



RCE592-ACPA TROUBLESHOOTING INFORMATION

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.

Before checking for resistance readings, you should disconnect the power source to the unit and isolate the item to be checked from the circuit. Connector numbers are visible on the PCB. Wiring diagram letters indicate the connection location on the PCB wiring diagram.

(TR) Transformer:

| Wire Color | Voltage | Resistance | Connector #&WD | Pin #'s |
|---------------|-------------|----------------|----------------|---------|
| Gray - Red | 108~132 VAC | 20~30 Ω | CN11 WD-P | 3~4 |
| White-Black | 0~110 VAC | 20~30 Ω | CN11 WD-P | 1~2 |
| Blue-Blue | 6~14 VAC | 1~6 Ω | CN2 WD-I | 6~7 |
| Yellow-Yellow | 6~14 VAC | 1~6 Ω | CN2 WD-I | 8~9 |
| Orange-Orange | 17~26 VAC | 0.5~4 Ω | CN2 WD-I | 3~4 |
| Purple-Purple | 10~18 VAC | 0.2~3 Ω | CN2 WD-I | 1~2 |

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

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|-------------------|-----------------------------|--------------------|-------------|---------|
| (SV1) Red - Red | 75~100 VDC | 1.5~2.5 k Ω | CN3 WD-N | 5~7 |
| (SV2) Red - Red | 75~100 VDC | 1.5~2.5 k Ω | CN3 WD-N | 5~7 |
| (POV) White - Red | 1~14 VDC (Low~High Fire) | 65~90 Ω | CN7 WD-H | 7~8 |

NOTE: At pin 5-7 you should read 750~1250 Ω since the two solenoids are in parallel. On the coil terminals you should read 1.5~2.5 k Ω . If in doubt about your reading isolate each coil to check that you have 1.5 to 2.5k Ω at the terminals.

(FM) Plasma Cluster Motor:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|-------------|-----------|-----------------|-------------|---------|
| Blue-Yellow | 60~95 VAC | 70~120 Ω | CN104 WD-K | 1~2 |
| Red-Black | 4~6 VDC | NA | CN11 WD-E | 2~3 |
| Black-White | 1~4 VDC | NA | CN11 WD-E | 1~2 |

(FM) Plasma Cluster Module:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|---------------|------------|------------|-------------|---------|
| Red - Green | 10~15 VDC | NA | CN14 WD-C | 1~2 |
| Black - White | 90~110 VAC | NA | CN5 WD-O | 1~2 |

(IG) Ignition System:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|-------------|------------|------------|-------------|---------|
| White-White | 90~110 VAC | NA | CN3 WD-N | 1~3 |

(FM) Combustion Fan Motor:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|------------------|------------------------------|-----------------|-------------|---------|
| Blue-Yellow | 60~90 VAC (Low~High Fire) | 90~210 Ω | CN4 WD-J | 1~2 |
| Red-Black | 4~6 VDC | NA | CN10 WD-D | 2~3 |
| Black-White(GND) | 1~4 VDC | NA | CN10 WD-D | 1~2 |



(TF & OHS) Thermal Fuse & Overheat Switch:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|-------------|----------|------------------|-------------|---------|
| White-White | 12 VDC * | Below 1 Ω | CN7 WD-H | 4~6 |

* You should have 12 VDC from terminal 4 to ground at connector CN7 and terminal 6 to ground.

(ODS) Thermocouple:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|-------------|----------------|------------|-------------|---------|
| Blue-Yellow | \geq 18 mVDC | NA | CN7 WD-H | 3~5 |

NOTE: On the rear of the unit there is a test port for monitoring millivolt output. Set your meter to read millivolts DC and put your leads into this test port. You must have 16 to 35 millivolts to maintain flame or the ODS will lock the unit out on safety.

(TH) Thermistor:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|-------------|---------|---|-------------|---------|
| Black-Black | NA | 50°F (10°C): 58~73 k Ω 68°F (20°C): 33~44 k Ω 104°F (40°C): 9~19 k Ω | CN6 WD-F | 1~2 |

NOTE: Check the **(TH) Thermistor** by inserting your meter leads into each end of the thermistor plug at connector CN6 WD-F, PINS 1 and 2. Set your meter to the 400K resistance scale. Apply a small amount of heat to 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.

(OH. TH) Overheat Thermistor:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|-------------|---------|--|-------------|---------|
| Black-Black | NA | 50°F (10°C): 115~135 k Ω 68°F (20°C): 70~85 k Ω 104°F (40°C): 25~40 k Ω | CN7 WD-H | 1~2 |

ON/OFF Operation Switch:

| Wire Color | Voltage | Resistance | Connector # | Pin #'s |
|------------|---------|--|-------------|---------|
| Red - Blue | NA | SW OFF 90-110 k Ω SW ON 10-30 k Ω | CN8 WD-A | 1-2 |

PCB Three Amp Fuse:

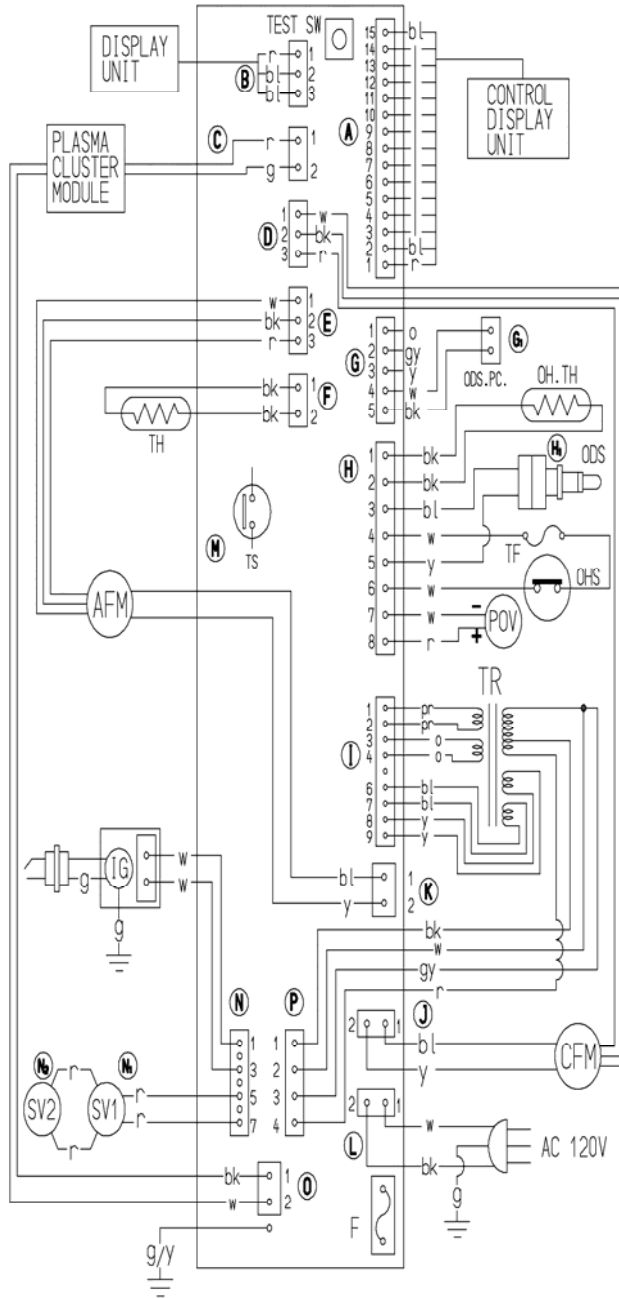
This unit has (1) three amp glass fuse located on the PCB. Remove fuse and check continuity through it. If you have continuity, the fuse is good. If you can not read continuity, the fuse is blown and must be replaced.



Diagnostic Points

| Component | Measurement Point | | Normal Value | Notes |
|---|----------------------------------|----------------------------|--|---------------------------|
| | Comp. No. | Wire Color | | |
| Heater ON/OFF SW | A | Red-Blue | SW OFF 90~110 k Ω SW ON 10~30 k Ω | |
| Thermal Fuse | H | White-White | ≤ 1 VDC ≤ 1 Ω | |
| Tilt SW | M | N/A | 4~6 VDC | |
| ODS | H ₁ G ₁ | Blue-Yellow White-Black | ≥ 18 mVDC | |
| Convection Fan Motor | J | Blue-Yellow | 60~90 VAC (Low~High Fire) 90~210 Ω | |
| | D | Red-Black | 4~6 VDC | |
| | | Black-White(GND) | 1~4 VDC 400~2000 pulse/min (7~34Hz) | |
| Over Heat Thermistor | H | Black-Black | 50°F (10°C): 115~135 k Ω 68°F (20°C): 70~85 k Ω 104°F (40°C): 25~40 k Ω | |
| Igniter | N | White-White | 90~110 VAC | |
| Solenoid Valve | N | Red-Red | 75~100 VDC | |
| | N ₁ | Red-Red | 1.5~2.5 k Ω | |
| | N ₂ | Red-Red | 1.5~2.5 k Ω | |
| POV | H | White-Red | 1~14 VDC (Low~High Fire) | |
| | | | 65~90 Ω | |
| Room Thermistor | F | Black-Black | 50°F (10°C): 58~73 k Ω 68°F (20°C): 33~44 k Ω 104°F (40°C): 9~19 k Ω | |
| Air Purifier Fan Motor | K | Blue-Yellow | 60-95 VAC (Low~High Fire) | |
| | | | 70~120 Ω | |
| Air Purifier Fan Motor | E | Red-Black | 4~6 VDC | |
| | | Black-White (GND) | 1~4 VDC | |
| | | | 60 pulse/min ≥ 10 Hz | Use a Hertz meter to read |
| Plasma Cluster | C | Red-Green | 10~15 VDC | |
| | O | Black-White | 90~110 VAC | |
| Transformer Voltages and Resistances | | | | |
| Transformer | P | Gray-Red | 108~132 VAC 20~30 Ω | |
| | P | White-Black | 90~110 VAC 20~30 Ω | |
| | I | Blue-Blue | 6~14 VAC 1~6 Ω | |
| | I | Yellow-Yellow | 6~14 VAC 1~6 Ω | |
| | I | Orange-Orange | 17~26 VAC 0.5~4 Ω | |
| | I | Purple-Purple | 10~18 VAC 0.2~3 Ω | |

Wiring Diagram



| measuring point | Upper: Voltage | Lower: Resistance | PARTS NAME |
|--|--|-------------------|----------------------|
| CN Color · No | | | |
| A r-bl 1 2 | SW OFF 90~110kΩ | SW ON 10~30kΩ | HEATER ON/OFF SW |
| H w-w 4 6 | DC 1V≥ 1Ω≥ | | THERMAL FUSE |
| M — | DC 4~6V | | TILT SW |
| H ₁ bl-y G ₁ (w-bk) | DC 16mV≤ | | ODS |
| J bl-y H ₁ L | AC 60~90V | | CONNECTION FM |
| r-bk | DC 4~6V | | CONNECTION FM |
| D bk-w GND | DC 1~4V 400~2000 pulse/min (7~34Hz) | | |
| H bk-bk 1 2 | 10°C 115~135kΩ 20°C 70~85kΩ 40°C 25~40kΩ | | OVER HEAT THERMISTOR |
| N w-w | AC 90~110V | | IGNITER |
| N r-r | DC 75~100V | | SOLENOID VALVE |
| N ₁ r-r | 1.5~2.5kΩ | | |
| N ₂ r-r | 1.5~2.5kΩ | | |
| H w-r 7 8 H ₁ L | DC 1~14V 65~90Ω | | POV |
| F bk-bk | 10°C 58~73kΩ 20°C 33~44kΩ 40°C 9~19kΩ | | ROOM THERMISTOR |
| K bl-y H ₁ L | AC 60~95V 70~120Ω | | AIR PURIF FM |
| r-bk | DC 4~6V | | AIR PURIF FM |
| E bk-w GND | DC 1~4V 600pulse/min (10Hz)≤ | | |
| C r-g | DC 10~15V | | PLASMACLUSTER |
| O bk-w | AC 90~110V | | |

TRANSFORMER

| | | |
|---|-------|-----------------------|
| P | gy-r | AC 108~132V 20~30Ω |
| P | w-bk | AC 90~110V 20~30Ω |
| I | bl-bl | AC 6~14V 1~6Ω |
| I | y-y | AC 6~14V 1~6Ω |
| I | o-o | AC 17~26V 0.5~4Ω |
| I | pr-pr | AC 10~18V 0.2~3Ω |