

⚠ WARNING



Electrical Shock Hazard
Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

Models:

665.63792300
 665.63793300
 665.63794300
 665.63799300

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

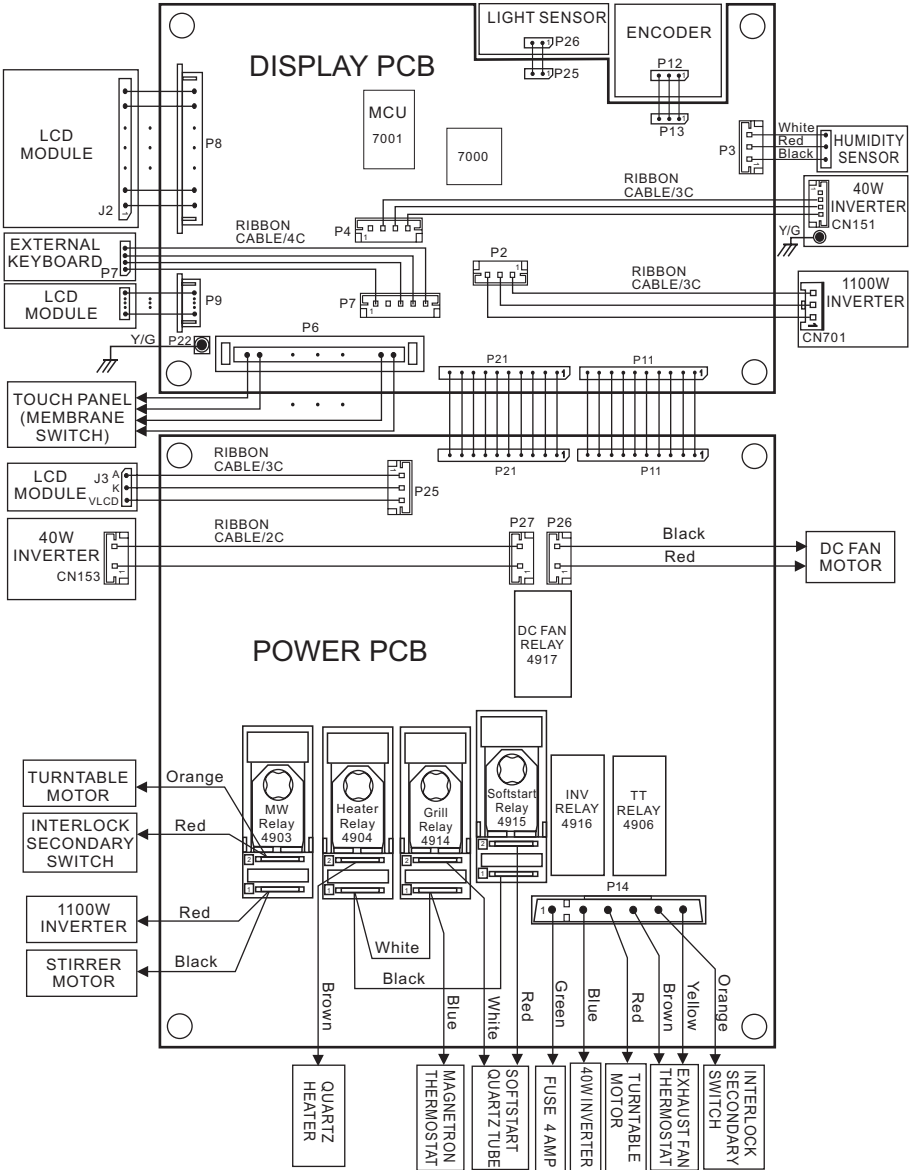
- a. Do not operate or allow the oven to be operated with the door open.
- b. Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
 1. Interlock Operation
 2. Proper Door Closing
 3. Seal and Sealing Surfaces (Arcing, Wear & Other Damage)
 4. Damage to or Loosening of Hinges & Latches
 5. Evidence of Dropping or Abuse
- c. Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line and cavity for proper alignment, integrity and connections.
- d. Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation, and transmission systems shall be repaired, replaced, or adjusted by procedures described in service manual before the oven is released to the owner.
- e. A microwave leakage check to verify compliance with the Federal performance standard should be performed on each oven prior to release to the owner.
- f. Do not attempt to operate the oven if the window area of the door is broken.

FAILURE CODES/INDICATIONS

Display	Likely Failure Condition	Recommended Repair Procedure
F0	No error	none
F2K	Key or Foil pressed more than one minute	Replace membrane switch. If problem persists, replace control assembly.
F2T	Touch Panel pressed more than one minute	Replace the display module. If problem persists, replace control assembly.
F3H	Humidity Sensor out of range	Connect a new sensor to the board (at P3). If problem persists, replace control assembly.
F3T	Temperature Sensor out of range	Replace the control assembly.
F7	1100W Inverter failure	<ol style="list-style-type: none"> 1. Unplug the oven for at least 40 seconds. Check to see if this solves the problem. (Possible reason: Over temperature protection for the magnetron operated earlier.) 2. Check the resistance of the magnetron thermostat. It should be close to 0 ohms. 3. Check wiring to the 1100W inverter and control system. 4. Replace 1100W inverter. 5. If problem persists, replace control assembly.
F9M	E2PROM missing	Replace the control assembly.
F9E	E2PROM empty	Replace the control assembly.
F9C	E2PROM CheckSum error	Replace the control assembly.
F9W	E2PROM Write error	Replace the control assembly.
F10	Display error	Check that the ribbon cables between the display module and the microcomputer board at P11 and P21 are securely connected. If problem persists, replace control assembly.

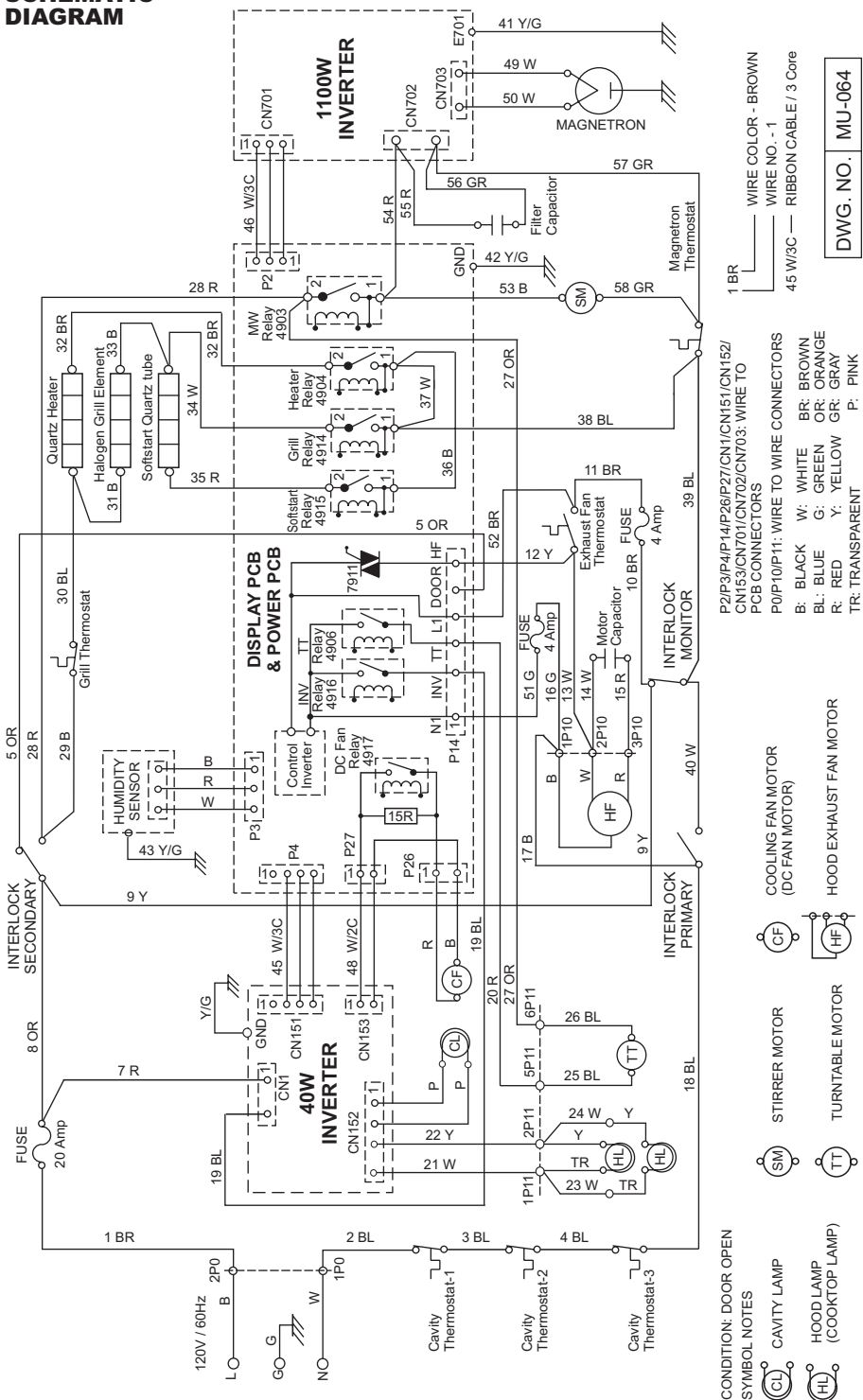
NOTE: If lights work, but cooling fan does not, 40W inverter may have failed. See "Checking Inverters" on page 12.

PICTORIAL DIAGRAM

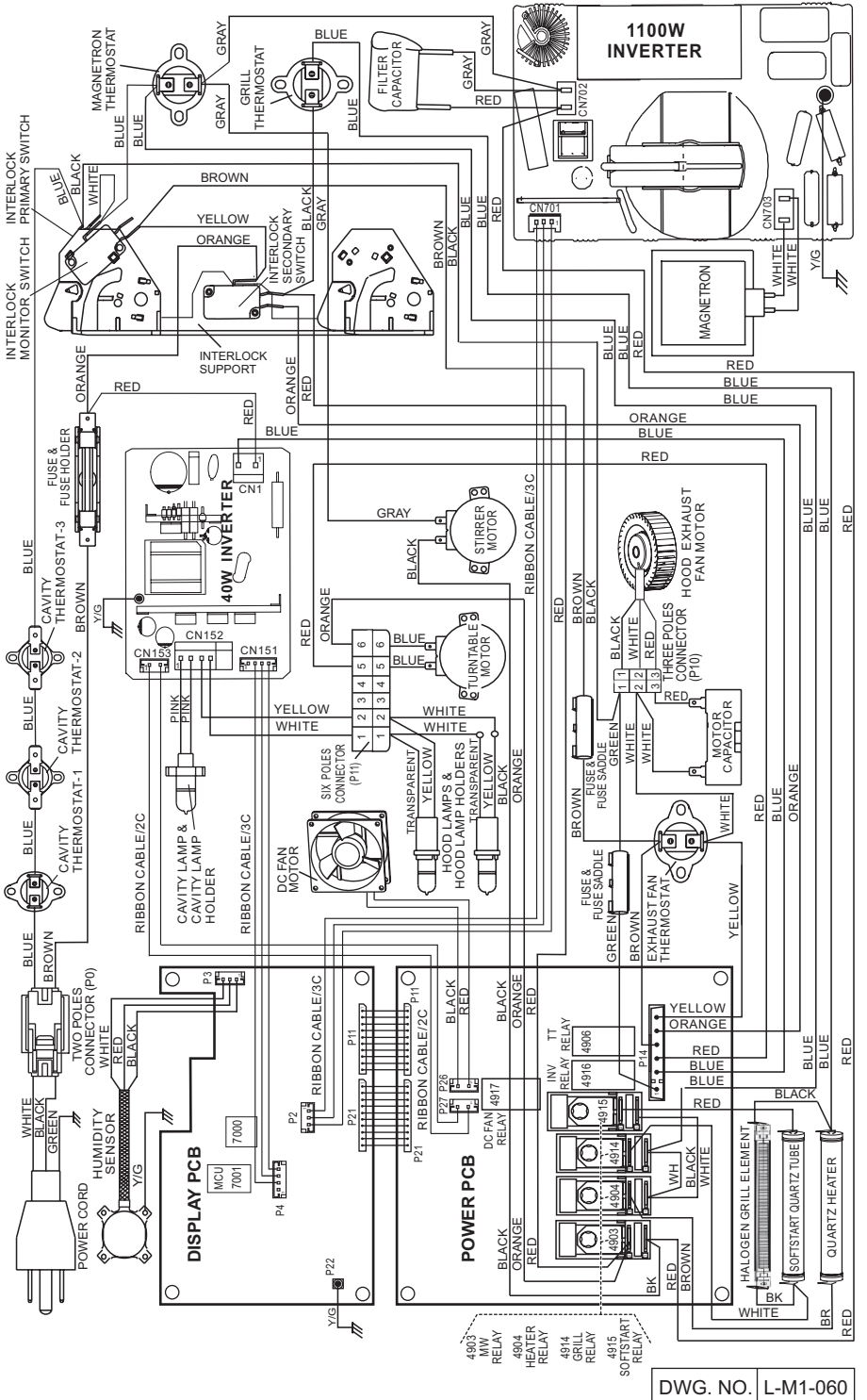


DWG. NO. L-M1-061

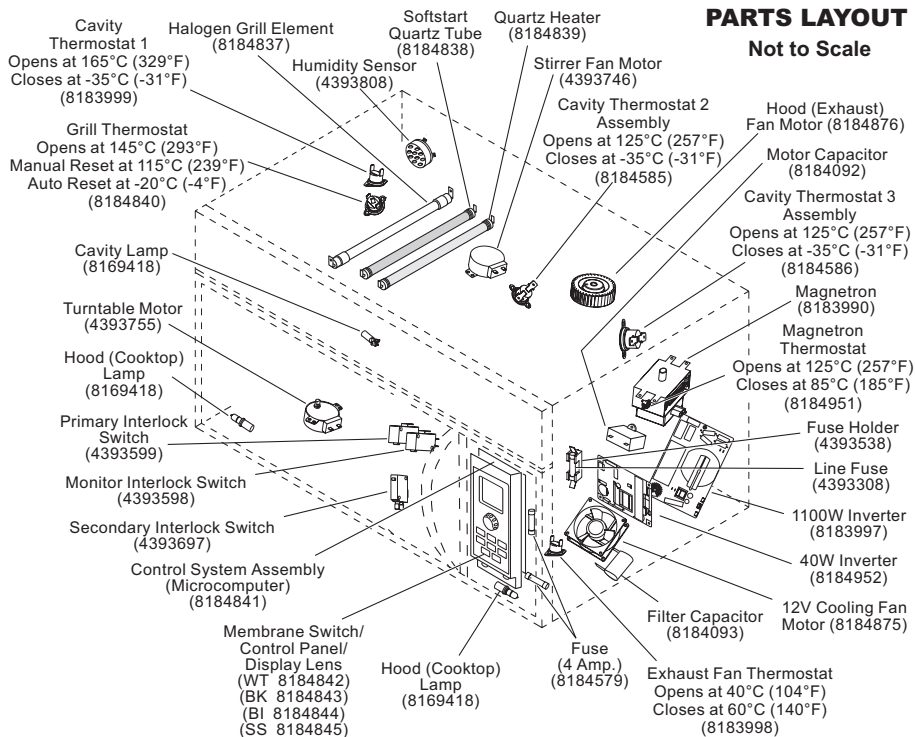
**SCHEMATIC
DIAGRAM**



PICTORIAL DIAGRAM



DWG. NO. L-M1-060



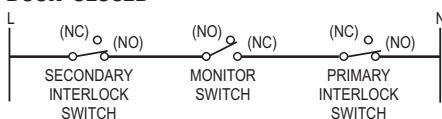
PRIMARY, SECONDARY, AND MONITOR INTERLOCK SWITCH CHECKOUT PROCEDURE

Switch	Check By	Door Open	Door Closed
Primary Interlock	1. Disconnect the wires at the Primary Interlock Switch. 2. Check from the common terminal (Blue/Black wires) to the normally open terminal (White wire).	-	+
Secondary Interlock	1. Disconnect the wires at the Secondary Interlock Switch. 2. Check from the common terminal (Orange/Yellow wires) to the normally open terminal (Red/Black wires).	-	+
	1. Disconnect the wires at the Secondary Interlock Switch. 2. Check from the common terminal (Orange/Yellow wires) to the normally closed terminal (Orange wire).	+	-
Monitor	1. Disconnect the wires at the Monitor Switch. 2. Check from the common terminal (White/Blue wires) to the normally closed terminal (Yellow/Brown wires).	+	-

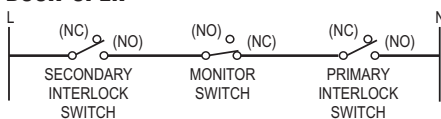
(+) Continuity (-) No Continuity

NOTE: These diagrams are not intended to show a complete circuit; they represent the position of switches during "DOOR OPEN" and "DOOR CLOSED" (continuity checks only).

DOOR CLOSED



DOOR OPEN

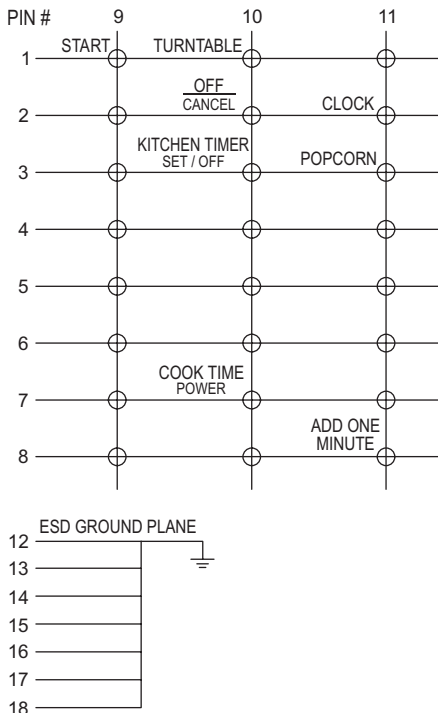


18 PIN FLEX CIRCUIT CONNECTOR



TOUCH PANEL CONTINUITY DIAGRAM

Example of use: When TURNTABLE is selected, a resistance of less than 200 ohms will be observed between 1 and 10 on the flex circuit connector. See diagram below.



TOUCH PANEL AND MICROCOMPUTER BOARD TEST

The microwave hood combination is provided with a self-diagnostic routine that can be accessed through the touch key board. To access the test mode:

1. Press the clock key.
2. Touch "Hours" on the touch screen and set hours to "1".
3. Touch "Minutes" on the touch screen and set minutes to "23".
4. Select "AM".
5. Touch "1:23" on the touch screen. You are now in the test mode. The Screen Display will appear as shown in Test Mode Table below.

NOTE: If the OFF/CANCEL key is pressed during this diagnostic routine, you will exit the test mode.

TEST MODE TABLE

Screen Display	Display Explanation
Program Version	Version number
Oven Status	Current Error (If Any) e.g. F0 = No Error See Failure Codes, page 1.
Stop Reason	Reason cooking cycle interrupted (See Stop Reason Table below.)
Humidity	Normal range: 8191-28671
Temperature	Normal range: 46-100
Night Light	Range: 0-255 Varies depending on ambient light. Value should be near zero when light sensor opening is covered.

STOP REASON

"Stop Reason" displays how the last run cooking cycle was stopped. The table below lists all possible codes:

Code Displayed	Last Stop Reason
0	Power reset
1	Door opened
2	Cook time elapsed
3	Cancel key pressed
4	Inverter error
5	Humidity sensor error
6	Temperature sensor error
7	Touchfoil error
8	Oven overheated
9	Oven overheated
FF	No cooking cycle stopped

POWER OUTPUT MEASUREMENT

The power output of the magnetron can be measured by the following tap water temperature rise test:

- ✓ Be sure oven cavity is clean and cool (not used recently).
- ✓ Low voltage will lower the magnetron output.

1. Fill a glass beaker with 1000 ml (32 oz.) of tap water. Stir the water with a thermometer (digital recommended) and record the temperature. This starting temperature should be between 10°C (50°F) to 24°C (75°F).

2. Place the beaker in the center of the oven. Operate on HIGH power level for 60 seconds.
3. When done, stir the thermometer through the water and record the temperature.
4. Subtract the cold water temperature from the warm water temperature to get the temperature rise. Normal range is as shown in the following table:

Voltage (VAC under load)	Temperature Rise	
	°C	°F
120V	13 - 15	24 - 27
108V	11 - 12	20 - 22

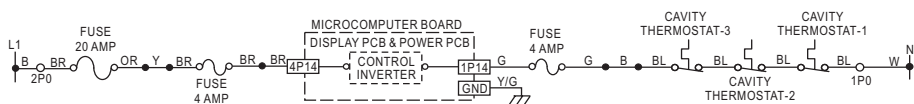
TROUBLESHOOTING GUIDE

Complete the following steps before checking microwave circuitry:

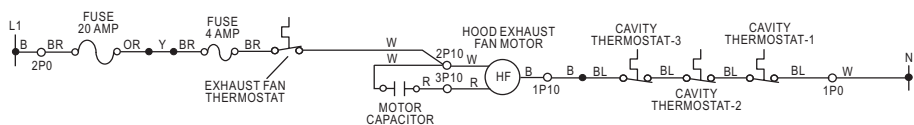
1. Check the line voltage, household fuses or circuit breakers.
2. Check for loose wiring or miswiring within microwave.

3. All testing must be done with an ohmmeter having a sensitivity of 20,000 ohms per volt DC or greater, and powered by at least a 9-volt battery.
4. All operational checks using microwave energy must be done with the microwave oven loaded with a minimum of 300 ml (10 oz.) of water in a microwave-safe container.

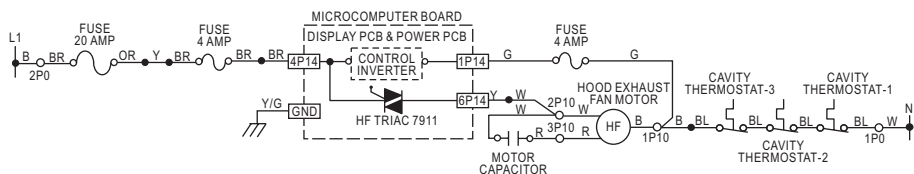
MICROWAVE PLUGGED IN - TIME OF DAY DISPLAYED



BLOWER FAN TURNS ON AUTOMATICALLY

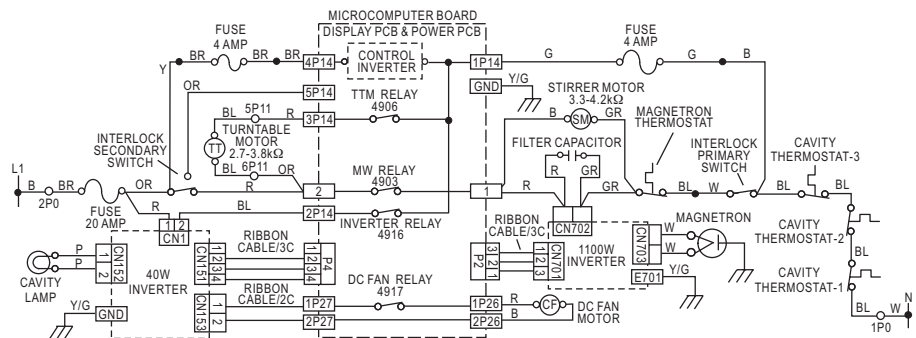


BLOWER FAN ON

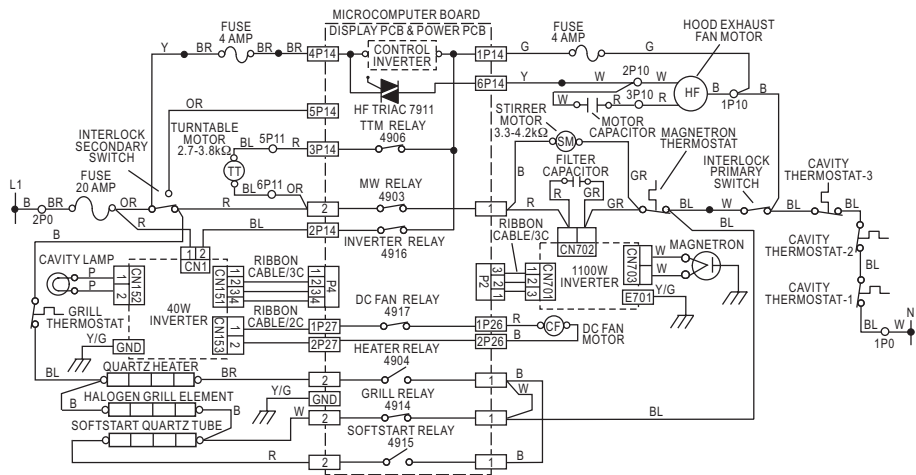


B: Black	W: White	BR: Brown
BL: Blue	G: Green	OR: Orange
R: Red	Y: Yellow	GR: Gray
TR: Transparent	P: Pink	

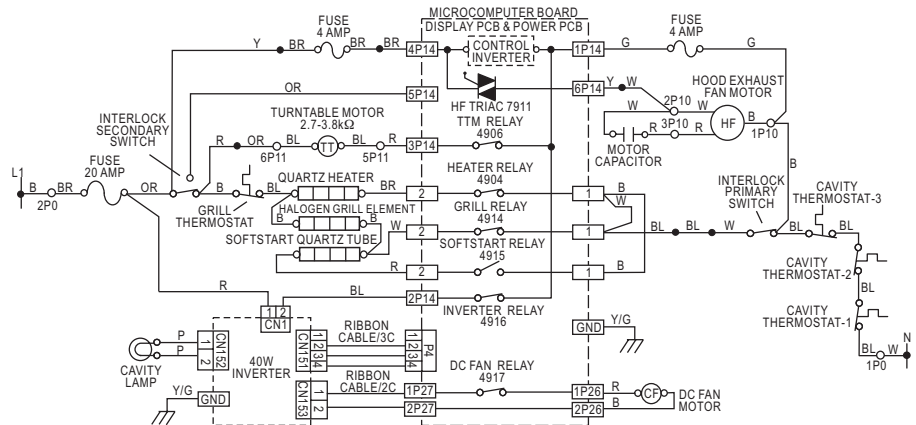
MICROWAVE COOKING



MICROWAVE AND GRILL COMBINATION COOKING

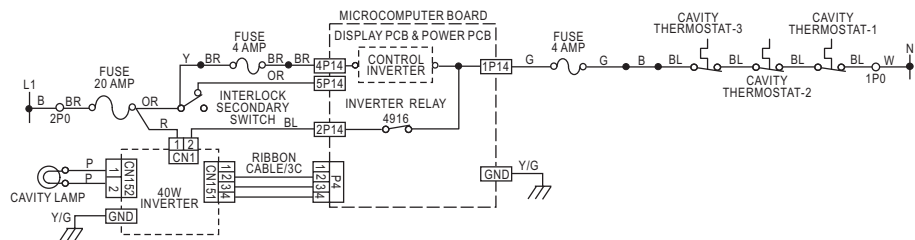


GRILL COOKING

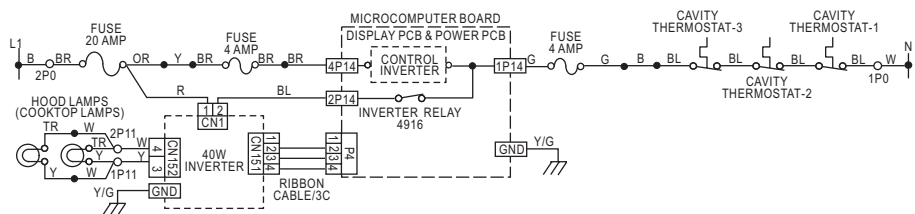


B: Black	W: White	BR: Brown
BL: Blue	G: Green	OR: Orange
R: Red	Y: Yellow	GR: Gray
TR: Transparent	P: Pink	

DOOR OPEN - CAVITY LAMP IS ON



COOKTOP LAMP ON



COMPONENT TESTS

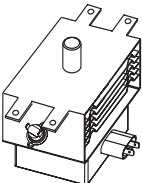
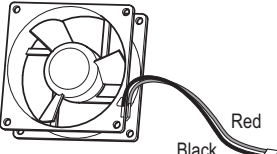
Remove the lead wires from the related component before conducting any of the following tests.

All operational checks using microwave energy must be done with the microwave oven loaded with a minimum of 300 ml (10 oz.) of water in a microwave-safe container.

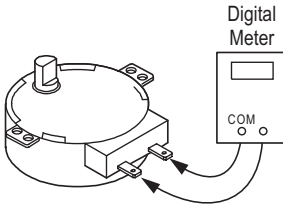
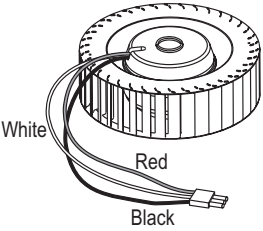
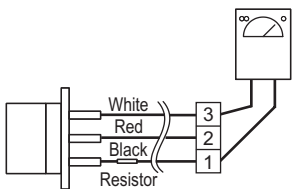
Conduct a microwave energy test after performing any tests or repairs to the microwave.

Check that all wire leads are in the correct position before operating the microwave oven.

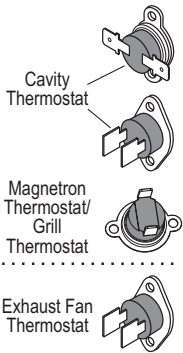
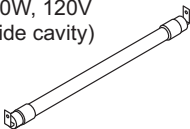
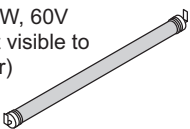
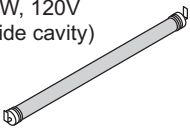
Grasp wire connectors when removing the wire leads from microwave parts.

COMPONENT / TEST	RESULTS
<p>Magnetron</p>  <ol style="list-style-type: none"> 1. Remove wire leads. Check that the seal is in good condition. 2. Measure resistance (ohmmeter scale: Rx1): Filament terminal - 3. Measure resistance (ohmmeter scale: Rx1k): Filament to chassis - 	<p>- Normal: Less than 1 ohm</p> <p>- Normal: Infinite</p>
<p>D.C. Cooling Fan Motor</p>  <ol style="list-style-type: none"> 1. Remove wire leads. 2. Using an external 9 or 12 DC voltage source, connect to fan wires: red wire to '+' and black wire to '-'. 	<p>- Fan should work. If not, replace fan.</p>

CONTINUED ...

COMPONENT / TEST	RESULTS
<p>Turntable Motor/ Stirrer Motor</p>  <p>1. Remove wire leads. 2. Measure resistance (ohmmeter scale: Rx1k):</p> <p>Turntable Motor: Stirrer Motor:</p>	<p>- Normal: 2.7k - 3.8k ohms (approx.) 3.3k - 4.2k ohms (approx.)</p> <p>- Abnormal: Infinite</p>
<p>Hood Exhaust Fan Motor</p>  <p>1. Remove wire leads. 2. Measure resistance (ohmmeter scale: Rx1):</p> <p>Black - White: Black - Red:</p>	<p>- Normal: 30 - 60 ohms (approximate) 40 - 80 ohms (approximate)</p> <p>- Abnormal: Infinite</p>
<p>Humidity Sensor</p> 	
<p>1. Remove the 3-pin connector from PCBA (P3).</p> <p>NOTE: Do not remove the attached resistor which is used for internal resistance calibration.</p>	
<p>2. Measure resistance across pins 1 & 3 (ohmmeter scale: Rx1k):</p>	<p>- Normal: 2.8k ohms (approx.) at 25° ± 10°C (77° ± 18°F)</p> <p>- Abnormal: Infinite</p>
<p>3. Measure resistance across pins 2 & 3 (ohmmeter scale: Rx1k):</p>	<p>- Normal: 2.8k ohms (approx.) at 25° ± 10°C (77° ± 18°F)</p> <p>- Abnormal: Infinite</p>

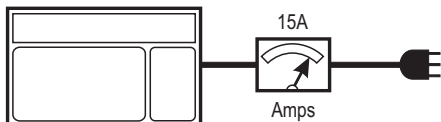
CONTINUED ...

COMPONENT / TEST	RESULTS
<p>Thermostats</p> <p>NOTE: Refer to Parts Layout on page 5 for opening and closing temperatures. Thermostats may look different.</p>  <p>Cavity Thermostat</p> <p>Magnetron Thermostat/Grill Thermostat</p> <p>Exhaust Fan Thermostat</p> <p>1. Remove wire leads.</p> <p>2. Cavity, Magnetron and Grill Thermostats: Measure continuity (ohmmeter scale: Rx1):</p> <p>3. Exhaust Fan Thermostat: Measure continuity (ohmmeter scale: Rx1):</p>	<p>- Normal: Continuity</p> <p>- Abnormal: Infinite</p> <p>- Normal: Infinite</p> <p>- Abnormal: Continuity</p>
<p>Halogen Grill Element 1000W, 120V (inside cavity)</p>  <p>1. Remove wire leads.</p> <p>2. Measure resistance (ohmmeter scale: Rx1):</p>	<p>- Normal: 1.5 ohms (approx.)</p> <p>- Abnormal: Infinite</p>
<p>Softstart Quartz Tube 600W, 60V (not visible to user)</p>  <p>1. Remove wire leads.</p> <p>2. Measure resistance (ohmmeter scale: Rx1):</p>	<p>- Normal: 6 ohms (approx.)</p> <p>- Abnormal: Infinite</p>
<p>Quartz Heater 500W, 120V (inside cavity)</p>  <p>1. Remove wire leads.</p> <p>2. Measure resistance (ohmmeter scale: Rx1):</p>	<p>- Normal: 27 ohms (approx.)</p> <p>- Abnormal: Infinite</p>

CHECKING INVERTERS

Measure Oven Input Current

Connect an ammeter to measure the input current of microwave oven when the power level is set to Level 10 at the touch panel:



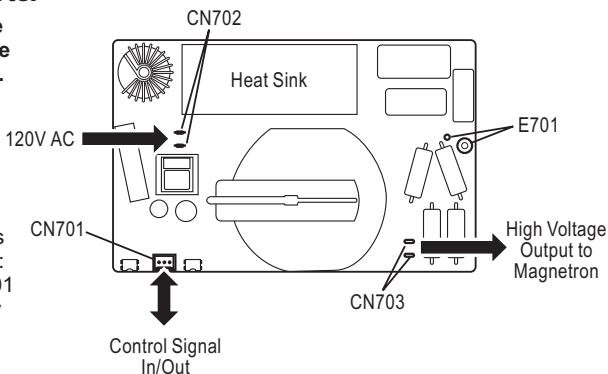
- **If more than 0.5A**, the 1100W inverter is probably OK. Check the magnetron using test on page 9, and wiring.
- **If less than 0.5A**, there is no input to the 1100W inverter. Check for the following:
 - No AC voltage supply. Check Control System Assembly PCB and wiring.
 - No control signal. Check Control System Assembly PCB and wiring.

Checking the 1100W Inverter

NOTE: Do not try to repair the inverter board, nor try to make any adjustments to the board.

Check wiring to 1100W inverter:

1. Unplug the oven's main power supply.
2. Visually inspect 4 connectors on the 1100W inverter board: CN701, CN702, CN703, E701 to see whether there are any signs of failure due to loose wires, bad crimping, signs of overheating, etc.



Checking the 40W Inverter

NOTE: Do not try to repair the inverter board, nor try to make any adjustments to the board.

Check wiring to 40W inverter:

1. Unplug the oven's main power supply.
2. Visually inspect 4 connectors on the 40W inverter board: CN1, CN151, CN152, CN153 to see whether there are any signs of failure due to loose wires, bad crimping, signs of overheating, etc.

