

International Commercial Microwave—Technical Information

230 V, 50 Hz Models

LD510D
DEL10D

P1329704M
P1329706M

LD510P
DEL10E

P1329705M
P1329707M

- 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 16022150 for detailed installation, operating, testing, troubleshooting, and disassembly instructions.



CAUTION

All safety information must be followed as provided in Service Manual 16022150.



WARNING

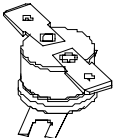
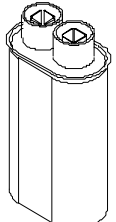

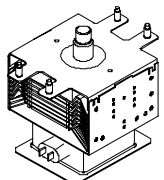
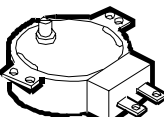
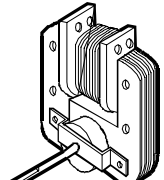
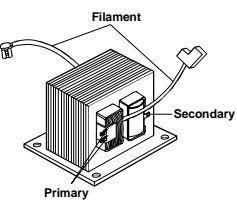
To avoid risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitor before servicing, unless testing requires it.

Models	LD510D LD510P		DEL10D DEL10E	
Power Source				
Voltage AC	230 VAC		230 VAC	
Amperage (single unit)	6.3 A		6.3 A	
Frequency	50 Hz		50 Hz	
Single phase, 3 wire earthed	X		X	
Plug	CEE 7/7 Schuko		CEE 7/7 Schuko	
Power Output				
Nominal microwave energy (IEC705)	1000 Watts		1000 Watts	
Operating frequency	2450 MHz		2450 MHz	
Power Consumption				
Cook condition microwave	1500 Watts		1500 Watts	
Dimensions				
Cabinet				
Width	20.8"	53 cm	20.8"	53 cm
Height	12.4"	31.5 cm	12.4"	31.5 cm
Depth	15.5"	39.4 cm	15.5"	39.4 cm
Oven Interior				
Width	13.7"	34.8 cm	13.7"	34.8 cm
Height	8.7"	22.2 cm	8.7"	22.2 cm
Depth	14.6"	37.3 cm	14.6"	37.3 cm
Weight				
Crated—approximately	39.7 lbs.	18 kg	39.7 lbs.	18 kg

Component Testing Procedures

⚠ WARNING

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Illustration	Component	Test	Results
	Thermal cutout	Disconnect all wires from TCO. Measure resistance across terminals. Magnetron TCO Cavity TCO.....	Open at (145°C) 293°F and closed at (85°C) 185°F Opens at (110°C) 230°F
	Capacitor	Discharge Capacitors 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
	Diode assembly	Discharge Capacitors 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: Analog meter must contain a battery of 6 volts minimum.
	Magnetron	Discharge Capacitors 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 re-test.
	Stirrer motor	Remove all wires from terminals. Measure resistance from: Terminal to terminal	Approximately 12 - 14 KΩ
	Fan motor	Remove all wires from motor. Measure resistance across coil.	Approximately 350 -450 Ω
	Transformer	Discharge Capacitors Remove all wires from terminals. Measure resistance from: Primary Secondary to transformer base plate Filament.....	Approximately 1.4 – 2.2 Ω Approximately 90 - 110 Ω <1 Ω

Component Testing Procedures



WARNING

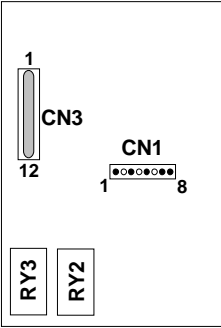
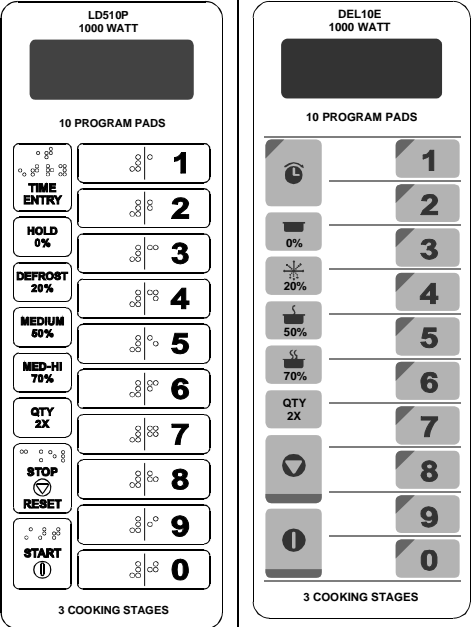
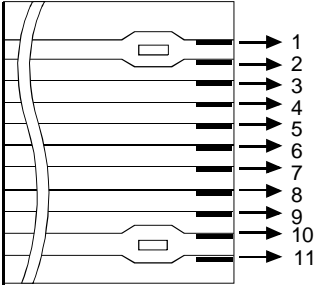
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Illustration	Component	Test	Results
	Interlock switches	Disconnect wires to switch With door open measure resistance from: COM to N.O.—Primary COM to N.C.—Monitor COM to N.O.—Secondary..... With door closed measure resistance from: COM to N.O.—Primary COM to N.C.—Monitor COM to N.O.—Secondary.....	Infinite Ω 0 Ω Infinite Ω 0 Ω Infinite Ω 0 Ω
	Fuse block / Filter board	Disconnect wire from terminals. Measure resistance of the following terminals: Verify fuse is good..... Terminal L to L Terminal N to N.....	< 1 Ω < 1 Ω < 1 Ω
	Relay	Disconnect wire from terminals. Measure resistance of the following terminals: Coil terminals	Approximately 11 K Ω
	Monitor Resistor	Disconnect wire from terminals. Measure resistance of the following terminals:	Approximately 30 Ω
	Timer 7 minute	Disconnect wire from terminals. Measure resistance of the following terminals: Terminal 3 to terminal 4 (timer motor) Terminal 1 to terminal 2(timer switch)	Approximately 22 K Ω Timer OFF— infinite Ω Timer ON— < 1 Ω

Component Testing Procedures

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	Control	<p>CN1 Pin 1 (black) to Pin 3 (blue)</p> <p>RY2 (Cook Relay) Unplug oven and remove wire leads from RY2 terminals. Connect ohm-meter leads to terminals. Plug oven into power supply Initiate cook cycle</p> <p>NOTE: RY2 should cycle when using reduced power levels.</p> <p>RY3 (Fan Relay) Unplug oven and remove wire leads from RY3 terminals. Connect ohm-meter leads to terminals. Plug oven into power supply Initiate cook cycle</p> <p>NOTE: Fan relay remains energized for 60 seconds following cook cycle.</p>	<p>Line voltage input to control transformer.</p> <p>Infinite Ω < 1 Ω</p> <p style="text-align: center;">Power levels for Relay 2</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Power Level</th> <th>Cycles On for:</th> <th>Cycles Off for:</th> </tr> </thead> <tbody> <tr> <td>20%</td> <td>3 sec</td> <td>9 sec</td> </tr> <tr> <td>50%</td> <td>6 sec</td> <td>6 sec</td> </tr> <tr> <td>70%</td> <td>9 sec</td> <td>3 sec</td> </tr> <tr> <td>100%</td> <td>12 sec</td> <td>0 sec</td> </tr> </tbody> </table> <p>Infinite Ω < 1 Ω</p>	Power Level	Cycles On for:	Cycles Off for:	20%	3 sec	9 sec	50%	6 sec	6 sec	70%	9 sec	3 sec	100%	12 sec	0 sec																																										
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	Touch panel	<p>Continuity is indicated as 100 Ω and below.</p> <p>Each pad must be pressed to perform the following test.</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Pad</th> <th style="text-align: center;">Trace</th> <th style="text-align: center;">Measurement</th> </tr> </thead> <tbody> <tr><td>1</td><td>2 & 8</td><td>Continuity</td></tr> <tr><td>2</td><td>3 & 8</td><td>Continuity</td></tr> <tr><td>3</td><td>4 & 8</td><td>Continuity</td></tr> <tr><td>4</td><td>5 & 8</td><td>Continuity</td></tr> <tr><td>5</td><td>6 & 8</td><td>Continuity</td></tr> <tr><td>6</td><td>7 & 8</td><td>Continuity</td></tr> <tr><td>7</td><td>1 & 9</td><td>Continuity</td></tr> <tr><td>8</td><td>2 & 9</td><td>Continuity</td></tr> <tr><td>9</td><td>3 & 9</td><td>Continuity</td></tr> <tr><td>0</td><td>1 & 8</td><td>Continuity</td></tr> <tr><td>Hold</td><td>1 & 10</td><td>Continuity</td></tr> <tr><td>Defrost</td><td>2 & 10</td><td>Continuity</td></tr> <tr><td>Medium</td><td>3 & 10</td><td>Continuity</td></tr> <tr><td>MED-HI</td><td>4 & 10</td><td>Continuity</td></tr> <tr><td>Time Entry</td><td>5 & 10</td><td>Continuity</td></tr> <tr><td>Stop/Reset</td><td>6 & 10</td><td>Continuity</td></tr> <tr><td>Start</td><td>7 & 10</td><td>Continuity</td></tr> <tr><td>X2</td><td>7 & 9</td><td>Continuity</td></tr> </tbody> </table>	Pad	Trace	Measurement	1	2 & 8	Continuity	2	3 & 8	Continuity	3	4 & 8	Continuity	4	5 & 8	Continuity	5	6 & 8	Continuity	6	7 & 8	Continuity	7	1 & 9	Continuity	8	2 & 9	Continuity	9	3 & 9	Continuity	0	1 & 8	Continuity	Hold	1 & 10	Continuity	Defrost	2 & 10	Continuity	Medium	3 & 10	Continuity	MED-HI	4 & 10	Continuity	Time Entry	5 & 10	Continuity	Stop/Reset	6 & 10	Continuity	Start	7 & 10	Continuity	X2	7 & 9	Continuity
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Component Testing Procedures



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Power Test (Traditional Test Method)

Test equipment required is Amana power test kit R0157397 (Fahrenheit), or Menumaster power test kit M95D5 (Celsius).

1. Fill the plastic container to the 1000 ml. line with cool tap water.
2. Using the thermometer; stir the water, measure, and record the water temperature.

Initial water temperature should be approximately 60°F (16°C).

3. Place container on the center of the oven shelf and heat the water for
33 seconds for ovens with more than 1550 watts or 63 seconds for ovens with less than 1550 watts.

NOTE: Use a watch second hand, not the oven timer.

4. Stir the water, measure and record the temperature of the water after heating time is complete.
5. Subtract the starting water temperature (Step 2), from the ending water temperature (Step 4) to obtain the temperature rise (ΔT).
6. See the Traditional Power Test Temperature Chart below.

NOTES: •The IEC-705 test method requires precision measurements and equipment. It is not practical to perform the IEC test in the field. To convert the traditional power test results to the approximate IEC-705 rating, take the traditional power test results and add 100 watts per magnetron for the unit being tested.

Example: 840 — watts output using the traditional power test for model LD510P
 + 100 — watts (1 magnetrons X 100 watts)
 940 — Approximate IEC-705 results

- Always perform power test three times for accuracy, changing the water after each test is performed.
- Variation or errors in the test procedure will cause a variance in the temperature rise. Additional power tests should be made if temperature rise appears marginal.
- Low line voltage will cause lower temperature rise.

Temperature Chart

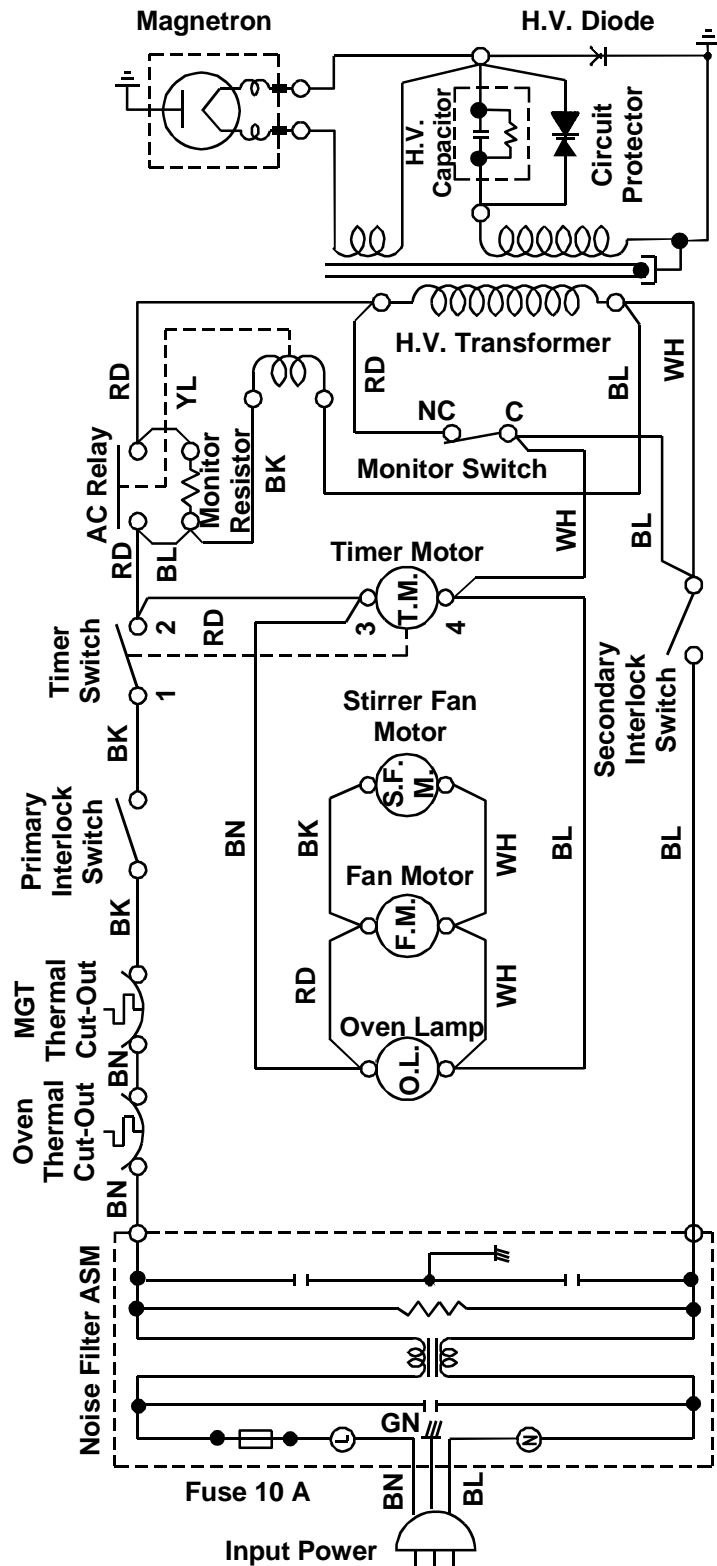
SIXTY-THREE SECONDS run time chart for units less than 1550 Watts cooking power

ΔT (°F)	Cooking Power Output	ΔT (°F)	Cooking Power Output	ΔT (°C)	Cooking Power Output	ΔT (°C)	Cooking Power Output
12	464	27	1046	7	490	15	1050
13	504	28	1085	8	560	16	1120
14	542	29	1124	9	630	17	1190
15	581	30	1162	10	700	18	1260
16	620	31	1201	11	770	19	1330
17	659	32	1240	12	840	20	1400
18	697	33	1279	13	910	21	1470
19	736	34	1317	14	980		
20	775	35	1359				
21	814	36	1395				
22	852	37	1434				
23	891	38	1472				
24	930	39	1511				
25	969	40	1550				
26	1007						

Wiring and Schematic Diagrams

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BEFORE SERVICING
Discharge the high voltage capacitor, by shorting the negative high voltage terminal of it to chassis ground.

SYMBOL	Color
WH	White
BN	Brown
BL	Blue
RD	Red
PK	Pink
GN	Green
BK	Black

* NOTE: 1. Door is opened.
2. Cook OFF.

LD510D

P1329704M

DEL10D

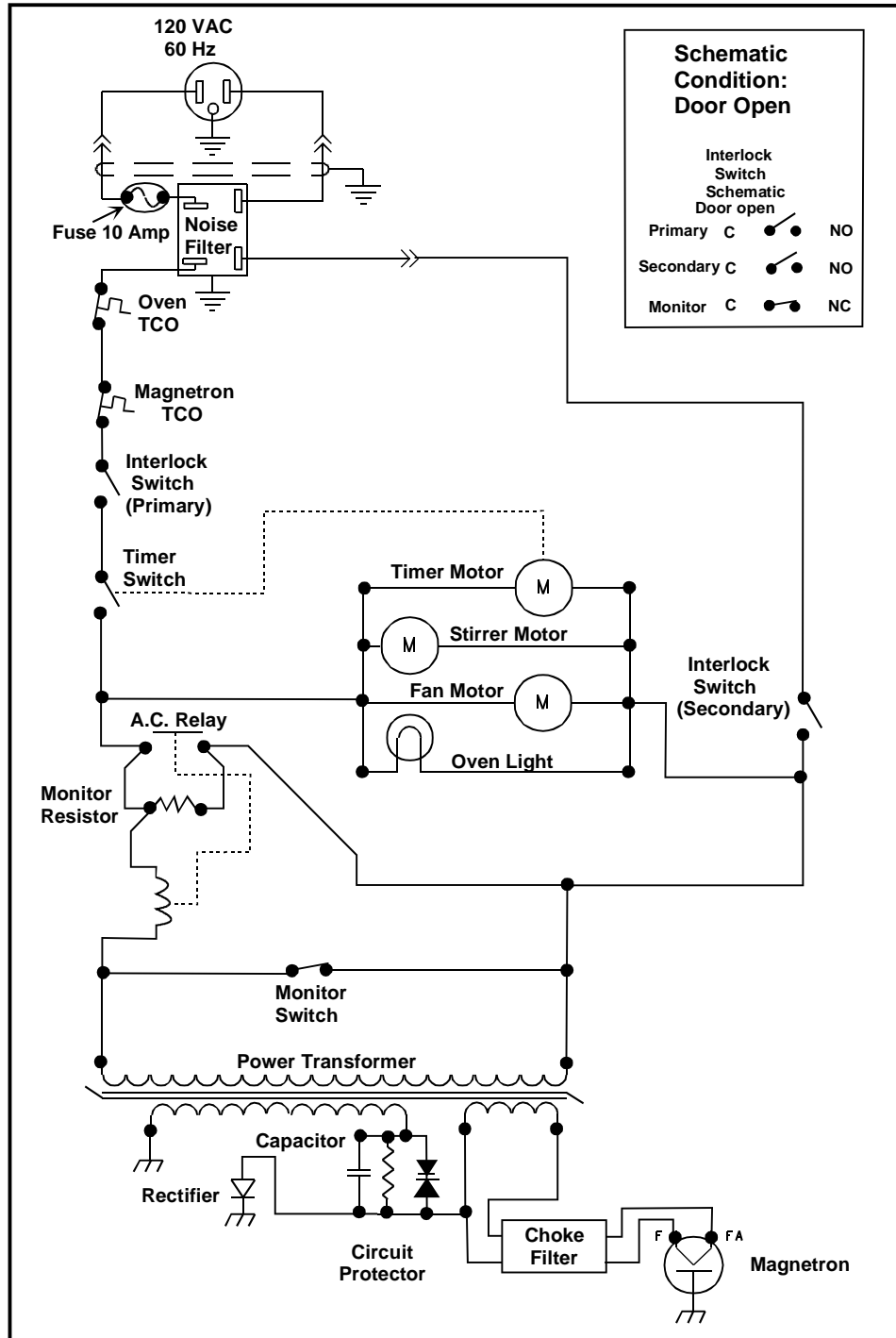
P1329706M

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DANGER
HIGH VOLTAGE

LD510D

P1329704M

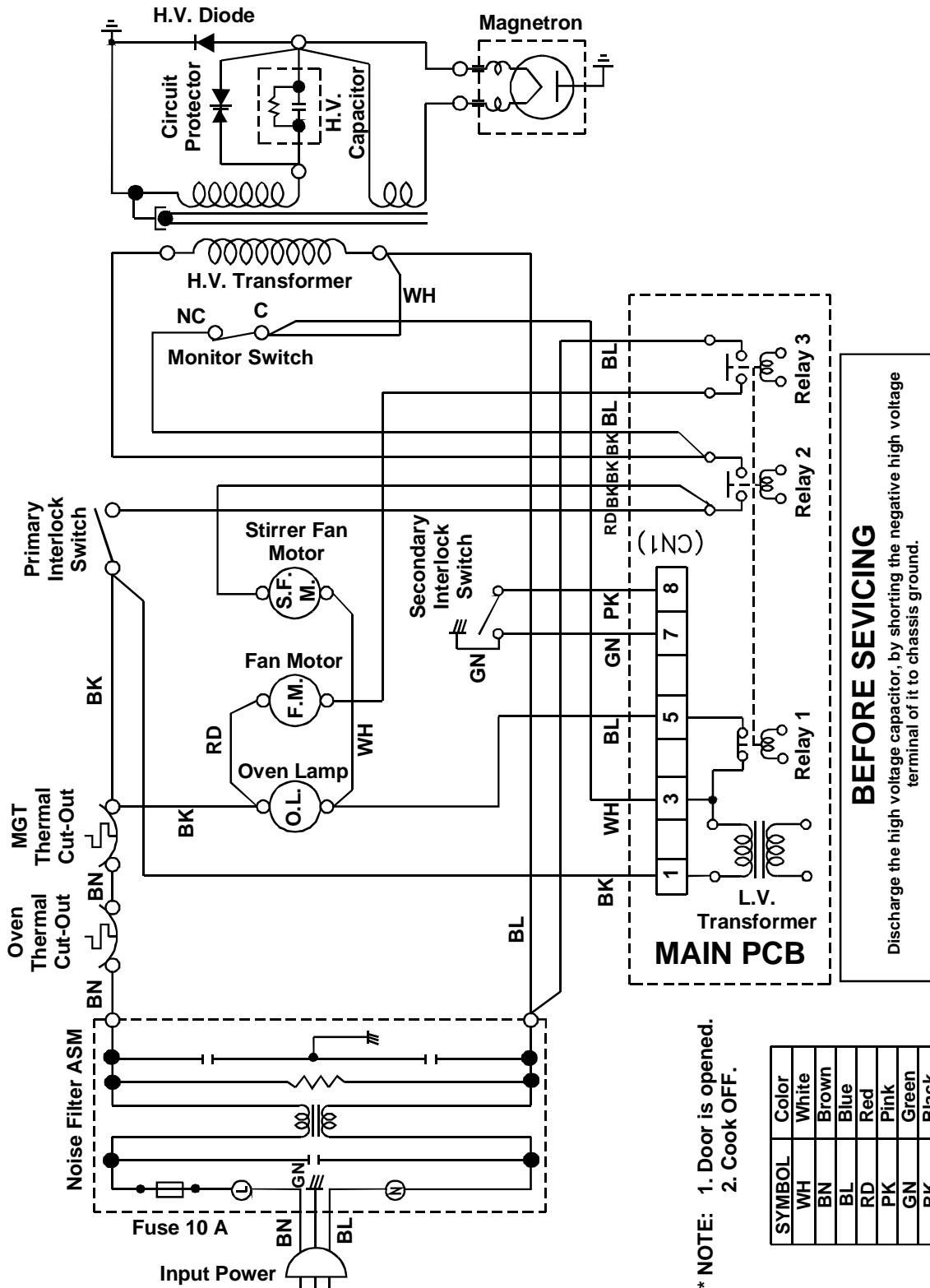
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LD510P

P1329705M

DEL10E

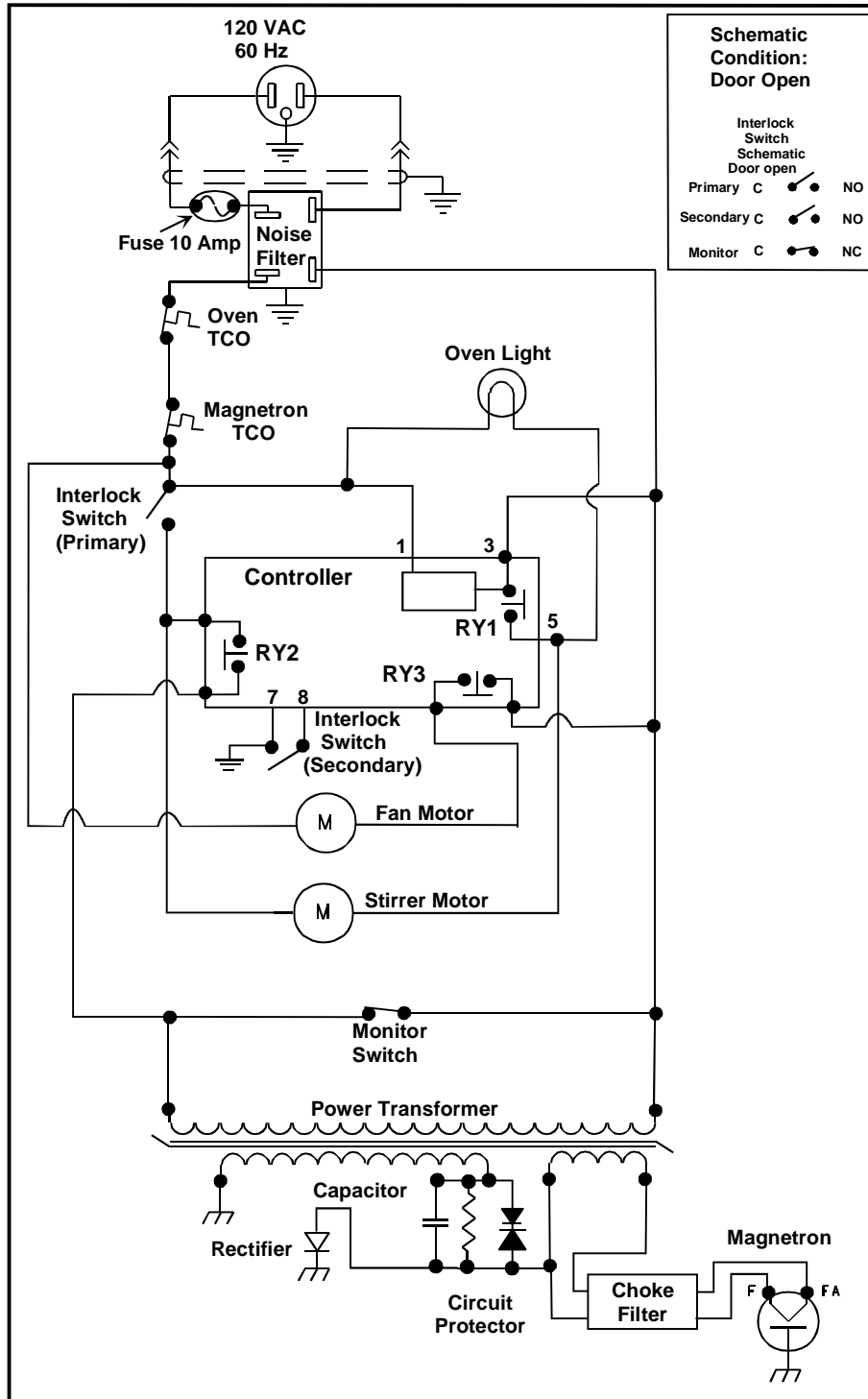
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DANGER

HIGH VOLTAGE