SERVICEMAN'S TROUBLESHOOTING INFORMATION
for the
RINNAI "CONTINUUM REU2402-WUS" WATER 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 water heater. **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 item the to be checked from the circuit (unplug it).

(TR) Transformer:

Wire color	Voltage	Resistance	Connector #	Pin #'s
Orange ~ Orange	13 ~ 30 VAC	0.7 ~ 1.4 ohms	C	1 ~ 4
Brown ~ Grey	30 ~ 50 VAC	3.2 ~ 3.9 ohms	C	2 ~ 5
Yellow ~ Grey	180 ~ 240 VAC	237 ~ 260 ohms	C	3 ~ 5
Green ~ Green	16 ~20 VAC	3.5 ~ 5 ohms	G	1 ~ 2
Black ~ Red	110 ~ 125 VAC	19 ~ 24 ohms	D	1 ~ 2
Black ~ White	110 ~ 125 VAC	21 ~ 26 ohms	Surge Protector D1	1 ~ 3

(SV1, SV2, SV3 and POV) Gas valve and Modulating solenoids:

SV1 - Pink ~ Black	80 ~ 100 VDC	1.3K ~ 1.6K ohms	E	2 ~ 8
SV2 - Yellow ~ Black	80 ~ 100 VDC	1.7K ~ 2.1K ohms	E	2 ~ 4
SV3 – Blue ~ Black	80 ~ 100 VDC	1.7K ~ 2.1K ohms	E	2 ~ 12
POV – Pink ~ Pink	0.5 ~ 25 VDC	60 ~ 100 ohms	A	1 ~ 3

(M) Water Flow Control Devise Servo:

Red ~ Blue	11 ~ 13 VDC	10 ~ 30 ohms	I	5 ~ 6
Orange ~ Grey	11 ~ 13 VDC	1.1 ~ 1.8 mega ohms	I	3 ~ 4
Brown ~ Grey	4 ~ 6 VDC	1.9 ~ 2.2 mega ohms	I	2 ~ 3
Yellow ~ Grey	Less than 0.5 VDC	1.9 ~ 2.2 mega ohms	I	1 ~ 3

(WS) Water Flow Sensor:

Red ~ Black	11 ~ 13 VDC	6K ~ 6.8K ohms	J	1 ~ 3
Yellow ~ Black	2 ~ 10 VDC	940K ~ 1 mega ohm	J	1 ~ 2

(IG) Ignition System:

Grey ~ Grey	90 ~ 110 VAC	>40M ohms	E_5	3 ~ 11

(FM) Combustion Fan Motor:

Black ~ Red	6 ~ 40 VDC	4.3 ~ 4.9K	F	1 ~ 2
Black ~ Yellow	11 ~ 13 VDC	3.7K ~ 4.4K ohms	F	2 ~ 3
Black ~ White	2 ~ 9 VDC	26.7K ~ 30.4K ohms	F	2 ~ 4

Set your meter to the hertz scale. Reading across the red and yellow wires at terminals 2 and 3 you should read between 60 and 350 hertz.

Thermal Fuse:

Red ~ Ground	12 VAC	<1 ohm (Red ~ Red)	J and A	1J and 1A

Overheat Switch:

Red ~ Ground	12 VAC	<1 ohm (Red ~ Red)	J and A	1J and 1A

Flame Rod:

Place one meter lead to flame rod and the other to an earth or ground. With the unit running, you should record between 100 ~ 180 VAC. Set your meter to the μ amp scale, series your meter in line with the flame rod. You should record 1μ or greater for proper flame circuit. In the event of low flame circuit remove the flame rod and check for carbon and/or damage.

Hot Water Thermistor:

White ~ White	n/a	<1M ohm – shorted >1ohm – open	C	3 ~ 4

Check thermistor by inserting meter leads into each end of the thermistor plug. Set your meter to the 20K scale and read resistance. You should be able to apply heat to the thermistor bulb and see the resistance decrease. Then apply some ice to the thermistor and the resistance should increase. See below for examples of temperatures and resistance reading at those temperatures.

Example:
59ºF = 11.4 ~ 14K
86ºF = 6.4 ~ 7.8K
113ºF = 3.6 ~ 4.5K
140ºF = 2.2 ~ 2.7K
221ºF = 0.6 ~ 0.8K

Surge Protector:

Black ~ White	108 ~ 132 VAC	22 ~ 22.8 ohms	Surge Protector D_1	1 ~ 3
Blue ~ Brown	108 ~ 132 VAC	21 ~ 26 ohms	Surge Protector D_2	1 ~ 2

Remote Controls:

Terminals H_1	10 ~ 13 VDC digital	1.5K ~ 1.9K ohms	H	1 ~ 3

Frost Protection:
This unit has four frost protection heaters mounted at different points inside the unit, to protect the water heater from freeze ups. There are two heaters located on the outlet hot water line next to the thermistor. Using a voltage meter set on the 200 ohm scale, you should have a resistance reading of 26 ~ 30 ohms through each of these heaters. The heater located on the heat exchanger piping should have a resistance reading of 81 ~ 86 ohms and the one located in the water flow sensor valve has a resistance reading of 16 ~ 19 ohms. Voltage throughout this circuit should be 120 VAC.

(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: