

International Commercial Microwave—Technical Information

230 V, 50 Hz Models

ACE5302

P1331307M

UACE5302

P1331308M

DS30E2

P1331309M

UDS30E2

P1331310M

UCA2000NT2

P1331311M

- Due to possibility of personal injury or property damage, always contact an authorized technician for servicing or repair of this unit.
- Refer to Service Manual RS5320016 for installation, operating, testing, troubleshooting, and disassembly instruction.



CAUTION

All safety information must be followed as provided in Service Manual RS5320016.



WARNING

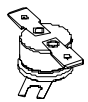

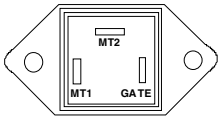
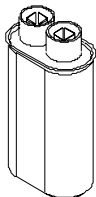
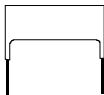
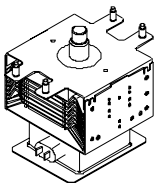
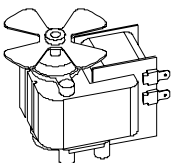
To avoid the risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Models	ACE5302 DS30E2	UACE5302 UDS30E2 UCA2000NT2
Power Source		
Voltage AC	230 VAC	230 VAC
Amperage (Single Unit)	16 A	13 A
Frequency	50 Hz	50 Hz
Single Phase, 3 wire grounded	X	X
Plug	CEE 7/7 Schuko	BS1363A
Power Output – Microwave		
Nominal microwave energy (IEC705)	1000 Watts	1000 Watts
Traditional test method	900 Watts	900 Watts
Minimum temperature rise (ΔT)	18°F / 10°C	18°F / 10°C
Operating Frequency	2450 MHz	2450 MHz
Power Consumption		
Microwave only	1800 Watts	1800 Watts
Convection only	2700 Watts	2200 Watts
Combination	3400 Watts	3000 Watts
Dimensions		
Cabinet (in / cm)		
Width	49 cm (19 1/4")	49 cm (19 1/4")
Height	46 cm (18 1/4")	46 cm (18 1/4")
Depth	67 cm (26 1/4")	67 cm (26 1/4")
Oven Interior (in / cm)		
Width	33 cm (13")	33 cm (13")
Height	27 cm (10 1/2")	27 cm (10 1/2")
Depth	38 cm (15")	38 cm (15")
Weight		
Crated	46 kg. (102 lbs.)	46 kg. (102 lbs.)
Uncrated	43 kg. (95 lbs.)	43 kg. (95 lbs.)

Component Testing Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Illustration	Component	Test	Results
	Thermal cutout	Disconnect all wires from TCO. Measure resistance across terminals. Control TCO..... Fan TCO..... Magnetron TCO..... Heater Box Limiter.....	Open at 300°F (149°C) and closed at 257°F (125°C) Open at 125°F (52°C) and closed at 160°F (71°C) Open at 235°F (113°C) and closed at 150°F (66°C) Open at 351°F (177°C) and closed at or below 18°F (-8°C)
	Diode	Discharge Capacitor Remove diode lead from capacitor and connect ohmmeter. Reverse leads for second test.	Infinite resistance should be measured in one direction and 50KΩ or more in the opposite direction. NOTE: Ohmmeter must contain a battery of 6 volts minimum.
	Triac	Disconnect wires to triac. Measure resistance from: MT1 to MT2 MT1 to Gate..... MT2 to Gate..... All terminals to ground..... Measure voltage from: MT1 to Gate	Caution - Do not operate oven with wire to terminal MT2 removed. Infinite Approximately 15 Ω, then reverse meter leads 30 Ω Infinite Infinite 0.8 VAC when energized. If no voltage, check H.V. board and wiring.
	Capacitor	Discharge Capacitor Remove wires from capacitor terminals and connect ohmmeter, set on highest resistance scale to terminals. Also check between each terminal and capacitor case.	Between Terminals: Meter should momentarily deflect towards zero then return to over 5 MΩ. If no deflection occurs, or if continuous deflection occurs, replace capacitor. Terminal to Case: Infinite resistance
	Snubber assembly	Disconnect wires to snubber. Measure resistance across terminals.	Infinite
	Magnetron	Discharge Capacitor Remove wires from magnetron and connect ohmmeter to terminals. Also check between each terminal and ground.	Between Terminals: Less than 1 Ω Each terminal to ground measures Infinite resistance. Note: This test is not conclusive. If oven does not heat and all other components test good replace the magnetron and retest.
	Microwave blower motor	Remove all wires from motor. Measure resistance across coil.	Approximately 30 Ω

Component Testing Procedures



WARNING

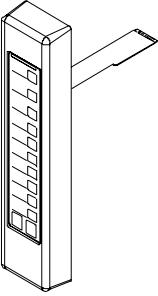
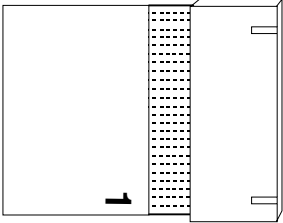
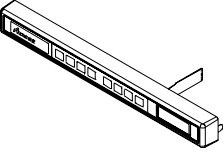
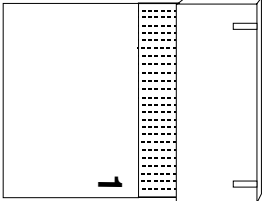
To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Illustration	Component	Test	Results
	Transformer	<p>Discharge Capacitor Remove all wires from terminals.</p> <p>Measure resistance from: 230 to COM 208 to COM 230 to Ground 208 to Ground Terminal 5 to 6 Terminal 4 to Ground</p>	<p>< 1.5 Ω < 1.5 Ω Infinite Infinite < 1 Ω Approximately 70 Ω</p>
<p>Door Closed</p> <p>2 —●— 3 Secondary 4 —●— 5 Primary 7 —●— 8 Monitor</p>	Interlock switch	<p>Disconnect wires to switch.</p> <p>With door open measure resistance from: Terminal 2 to 3 Terminal 4 to 5 Terminal 7 to 8</p> <p>With door closed measure resistance from: Terminal 2 to 3 Terminal 4 to 5 Terminal 7 to 8</p>	<p>Infinite Infinite Indicates continuity</p> <p>Indicates continuity Indicates continuity Infinite</p>
	Convection blower motor	<p>Remove wires from motor.</p> <p>Measure resistance across terminals A and B.</p>	Approximately 20 Ω
	Heating element assembly	<p>Disconnect wires from terminals.</p> <p>Measure resistance across heating element.</p> <p>Front element 1200 W Rear element 1500 W</p> <p>Front element 1100 W Rear element 1100 W</p>	<p>Indicates continuity</p> <p>44 Ω 35 Ω</p> <p>48 Ω 48 Ω</p>
	Resistance thermal device (RTD)	<p>Temperature</p> <p>0°C (32°F)..... 177°C (350°F).....</p>	<p>Resistance</p> <p>1000 Ω 1654 Ω</p>
	Lamp receptacle	Test continuity of receptacle terminals.	Indicates continuity with bulb screwed in.
	Line filter	<p>Disconnect wire from terminals.</p> <p>Measure resistance of the following terminals:</p> <p>Blue to Blue..... Brown to Brown.....</p>	<p>< 1 Ω < 1 Ω</p>

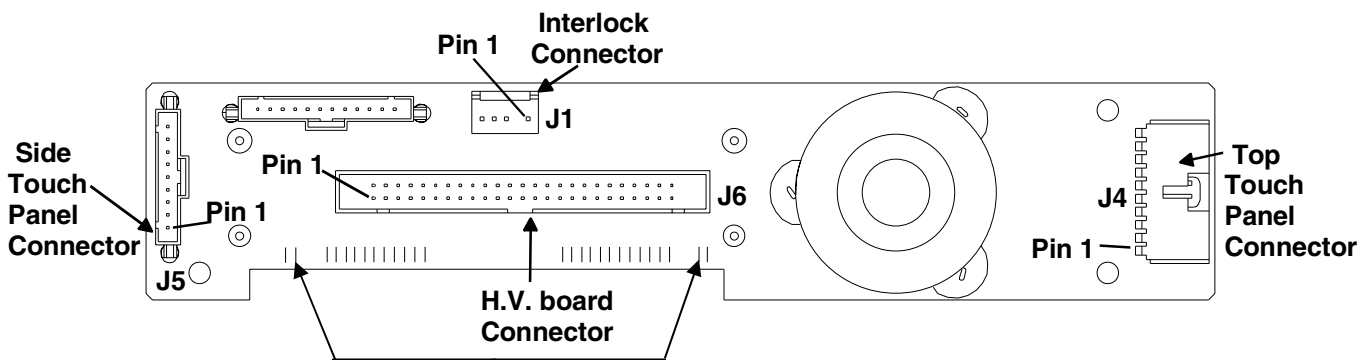
Component Testing Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Illustration	Component	Test	Results		
	Side touch panel	Continuity is indicated as 100 Ω and below. 	Pad 1 2 3 4 5 6 7 8 9 0 Start Stop/Reset	Trace 3 & 5 3 & 6 3 & 7 3 & 8 3 & 9 4 & 5 4 & 6 4 & 7 4 & 8 4 & 9 5 & 6 6 & 9	Measurement Continuity Continuity Continuity Continuity Continuity Continuity Continuity Continuity Continuity Continuity Continuity Continuity
	Top touch panel	Continuity is indicated as 100 Ω and below. 	Pad Preheat Time Entry Temp Entry Power Level Stage Program Save Hidden Pad	Trace 3 & 4 5 & 7 7 & 8 5 & 8 5 & 9 6 & 7 8 & 9	Measurement Continuity Continuity Continuity Continuity Continuity Continuity Continuity
Wire harness	High voltage board to display module harness	Test continuity of wires.	Indicates continuity		

Display board



3.5 VAC should be indicated whenever the oven is plugged into a power supply.

If voltage is present and no display is indicated, replace display board.

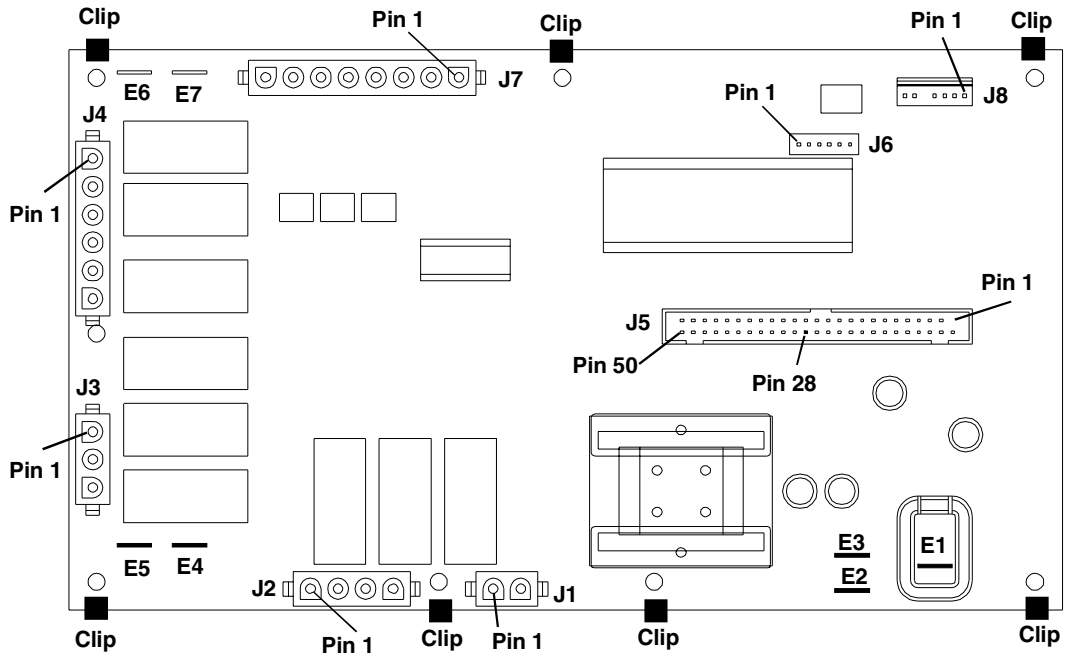
If no voltage is present, check wire harness connections and H.V. board.

Component Testing Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

H.V. board



In straight convection mode, both elements operate simultaneously.

In combination mode, the rear element will operate simultaneously with either the microwave or front element.

Function	Test Set-Up	Meter Setting	Probe Placement	Results
Input to H.V. board	At H.V. board	Volts	J1 pin 1 (Black wire) & J1 pin 2 (Red wire)	Line voltage
Output to display board	Disconnect J5 connector	Volts	J5 pin 28 & J5 pin 50	- 24 VDC

Relay	Function	Test Set-Up	Meter Setting	Probe Placement	Results
K1	Cooling fan	Disconnect J2 connector	Ohms	J1 pin 1 (Black wire) & J2 pin 4	Test mode 5 off – no continuity Test mode 5 on – < 1 Ω
K2	Convection motor	Disconnect J2 connector	Ohms	J1 pin 1 (Black wire) & J2 pin 3	Test mode 4 off – no continuity Test mode 4 on – < 1 Ω
K3	Cavity light	Disconnect J2 connector	Ohms	J2 pin 1 & J2 pin 2	Test mode 6 off – no continuity Test mode 6 on – < 1 Ω
K4	Heater A (front)	Disconnect J3 connector	Ohms	E4 & J3 pin 3	Test mode 2 off – no continuity Test mode 2 on – < 1 Ω
K7	Microwave	Disconnect J4 connector	Ohms	J4 pin 4 & J4 pin 5	Test mode 3 off – no continuity Test mode 3 on – < 1 Ω
K9	Heater B (rear)	Disconnect J4 connector	Ohms	E6 & J4 pin 1	Test mode 1 off – no continuity Test mode 1 on – < 1 Ω

Component Testing Procedures



WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Power Test

All Amana and Menumaster microwave oven power outputs are rated using the IEC705 standards. Using the IEC705 test method requires precision measurements and equipment that is not practical to be performed in the field. Using the test shown below will indicate if the oven performance is satisfactory.

Test equipment required:

- 1000 ml test container and thermometer (Amana power test kit R0157397 Fahrenheit / Menumaster power test kit M95D5 Celsius).
- Digital watch / watch with a second hand for use on ovens with electromechanical timers.

Important Notes:

- Low line voltage will cause low temperature rise / power output.
- Ovens must be on a dedicated circuit, properly grounded, and polarized. Other equipment on the same circuit may cause a low temperature rise / power output.
- This test and results are not a true IEC705 test procedure and are only intended to provide servicers with an easy means of determining if the microwave oven cooking output is correct.

Procedure

1. Fill the test container to the 1000 ml line with cool tap water.

NOTE: Water temperature should be approximately 60°F / 16°C

2. Using the thermometer, stir water for five to ten seconds; measure, and record the temperature (T1).
3. Place test container of water in the center of oven cavity and close door.
4. Heat the water for a 33-second full power cycle.

NOTE: Use a digital watch or a watch with a second hand for ovens with electromechanical timers.

1. At end of the cycle, remove test container. Using the thermometer, stir water for five to ten seconds and record temperature (T2).
2. Subtract the starting water temperature (T1), from the ending water temperature (T2) to obtain the temperature rise (ΔT).
3. If the temperature rise (ΔT) meets or exceeds the minimum, the test is complete. If the temperature rise (ΔT) fails to meet the minimum temperature rise, test the line voltage to verify it is correct. Then repeat steps 1-6 making sure to change the water. If the temperature rise (ΔT) fails to meet the minimum temperature rise again the oven will require service.

Minimum Temperature Rise at Thirty -Three (33) Seconds Run Time

ΔT (°F)	Cooking Power Output	ΔT (°F)	Cooking Power Output	ΔT (°C)	Cooking Power Output	ΔT (°C)	Cooking Power Output
10.....	1000	20.....	2000	5	1000	11.....	2000
11.....	1100	21.....	2100	5.5	1100	11.5.....	2100
12.....	1200	22.....	2200	6.5	1200	12.....	2200
14.....	1400	24.....	2400	7.5	1400	13.....	2400
17.....	1700	25.....	2500	9.5	1700	13.5.....	2500
18.....	1800	27.....	2700	10	1800	15.....	2700
19.....	1900	30.....	3000	10.5	1900	16.5.....	3000

Service Test



WARNING

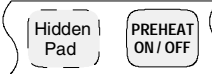
To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

NOTE: Unit must be in STANDBY mode.

To Enter Service Mode, oven door must be closed.

NOTE: Pads will not beep when pressed.

Press Hidden Pad



Then

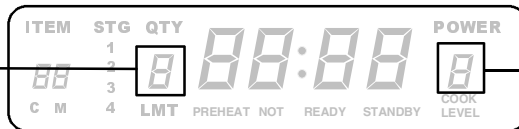


Press

Display

Component Evaluation

0 = Deactivated
1 = Activated



Indicates Service Mode

1

Toggles Element B (Rear) ON/OFF.

Displays actual Amperage



Timer counts up to 99 seconds.

If no Amperage, check:

- Heating element
- Triac 2 (middle)
- H.V. board (relay K9 and triac 2 drive voltage)
- Wiring

2

Toggles Element A (Front) ON/OFF.

Displays actual Amperage



Timer counts up to 99 seconds.

If no Amperage, check:

- Heating element
- Triac 1 (top)
- H.V. board (relay K4 and triac 1 drive voltage)
- Wiring

3

Toggles Microwave ON/OFF.

Displays actual Amperage



Timer counts up to 62 seconds and unit shuts off.

If no Amperage, check for line voltage at H.V. transformer primary winding.

If no voltage, check:

- Interlock switch (secondary)
- Magnetron TCO
- Triac 3 (bottom)
- H.V. board (relay K7 and triac 3 drive voltage)
- Wiring

If voltage is present, check H.V. components and wiring.

4

Toggles Convection Fan ON/OFF.



If no fan operation, check:

- Convection fan motor and wheel
- H.V. board (relay K2)
- Wiring

Service Test

WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Press →

Display

Component Evaluation

5

Toggles Cooling Fan ON/OFF.



If no fan operation, check:

- Cooling fan motor and wheel
- H.V. board (relay K1)
- Wiring

6

Toggles Oven Light ON/OFF.



If no light operation, check:

- Oven light
- H.V. board (relay K3)
- Wiring

7

Displays # of Magnetron Hours.



8

Displays # of Door Cycles with a 1 to 1 ratio rounded to the nearest ten



9

Clears Hours and Cycles (press START to activate) (Resets to 0).



0

Displays current Temperature OFFSET.



TEMP

Display current oven Temperature as sensed by RTD.

Test Modes



WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Convection Temperature Test

NOTE: It is absolutely necessary to own and use a thermocouple type oven tester to accurately measure oven temperature. No other type of thermometer can take its place.

NOTE: Before testing an oven to check calibration, inspect the RTD for proper mounting.

1. Place one wire rack in center position. Remove any other racks and utensils.
2. Clip thermocouple to the center rack and run lead outside oven door, or wrap thermocouple around rack and have tip of thermocouple extend upward towards top of cavity approximately 1".
3. Press *PREHEAT ON/OFF* pad.
4. Press *PROGRAM SAVE* pad.
5. Press *TEMP* pad.
6. Enter 230°C (450°F).
7. Allow oven to cycle one time.
8. Record high and low peaks from next two cycles.

NOTE: Display **does not** indicate if heating elements are on or off.

Fahrenheit Example:

		<u>LOW</u>		<u>HIGH</u>
Cycle 1	1	440°F		460°F
Cycle 2	2	<u>439°F</u>		<u>461°F</u>
		879°F	+	921°F = 1800°F
1800°F / 4 = 450°F average temperature				

Celsius Example:

		<u>LOW</u>		<u>HIGH</u>
Cycle 1	1	230°C		240°C
Cycle 2	2	<u>230°C</u>		<u>240°C</u>
		450°C	+	480°C = 930°C
930°C / 4 = 230°C average temperature				

If the average temperature is too high or too low the oven temperature offset needs to be calibrated.

Convection Temperature Calibration

NOTE: It is normal for the average oven temperature to vary from the oven setting by as much as 25°F (14°C). Difference will not effect cooking since recipes are written with this difference in mind.

Calibration

NOTE: Door must be closed.

1. Press *HIDDEN PAD*.
2. Press pads 1,3,5,7, 9.
3. Press "0" pad.



NOTE: Display will show the current offset setting.

4. Press the "0" pad to change the offset.

Fahrenheit

NOTE: Offset temperature range is +40°F to -40°F and advances in 2 and 3° increments.

Celsius

NOTE: Offset temperature range is +22°C to -22°C and advances in 1 and 2° increments.

5. Press *STOP/RESET* pad to save offset changes.

NOTE: Retest the oven after any offset changes are made.

Fahrenheit Example:

- Oven temperature is set for 450°F
- Average of temperature test is 475°F
- Offset setting must be reduced by 25°F
- If offset is shown as 10°, press the "0" pad until -15 is shown in the display (10 – 25 = -15)

Celsius Example:

- Oven temperature is set for 230°C
- Average of temperature test is 240°C
- Offset setting must be reduced by 10°C
- If offset is shown as 5°, press the "0" pad until -5 is shown in the display (5 – 10 = -5)

Display Diagnostics

WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

CAUTION

All repairs as described in this troubleshooting section are to be performed only after the caution procedures one through eight listed below have been followed.

1. Check grounding before checking for possible causes.
2. Be careful of the high voltage circuit.
3. Discharge high voltage capacitor.
4. When checking the continuity of the switches or the high voltage transformer, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.
5. Do not touch any parts of the circuitry on the P.C. Board circuit since static electric discharge may damage this control panel. Always touch yourself to ground while working on this panel to discharge any static charge in your body.
6. 208/230 VAC is present in the high voltage circuit board, power relay and primary circuit of low voltage transformer.
7. When troubleshooting, be cautious of possible electrical hazard.
8. When testing convection operation, convection fan may start at any time or if oven is hot.

Error Codes

During operation, the display may show the following service codes:

NOTE: Before scheduling service for any error codes, instruct customer to unplug oven for 1 minute, reconnect power, and retest. If unit operates properly, no service call is required.

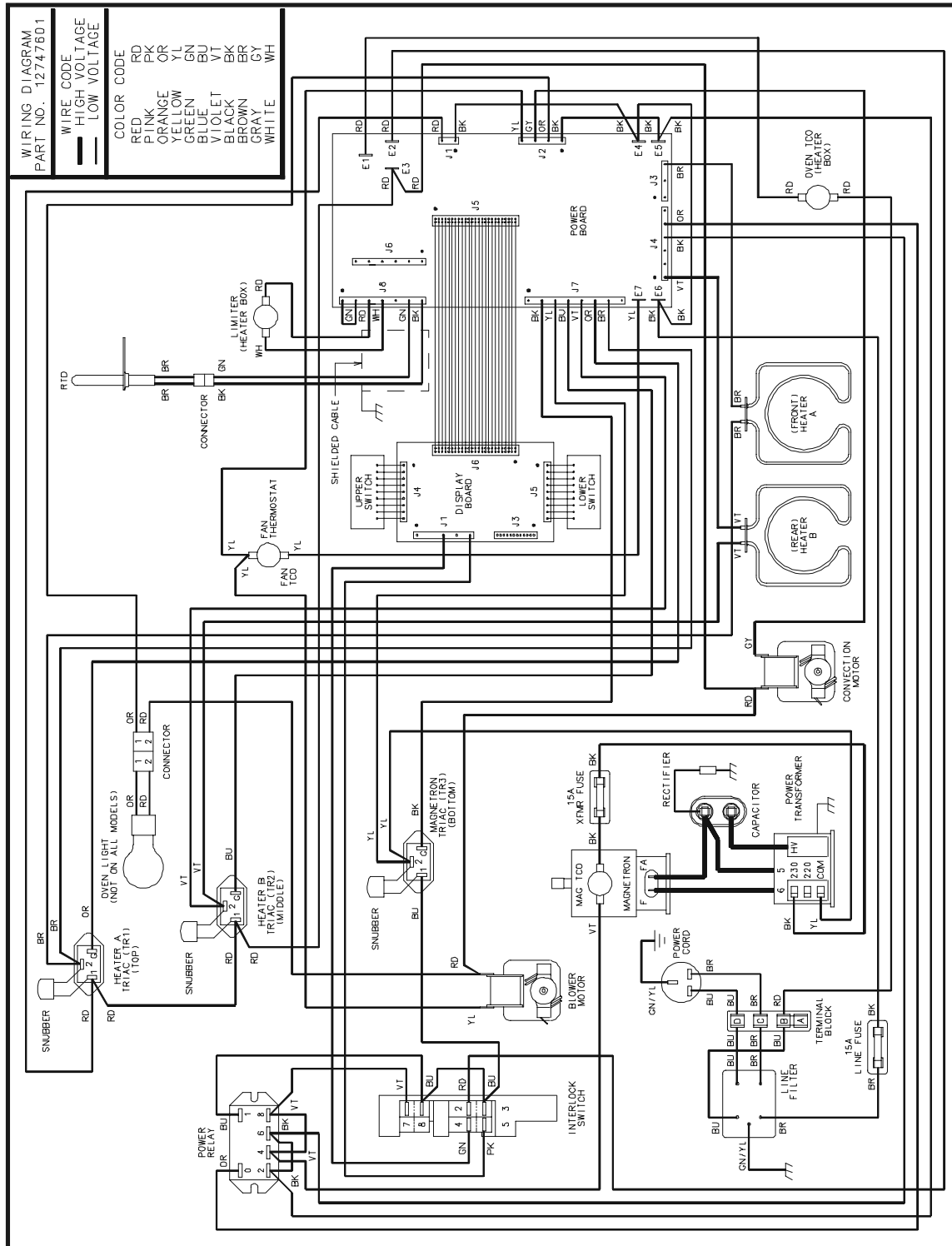
Display	Description	Corrective Action
Err1	Failed H.V. Board	See note above. Replace H.V. board.
Err2	Failed Touch Panel Failed H.V. Board	Replace Touch panel. See note above. Replace H.V. board. May be a failed Touch Panel. Verify before replacing H.V. Board.
Err3	Failed H.V. Board Failed Touch Panel	See note above. Replace H.V. board. Replace Touch panel. May be a failed Touch Panel. Verify before replacing.
Err4	Failed H.V. Board	See note above. Replace H.V. board.
Err5	Failed Touch Panel	See note above. If Touch Panel is pressed for more than 30 seconds, this error code will appear. Replace touch panel.
Err6	Failed H.V. Board	See note above. Replace H.V. board.
Err7	Error with RTD circuit If power level shows 0-Uncalibrated..... 1-Shorted RTD circuit..... 2-Open RTD circuit.....	See note above. Replace H.V. board. Check RTD and wiring to H.V. board. Check RTD and wiring to H.V. board.
HOT		See note above. Open TCO. Convection motor inoperative. Restricted air filter. H.V. board inoperative. Broken or loose wire.
Door	Door Interlock Primary Switch	See note above. Verify latch mechanism moves freely on door. Verify J1 connector on display board is properly seated. Test interlock switch assembly and perform door adjustment if necessary. Replace interlock switch assembly if failed.

Wiring Diagram and Schematic



WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.



12747601

UACE5302

UDS30E2

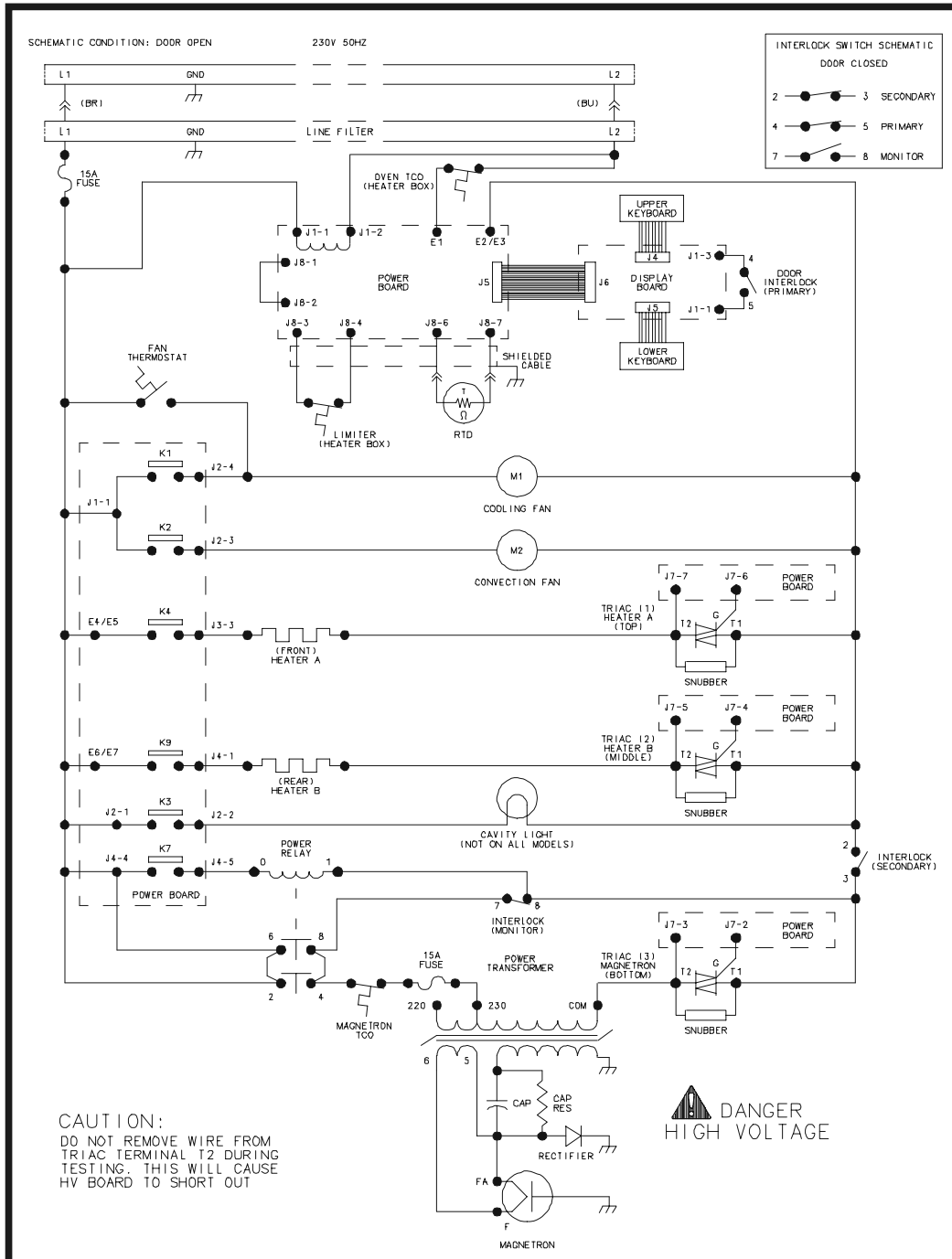
UCA2000NT2

Wiring Diagram and Schematic



WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.



12747601



DANGER
HIGH VOLTAGE

UACE5302

UDS30E2

UCA2000NT2

16025975

12

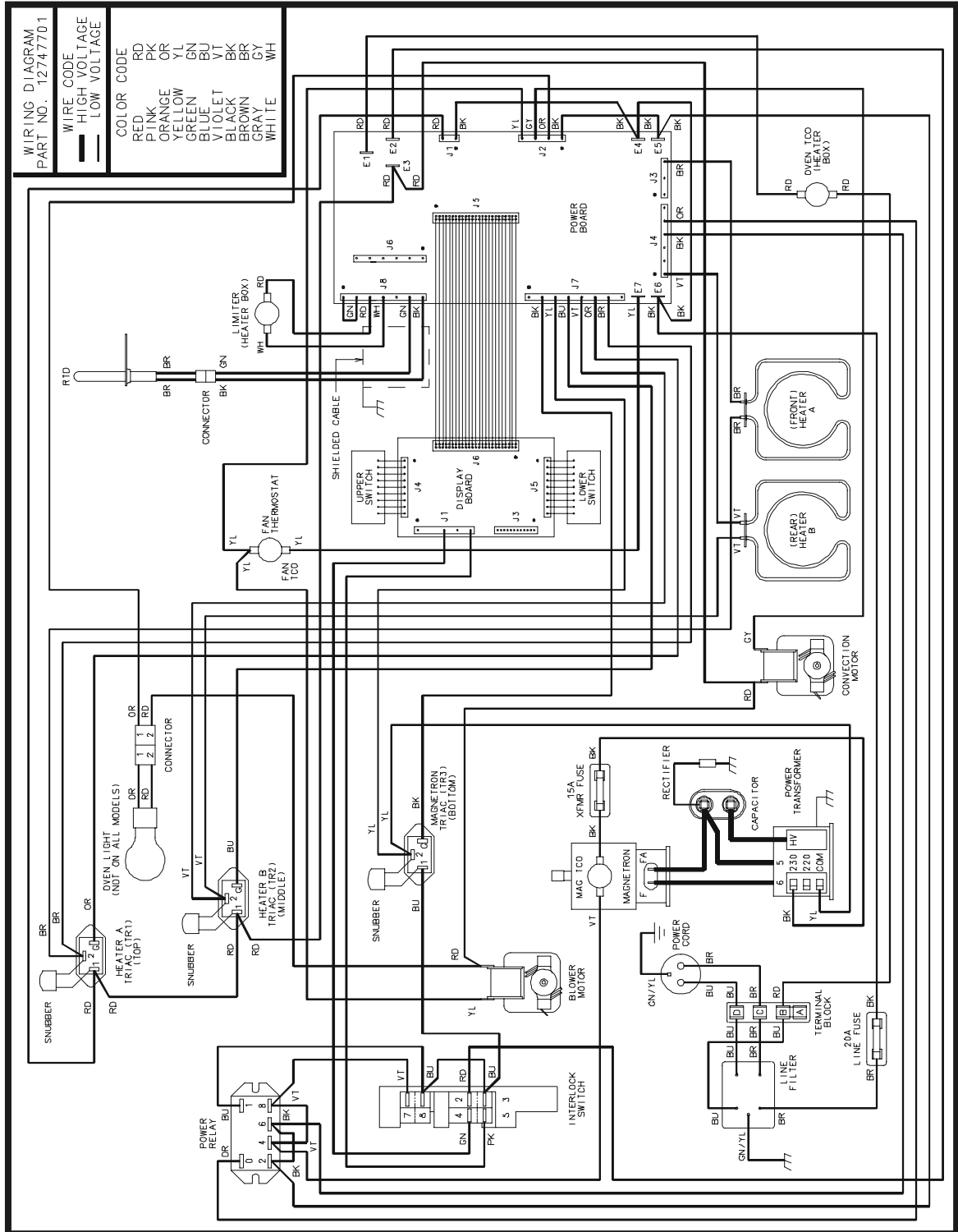
March 2005
©2005 Maytag Services

Wiring Diagram and Schematic



WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.



12747701

ACE5302

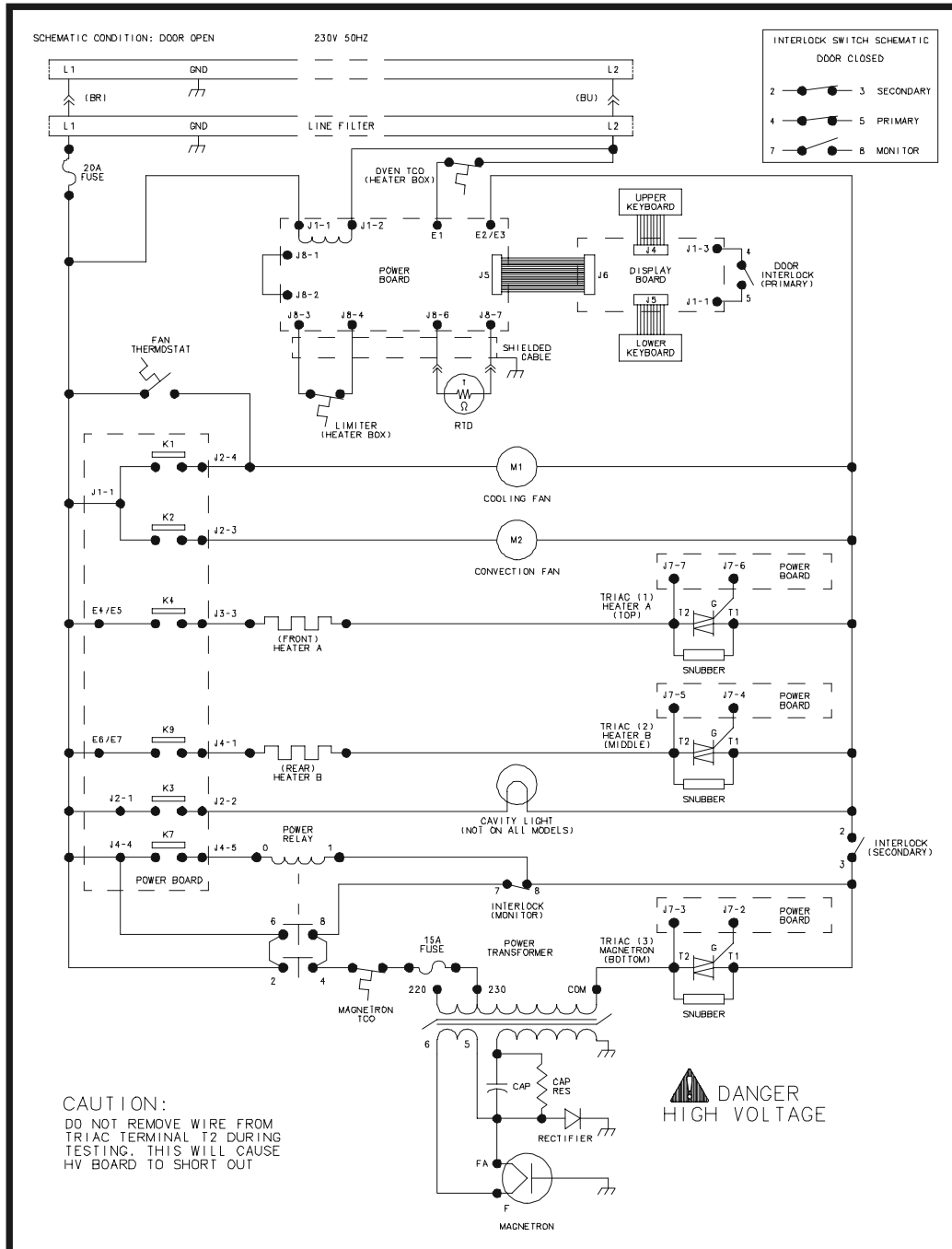
DS30E2

Wiring Diagram and Schematic



WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.



12747701



ACE5302

DS30E2