

# International Commercial Microwave—Technical Information

## 230 VAC, 50 Hz model

**ALD510**  
**MLD510**

**P1331005M**  
**P1331009M**

**UALD510**  
**UMLD510**

**P1331006M**  
**P1331010M**

- 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 16026969 for installation, operating, testing, troubleshooting, and disassembly instruction.



### CAUTION

All safety information must be followed as provided in Service Manual 16026969.



### WARNING


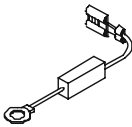
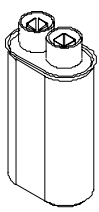
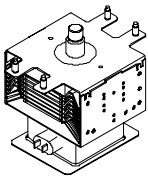
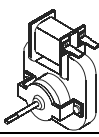
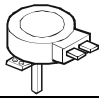
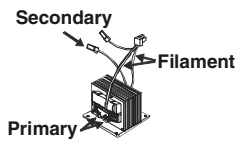

To avoid the risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Models	ALD510 MLD510		UALD510 UMLD510	
<b>Power Source</b>				
Voltage AC	230 VAC		230 VAC	
Amperage (Single Unit)	15 A		15 A	
Frequency	50 Hz		50 Hz	
Single Phase, 3 wire grounded	X		X	
Plug	CEE 7/7 Schuko		BS1363A	
<b>Power Output – Microwave</b>				
Nominal microwave energy (IEC705)	1000 Watts		1000 Watts	
Minimum temperature rise ( $\Delta T$ )	10°F / 5°C		10°F / 5°C	
Operating Frequency	2450 MHz		2450 MHz	
<b>Power Consumption</b>				
Microwave only	1500 Watts		1500 Watts	
<b>Dimensions</b>				
<b>Cabinet (in cm)</b>				
Width	22"	56 cm	22"	56 cm
Height	13 1/2"	34.4 cm	13 1/2"	34.4 cm
Depth	18 29/32"	47.9 cm	18 29/32"	47.9 cm
<b>Oven Interior (in cm)</b>				
Width	14 1/2"	36.9 cm	14 1/2"	36.9 cm
Height	8 3/4"	22.1 cm	8 3/4"	22.1 cm
Depth	15 3/4"	40 cm	15 3/4"	40 cm
<b>Weight</b>				
Uncrated	40.7 lbs.	18.5 kg	40.7 lbs.	18.5 kg
<b>Features</b>				
Timer	60 minute		60 minute	
Power Selection	5 Levels		5 Levels	
Cavity Volume	1.2 cu. Ft.		1.2 cu. Ft.	

# Component Testing Procedures

## ⚠ WARNING

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Illustration	Component	Testing	Results
	Thermal cutout	Disconnect all wires from TCO. Measure resistance across terminals. Cavity TCO.....  Magnetron TCO.....	Closed at 50°C (122°F) and Opens at 85°C (185°F) Closed at 115°C (249°F) and Opens at 160°C (320°F)
	Diode	<b>Discharge Capacitor</b>  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.  <b>NOTE:</b> Ohmmeter must contain a battery of 6 volts minimum.
	Capacitor	<b>Discharge Capacitor</b>  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
	Magnetron	<b>Discharge Capacitor</b>  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. <b>NOTE:</b> This test is not conclusive. If oven does not heat and all other components test good replace the magnetron and retest.
	Blower motor	Remove all wires from motor.  Measure resistance across coil .....	Approximately 96 Ω
	Stirrer motor	Remove all wires from motor.  Measure resistance across terminals ....	Approximately 14.7K Ω
	Transformer	<b>Discharge Capacitor</b> Remove all wires from terminals.  Measure resistance from: Primary ..... Filament ..... Secondary to Ground screw on transformer stack .....	Less than <1 Ω Less than <1 Ω  Approximately 91 Ω
	Lamp and receptacle	Test continuity of receptacle terminals.	Indicates continuity with bulb installed.
	Wire Harness	Test continuity of wires	Indicates continuity
	Electronic control board	Test interlock assembly switches. Test cavity TCO.	If interlock switch assembly and cavity TCO is operating correctly and the control board still has no display, replace control board.

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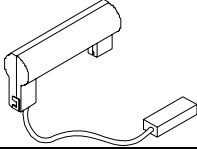
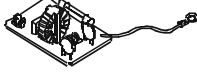
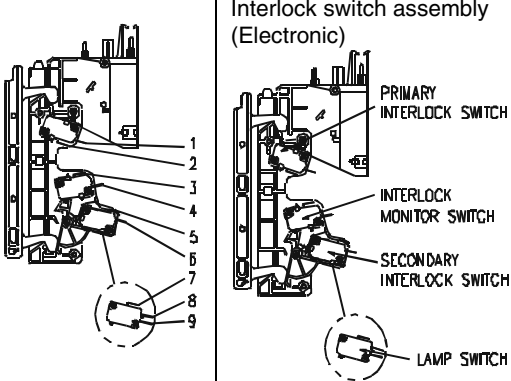
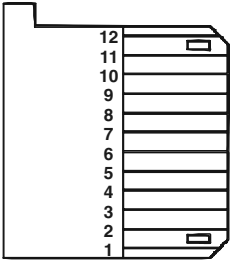
Illustration	Component	Testing	Results
	High voltage fuse	Test continuity of terminals	Indicates continuity, if not replace fuse.
	Fuse block / Filter assembly	Power In terminals ..... Power Out terminals.....	230 VAC 230 VAC If no power in, check power outlet If no power out, check fuses
	Interlock switch assembly (Electronic)	Disconnect wires to switch.  With door open measure resistance from: Monitor – Terminals 3 - 4 ..... Primary – Terminals 1 - 2 ..... Secondary – Terminals 5 - 6 ..... Lamp – Terminals 7 – 8..... Lamp – Terminals 7 – 9.....  With door closed measure resistance from: Monitor – Terminals 3 - 4 ..... Primary – Terminals 1 - 2 ..... Secondary – Terminals 5 - 6 ..... Lamp – Terminals 7 – 8..... Lamp – Terminals 7 – 9.....  <b>After verifying or replacing the module, re-connect wires to switch and check operation of monitor circuit before operating the oven.</b>	Indicates continuity Infinite Ω Infinite Ω Infinite Ω Indicates continuity  Infinite Ω Indicates continuity Indicates continuity Indicates continuity Infinite Ω
	Error codes	E-20	Replace Control Board

Illustration	Component	Testing	Results		
			Pad	Trace	Measurement
	Keyboard assembly	Continuity is indicated as 100 Ω and below.	10.....	1 & 8	Continuity
			9.....	3 & 9	Continuity
			8.....	2 & 9	Continuity
			7.....	1 & 9	Continuity
			6.....	7 & 8	Continuity
			5.....	6 & 8	Continuity
			4.....	5 & 8	Continuity
			3.....	4 & 8	Continuity
			2.....	3 & 8	Continuity
			1.....	2 & 8	Continuity
			STOP/RESET .....	4 & 9	Continuity
			START/+30 SEC .....	5 & 9	Continuity
			POWER LEVEL .....	6 & 9	Continuity
			DEFROST .....	7 & 9	Continuity
			CHECK PROGRAM ....	1 & 10	Continuity
PROGRAM.....	2 & 10	Continuity			
QTY 2X .....	3 & 10	Continuity			

# Power Test



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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 procedures 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.

5. At end of the cycle, remove test container. Using the thermometer, stir water for five to ten seconds and record temperature (T2).
6. Subtract the starting water temperature (T1) from the ending water temperature (T2) to obtain the temperature rise ( $\Delta T$ ).
7. If the temperature rise ( $\Delta T$ ) meets or exceeds the minimum, the test is complete. If the temperature rise ( $\Delta T$ ) 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 ( $\Delta T$ ) fails to meet the minimum temperature rise again the oven will require service.

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

$\Delta T$ (°F)	Cooking Power Output	$\Delta T$ (°F)	Cooking Power Output	$\Delta T$ (°C)	Cooking Power Output	$\Delta T$ (°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

# Wiring Diagram and Schematic



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