

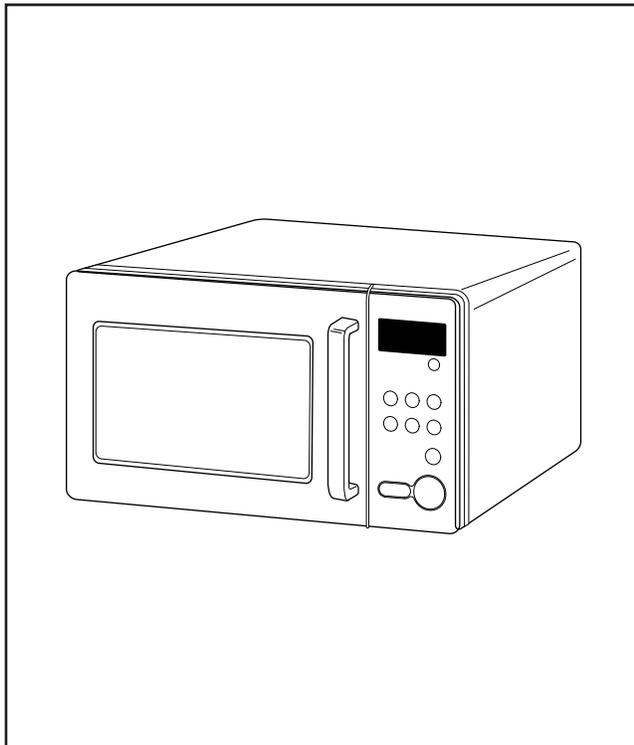
**SAMSUNG**

# MICROWAVE OVEN

CE287ASTR

# **SERVICE** *Manual*

## MICROWAVE OVEN



**SER**

## CONTENTS

1. Precaution
2. Specifications
3. Operating Instructions
4. Disassembly and Reassembly
5. Alignment and Adjustments
6. Troubleshooting
7. Exploded Views and Parts List
8. PCB Diagrams
9. Schematic Diagrams
10. Reference

---

# Contents

---

1. Precaution . . . . .	1
1-1 Safety precautions . . . . .	1
1-2 Special Servicing Precautions . . . . .	2
1-3 Special High Voltage Precautions . . . . .	2
2. Specifications . . . . .	3
2-1 Table of Specifications . . . . .	3
3. Operating Instructions . . . . .	4
3-1 Control Panel . . . . .	4
3-2 Features & External Views . . . . .	5
3-3 Accessory . . . . .	6
4. Disassembly and Reassembly . . . . .	7
4-1 Replacement of Magnetron, Motor Assembly and Lamp . . . . .	7
4-2 Replacement of High Voltage Transformer . . . . .	7
4-3 Replacement of Door Assembly . . . . .	8
4-3-1 Removal of Door "C" . . . . .	8
4-3-2 Removal of Door "E" . . . . .	8
4-3-3 Removal of Key Door & Spring . . . . .	8
4-3-4 Reassembly Test . . . . .	9
4-4 Replacement of Fuse . . . . .	9
4-5 Replacement of Drive Motor . . . . .	9
4-6 Replacement of Control Circuit Board . . . . .	10
4-6-1 Removal of Control Box . . . . .	10
4-6-2 Removal of Ass'y P.C.B Assembly . . . . .	10
5. Alignment and Adjustments . . . . .	11
5-1 High Voltage Transformer . . . . .	11
5-2 Low Voltage Transformer . . . . .	11
5-3 Magnetron . . . . .	11
5-5 High Voltage Diode . . . . .	12
5-6 Main Relay and Power Control Relay . . . . .	12
5-7 Adjustment of Primary Switch, Door Sensing Switch and Monitor Switch . . . . .	12
5-8 Output Power of Magnetron . . . . .	13
5-9 Microwave Heat Distribution - Heat Evenness . . . . .	13
5-10 Procedure for Measurement of Microwave Energy Leakage . . . . .	14
5-11 Check for Microwave Leakage . . . . .	14
5-12 Note on Measurement . . . . .	14
5-13 Leakage Measuring Procedure . . . . .	14
5-13-1 Record keeping and notification after measurement . . . . .	14
5-13-2 At least once a year have the microwave energy survey meter checked for accuracy by its manufacturer . . . . .	14
6. Troubleshooting . . . . .	15
6-1 Electrical Malfunction . . . . .	15
7. Exploded Views and Parts List . . . . .	17
7-1 Exploded Views . . . . .	17
7-2 Main Parts List . . . . .	18
7-3 Control & Door Parts List . . . . .	19
7-4 Standard Parts List . . . . .	20
8. P.C.B Diagrams . . . . .	21
8-1 P.C.B Diagrams . . . . .	21
8-2 P.C.B Parts List . . . . .	22
9. Schematic Diagrams . . . . .	23
9-1 Schematic Diagrams . . . . .	23
10. Reference . . . . .	24
10-1 Model name standard . . . . .	24
10-2 Customer inquiry cases and countermeasures . . . . .	25

---

## **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, and other damage),
    - (4) damage to or loosening of hinges and 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, wave guide 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 this 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.
-

---

# 1. Precaution

---

Follow these special safety precautions. Although the microwave oven is completely safe during ordinary use, repair work can be extremely hazardous due to possible exposure to microwave radiation, as well as potentially lethal high voltages and currents.

## 1-1 Safety precautions (⚠)

---

1. All repairs should be done in accordance with the procedures described in this manual. This product complies with Federal Performance Standard 21 CFR Subchapter J(DHHS).
2. Microwave emission check should be performed to prior to servicing if the oven is operative.
3. If the oven operates with the door open :  
Instruct the user not to operate the oven and contact the manufacturer and the center for devices and radiological health immediately.
4. Notify the Central Service Center if the microwave leakage exceeds 5 mW/cm<sup>2</sup>.
5. Check all grounds.
6. Do not power the MWO from a “2-prong” AC cord. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.
7. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including: nonmetallic control knobs and compartment covers.
8. Make sure that there are no cabinet openings through which people --particularly children --might insert objects and contact dangerous voltages. Examples: Lamp hole, ventilation slots.
9. 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.
10. Service technicians should remove their watches while repairing an MWO.
11. To avoid any possible radiation hazard, replace parts in accordance with the wiring diagram. Also, use only the exact replacements for the following parts: Primary and secondary interlock switches, interlock monitor switch.
12. If the fuse is blown by the Interlock Monitor Switch: Replace all of the following at the same time: Primary, door sensing switch and power relay, as well as the Interlock Monitor Switch. The correct adjustment of these switches is described elsewhere in this manual. Make sure that the fuse has the correct rating for the particular model being repaired.
13. Design Alteration Warning:  
Use exact replacement parts only, i.e., only those that are specified in the drawings and parts lists of this manual.  
This is especially important for the Interlock switches, described above. Never alter or add to the mechanical or electrical design of the MWO. Any design changes or additions will void the manufacturer’s warranty. Always unplug the unit’s AC power cord from the AC power source before attempting to remove or reinstall any component or assembly.
14. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
15. Some semiconductor (“solid state”) devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs). Examples include integrated circuits and field-effect transistors. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground.
16. Always connect a test instrument’s ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument’s ground lead last.

### CENTRAL SERVICE CENTER

## 1-2 Special Servicing Precautions (Continued)

17. When checking the continuity of the witches or transformer, always make sure that the power is OFF, and one of the lead wires is disconnected.
18. Components that are critical for safety are indicated in the circuit diagram by shading,  or  .
19. Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

**NOTE :** Connect the oven to a 20A. When connecting the oven to a 15A, make sure that circuit breaker can operate.

## 1-3 Special High Voltage Precautions

1. High Voltage Warning Do not attempt to measure any of the high voltages --this includes the filament voltage of the magnetron. High voltage is present during any cook cycle. Before touching any components or wiring, always unplug the oven and discharge the high voltage capacitor (See Figure 1-1)
2. The high-voltage capacitor remains charged about 30 seconds after disconnection. Short the negative terminal of the high-voltage capacitor to the oven chassis. (Use a screwdriver.)
3. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.

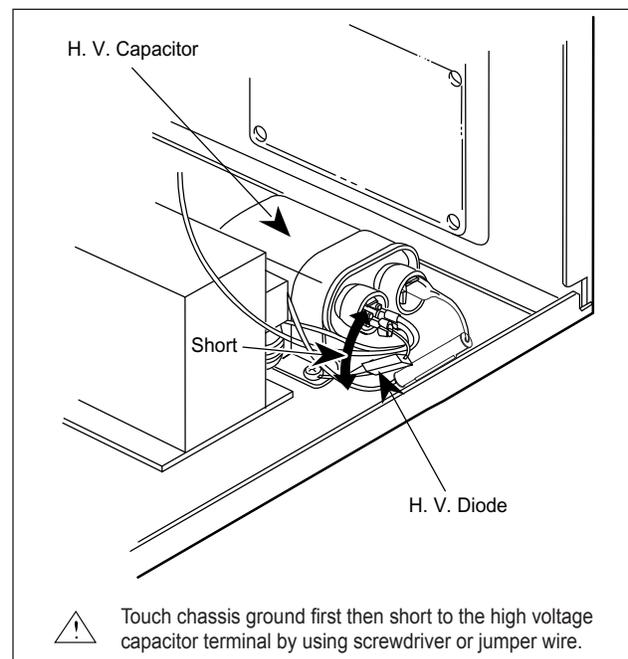


Fig. 1-1 Discharging High Voltage Capacitor

### PRECAUTION

There exists HIGH VOLTAGE ELECTRICITY with high current capabilities in the circuits of the HIGH VOLTAGE TRANSFORMER secondary and filament terminals. It is extremely dangerous to work on or near these circuits with the oven energized. DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.

### PRECAUTION

Never touch any circuit wiring with your hand nor with uninsulated tool during operation.

### PRECAUTION

Servicemen should remove their watches whenever working close to or replacing the magnetron.

---

## 2. Specifications

---

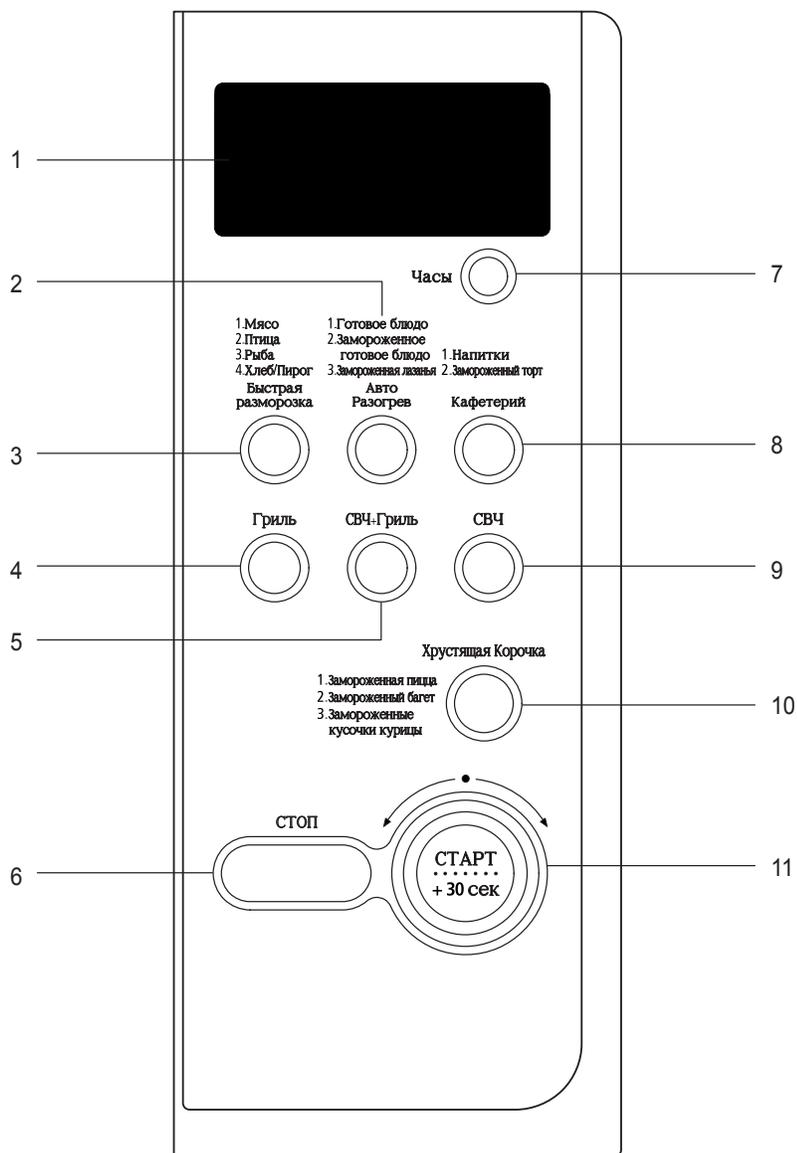
### 2-1 Table of Specifications

---

TIMER	99 MINUTES
POWER SOURCE	230V 50Hz, AC
POWER CONSUMPTION	MICROWAVE : 1,300W GRILL : 1,100W COMBI : 2,400W
OUTPUT POWER	FROM 100 TO 850W (IEC-705 TEST PROCEDURE)
OPERATING FREQUENCY	2,450MHz
MAGNETRON	OM75P(31)
COOLING METHOD	COOLING FAN MOTOR
OUTSIDE DIMENSIONS	489(W) x 275(H) x 406.5(D)
OVEN DIMENSIONS	330(W) x 211(H) x 329(D)
SHIPPING DIMENSIONS	557(W) x 329(H) x 451(D)
SHIPPING WEIGHT APPROX.	NET 15.0kg GROSS 16.5kg

## 3. Operating Instructions

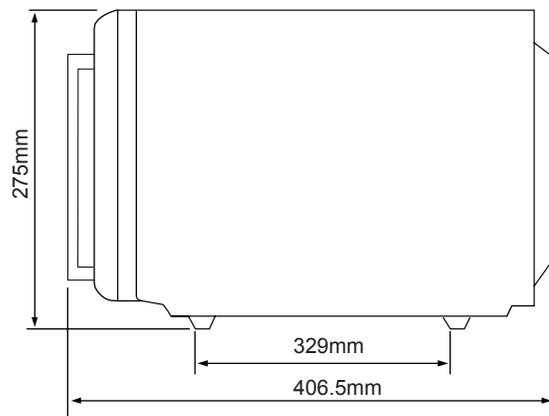
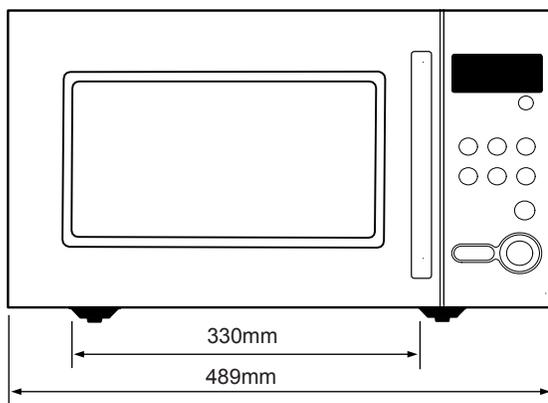
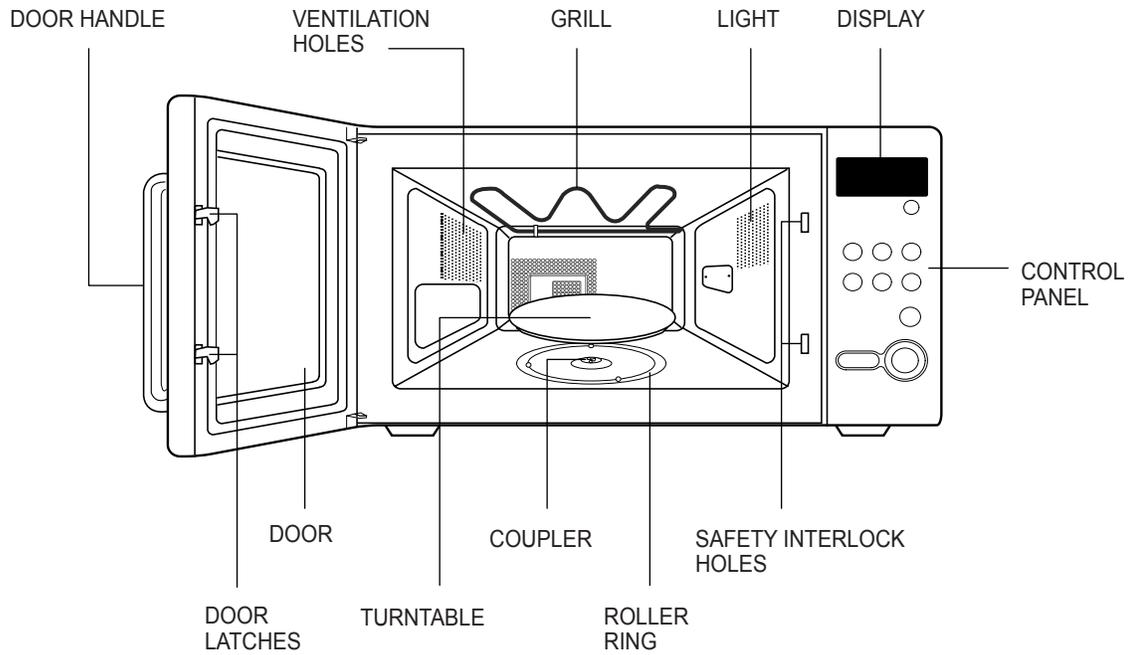
### 3-1 Control Panel



1. DISPLAY
2. AUTO REHEAT SELECTION
3. AUTO POWER DEFROST BUTTON
4. GRILL MODE SELECTION
5. COMBI MODE SELECTION
6. STOP/CANCEL BUTTON
7. CLOCK SETTING

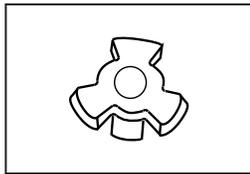
8. CAFETERIA SELECTION
9. MICROWAVE/ POWER LEVEL  
MODE SELECTION
10. AUTO CRUSTY COOK SELECTION
11. START BUTTON/ DIAL KNOB  
(cook time, weight and serving size)

## 3-2 Features & External Views

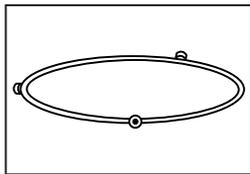


## 3-3 Accessory

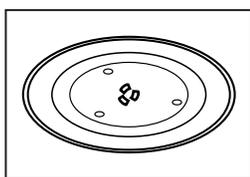
Depending on the model that you have purchased, you are supplied with several accessories that can be used in a variety of ways.



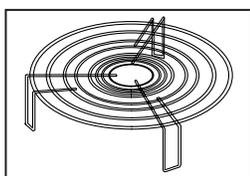
- 1. Coupler**, already placed over the motor shaft in the base of the oven.  
Purpose : The coupler rotates the turntable.



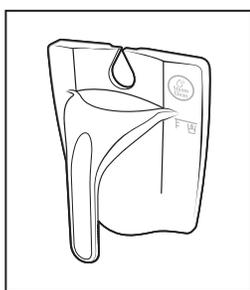
- 2. Roller ring**, to be placed in the centre of the oven.  
Purpose : The roller ring supports the turntable.



- 3. Turntable**, to be placed on the roller ring with the centre fitting to the coupler.  
Purpose : The turntable serves as the main cooking surface; it can be easily removed for cleaning.



- 4. Metal rack**, to be placed on the turntable.  
Purpose : The metal rack can be used in grill and combination cooking.



- 5. Crusty plate.**  
Purpose : The crusty plate when using auto crusty cook function or manual crusty cook function.

**DO NOT** operate the microwave oven without the roller ring and turntable.

---

## 4. Disassembly and Reassembly

---

### 4-1 Replacement of Magnetron, Motor Assembly and Lamp

---

Remove the magnetron including the shield case, permanent magnet, choke coils and capacitors (all of which are contained in one assembly).

1. Disconnect all lead wires from the magnetron and lamp.
2. Remove a screw securing air cover.
3. Remove the air cover.
4. Remove screws securing the magnetron to the wave guide.
5. Take out the magnetron very carefully.
6. Remove nuts from the back panel.
7. Take out the fan motor.
8. Remove the oven lamp by rotating to pull out from hole of air cover.

**NOTE 1:** When removing the magnetron, make sure that its antenna does not hit any adjacent parts, or it may be damaged.

**NOTE 2:** When replacing the magnetron, be sure to remount the magnetron gasket in the correct position and make sure the gasket is in good condition.

### 4-2 Replacement of High Voltage Transformer

---

1. Discharge the high voltage capacitor.
2. Disconnect all the leads.
3. Remove the mounting bolts.
4. Reconnect the leads correctly and firmly.

#### **PRECAUTION**

Servicemen should remove their watches whenever working close to or replacing the magnetron.

#### **PRECAUTION**

There exists HIGH VOLTAGE ELECTRICITY with high current capabilities in the circuits of the HIGH VOLTAGE TRANSFORMER secondary and filament terminals. It is extremely dangerous to work on or near these circuits with the oven energized.

DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.

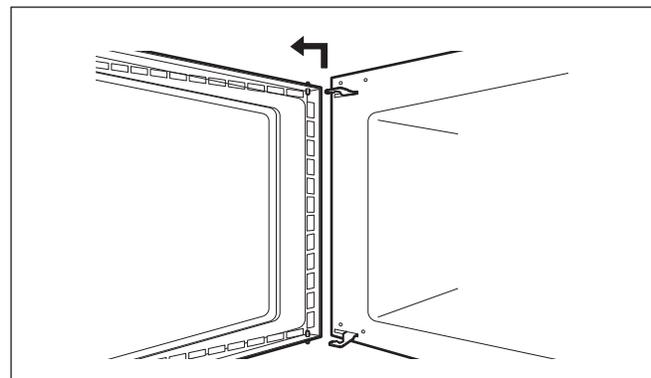
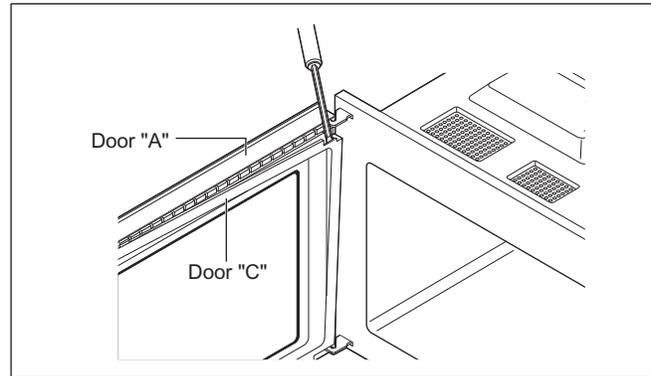
---

## 4-3 Replacement of Door Assembly

---

### 4-3-1 Removal of Door "C"

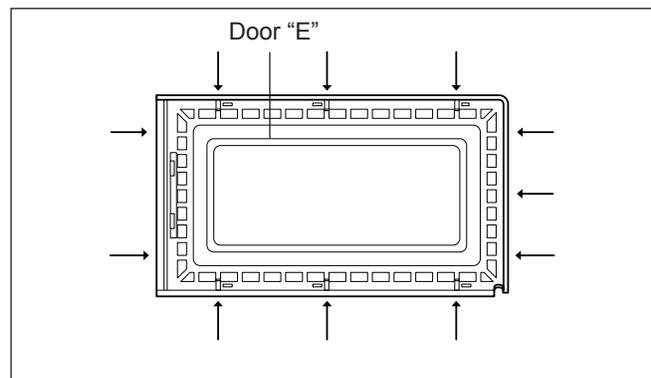
Insert flat screwdriver into the gap between Door "A" and Door "C" to remove Door "C". Be careful when handling Door "C" because it is fragile. Then remove the door assembly.



### 4-3-2 Removal of Door "E"

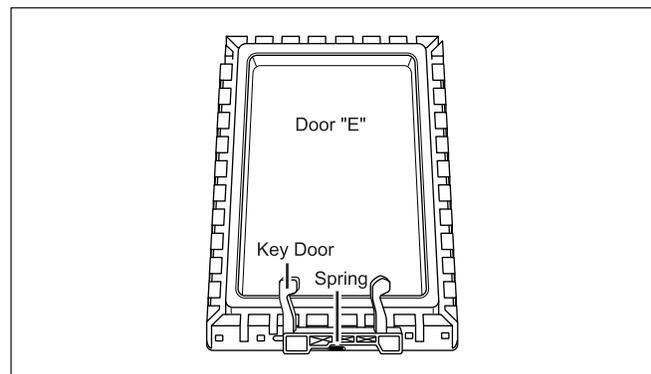
Following the procedure as shown in the figure, insert and bend a thin metal plate between Door "E" and Door "A" until you hear the 'tick' sound.

1. Insertion depth of the thin metal plate should be 0.5mm or less.



### 4-3-3 Removal of Key Door & Spring

Remove pin hinge from Door "E"  
Detach spring from Door "E" and key door.



---

## 4-3-4 Reassembly Test

---

After replacement of the defective component parts of the door, reassemble it and follow the instructions below for proper installation and adjustment so as to prevent an excessive microwave leakage.

1. When mounting the door to the oven, be sure to adjust the door parallel to the bottom line of the oven face plate by moving the upper hinge and lower hinge in the direction necessary for proper alignment.
2. Adjust so that the door has no play between the inner door surface and oven front surface. If the door assembly is not mounted properly, microwave energy may leak from the space between the door and oven.
3. Do the microwave leakage test.

---

## 4-4 Replacement of Fuse

---

1. Disconnect the oven from the power source.
2. When 12A fuse blows out by the operation of interlock monitor switch failure, replace the primary interlock switch, door sensing switch, monitor switch and power relay.
3. When the above three switches operate properly, check if any other part such as the control circuit board, blower motor or high voltage transformer is defective.

---

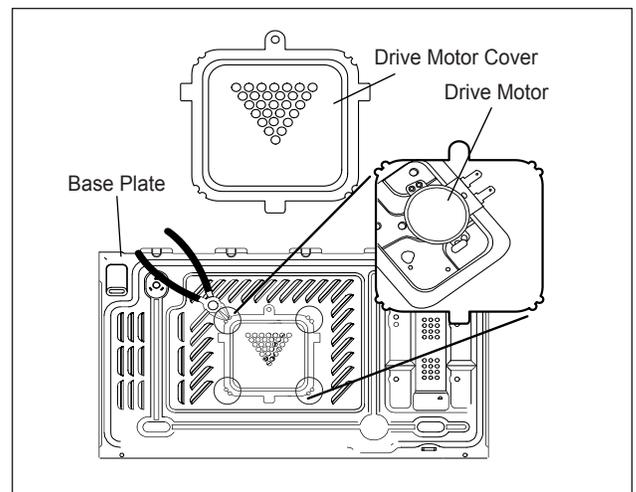
## 4-5 Replacement of Drive Motor

---

1. Take out the glass tray, guide roller from oven cavity, disconnect power.
2. Remove turn table motor cover from case bottom.  
**CAUTION : Remove sharp edge after cover removal.**
3. Disconnect leads from motor.
4. Remove the screws securing motor to bottom of oven cavity and lift out the motor.
5. When replacing the motor, be sure to remount it in the correct position.  
**NOTE :** The shaft of motor should fit tip coupler.
6. Screw the motor to bottom of oven cavity.
7. Connect leads to the drive motor.
8. Screw the drive motor cover to the base plate with a screw driver.

**NOTE :** Bring the spare screw from service center.

**COVER FIXING SCREW :  
MACHINE SCREW(6006-001170)**



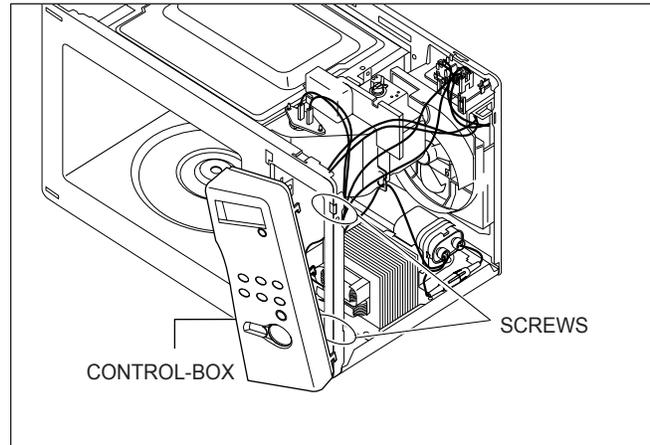
---

## 4-6 Replacement of Control Circuit Board

---

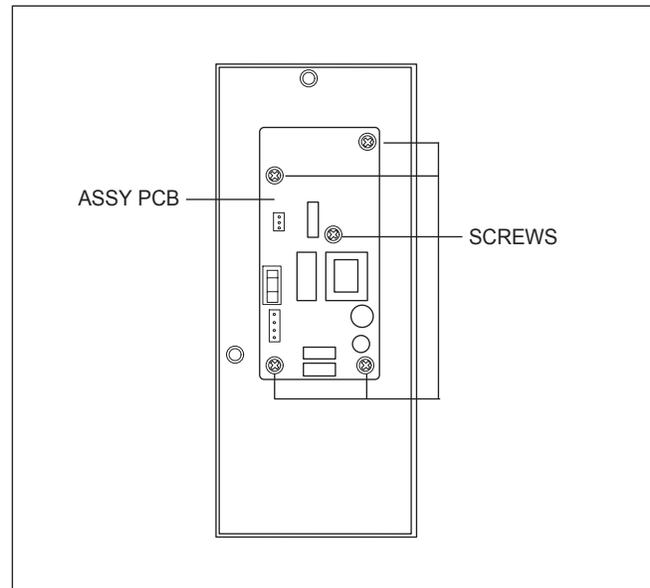
### 4-6-1 Removal of Control Box

1. Be sure to ground any static electric charge in your body and never touch the control circuit.
2. Disconnect the connectors from the control circuit board.
3. Remove screws securing the control box assembly.
4. Remove the screw securing the ground tail of the keyboard.



### 4-6-2 Removal of Ass'y P.C.B Assembly

1. Remove screws securing the control circuit board.
2. Lift up the control circuit board from the Ass'y control box.



---

## 5. Alignment and Adjustments

---

### PRECAUTION

1. High voltage is present at the high voltage terminals during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components or wiring, always unplug the oven from its power source and discharge the high voltage capacitor.

---

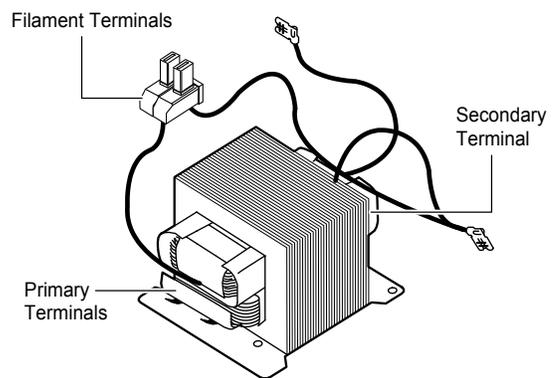
### 5-1 High Voltage Transformer

---

1. Remove connectors from the transformer terminals and check continuity.
2. Normal resistance readings are as follows:

Secondary	Approx. 171 $\Omega$
Filament	Approx. 0 $\Omega$
Primary	Approx. 2.3 $\Omega$

(Room temperature = 20°C)



---

### 5-2 Low Voltage Transformer

---

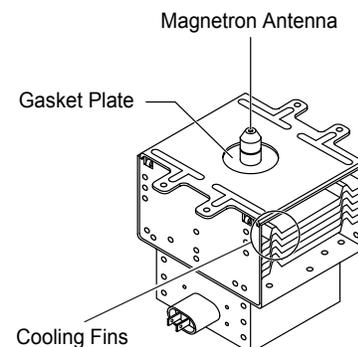
1. The low voltage transformer is located on the control circuit board.
2. Remove the low voltage transformer from the PCB Ass'y and check continuity.
3. Normal resistor reading is shown in the table.

---

### 5-3 Magnetron

---

1. Continuity checks can indicate only an open filament or a shorted magnetron. To diagnose an open filament or shorted magnetron :
2. Isolate the magnetron from the circuit by disconnecting its leads.
3. A continuity check across the magnetron filament terminals should indicate one ohm or less.
4. A continuity check between each filament terminal and magnetron case should read open.



## 5-4 High Voltage Capacitor

1. Check continuity of the capacitor with the meter set at the highest resistance scale.
2. Once the capacitor is charged, a normal capacitor shows continuity for a short time, and then indicates 9M.
3. A shorted capacitor will show continuous continuity.
4. An open capacitor will show constant 9MΩ.
5. Resistance between each terminal and chassis should read infinite.

## 5-5 High Voltage Diode

1. Isolate the diode from the circuit by disconnecting its leads.
2. With the ohm-meter set at the highest resistance scale, measure across the diode terminals. Reverse the meter leads and read the resistance. A meter with 6V, 9V or higher voltage batteries should be used to check the front-to back resistance of the diode (otherwise an infinite resistance may be read in both directions). The resistance of a normal diode will be infinite in one direction and several hundred KΩ in the other direction.

## 5-6 Main Relay and Power Control Relay

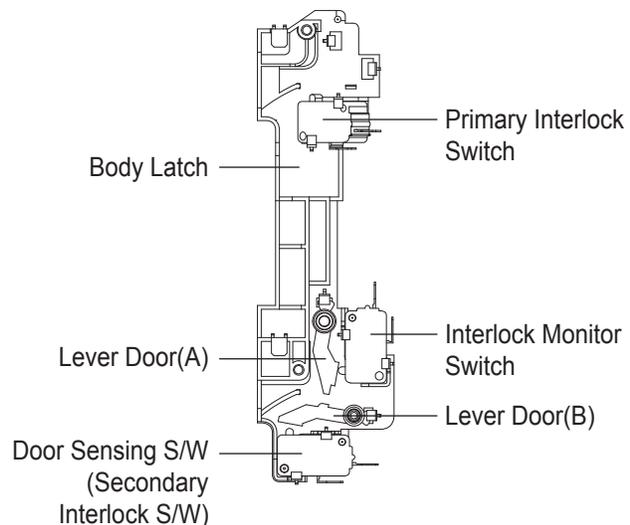
1. The relays are located on the PCB Ass'y. Isolate them from the main circuit by disconnecting the leads.
2. Operate the microwave oven with a water load in the oven. Set the power level set to high.
3. Check continuity between terminals of the relays after the start pad is pressed.

## 5-7 Adjustment of Primary Switch, Door Sensing Switch and Monitor Switch

### PRECAUTION

For continued protection against radiation hazard, replace parts in accordance with the wiring diagram and be sure to use the correct part number for the following switches: Primary and secondary interlock switches, and the interlock monitor switch (replace all together). Then follow the adjustment procedures below. After repair and adjustment, be sure to check the continuity of all interlock switches and the interlock monitor switch.

1. When mounting Primary switch and Interlock Monitor switch to Latch Body, consult the figure.
2. No specific adjustment during installation of Primary switch and Monitor switch to the latch body is necessary.
3. When mounting the Latch Body to the oven assembly, adjust the Latch Body by moving it so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the Latch Body to the oven assembly.
4. Reconnect to Monitor switch and check the continuity of the monitor circuit and all latch switches again by following the components test procedures.
5. Confirm that the gap between the switch housing and the switch actuator is no more than 0.5mm when door is closed.
6. **Interlock Switch Replacement** - When replacing faulty switches, be sure switch mounting tabs are not bent, broken or otherwise deficient in their ability to secure the switches in place.



	Door Open	Door Closed
Primary Interlock Switch	∞	0
Monitor switch(COM-NC)	0	∞
Monitor switch(COM-NO)	∞	0
Door Sensing S/W (Secondary Interlock S/W)	∞	0

## 5-8 Output Power of Magnetron

### CAUTION MICROWAVE RADIATION

PERSONNEL SHOULD NOT ALLOW EXPOSURE TO MICROWAVE RADIATION FROM MICROWAVE GENERATOR OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

The output power of the magnetron can be measured by performing a water temperature rise test.

Equipment needed :

\* Two 1-liter cylindrical borosilicate glass vessel (Outside diameter 190 mm)

\* One glass thermometer with mercury column

NOTE: Check line voltage under load. Low voltage will lower the magnetron output. Make all temperature and time tests with accurate equipment.

1. Fill the one liter glass vessel with water.
2. Stir water in glass vessel with thermometer, and record glass vessel's temperature ("T<sub>1</sub>", 10±1°C).
3. After moving the water into another glass vessel, place it in the center of the cooking tray. Set the oven to high power and operate for 52 seconds exactly. (3 seconds included as a holding time of magnetron oscillation:)
4. When heating is finished, stir the water again with the thermometer and measure the temperature ("T<sub>2</sub>").
5. Subtract T<sub>1</sub> from T<sub>2</sub>. This will give you the water temperature rise. (ΔT)
6. The output power is obtained by the following formula;

$$\text{Output Power} = \frac{4.187 \times 1000 \times \Delta T + 0.55 \times M_c \times (T_2 - T_1)}{49}$$

52 : Heating Time (sec)

49 : Counting Time (sec)s

4.187 : Coefficient for Water

1000 : Water (cc)

ΔT : Temperature Rise (T<sub>2</sub>-T<sub>1</sub>)

T<sub>0</sub> : Room Temperature

M<sub>c</sub> : Cylindrical borosilicate glass weight

7. Normal temperature rise for this model is 9°C to 11°C at 'HIGH'.

NOTE 1: Variations or errors in the test procedure will cause a variance in the temperature rise. Additional power test should be made if temperature rise is marginal.

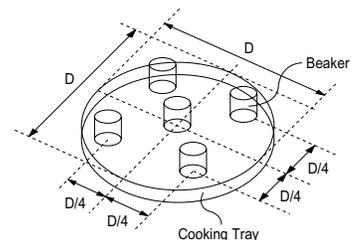
NOTE 2: Output power in watts is computed by multiplying the temperature rise (step 5) by a factor of 91 times the of centigrade temperature.

## 5-9 Microwave Heat Distribution - Heat Evenness

The microwave heat distribution can be checked indirectly by measuring the water temperature rise at certain positions in the oven:

1. Prepare five beakers made of 'Pyrex', having 100 milliliters capacity each.
2. Measure exactly 100 milliliters off water load with a measuring cylinder, and pour into each beaker.
3. Measure the temperature of each water load. (Readings shall be taken to the first place of decimals.)
4. Put each beaker in place on the cooking tray as illustrated in figure below. Start heating.
5. After heating for 2 minutes, measure the water temperature in each beaker.
6. Microwave heat distribution rate can be calculated as follows:

$$\text{Heat Distribution} = \frac{\text{Minimum Temperature Rise}}{\text{Maximum Temperature Rise}} \times 100(\%)$$



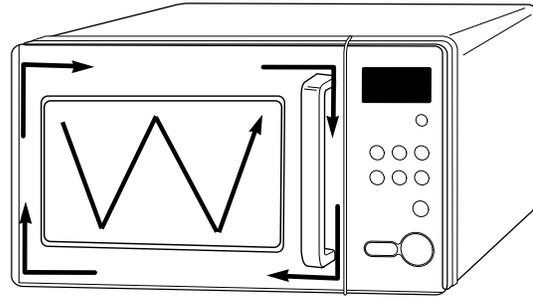
The result should exceed 65%.

---

## 5-10 Procedure for Measurement of Microwave Energy Leakage

---

1. Pour  $275 \pm 15$  cc of  $20 \pm 5^\circ\text{C}$  ( $68 \pm 9^\circ\text{F}$ ) water in a beaker which is graduated to 600cc, and place the beaker in the center of the oven.
2. Start to operate the oven and measure the leakage by using a microwave energy survey meter.
3. Set survey meter with dual ranges to 2,450MHz.
4. When measuring the leakage, always use the 2 inch spacer cone with the probe. Hold the probe perpendicular to the cabinet door. Place the spacer cone of the probe on the door and/or cabinet door seam and move along the seam, the door viewing window and the exhaust openings moving the probe in a clockwise direction at a rate of 1 inch/sec. If the leakage testing of the cabinet door seam is taken near a corner of the door, keep the probe perpendicular to the areas making sure that the probe end at the base of the cone does not get closer than 5cm to any metal. If it gets closer than 5cm, erroneous readings may result.
5. Measured leakage must be less than  $4\text{mW}/\text{cm}^2$ , after repair or adjustment.



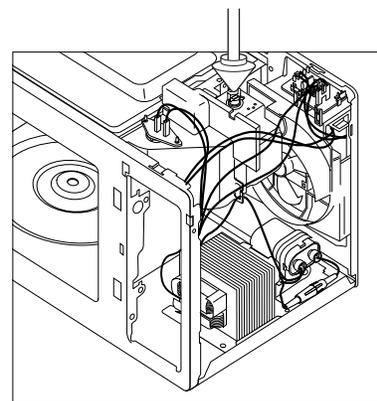
Maximum allowable leakage is  $5\text{mW}/\text{cm}^2$ .  
 $4\text{mW}/\text{cm}^2$  is used to allow for measurement and meter accuracy

---

## 5-11 Check for Microwave Leakage

---

1. Remove the outer panel.
2. Pour  $275 \pm 15$  cc of  $20 \pm 5^\circ\text{C}$  ( $68 \pm 9^\circ\text{F}$ ) water in a beaker which is graduated to 600cc, and place the beaker in the center of the oven.
3. Start the oven at the highest power level.
4. Set survey meter dual ranges to 2,450MHz.
5. Using the survey meter and spacer cone as described above, measure near the opening of magnetron, the surface of the air guide and the surface of the wave guide as shown in the following photo. (but avoid the high voltage components.) The reading should be less than  $4\text{mW}/\text{cm}^2$ .



---

## 5-12 Note on Measurement

---

1. Do not exceed the limited scale.
2. The test probe must be held on the grip of the handle, otherwise a false reading may result when the operator's hand is between the handle and the probe.
3. When high leakage is suspected, do not move the probe horizontally along the oven surface; this may cause damage to the probe.
4. Follow the recommendation of the manufacturer of the microwave energy survey meter.

---

## 5-13 Leakage Measuring Procedure

---

### 5-13-1 Record keeping and notification after measurement

- 1) After adjustment and repair of a radiation preventing device, make a repair record for the measured values, and keep the data.
- 2) If the radiation leakage is more than  $4\text{mW}/\text{cm}^2$  after determining that all parts are in good condition, functioning properly and the identical parts are replaced as listed in this manual notify that fact to ;

**CENTRAL SERVICE CENTER**

### 5-13-2 At least once a year have the microwave energy survey meter checked for accuracy by its manufacturer.

---

## 6. Troubleshooting

### PRECAUTION

1. CHECK GROUNDING BEFORE CHECKING FOR TROUBLE.
2. BE CAREFUL OF THE HIGH VOLTAGE CIRCUIT.
3. DISCHARGE THE HIGH VOLTAGE CAPACITOR.
4. WHEN CHECKING THE CONTINUITY OF THE SWITCHES OR TRANSFORMER, DISCONNECT ONE LEAD WIRE FROM THESE PARTS AND THEN CHECK CONTINUITY WITHOUT THE POWER SOURCE ON. TO DO OTHERWISE MAY RESULT IN A FALSE READING OR DAMAGE TO YOUR METER.
5. DO NOT TOUCH ANY PART OF THE CIRCUIT OR THE CONTROL CIRCUIT BOARD, SINCE STATIC DISCHARGE MAY DAMAGE IT. ALWAYS TOUCH GROUND WHILE WORKING ON IT TO DISCHARGE ANY STATIC CHARGE BUILT UP.

### 6-1 Electrical Malfunction

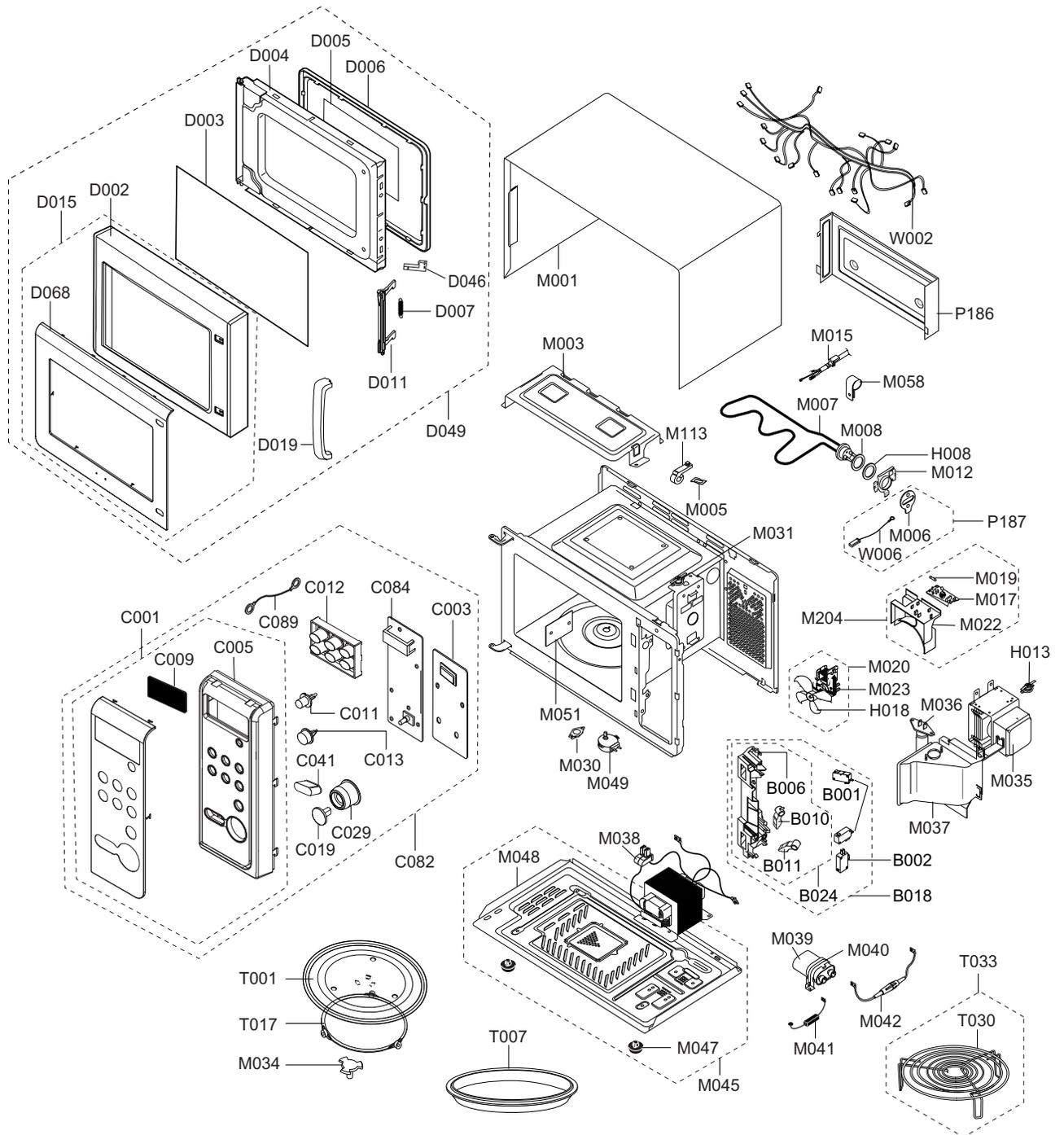
SYMPTOM	CAUSE	CORRECTIONS
Oven is dead. Fuse is OK. No display and no operation at all .	<ol style="list-style-type: none"> <li>1. Open or loose lead wire harness</li> <li>2. Open thermal cutout (Magnetron)</li> <li>3. Open low voltage transformer</li> <li>4. Defective Ass'y P.C.B</li> </ol>	<p>Check fan motor when thermal cutout is defective.</p> <p>Check Ass'y PCB when L.V.T is defective.</p>
No display and no operation at all. Fuse is blown.	<ol style="list-style-type: none"> <li>1. Shorted lead wire harness</li> <li>2. Defective primary latch switch (<b>NOTE 1</b>)</li> <li>3. Defective monitor switch (<b>NOTE 1</b>)</li> <li>4. Shorted H.V.Capacitor</li> <li>5. Shorted H.V.Transformer (<b>NOTE 2</b>)</li> </ol> <p><b>NOTE 1:</b> All of these switches must be replaced at the same time. (refer to adjustment instructions) Check continuity of power relay contacts and if it has continuity, replace power relay also.</p> <p><b>NOTE 2:</b> When H.V.Transformer is replaced, check diode and magnetron also.</p>	<p>Check adjustment of primary, interlock monitor, power relay, door sensing switch.</p>
Oven does not accept key input (Program)	<ol style="list-style-type: none"> <li>1. Key input is not in-Sequence</li> <li>2. Open or loose connection of membrane key pad to Ass'y P.C.B</li> <li>3. Shorted or open membrane panel</li> <li>4. Defective Ass'y P.C.B</li> </ol>	<p>Refer to operation procedure.</p> <p>Replace P.C.B main.</p>
Timer starts countdown but no microwave oscillation. (No heat while oven lamp and fan motor turn on.)	<ol style="list-style-type: none"> <li>1. Off-alignment of latch switches</li> <li>2. Open or loose connection of high voltage circuit especially magnetron filament circuit</li> </ol> <p><b>NOTE:</b> Large contact resistance will bring lower magnetron filament voltage and cause magnetron to lower output and/or intermittent oscillation.</p> <ol style="list-style-type: none"> <li>3. Defective high voltage components H.V.Transformer H.V. Capacitor H.V.Diode, H.V.Fuse Magnetron</li> <li>4. Open or loose wiring of power relay</li> <li>5. Defective primary latch switch</li> <li>6. Defective power relay or Ass'y P.C.B</li> </ol>	<p>Adjust door and latch switches.</p> <p>Check high voltage component according to component test procedure and replace if it is defective.</p> <p>Replace P.C.B main.</p>

## 6-1 Electrical Malfunction(continued)

SYMPTOM	CAUSE	CORRECTIONS
Oven lamp and fan motor turn on	<ol style="list-style-type: none"> <li>Misadjustment or loose wiring of primary latch switch</li> <li>Defective primary latch switch</li> </ol>	Adjust door and latch switches.
Oven can program but timer does not start.	<ol style="list-style-type: none"> <li>Open or loose wiring of secondary interlock switch</li> <li>Off-alignment of primary interlock</li> <li>Defective secondary interlock S/W</li> </ol>	Adjust door and interlock switches.
Microwave output is low;. Oven takes longer time to cook food.	<ol style="list-style-type: none"> <li>Decrease in power source voltage.</li> <li>Open or loose wiring of magnetron filament circuit. (Intermittent oscillation)</li> <li>Aging of magnetron</li> </ol>	Consult electrician.
Fan motor turns on when plugged in	Loose wiring of door sensing switch	Check wire of door sensing switch.
Oven does not operate and return to the plugged in mode.	Defective Ass'y P.C.B	Replace P.C.B main.
Loud buzzing noise can be heard.	<ol style="list-style-type: none"> <li>Loose fan and fan motor</li> <li>Loose screws on H.V.Transformer</li> <li>Shorted H.V.Diode</li> </ol>	Tighten screws of fan motor. Tighten screws of H.V.Transformer. Replace H.V.Diode.
Turntable motor does not rotate.	<ol style="list-style-type: none"> <li>Open or loose wiring of turntable motor.</li> <li>Defective turntable motor.</li> </ol>	Replace turntable motor.
Oven stops operation during cooking	<ol style="list-style-type: none"> <li>Open or loose wiring of primary interlock switch</li> <li>Operation of thermal cutout(Magnetron)</li> </ol>	Adjust door and latch switches.
Sparks	<ol style="list-style-type: none"> <li>Metallic ware or cooking dishes touching on the oven wall.</li> <li>Ceramic ware trimmed with gold or silver powder also causes sparks.</li> </ol>	Inform the customer. Do not use any type of cookware with metallic trimming.
Uneven cooking	Uneven intensity of microwave due to its characteristics.	<p>Wrap thinner parts of the food with aluminum foil.</p> <p>Use plastic wrap or cover with a lid.</p> <p>Stir once or twice while cooking foods such as soup, cocoa, or milk.</p>
Noise from the turntable motor when it starts to operate.	Noise may result from the motor.	Replace turntable motor.

# 7. Exploded Views and Parts List

## 7-1 Exploded Views



## 7-2 Main Parts List

(SNA : SERVICE NOT AVAILABLE)

LEVEL	No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
1-1	M036	4713-001046	LAMP-INCANDESCENT	240V,104mA,25W,ORG,-,-	1	SA	CV/AIR
1-1	H008	6031-001424	WASHER-PLAIN	PTFE,-,ID22.2,OD28,T1.7,WHT	1	SNA	
1-1	M038	DE26-00096A	TRANS H.V	SHV-EURO2-1,230V,50Hz,2350V,3.	1	SA	
1-1	M049	DE31-10154A	MOTOR SYNCHRONOUS	M2HJ49ZR02,ST-16,50/60	1	SA	
1-1	M015	DE39-20058C	ASSY POWER CORD	KKP-4819D/B232,250V16A,L	1	SA	
1-1	M031	DE47-00002B	THERMOSTAT	PW2N,-,-,100,110,-,-,187H,3	1	SA	GRL-TCO
1-1	M007	DE47-00004A	HEATER-GRILL	SHG-2733E,-,-,1100W(1080W),	1	SA	
1-1	H013	DE47-20009A	THERMOSTAT	PW2N-520PB,160/60,250V/7.5A,H	1	SA	MG-TCO
1-1	M030	DE47-20010A	THERMOSTAT	PW-2N(120/60)187Y,250V7.5A,12	1	SA	CAV-TCO
1-1	M003	DE61-00143A	BRACKET-UPPER	MW850WA,SECC,T0.5,-,-,NC	1	SA	
1-1	M113	DE61-30008A	SUPPORT-HEATER	ALUMINA,-,T12,CE745G,-,	1	SA	
1-1	M012	DE61-50576A	BRACKET-HEATER	-,STS430,T0.5,W70,L70,-,-	1	SA	
1-1	M005	DE61-70060A	SPRING-PLATE	-,SK-5,T0.5,-,-,-,-,-,-,-	1	SA	
1-1	M008	DE63-20017A	GASKET-HEATER	-,BRASS,T1.5,OD30.5,ID22.5	1	SA	
1-1	M058	DE65-20014A	CABLE CLAMP	-,,-,NY-66,-,DA-6N	1	SA	P-CORD
1-1	M034	DE67-00140A	COUPLER	NC2000(0.6~0.8),PPS(ESS840),-,3G	1	SA	
1-1	M051	DE71-00159A	COVER-CEILING	CN2835,MICA SHEET,T0.3,W11	1	SA	
1-1	P186	DE71-60451A	COVER-BACK	3RD-0.7,SECC,T0.5,W115,L332,-	1	SA	
1-2	M041	0402-001554	DIODE-RECTIFIER	HV03-12T01,12000V,0.4A,D	1	SA	
1-2	M039	2501-001016	C-OIL	950nF,2.1KV,BK,35x54x80,20mm	1	SA	
1-2	M040	DE61-00139A	BRACKET-HVC	NC2000,SECC,T0.8,-,-,-,0.6/0	1	SNA	
1-2	M042	DE91-70061B	ASSY-H.V.FUSE	THV060T-0750-H,5KV/0.75A,R	1	SA	
1-2	M045	DE96-00371A	ASSY BASE PLATE-SUB	M1719N/CE2719N(TSE),	1	SA	
1-3	M047	DE61-40066A	FOOT	-,PP,-,BLK,-,-,-	2	SA	
1-3	M048	DE80-00023A	BASE-PLATE	MW850WA,SGCC1,T0.6,-,-,NC2000	1	SA	
1-1	B018	DE96-00120B	ASSY BODY LATCH	M1717N,NC2000(HANDLE)	1	SA	
1-2	B002	3405-001032	SWITCH-MICRO	125/250VAC,16A,200GF,SPDT	1	SA	MONITOR-SW
1-2	B001	3405-001034	SWITCH-MICRO	125/250VAC,16A,200GF,SPST-N	2	SA	PRI-SW, DOOR-SW
1-2	B024	DE96-00120R	ASSY BODY LATCH-SUB	M1717N,NC2000(HANDLE)	1	SA	
1-3	B010	DE66-00093A	LEVER-SWITCH(A)	NC2000,PP(TH53),-,-,-,-,	1	SA	
1-3	B011	DE66-00094A	LEVER-SWITCH(B)	NC2000,PP(TH53),-,-,-,-,	1	SA	
1-3	B006	DE72-00137A	LATCH-BODY	NC2000(0.6/0.8/1.2),PP,-,-,-,-,	1	SA	
1-1	W002	DE96-00206A	ASSY-WIRE HARNESS A	CE2733N,230V50HZ,NEW	1	SA	
1-1	M035	OM75P(31)MTSN	ASSY-MAGNETRON	OM75P(31)MTSN	1	SA	
1-1	M001	DE64-01333A	PANEL-OUTER	M187AST,STS,T0.5,-,-,-,-,TSE	1	SA	
1-1	P187	DE97-00537A	ASSY-BRACKET HEATER	C100-5/XEF,TSE,-,-	1	SA	
1-2	W006	DE39-40409A	WIRE HARNESS-E	230V50HZ,M9G45,CTW,-,-,-	1	SA	
1-2	M006	DE74-80062A	STOPPER-HEATER	3RD-W,SECC,T0.8xW70xL70,-	1	SA	
1-1	M204	DE96-00417H	ASSY-N/F+COVER	NC 2000(0.8 CU/FT),TSE/AS	1	SA	
1-2	M022	DE71-00148A	COVER-BLOWER	MW850WA,PP,T1.5,-,-,-,NTR,N	1	SA	
1-2	M017	DE96-00011A	ASSY NOISE FILTER	SN-3WUA,250V15A,3W 15A	1	SA	
1-3	M019	3601-001197	FUSE-CARTRIDGE	250V,15A,SLOW-BLOW,CERAMI	1	SA	
1-1	M020	DE96-00031E	ASSY-MOTOR FAN	SMF-3RDEA,230V50HZ,2400RP	1	SA	
1-2	M023	DE31-10184A	MOTOR FAN	SMF-3RDEA,230V50Hz,2400rpm,3rd	1	SA	
1-2	H018	DE31-90057A	BLADE-FAN	PP,T1.5,-,3RD-W,-,-,-	1	SA	
1-2	T001	DE74-20102D	TRAY-COOKING	GLASS,T6,-,890g	1	SA	
1-2	T033	DE97-00106A	ASSY-WIRE RACK	CE2713T,CURSTY-TRAY,-,-,-	1	SA	
1-3	T030	DE74-70071D	RACK-WIRE	MSWR10,PI3,0.7/NC2000,D230,H85	1	SA	
1-2	T017	DE97-00193B	ASSY-GUIDE ROLLER	NC2000 0.6,T2*P1198(14	1	SA	
1-2	T007	DE74-20114B	TRAY-BROILER	AL,0.8,350,-,-	1	SA	
1-1	M037	DE71-60457C	COVER-AIR	3RD-0.7(BTM),PP(FB53 G30),-,-,	1	SA	

## 7-3 Control & Door Parts List

(SNA : SERVICE NOT AVAILABLE)

LEVEL	No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
1-1	D049	DE94-01102B	ASSY DOOR	CE287AST/XEC,NATURAL STS A,EUR	1	SA	
1-2	D007	DE61-00198A	SPRING-KEY	M1877,HSWR,PIO.7,-,D6,23 1/4,	1	SA	
1-2	D011	DE64-00211A	DOOR-KEY	NC2000(0.6/0.8/1.2),PP,-,BLK,-,	1	SA	
1-2	D005	DE64-00221E	FILM-DOOR	-,CE2877N,PET,T0.15,W143,L264,	1	SA	
1-2	D003	DE64-01146A	SCREEN-DOOR	CE287ST,PC,-,-,-,SMOG,STS-	1	SA	
1-2	D019	DE64-01149A	HANDLE-DOOR	M187ST/CE287ST,ABS(HG0760S),	1	SA	
1-2	D004	DE94-00351K	ASSY DOOR-E(COATING)	MW850WA,BLK-COATING	1	SA	
1-2	D015	DE94-01104A	ASSY DOOR-SUB	M187AST/XEC,NATURAL-STS(A)	1	SA	
1-3	D002	DE64-01145A	DOOR-A	M187AST/CE287AST,ABS(HG0760),-,-,	1	SNA	
1-3	D068	DE64-01148A	CHASSIS-DOOR	CE287ST,STS430,T0.5,-,-,STA	1	SNA	
1-2	D006	DE64-00283A	DOOR-C	NC2000 0.7(NEW),PP,-,BLK,-,T1.5,2	1	SA	
1-2	D046	DE64-00284A	DOOR-CAP	NC2000 0.7(NEW),PP,-,BLK,-,T1.5	1	SNA	
1-1	C082	DE94-01103D	ASSY CONTROL-BOX	230V49HZ,CE287ASTR/BWT,	1	SA	
1-2	C089	DE39-40673D	WIRE HARNESS-H	M187.CE287AST,GROUND,-,-,	1	SA	
1-2	C011	DE64-01152A	BUTTON-SELECT(A)	M187ST/CE287ST,ABS(HG07	1	SA	
1-2	C012	DE64-01153A	BUTTON-SELECT(B)	M187ST/CE287ST,ABS(HG07	1	SA	
1-2	C013	DE64-01154A	BUTTON-SELECT(C)	M187ST/CE287ST,ABS(HG07	1	SA	
1-2	C041	DE64-01155A	BUTTON-CANCEL	M187ST/CE287ST,ABS(HG0760S	1	SA	
1-2	C029	DE64-01157A	KNOB-DIAL	M187ST/CE287ST,ABS(HG0760S),-,	1	SA	
1-2	C001	DE94-01105D	ASSY CONTROL-PANEL	230V49HZ,CE287ASTR/BW	1	SA	
1-3	C005	DE64-01150A	CONTROL-PANEL	M187ST/CE287ST,ABS(HG0760S	1	SNA	
1-3	C009	DE64-01151A	WINDOW-DISPLAY	M187ST/CE287ST,SAN(CR5381	1	SA	
1-2	C084	DE96-00377A	ASSY-KEY MODULE	DKM-187AST,KEY-MODULE	1	SA	
1-2	C003	RCA-K2LED1-83	ASSY PCB PARTS	CE287ASTR/BWT,230V50HZ	1	SA	
1-2	C019	DE64-01156C	BUTTON-START	M187ASTR/CE287ASTR,ABS(HG07	1	SA	

## 7-4 Standard Parts List

(SNA : SERVICE NOT AVAILABLE)

LEVEL	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
1-2	6002-000630	SCREW-TAPPING	PH,+,-,2S,M3,L8,ZPC(YEL),SWRCH18A,-	1	SNA	EARTH
1-2	6002-000630	SCREW-TAPPING	PH,+,-,2S,M3,L8,ZPC(YEL),SWRCH18A,-	8	SNA	PCB
1-2	6002-000643	SCREW-TAPPING	TH,+2S,M4,L10,ZPC(YEL),SWRCH1	2	SA	
1-1	6002-001321	SCREW-TAPPING	PWH,+2S,M5,L10,ZPC(YEL)	4	SNA	HVT
1-1	6002-001321	SCREW-TAPPING	PWH,+2S,M5,L10,ZPC(YEL)	2	SNA	MGT
1-1	6002-001325	SCREW-TAPPING	TH,TORX,2S,M4,L12,ZPC(YEL)	2	SNA	C-BACK
1-1	6006-001170	SCREW-TAPPING	TH,+WT,TC,M4,L10,ZPC(YEL),SWRCH18A,-	1	SNA	N/FILTER
1-1	6006-001170	SCREW-TAPPING	TH,+WT,TC,M4,L10,ZPC(YEL),SWRCH18A,-	1	SNA	P-CORD
1-1	6006-001170	SCREW-TAPPING	TH,+WT,TC,M4,L10,ZPC(YEL),SWRCH18A,-	1	SNA	P/OUTER
1-1	6006-001170	SCREW-TAPPING	TH,+WT,TC,M4,L10,ZPC(YEL),SWRCH18A,-	1	SNA	PCB-GND
1-1	6006-001171	SCREW-MACHINE	WS,PH,+M4,L8,NI PLT	2	SNA	BKT-HEATER
1-1	6006-001174	SCREW-TAPPING	WE,TH,+M4,L12,ZPC(YEL)	2	SNA	B-LATCH
1-1	6006-001174	SCREW-TAPPING	WE,TH,+M4,L12,ZPC(YEL)	2	SNA	B-PLATE
1-1	6006-001174	SCREW-TAPPING	WE,TH,+M4,L12,ZPC(YEL)	1	SNA	C-BLOWER
1-1	6006-001174	SCREW-TAPPING	WE,TH,+M4,L12,ZPC(YEL)	1	SNA	CON-BOX
1-1	6006-001174	SCREW-TAPPING	WE,TH,+M4,L12,ZPC(YEL)	1	SNA	COVER-AIR
1-1	6006-001174	SCREW-TAPPING	WE,TH,+M4,L12,ZPC(YEL)	4	SNA	OUT-PANEL
1-1	6006-001176	SCREW-TAPTITE	WT,PH,+M4,L8,ZPC(YEL)	1	SNA	D-MOTOR
1-1	6006-001176	SCREW-TAPTITE	WT,PH,+M4,L8,ZPC(YEL)	2	SNA	MGT-TCO
1-2	6006-001176	SCREW-TAPTITE	WT,PH,+M4,L8,ZPC(YEL)	1	SNA	BKT-HVC
1-1	DE60-30016A	NUT-FLANGE	M4,MSWR10,-,-,-,-,-,-,-	2	SA	F-MOTOR



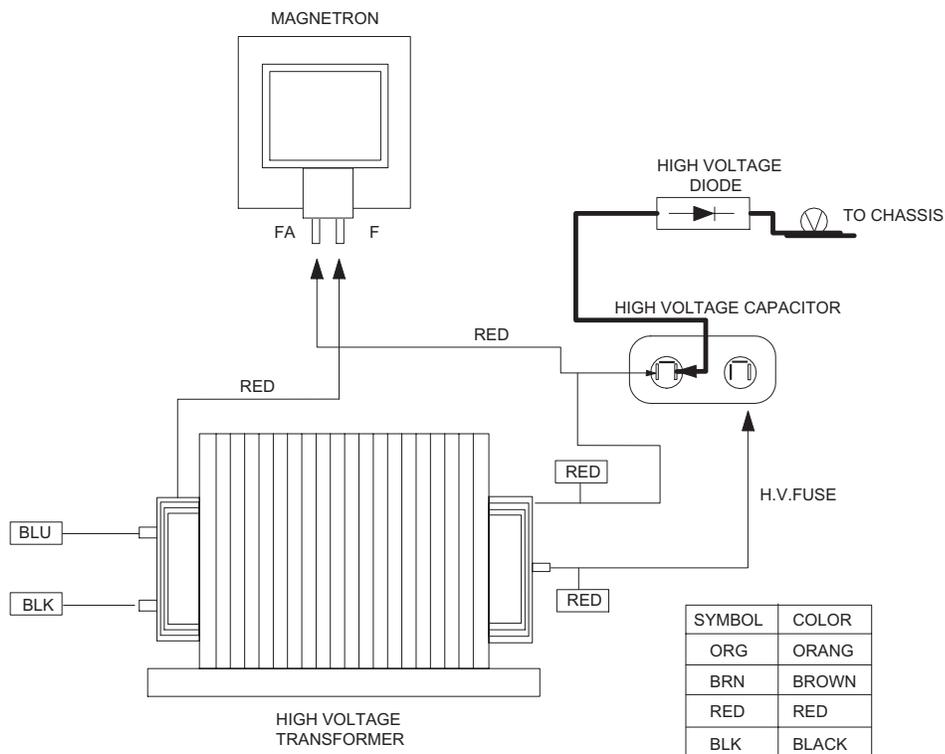
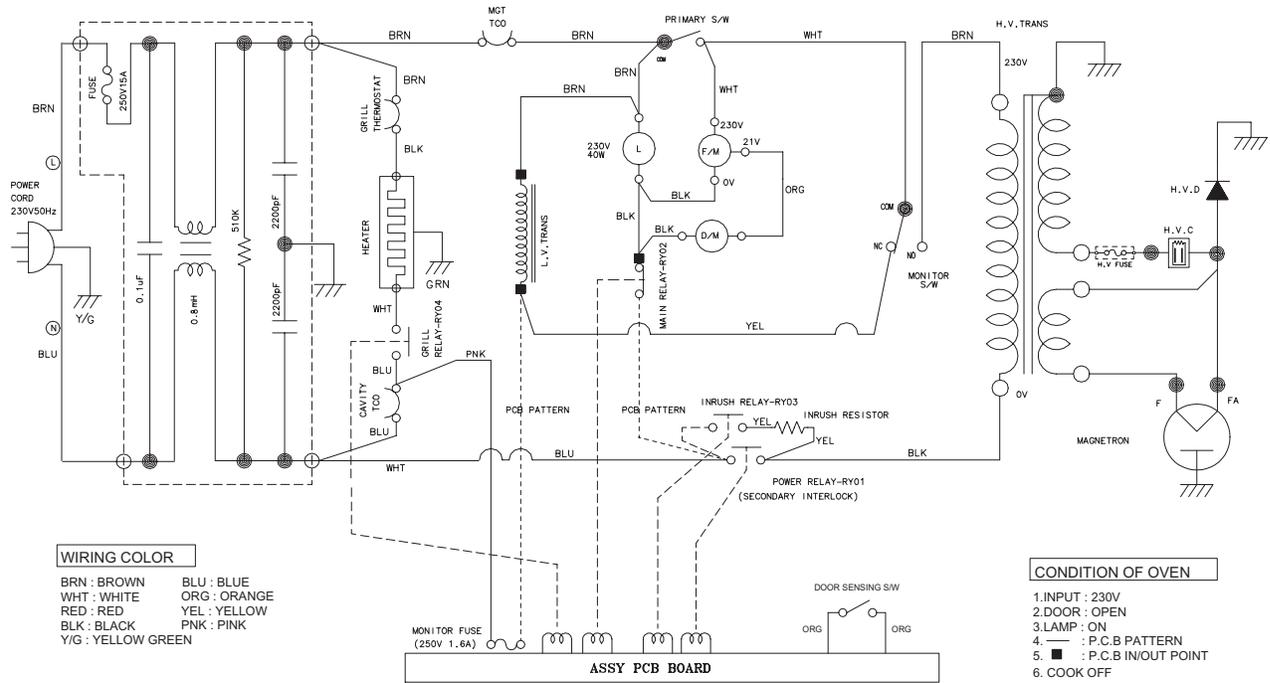
## 8-2 P.C.B Parts List

(SNA : SERVICE NOT AVAILABLE)

LEVEL	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
1-2	RCA-K2LED1-83	ASSY PCB PARTS	CE287ASTR/BWT,230V50HZ	1	SA	
1-4	0401-001083	DIODE-SWITCHING	MM4148,100V,150MA,LL-34,TP	9	SNA	D04~D07, D09~D13
1-4	0402-001080	DIODE-RECTIFIER	GF1G,400V,1A,DO,TP	3	SNA	D01~D03
1-4	0402-001298	DIODE-BRIDGE	DF06S,600V,1A,SMD-4,TP	1	SNA	BD01
1-4	0403-001288	DIODE-ZENER	ZMM55C5V1,4.8-5.4V,500MW,LL-34,TP	1	SNA	ZD01
1-4	0504-001008	TR-DIGITAL	RN2427,PNP,200MW,2.2K/10K,SOT-23,TP	1	SNA	TR11
1-4	0504-001080	TR-DIGITAL	KRC246S,NPN,200mW,2.2K/10K,SOT-23,TP	6	SNA	TR01~TR06, TR10
1-4	1203-001037	IC-POSI.FIXED REG.	78L05,SOT-89,3P,185MIL,PLASTIC	1	SNA	IC02
1-4	1203-002876	IC-VOL. DETECTOR	ELM7533CBA-S,SOT-23,3P,2.9X1.5MM,PLASTIC, 3.234/3.366V,200MW,-30TO+85C,20MA,-,TP	1	SNA	IC03
1-4	1404-000230	THERMISTOR-PTC	27ohm,20%,-,265V,1.5A,360mA,BK	1	SNA	PTC2
1-4	1404-001194	THERMISTOR-PTC	39ohm,20%,220/240V,270Vac,1.2A,-,TP	1	SNA	PTC1
1-4	2007-000033	R-CHIP	0ohm,5%,1/4W,TP,3216	19	SNA	J01~J18,OJ07
1-4	2007-000282	R-CHIP	100Kohm,5%,1/8W,TP,2012	2	SNA	R10,R11
1-4	2007-000300	R-CHIP	10Kohm,5%,1/8W,TP,2012	2	SNA	R05,R08
1-4	2007-000468	R-CHIP	1Kohm,5%,1/8W,TP,2012	6	SNA	R01,R06,R07, R09,R19,R25
1-4	2007-000546	R-CHIP	20Kohm,5%,1/8W,TP,2012	1	SNA	R17
1-4	2007-000671	R-CHIP	2Kohm,5%,1/8W,TP,2012	3	SNA	R03,R20,R21
1-4	2007-000872	R-CHIP	4.7Kohm,5%,1/8W,TP,2012	1	SNA	R02
1-4	2007-000941	R-CHIP	47Kohm,5%,1/8W,TP,2012	5	SNA	R12~R16
1-4	2203-000192	C-CER,CHIP	100nF,+80-20%,50V,Y5V,TP,2012,	7	SNA	C05~C08,C16, C17,C21
1-4	2203-000444	C-CER,CHIP	1nF,10%,50V,X7R,2012	5	SNA	C09~C13
1-4	2203-000555	C-CER,CHIP	0.02NF,5%,50V,COG,TP,2012	2	SNA	C18,C19
1-4	2203-000889	C-CER,CHIP	4.7nF,10%,50V,X7R,TP,2012	1	SNA	C22
1-4	2401-000151	C-AL	1000uF,20%,25V,GP,TP,10x20,5	1	SNA	C02
1-4	2401-000244	C-AL	100uF,20%,10V,GP,TP,6.3x7,5	1	SNA	C03
1-4	2401-001428	C-AL	470uF,20%,50V,GP,TP,10x20,5	1	SNA	C01
1-4	2401-003107	C-AL	47uF,20%,16V,GP,TP,5x7,5	1	SNA	C04
1-4	2404-000232	C-TA,CHIP	4.7uF,20%,10V,-,TP,3216	1	SNA	C14
1-4	2801-003933	CRYSTAL-UNIT	8MHz,50ppm,28-AAA,12pF,70ohm,TP	1	SNA	XTL1
1-3	3501-001155	RELAY-MINIATURE	24VDC,200MW,3000MA,1FORMA,10MS,10MS	2	SA	RY01,RY02
1-3	3501-001188	RELAY-POWER	24V DC,0.53W,-,1FORMA,9.3MS,10MS	1	SA	RY03
1-3	3501-001209	RELAY-POWER	24V DC,0.53W,-,1FORMA,9.3MS,10MS	1	SA	RY04
1-3	3601-001126	FUSE-CARTRIDGE	250V,1.6A,FAST-ACTING,CERAMIC,5x20mm	1	SA	
1-3	3708-001551	CONNECTOR-FPC/FFC/PIC	14P,1.25MM,STRAIGHT,SN,ZIF,-,SINGLE	1	SNA	CN03
1-4	3711-000024	CONNECTOR-HEADER	BOX,3P,1R,2.5mm,STRAIGHT,SN	1	SNA	CN02
1-4	3711-004200	CONNECTOR-HEADER	BOX,4P/7P,1R,2.5MM,STRAIGHT,SN,RED	1	SNA	CN01
1-3	DE07-00037B	LED DISPLAY	CSE-4246G-01,-,-,40SEG,5DIGIT,45.2*22.3*22, YEL/GRN,70MW,LED1-01	1	SA	DSP1
1-3	DE09-00414B	IC MICOM	TMP87CH47U-5NG9,M187AST/CE287AST, 44PIN,+5V,8M,-,-,8,8,QFP,TRAY,-,-,20 ~ +85	1	SNA	IC01
1-3	DE26-00034A	TRANS L.V	SLV-1933EN,230V,50Hz,7.0V/17V,-,35*11,PIN,-	1	SA	LVT1
1-3	DE30-20016A	BUZZER	CBE2220BA,STICK,-,-,-,-,-,-	1	SNA	BZ01
1-4	DE41-00273A	PCB-MAIN	K2LED1-**,FR-1,1,-,T1.6,197*329,-,4,-,RE-TF750	1	SNA	
1-3	DE47-40024A	HOLDER-FUSE	FH-51H,7.5A,-,-,-,-,-	1	SA	FUSE1
1-4	DE60-60012A	PIN-EYELET	ID2.1,OD2.5,L3.0,SN,BSP,T0.25,	5	SNA	
1-3	DE92-01527A	ASSY PCB AUTO-MAIN	230V/50Hz,LED,RES-K2LED1-83, CE287ASTR/BWT	1	SNA	

# 9. Schematic Diagrams

## 9-1 Schematic Diagrams ( This Document can not be used without Samsung's authorization )



## 10. Reference

### 10-1 Model name standard

Baoad Classification	Distin-guisher	Middle Classification	Distin-guisher	Product Code	Full Nane
USA CMO	M	CMO (Counter-top MWO)	W	MW	USA CMO(EPOXY CAVITY)
		UTC (Under The Cabinet)	U	MU	USA UTC
		Browner, Grill	G	MG	USA GRILL
		Convection	C	MC	USA CONVECTION
		Sensor	S	MS	USA CMO SENSOR
		DC MWO	D	MD	USA DC MWO
		Hospital MWO	H	MH	USA Hospital MWO
		Ceramic Enamel	E	ME	USA CMO(CERAMIC ENAMEL)
USA RV	R	SOLO	M	RM	USA RV SOLO
		CONVECTION	C	RC	USA RV CONVECTION
		BUILT-IN	B	RB	USA RV BUILT-IN
USA Junior	SJ			SJ	USA Junior MWO
USA OTR	SM	SOLO	H	SMH	USA OTR SOLO
		CONVECTION	V	SMV	USA OTR CONVECTION
EUROPE Epoxy Cavity	M	SOLO	1	M1	EUROPE SOLO(EPOXY CAVITY)
		GRILL	2	M2	EUROPE GRILL(EPOXY CAVITY)
EUROPE Ceramic Enamel	CE	SOLO	1	CE1	EUROPE SOLO(CERAMIC ENAMEL)
		GRILL	2	CE2	EUROPE GRILL(CERAMIC ENAMEL)
EUROPE Quartz GRILL	G2			G2	EUROPE Quartz GRILL
EUROPE Power Grill	PG			PG	POWER GRILL
EUROPE Convection	CK			CK	EUROPE CONVECTION
	C			C	EUROPE CONVECTION
EUROPE Fully Built-In	F	SOLO	W	FW	EUROPE SOLO FULLY BUILT-IN
		GRILL	G	FG	EUROPE GRILL FULLY BUILT-IN
		CONVECTION	C	FC	EUROPE CONVECTION FULLY BUILT-IN

## 10-2 Customer inquiry cases and countermeasures

Symptom	Cause	Countermeasures
Air is evacuated from the oven.	<ul style="list-style-type: none"> <li>The vent of the oven is designed to be placed on the bottom of the product, and air is evacuated from the oven.</li> </ul>	In the past, the vent was placed on the back panel of the oven. Since the oven was placed near the wall of a kitchen, the wall behind the oven was discolored. Thus, the vent of a new oven is placed on the bottom of the product, and air is evacuated from the oven.
The oven works automatically whenever the power is turned on.	<ul style="list-style-type: none"> <li>It may happen due to power failure or abnormal voltage.</li> <li>It may happen when the door does not close completely.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the power plug three seconds after disconnecting the power plug.</li> <li>Close the door completely =&gt; Press the Cancel button =&gt; Press the Start button.</li> </ul>
Heating	<ul style="list-style-type: none"> <li>In many cases, it may happen when the power level is incorrectly set.</li> <li>It may happen when the door does not close completely.</li> <li>It may happen when the oven is out of order.</li> </ul>	<ul style="list-style-type: none"> <li>Select HIGH by rotating the Cooking Power Control knob.</li> <li>- KEEP WARM: This function is used to warm the cooked food for a certain time period, not to heat the food.</li> <li>- MEDIUM/LOW: This function is used to cook the food slowly.</li> <li>Close the door completely. =&gt; Press the Cancel button. =&gt; Press the Start button.</li> <li>Contact the nearest Samsung after-sales service center.</li> </ul>
Ground	<ul style="list-style-type: none"> <li>Ground problem may happen when the oven is placed in a humid area and the oven is not grounded.</li> <li>Ground is not provided by an extended electric outlet.</li> </ul>	<ul style="list-style-type: none"> <li>If the oven is placed in a humid area, buy an electric wire in a store selling electrical products. (Electric wires for home use are also allowed) Ground the oven through the electric wire.</li> <li>Buy an electric wire in a store selling electrical products. (Electric wires for home use are also allowed) Ground the oven through the electric wire.</li> </ul>
Turn table occasionally rotates in reverse order.	<ul style="list-style-type: none"> <li>Turntable has been designed to rotate in either direction since 1994.</li> </ul>	<ul style="list-style-type: none"> <li>In the past, the gear of the turntable was easily worn by turning it during cleaning. Now, the turntable of the oven is designed to rotate in both directions to prevent damage during cleaning. (Rotation direction is set when the oven initially operates.)</li> </ul>
The oven sometimes beeps.	<ul style="list-style-type: none"> <li>The oven beeps every minute unless the food is in the oven after the food is cooked completely.</li> <li>The oven occasionally beeps during cooking.</li> </ul>	<ul style="list-style-type: none"> <li>Open and close the door again. (Beeping sounds indicate that the food is ready to be removed from the oven after cooking is complete.)</li> </ul>

## 10-2 Customer inquiry cases and countermeasures (Continued)

Symptom	Cause	Countermeasures
Strange popping sounds are produced while fish is cooked.	<ul style="list-style-type: none"> <li>Since fish is salty and maintains its moisture, it is cooked while making a series of soft popping sounds. (The liquid may come out of the fish when the fish is cooked.)</li> </ul>	<ul style="list-style-type: none"> <li>Food with bones such as fish (e.g. mackerel) and pork (e.g. pork chops) is cooked while making a series of soft popping sounds. Wrap the food completely so that food particles or spattered oils do not stick to the oven walls or floor.</li> </ul>
Strange smell is produced in the oven.	<ul style="list-style-type: none"> <li>It may happen when food particles stuck to oven walls or floor.</li> </ul>	<ul style="list-style-type: none"> <li>Clean the inside of the oven. =&gt; Remove strange smell through the Deodorant button =&gt; If the strange smell still remains, place a piece of lemon on the turntable and operate the oven for 5 minutes by pressing the Deodorant button. (However, the smells produced from the food exposed such as herbal remedies are not removed.)</li> </ul>
Error	<ul style="list-style-type: none"> <li>Errors are classified into the case which is out of order and the case which is not out of order.</li> </ul>	<ul style="list-style-type: none"> <li>Clean the inside of the oven. =&gt; Remove strange smell through the Deodorant button =&gt; If the strange smell still remains, place a piece of lemon on the turntable and operate the oven for 5 minutes by pressing the Deodorant button. (However, the smells produced from the food exposed such as herbal remedies are not removed.)</li> </ul>
Accessory		<ul style="list-style-type: none"> <li>Visit the nearest Samsung Service Center or local dealer to buy accessories. Before visiting, check the model name printed on the lower right side of the front panel of the oven.</li> </ul>
Number does not appear on the display screen.	It happens when the power saving function is activated.	<ul style="list-style-type: none"> <li>Since the government recommends the reduction of electricity, the power saving function is performed for number display like that power cord is unplugged when the oven is not used. (Numbers are displayed when another button is pressed or when the door opens.)</li> </ul>



**This Service Manual is a property of Samsung Electronics Co.,Ltd.  
Any unauthorized use of Manual can be punished under applicable  
International and/or domestic law.**

© Samsung Electronics Co., Ltd. April 2005  
Printed in Korea  
Code No. : DE68-03555A