begin decreasing. Then, place the thermistor bulb in a glass of ice water, when the thermistor senses the temperature dropping the resistance value will increase. This indicates the thermistor is functioning properly.

If you do not get a reading when making the above checks the thermistor must be replaced. Thermistors usually do not fail unless the bulb is broken or the wire to the thermistor has been broken for some reason.

(3) Amp Fuses:

This unit has two inline (3) amp glass fuses. Remove fuse and check continuity through it. If you have continuity, the fuse is good. If you can not read continuity, the fuse is blown and must be replaced.

Wiring Diagram:

