

• TECHNICAL DATA SHEET •

SMART BOARD

The SMART BOARD contains the power relay, LVT, vent blower triac, surface light relays, and other components to perform the proper switching circuits. Several disconnect plugs are also located on the SMART BOARD:

- CON 01 - Ribbon Connector
 - CON 02 - Primary L.V.T., Main Relay, Inrush Relay & T/Table
 - CON 03 - Vent Blower Connector
 - CON 04 - Cooktop Lamp Relay
 - CON 06 - Door Sensing
 - CON 08 - Gas Sensor Connector
- Many diagnostic circuit tests can be made at the disconnect plugs. (Refer to diagnosis flow chart and simplified schematic in mini-manuals.)

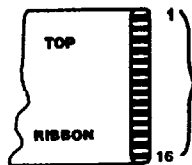
ERROR MESSAGE

Display Signal	Condition
F1	Open thermal sensor (convection)
F2	Shorted thermal sensor (convection)
F3	Keypanel shorted for > 60seconds
F4	Open humidity sensor
F5	Shorted humidity sensor

* Error sound will beep for 3 cycles (2 second on, 1 second off) loudly in upper condition.

CONTROL PERFORMANCE TEST

- Set Clock-Touch clock pad, enter time of day, AM/PM touch start pad.
- Alternately touch each function pad and enter time or temperature selection for the function. Also change power levels.
- Touch Clear-Off 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 after each Clear-Off. Refer results to Diagnostic Flow Chart.



Ribbon Size

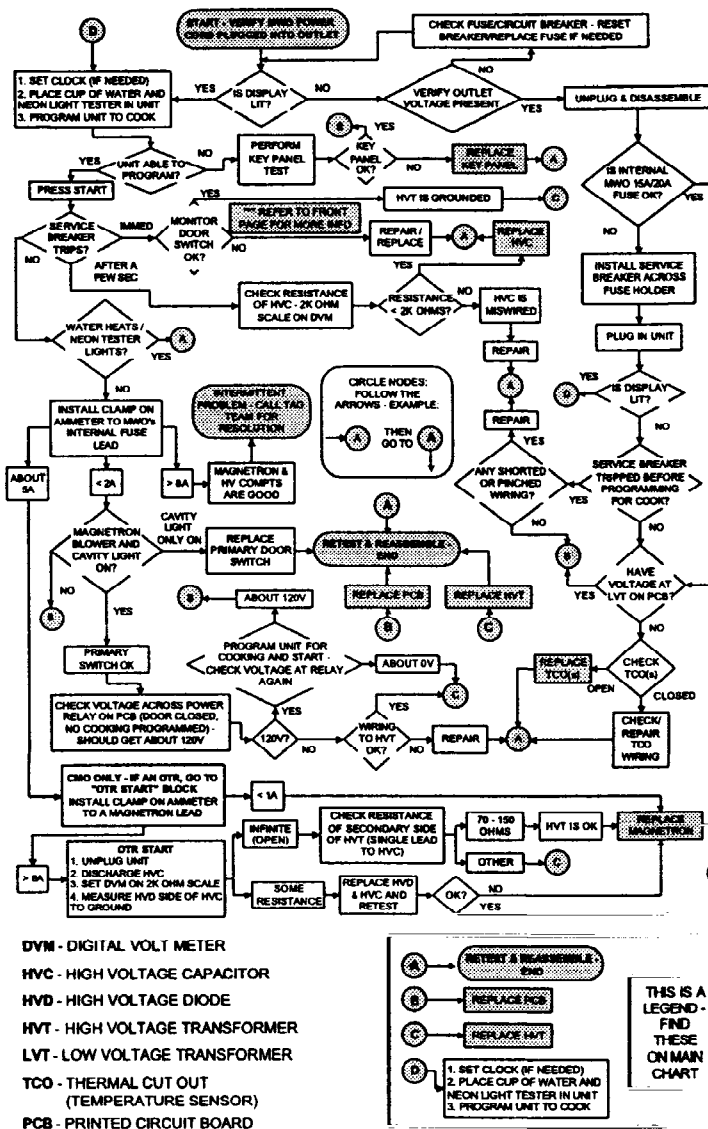
KEY PANEL TEST

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 end of ribbon (Use high scale).

RIBBON

PAD	CONN.	PAD	CONN.
REHEAT	7-10	VENT BOOST	4-15
ADD 30SEC	2-14	VENT FAN	5-15
BEVERAGE	6-10	TIMER	7-15
POPCORN	9-10	START	3-13
POWER LEVEL	4-13		6-12
AUTO/TIME DEFROST	8-12		5-12
SURFACE LIGHT	3-15		4-12
CLOCK, AM/PM	8-14		4-12
CLEAR	2-13		5-12
REMINDER	8-15		6-13
TIME COOK	9-12		7-13
DELAY START	7-14		8-13
VEGETABLE	8-10		9-13
POTATO	5-10		0-13
1 lb. QUICK DEFROST	7-12	HELP	4-14
TURNTABLE	5-14	OPTIONS	6-14
CHICKEN/FISH	4-10	CUSTOM	9-14

MWO TROUBLESHOOTING FLOW CHART



INTERLOCK REPLACEMENT:

The switch housing is not adjustable. It is fixed on the front cavity with 2 screws.

IMPORTANT - CHECK FOR MICROWAVE LEAKAGE AFTER REPLACING OR ADJUSTING DOOR, INTERLOCK SWITCHES OR BRACKETS.

CAUTION !

When safety interlocks and monitor switches are repaired or replaced, check microwave leakage.

• Perform microwave leakage check, if leakage does not exceed 4 MW/CM it is performing properly.

AUTOMATIC FAN FEATURE

Exhaust fan turns "ON" automatically during some surface unit heavy use conditions. (Cannot be turned off manually - will turn off automatically.) May stay on up to 15 mins. after range and lower oven controls are turned off.

HOOD THERMOSTAT

Single pole thermostat mounted ON R.H. side duct in control compartment. Contacts close at approx. 158°F.

BOTTOM THERMOSTAT

Single pole thermostat mounted on base plate. Contacts open at approx. 248°F.

DOOR ASSEMBLY (NOT ADJUSTABLE)

The door assembly is serviceable as an assembly or with parts.

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*

H. V. TRANS FUSE

WARNING! When 20 Amp. fuse is blown due to operation of the H. V. Trans failure mode, the H. V. Trans Fuse must be replaced.

MICROWAVE OVEN HOODS

WARNING
NEVER TOUCH OR SERVICE THE HIGH VOLTAGE CIRCUIT WITHOUT DISCHARGING CAPACITOR BY SHORTING ACROSS ITS TERMINALS. TO AVOID POSSIBLE ELECTRICAL SHOCK.

OVEN THERMAL CUTOUT (FLAME SENSOR)

The Oven Thermal Cutout is located on the top side of the Oven Cavity beside Exhaust duct with a temperature rating of 212°F.(100°C.) The cutout is tightly held to the top of the oven cavity by a spring clip.

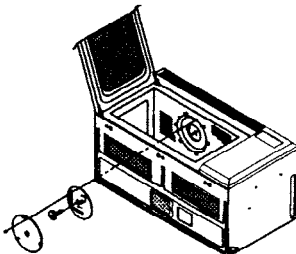
NOTE : If cutout cannot be removed from clip oven will have to be removed from installation and outer case removed.

ANTENNA

The antenna is motor driven and located on the upper side of the cavity. The oven uses a top feed wave guide. The antenna blade is located in the wave guide and the motor is located on the wave guide.

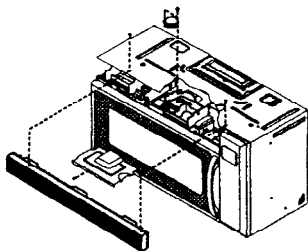
To Service Antenna Blade

1. Disconnect power and open the door.
2. Remove the clip and turn the antenna cover left.
3. Remove antenna cover and the antenna will come with it.



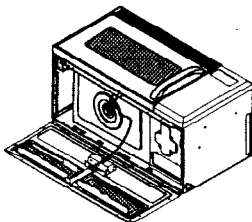
To Service Antenna Motor

1. Disconnect power and remove grille screws(2).
2. Remove grille and the bracket duct upper screw.
3. Remove the bracket duct upper and disconnect the antenna motor wire.
4. Remove antenna motor screws(2) and pull the antenna motor.



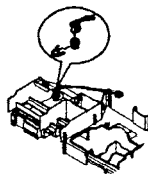
To Service Turntable(on/off) Motor

1. Disconnect power and remove bottom plate screws(7).
2. Remove bottom plate and disconnect the turntable motor wire.
3. Remove turntable motor screws(2) and pull the turntable motor.



SENSOR COOKING

The Sensor Cooking function uses a special gas sensor which detects both humidity (steam) and hydrocarbons (food odors) during the cooking process. Before conducting either of the sensor tests below, ensure the unit is plugged into a wall outlet for at least 5 minutes. Do not power the unit during the 5 minutes. If already plugged in, proceed. The sensor is a plug-in device located in the vent area at the top left hand corner of the cavity behind the grille.



SENSOR COOKING TEST

1. Place 1/3 cup tap water in oven.
2. Touch **[VEGETABLE]**, the oven starts immediately.
3. Control Beeps and shuts off.
4. Touch **[CLEAR/OFF]**
 - A) Test OK - Normal
 - B) Test Fails - Check Sensor
See Sensor Test Below

SENSOR TEST (QUICK TEST)

1. With 2 fingers touch and hold the following pads at the same time:
[7] and **[8]**
2. Observe diagnostic number in display (numbers approximate)
 - 15-185 (Normal-verify with "detection test")
 - 213 or Higher (sensor failed to open, sensor unplugged, wiring or smart board)
 - Less than 6 (shorted sensor, or smart board).

NOTE: Only heater terminals (H : Black and Red leads) can be checked with ohmmeter (30Ω).

**CAUTION : DO NOT ATTEMPT TO CHECK SENSOR TERMINALS(White and Orange leads).
* CAN DAMAGE SENSOR.**

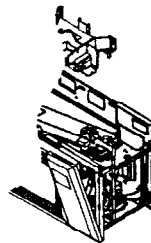
CAPACITOR AND DIODE REMOVAL

The high voltage capacitor and diode can be serviced through Control Panel after removing grille.

1. Disconnect power and discharge capacitor.
2. Disconnect capacitor leads and remove 1 screw.
3. Remove bracket-capacitor.

MAGNETRON, MAGNETRON FAN, VENT BLOWER AND POWER TRANSFORMER

Oven must be removed from wall.

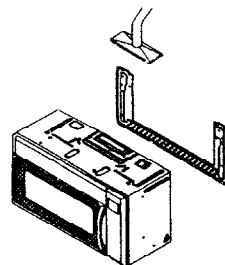


REMOVING OVEN FROM WALL (2 PEOPLE REQUIRED)

Oven hooked on metal tabs at bottom of wall mounting plate and fastened to cabinet by (3) top cabinet bolts.

CAUTION: Oven weighs about 62 lbs. Requires 2 people for removal.

1. Disconnect Power Cord, Top vented models - disconnect duct and remove damper assembly.
2. Remove top cabinet bolts(3).
3. Pull unit forward slowly, providing adequate support to prevent dropping unit during removal of last top cabinet bolt.



MICROWAVE OVEN HOODS

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

- A. IF OVEN IS OPERATIVE PERFORM MICROWAVE EMISSION CHECK PRIOR TO.
- B. DO NOT OPERATE OR ALLOW THE OVEN TO BE OPERATED WITH THE DOOR OPEN.
- C. IF THE OVEN OPERATES WITH THE DOOR OPEN :
 - 1) INSTRUCT THE USER NOT TO OPERATE THE OVEN AND
 - 2) CONTACT THE MANUFACTURER AND THE CENTER FOR DEVICES RADIOLOGICAL HEALTH IMMEDIATELY.
- D. CHECK THE FOLLOWING SAFETY ITEMS ON ALL MICROWAVE OVENS (MWO) BEFORE ACTIVATING THE MAGNETRON. MAKE REPAIRS AS NECESSARY :

1. INTERLOCK OPERATION
2. PROPER DOOR CLOSING
3. SEAL AND SEALING SURFACES (CHECK FOR ARCING, WEAR, AND OTHER DAMAGE)
4. DAMAGE TO OR LOOSENING OF HINGES AND LATCHES
5. EVIDENCE OF DROPPING OR ABUSE

E. BEFORE TURNING ON MICROWAVE POWER FOR ANY SERVICE TEST OR INSPECTION WITHIN THE MICROWAVE GENERATING COMPARTMENTS, CHECK THE MAGNETRON, WAVE GUIDE, AND CAVITY FOR PROPER ALIGNMENT, INTEGRITY, AND CONNECTIONS.

F. 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 THIS MANUAL BEFORE THE OVEN IS RELEASED TO THE OWNER.

G. 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 0.14 ohms (MAX.)

INSTALLATION REQUIREMENTS

ELECTRICAL
MWO Power 1100 Watts
Power Source 120 VAC, 60 Hz.
Line Current 13.5 Amps. (1580Watts)
Over Current Protection 20 Amps *
* Requires 120 Volt, 20 Amp. parallel, grounded separate circuit.
Working Voltage 108-132 VAC.

MICROWAVE LEAKAGE TEST

1. Place 275 ml. water in 600 ml. beaker (WB64X5010)
2. Place beaker in center of oven shelf.
3. Set meter to 2450 MHz scale.
4. Turn oven "on" for 5 minute test.
5. Hold probe perpendicular to surface being tested and scan surfaces at rate of one inch/sec.

Test the following areas:

- Entire perimeter of door and control panel
- Viewing surface of door window
- Exhaust vents

6. Maximum leakage 4 MW/CM²
7. Record data on service invoice and microwave leakage report.

NOTE : Maximum allowable leakage is 5 MW/CM². 4 MW/CM² is used to allow for measurement and meter accuracy. Inform the manufacturer of any oven found to have emission in excess of 5 MW/CM². Make repairs to bring the unit into compliance at no cost to owner and try to determine cause. Instruct owner not to use oven if it has not been brought into compliance.

● TECHNICAL DATA SHEET ●

WARNING!

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 HAVE THE POTENTIAL WITH RESPECT TO GROUND TO REACH 4000 VOLTS!

HIGH VOLTAGE CAPACITOR

The high voltage capacitor has an internal shunt 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. Discharge by placing an insulated handle screw driver between the diode connection of the capacitor and oven chassis ground.

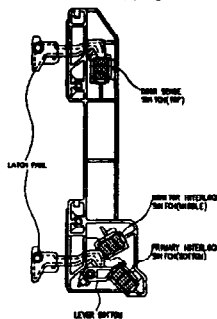
PERFORMANCE TEST

1. Measure line voltage (loaded). This test is based on normal voltage variations of 108V to 132V. Low voltage will Lower output power and temperature rise.
2. Place WB64 X0073 beaker containing one liter water (1000ml, 59°F--75°F) on turn table and record the starting water temperature with an accurate thermometer. (DO NOT USE ANY OTHER LOAD OR DISH AS RESULTS WILL VARY FROM STANDARD!)
3. Set at HIGH power for 2 minutes, and 3 sec.
4. Turn on the oven.
5. Record end water temperature. The minimum difference between the initial and ending temperature should be:

40°F @ 120 V

INTERLOCKS (DOOR Latch Switches)

Interlocks are designed as follows:
Primary - Bottom switch operated by bottom latch pawl connected to line (L) leg.



HOW TO TEST INTERLOCKS

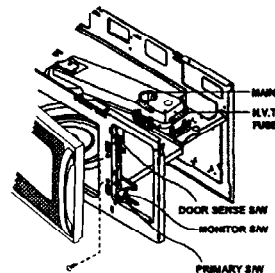
1. Disconnect power, open control panel, and discharge capacitor.
Primary
2. Check Continuity of Com and N.O.:
 - Door Closed - 0 Ω
 - Door Open - ∞ Ω

MONITOR SWITCH

The monitor switch is located between the top and bottom interlocks. The monitor switch is operated indirectly by the bottom latch pawl.

HOW TO TEST MONITOR

1. Disconnect power, open control panel, and discharge capacitor.
 2. Disconnect monitor switch leads, and test at terminals:
 - Door Closed - ∞ Ω
 - Door Open - 0 Ω
 3. Reconnect switch wiring.
 4. Test Circuit Operation:
 - A) Connect temporary jumper across relay contacts and primary switch to simulate shorted switch contacts. Locate convenient connections in circuit to be certain COM and N.O. terminals are used.
 - B) Connect OHM meter (Low Scale) across the two fire terminals of appliance power cord. Continuity must show:
 - Door Close - Some Ω
 - Door Open - 0 Ω
 - C) Remove 20 Amp. Fuse - Circuit must open (= Ohms). If not check wiring of monitor and interlock circuits.
 - D) WARNING! After test remove temporary jumper leads from interlocks and relay. Reconnect monitor switch leads, replace fuse.
 - E) Replacement of any parts in monitor circuit requires repeating this entire test procedure.
- IMPORTANT : Check for microwave leakage after replacing or adjusting Door, Interlock switches or brackets.



MAIN FUSE

WARNING! When 20 Amp. fuse is blown due to operation of the monitor switch, the monitor switch must be replaced. Also replace relay and / or interlock switches when continuity check shows contacts shorted.