

## MICROWAVE OVEN-TOUCH CONTROL

### IMPORTANT SAFETY NOTICE

THIS INFORMATION IS INTENDED FOR USE BY INDIVIDUALS POSSESSING ADEQUATE BACKGROUNDS OF ELECTRICAL, ELECTRONIC AND MECHANICAL EXPERIENCE. ANY ATTEMPT TO REPAIR A MAJOR APPLIANCE MAY RESULT IN PERSONAL INJURY AND PROPERTY DAMAGE. THE MANUFACTURER OR SELLER CANNOT BE RESPONSIBLE FOR THE INTERPRETATION OF THIS INFORMATION, NOR CAN IT ASSUME ANY LIABILITY IN CONNECTION WITH ITS USE.

### DISCONNECT POWER BEFORE SERVICING IMPORTANT-RECONNECT ALL GROUNDING DEVICES

ALL PARTS OF THIS APPLIANCE CAPABLE OF CONDUCTING ELECTRICAL CURRENT ARE GROUNDED. IF GROUNDING WIRES, SCREWS, STRAPS, CLIPS, NUTS OR WASHERS USED TO COMPLETE A PATH TO GROUND ARE REMOVED FOR SERVICE, THEY MUST BE RETURNED TO THEIR ORIGINAL POSITION AND PROPERLY FASTENED.

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

- MICROWAVE EMISSION CHECK SHOULD BE PERFORMED PRIOR TO SERVICING IF OVEN OPERATIVE.
- DO NOT OPERATE OR ALLOW THE OVEN TO BE OPERATED WITH DOOR OPEN.
- IF THE OVEN OPERATES WITH THE DOOR OPEN:
  - INSTRUCT THE USER NOT TO OPERATE THE OVEN.
  - CONTACT THE MANUFACTURER AND THE CENTER FOR DEVICES AND RADIOLOGICAL HEALTH IMMEDIATELY.
- MAKE THE FOLLOWING SAFETY CHECKS ON ALL OVENS TO BE SERVICED BEFORE ACTIVATING THE MAGNETRON OR OTHER MICROWAVE SOURCE, AND MAKE REPAIRS AS NECESSARY:
  - INTERLOCK OPERATION
  - PROPER DOOR CLOSING
  - SEAL AND SEALING SURFACES (ARCING, WEAR, AND OTHER DAMAGE)
  - DAMAGE TO OR LOOSENING OF HINGES AND LATCHES
  - EVIDENCE OF DROPPING OR ABUSE
- BEFORE TURNING ON MICROWAVE POWER FOR ANY TEST OR INSPECTION WITHIN THE MICROWAVE GENERATING COMPARTMENTS, CHECK THE MAGNETRON, WAVE GUIDE OR TRANSMISSION LINE, AND CAVITY FOR PROPER ALIGNMENT, INTEGRITY, AND CONNECTIONS.

- ANY DEFECTIVE OR MISADJUSTED COMPONENTS IN THE INTERLOCK, MONITOR, DOOR SEAL AND MICROWAVE GENERATION AND TRANSMISSION SYSTEMS SHALL BE REPAIRED, REPLACED, OR ADJUSTED BY PROCEDURE DESCRIBED IN THIS MANUAL BEFORE THE OVEN IS RELEASED TO THE OWNER.
- A MICROWAVE LEAKAGE CHECK TO VERIFY COMPLIANCE WITH THE FEDERAL PERFORMANCE STANDARD SHOULD BE PERFORMED ON EACH OVEN PRIOR TO RELEASE TO THE OWNER.

### GROUNDING SPECIFICATIONS

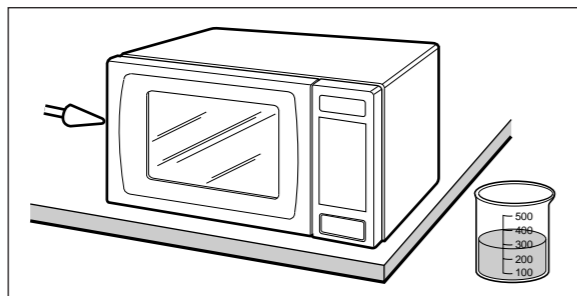
Leakage Current 0.5 mA. (Max.)  
Ground Path Resistance 0.14Ω (Max.)

### INSTALLATION REQUIREMENTS

**ELECTRICAL**  
Power source 120VAC. 60Hz  
Line Current 13.6Amps 1550W  
Over Current Protection 15-20 Amps  
Requires 120 volt, 15-20 amp parallel, grounded separate circuit.  
Working voltage 108-132 VAC

### MICROWAVE LEAKAGE TEST

- Plate 275ml. water in 600 ml. beaker (WB64 x 5010)
- Place beaker in center of oven shelf.
- Set meter to 2450 MHz scale.
- Turn "ON" for 5 minute test.
- Hold probe perpendicular to surface being tested and scan surfaces at rate of one inch/sec. Test following areas:
  - Entire perimeter of door and control panel
  - Viewing surface of door window
  - Exhaust vents
- Maximum leakage 4 MW/CM<sup>2</sup>.
- Record data on surface invoice and microwave leakage report.



**NOTE:** Maximum allowable leakage is 5 MW/CM<sup>2</sup>. 4 MW/CM<sup>2</sup> is used to allow for measurement and meter accuracy.

Inform the manufacturer of any oven found to have emission in excess of 5 MW/CM<sup>2</sup>. Make repairs to bring the unit into compliance at no cost to owner and try to determine cause. Instruct owner not to use oven until it has been brought into compliance.

## TECHNICAL DATA SHEET

### STANDARD TEST LOAD

The standard test load is one liter (1000ml.) water with a starting temperature of 59°F-75°F in a 1000ml. Use the beaker of WB64 x 0073. (DO NOT USE ANY OTHER LOAD OR DISH AS RESULTS WILL VARY FROM STANDARD.)

### PERFORMANCE TEST

- Measure line voltage(loaded). This test is based on normal voltage variations of 105V to 130V. Low voltage will affect power and temperature rise.
- Place WB64 x 0073 beaker containing exactly one liter (1000ml. 59°F-75°F) water on glass shelf and record the starting water temperature with an accurate glass thermometer (Robinar no. 12084).
- Set at HIGH (Power).
- Turn oven "ON" and timer for exactly two minutes and three seconds.
- At end of time period, record the water temperature. The difference between the starting and ending temperatures is the temperature rise.

Depending on line voltage the minimum temperature rise should be:

Line Volts	Minimum Temperature Rise
120V	43°F

TO PREVENT ELECTRICAL SHOCK. USE EXTREME CAUTION WHEN DIAGNOSING OVEN WITH OUTER CASE REMOVED AND POWER "ON". THE HIGH VOLTAGE SECTION OF THE POWER SUPPLY INCLUDING FILAMENT LEADS IS 4000 VOLTS POTENTIAL WITH RESPECT TO GROUND.

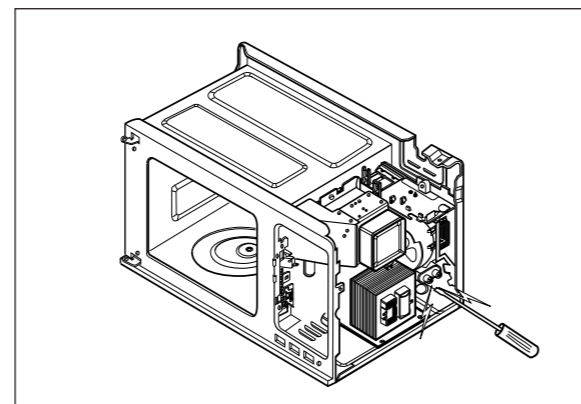
### HIGH VOLTAGE CAPACITOR

The high voltage capacitor has an internal discharge resistor to automatically discharge the capacitor when the oven turns "OFF". Under normal operation, the capacitor should fully discharge within 30 seconds.

### WARNING !

Always be certain the capacitor is discharged before servicing. Mechanically discharge by placing an insulated handle screw driver between the diode connection of the capacitor and oven chassis ground.

**NOTE:** Use screw head close to capacitor to insure ground metal contact.



### CAPACITOR AND DIODE REMOVAL

- Disconnect power and discharge capacitor.
- Disconnect capacitor and magnetron leads.
- Remove screw from capacitor strap.
- Remove capacitor strap.

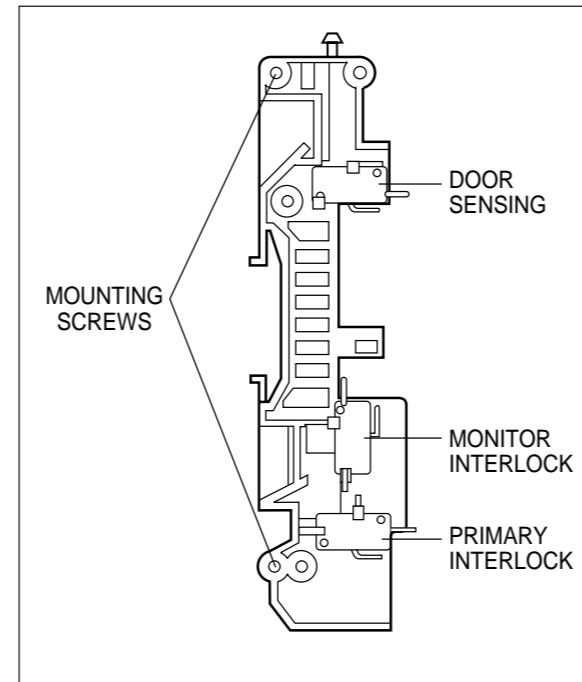
### INTERLOCKS AND MONITOR

The Primary, Door Sensing & Monitor switches are mounted to a plastic latch board: on the right side of the cavity. The Secondary interlock Relay (RY-2) is mounted on the smart board. From top to bottom the switches are as follows;
 

- Door Sensing
- Monitor
- Primary Interlock

### HOW TO TEST PRIMARY INTERLOCK

- Unplug oven, remove outer case, and discharge capacitor.
- Check continuity of Switch:
  - Door Closed: 0 Ω
  - Door Open: ∞ Ω



### MONITOR SWITCH

The Bottom Latch pawl pushes horizontally and actuates the lever of the monitor interlock opening the switch .

### HOW TO TEST MONITOR

- Unplug oven, remove outer case and discharge capacitor.
- Check 20 Amp. fuse for continuity and proper size. Do not use any other fuse or size except 20 Amp.
- Remove one monitor switch lead to isolate switch. Check continuity of switch with door open and door closed.
  - Door Closed: ∞Ω
  - Door Open: 0 Ω
- Reconnect switch wiring.

### 5. Test Circuit Operation.

- Connect temporary jumper across relay contacts, primary interlock and door sense switches to simulate shorted switch contacts. Locate convenient connections in circuit to be certain COM and N.O. terminals are used.
  - Connect ohm meter (Rx1) across the line terminals of the appliance cord. Continuity must show:
    - Door Closed: some Ω
    - Door Open: 0 Ω
  - Remove 20 Amp. fuse-circuit must open (∞ Ω). If not check wiring of monitor and interlocks.
6. **WARNING!** After test remove temporary jumper leads from interlocks and relay.
7. Replacement of any parts or monitor circuit requires repeating this entire test procedure.

**NOTE:** Perform microwave leakage test when replacing or adjusting interlock switches or latch board.

**WARNING !** When 20 Amp. fuse is blown due to operation of monitor switch-both primary interlocks and the monitor switch must be replaced. Also replace Relay (RY-2) when continuity check shows contacts shorted.

### HOW TO TEST DOOR SENSING

Make continuity check between switch terminals. Normal reading are as follows:

- Door Closed: 0 Ω
- Door Open: ∞ Ω

### HOW TO TEST INTERLOCK SYSTEM

Unplug oven, remove outer case, and discharge capacitor.

- Power Relay (RY-2)
  - Disconnect two leads from smart board relay.
  - Check continuity across the terminals. The contacts should read open.

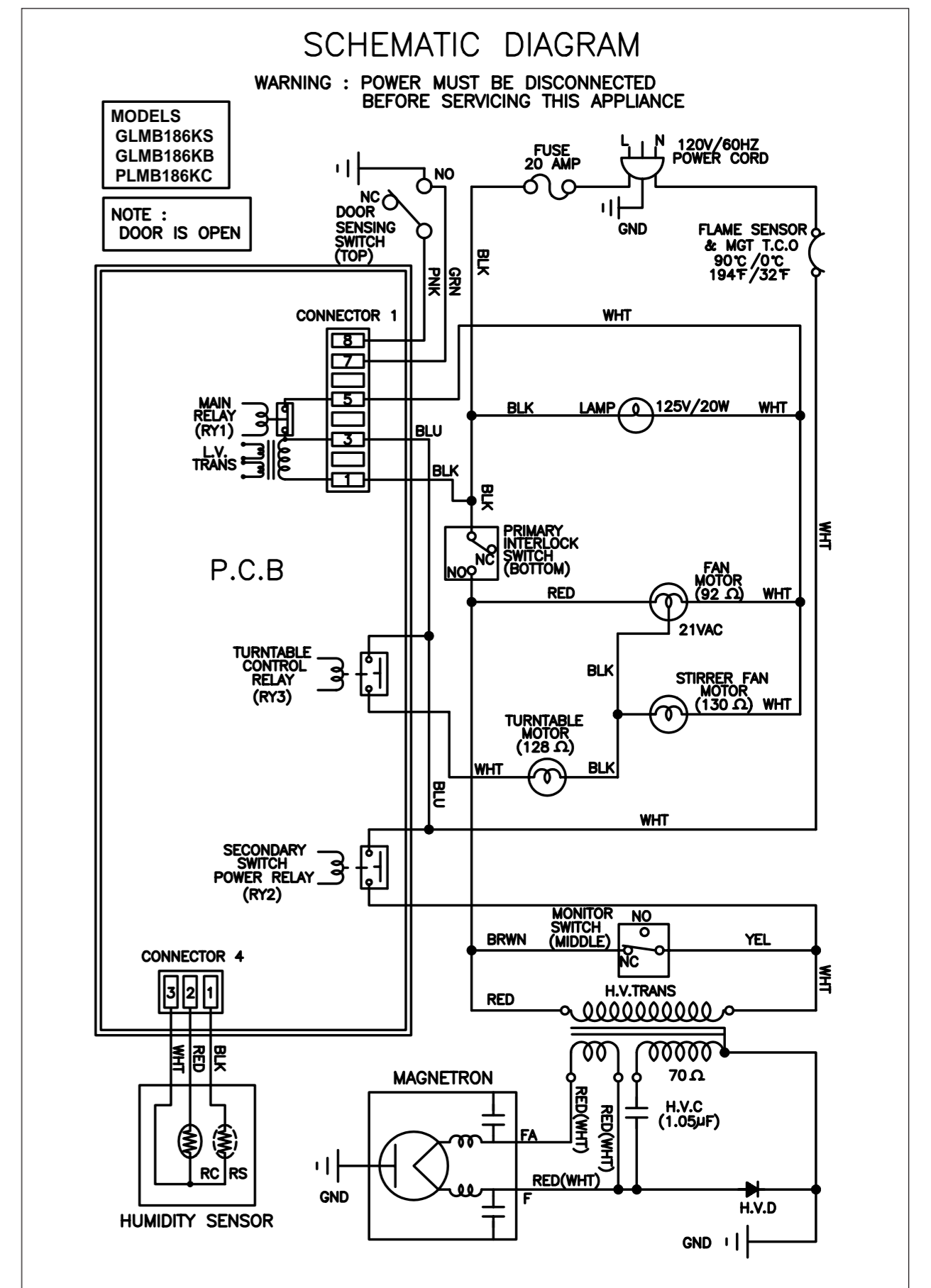
### POWER RELAY (RY-2) & TURNTABLE CONTROL RELAY (RY-3) REPLACEMENT

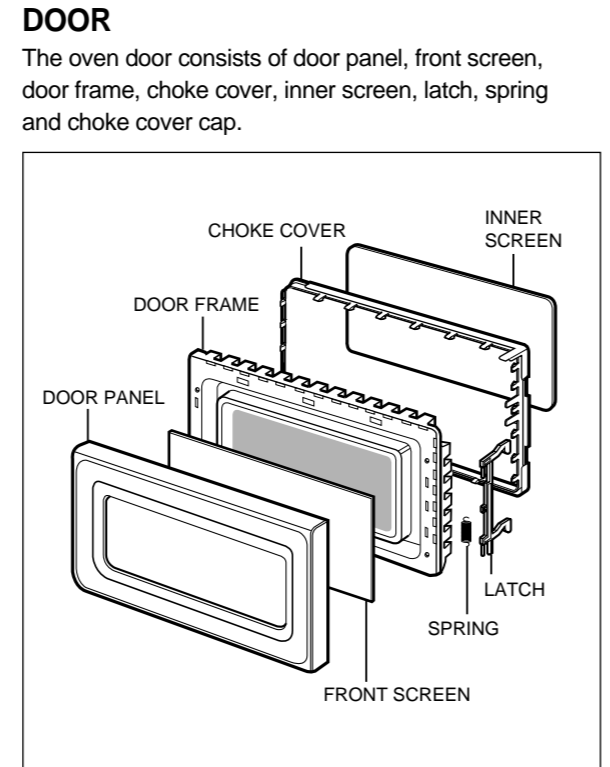
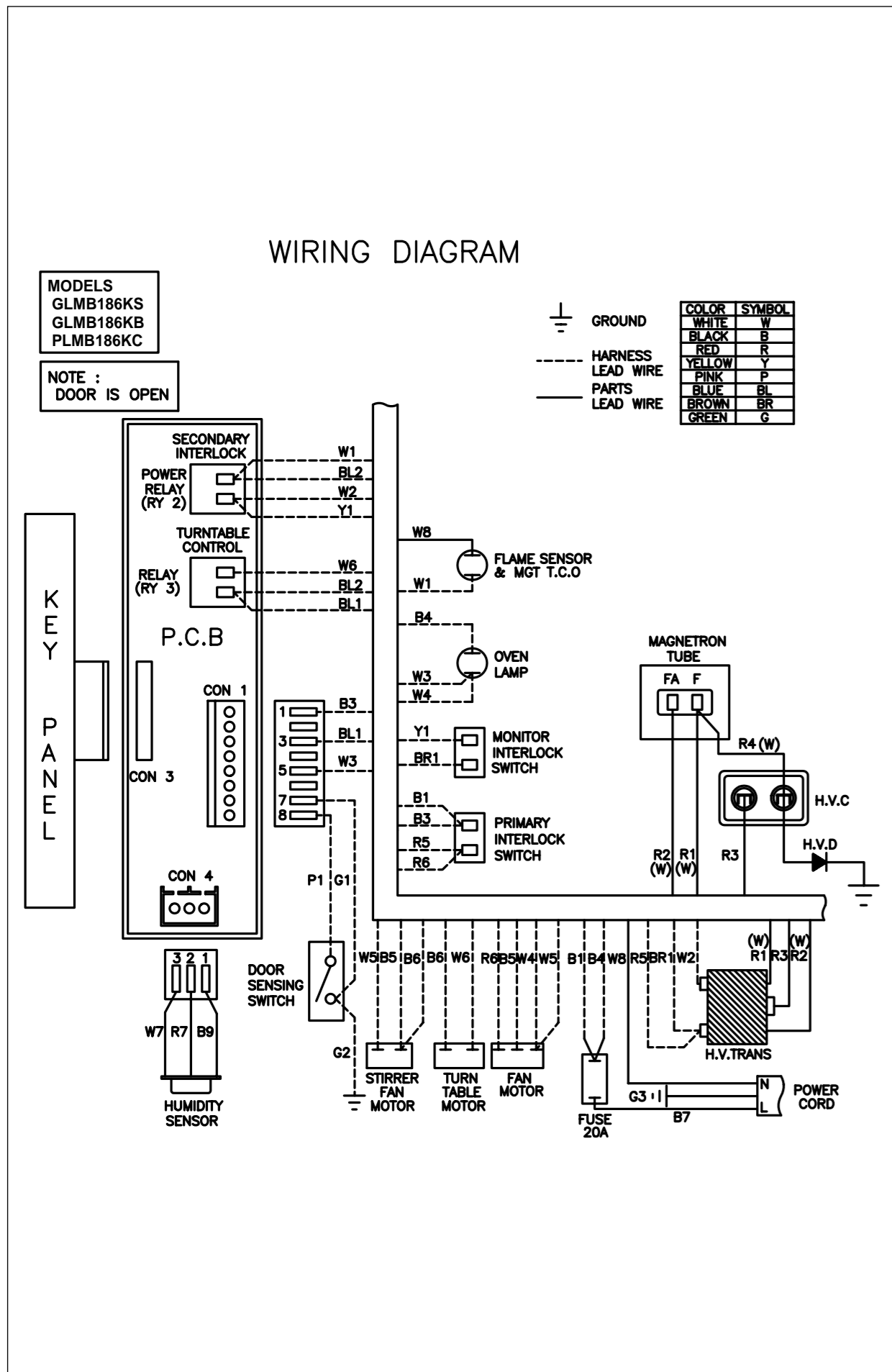
The Power relay and turntable control relay are mounted on the control smart board and when it becomes faulty, must be replaced as an assembly.

### HOW TO ADJUST INTERLOCKS

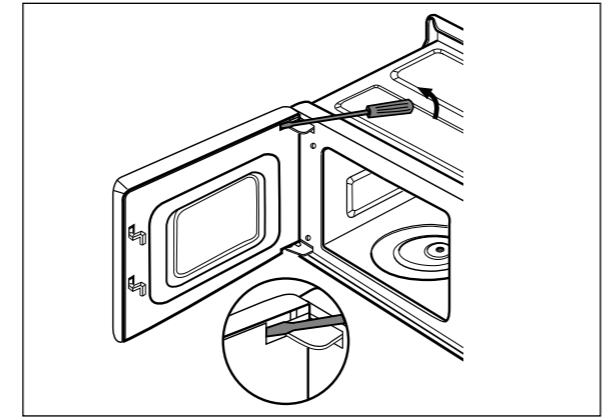
- The Latch-Board is adjustable for door fit and switch operation.
- Disconnect power, remove outer case, and discharge capacitor.
- Loosen switch housing mounting screw at enlarged hole in vertical flange.
- Adjust each switch housing for proper switch operation, and door fit. Retighten screws.

**NOTE:** Perform microwave leakage test when replacing or adjusting interlock switches or brackets.





- ### DOOR REMOVAL
1. Disconnect power and remove glass turntable from oven.
  2. Remove choke cover very carefully with a flat-blade screwdriver.
  3. Lift door up until pins clear holes of hinges.



- ### DOOR DISASSEMBLY
1. Insert flat type small screwdriver into the gap between choke cover and lower right corner of the door frame first and then around the seal plate to free engaging parts of choke cover.
  2. The latch can be removed by lifting up the latch until pins clear mounting holes.
  3. Disconnect spring.

### MICROWAVE LEAKAGE TEST

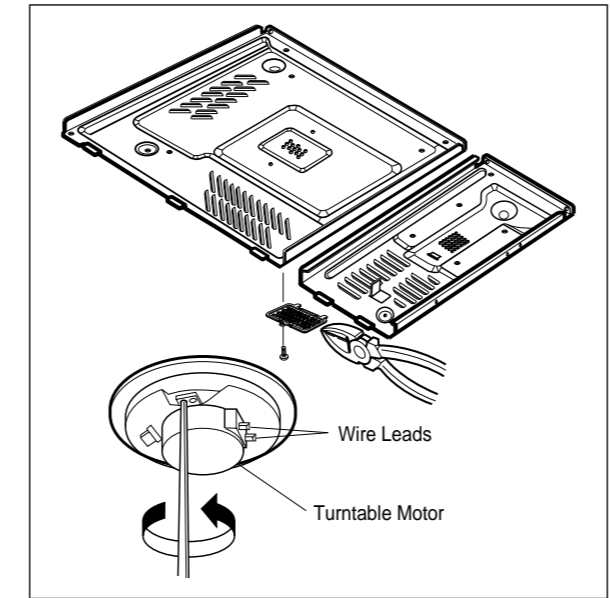
A microwave leakage test must be performed any time a door is removed, replaced, disassembled, or adjusted for any reason. THE MAXIMUM LEAKAGE IS 4 MW/CM<sup>2</sup>.

- ### MAGNETRON REPLACEMENT
1. Discharge capacitor.
  2. Disconnect magnetron leads.
  3. Remove 4 screws securing the magnetron.
  4. Removed the magnetron assembly until the tube is clear from the waveguide.

When replacing the Magnetron, be certain that RF gasket is in place and mounting screws tight. Failure to do so could result in hazardous levels of microwave leakage. Perform microwave leakage test.

- ### CAPACITOR, DIODE REPLACEMENT
1. Discharge capacitor.
  2. Disconnect the leadwire from the high voltage capacitor.
  3. Remove the screw holding the high voltage capacitor bracket.

- ### TURNTABLE MOTOR
1. Disconnect power and remove glass tray from cavity.
  2. Turn oven upside down and cut the motor cover tabs.
  3. Bend corner areas flat where corners have been snipped off. No sharp edges must be evident after removal of turntable cover.
  4. Disconnect wires from motor and remove 2 screws securing motor to oven cavity.
  5. Mount motor in reverse order.



- ### CONTROL REMOVAL
1. Disconnect power. Discharge capacitor.
  2. Remove one(1) screw mounting control.
  3. Lift up control assembly to disengage hooks from front frame.
  4. Disconnect leads from PCB.

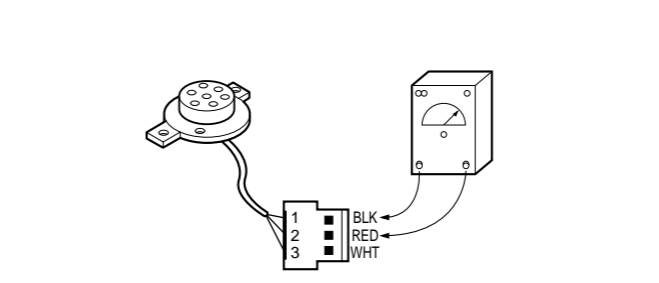
- ### TO REPLACE PCB
1. Remove control panel assembly.
  2. Disconnect ribbon cable.
  3. Remove 2 screws securing PCB.

- ### TO REPLACE KEY PANEL
- Key Panel and Control Panel will be replaced as one assembly.

- ### KEY PANEL TEST
- If necessary the key panel pads can be verified by a continuity test.
- For ease of handling, the key panel should be removed and placed on a flat surface.
- Check continuity between connections at the end of ribbon.(Use high Ω scale.)
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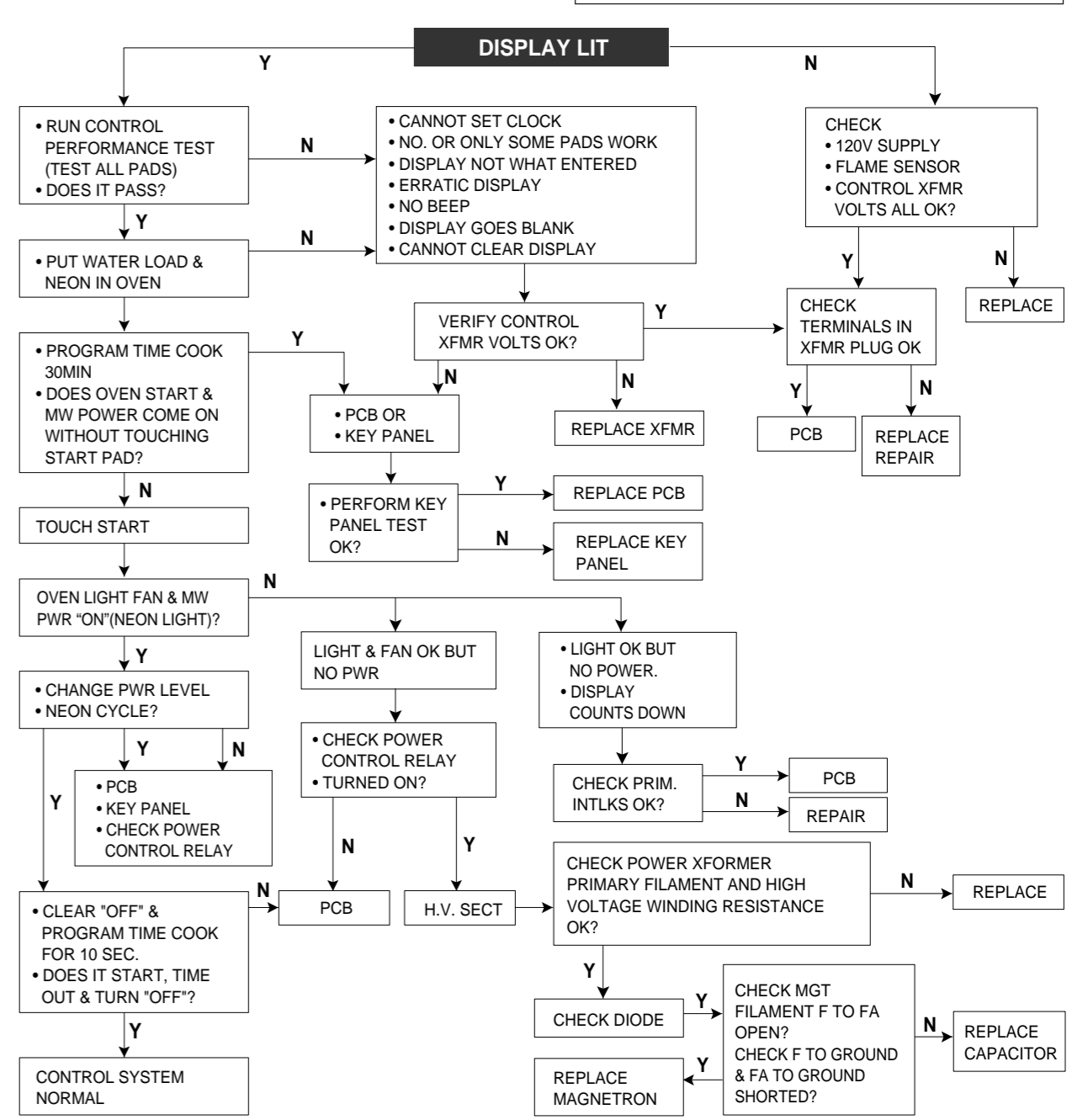
PAD	JE1860	JES1851	PAD	JE1360	JES1851
POPCORN	1-8	1-8	CLEAR/OFF	3-10	3-10
REHEAT	3-8	3-8	SOUND	1-12	1-12
BEVERAGE	2-8	2-8	CLOCK	2-12	2-12
TIME COOK	2-10	2-10	AM/PM	3-12	3-12
VEGETABLES	6-8	6-8	0	5-10	5-10
POTATO	5-8	5-8	1	1-11	1-11
CHICKEN/FISH	4-8	N/A	2	2-11	2-11
DEFROST AUTO/TIME	7-8	7-8	3	3-11	3-11
TIMER ON/OFF	5-9	5-9	4	4-11	4-11
REMINDER	2-9	2-9	5	5-11	5-11
HELP	3-9	3-9	6	6-11	6-11
POWER LEVEL	1-10	1-10	7	7-11	7-11
START	7-9	7-9	8	7-10	7-10
ADD 30SEC	1-9	1-9	9	6-10	6-10
DELAY START	4-9	N/A	TURNTABLE ON/OFF	7-12	7-12

- ### SENSOR
1. Disconnect sensor connector from PCB.
  2. Measure resistance terminal to terminal. (ohm meter scale : R x 1000)  
Normal : Approximately  
BLK-RED : 6.2 Kohm  
RED-WHT : 3.1Kohm  
BLK-WHT : 3.1 Kohm
- Note**  
\* Sensor cooking conditions  
1. Oven should be plugged in at least 5 minutes.  
2. Room temperature should not exceed 95°F.  
3. Be sure the exterior of the cooking container and the interior of the oven are dry.



- ### CONTROL PERFORMANCE TEST
- Set Clock-Touch clock pad, enter time of day and touch clock again.
  - Alternately touch each function pad and enter time selection for the function-also change power levels.
  - Touch Stop/Clear after each function test to clear that function.
  - Repeat procedure for each function to exercise each pad.
  - Control and display should respond to each entry.
  - Display should revert to Time-Of-Day in the Clear mode.

TO PREVENT ELECTRICAL SHOCK, USE EXTREME CAUTION WHEN DIAGNOSING OVEN WITH OUTER CASE REMOVED AND POWER "ON". THE HIGH VOLTAGE SECTION OF THE POWER SUPPLY, INCLUDING FILAMENT LEADS IS - 4000 VOLTS POTENTIAL WITH RESPECT TO GROUND.



### OVEN TEMP SENSOR (FLAME SENSOR)

An oven temp sensor mounted on the upper side of oven cavity. its purpose is to automatically shut off the oven in case the cavity overheats for any reason. When replacing be sure to determine cause of failure. The failure sensor opens at 194°F(90°C) and is non-resettable.

### CONTROL-TRANSFORMER

The touch control uses a low voltage transformer located on printed circuit board.

