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LIGHT OVEN “SolarDOM”

SERVICE MANUAL

MODEL: MP9485FR

CAUTION

BEFORE SERVICING THE UNIT, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

P/NO : MFL62270002

March, 2010

Printed in Korea

SAFETY PRECAUTIONS

This device is to be serviced only by properly qualified service personnel.
Consult the service manual for proper service procedures to assure continued safety operation and for precautions to be taken to avoid possible exposure to excessive microwave energy.

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.

CAUTION
MICROWAVE RADIATION

DO NOT BECOME EXPOSED TO RADIATION FROM THE MICROWAVE GENERATOR OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

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CONTENTS

(Page)

SAFETY PRECAUTIONS ..... **Inside front cover**

SPECIFICATIONS **1-1**

CAUTIONS **2-1**

INSTALLATIONS **3-1**

OPERATING INSTRUCTIONS **4-1**

FEATURES 4-1

CONTROL PANEL 4-1

OPERATING SEQUENCE 4-2

SCHEMATIC DIAGRAM 4-3

CIRCUIT DESCRIPTION 4-4

SERVICE INFORMATION **5-1**

TOOLS AND MEASURING INSTRUMENTS 5-1

MICROWAVE LEAKAGE TEST 5-1

MEASUREMENT OF MICROWAVE POWER OUTPUT 5-3

DISASSEMBLY AND ADJUSTMENT 5-3

UPPER &LOWER HEATER 5-7

INTERLOCK CONTINUITY TEST 5-8

COMPONENT TEST PROCEDURE 5-9

TROUBLE SHOOTING 5-14

EXPLODED VIEW **6-1**

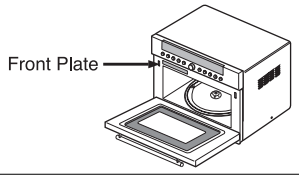
REPLACEMENT PARTS LIST **7-1**

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SPECIFICATIONS

<table>
<tr><th>ITEM</th><th>DESCRIPTION</th></tr>
<tr><td>MODEL</td><td>MP9485FR</td></tr>
<tr><td>Power Requirement</td><td>230 V~ 50 Hz
Single phase, 3 wire grounded
Microwave 1650 W
Grill max. 1600 W
Combination max. 2350 W
Convection 2300 W</td></tr>
<tr><td>Power Output</td><td>900 watt full microwave power (IEC60705)</td></tr>
<tr><td>Microwave Frequency</td><td>2450 MHz</td></tr>
<tr><td>Magnetron</td><td>2M248H - B</td></tr>
<tr><td>Timer</td><td>0 ~ 90 min.</td></tr>
<tr><td>Outside Dimensions</td><td>527 (W) x 394 (H) x 480 (D) mm</td></tr>
<tr><td>Cavity Dimensions</td><td>440 (W) x 204 (H) x 420 (D) mm</td></tr>
<tr><td>Net Weight</td><td>26 kg</td></tr>
<tr><td>Shipping weight</td><td>29 kg</td></tr>
<tr><td>Control Complement</td><td>1. Microwave Power level:
max. (900 W), 600 W, 360 W, 180 W, 90 W

2. GRILL
<table><tr><th>Category</th><th>Display</th><th>Heater operating</th></tr><tr><td>Grill-1</td><td>gr-1</td><td>Upper heater (2000W)</td></tr><tr><td>Grill-2</td><td>gr-2</td><td>Upper heater (1100W)</td></tr><tr><td>Grill-3</td><td>gr-3</td><td>Upper heater (700W)</td></tr></table>
3. Convection: 40°C, 100~250°C

4. SPEED COMBI
<table><tr><th>Display</th><th>Heater + Microwave power selection</th></tr><tr><td>Co-1</td><td>Grill-1 + 180W, 360W, 600W</td></tr><tr><td>Co-2</td><td>Grill-2 + 180W, 360W, 600W</td></tr><tr><td>Co-3</td><td>Grill-3 + 180W, 360W, 600W</td></tr><tr><td>Co-4</td><td>Upper heater(1550W) + Lower heater + Microwave power</td></tr><tr><td>Co-5</td><td>Upper heater(1100W) + Lower heater + Microwave power</td></tr></table>
5. SPEED AUTO COOK
SC1 : Rice
SC2 : Kabab
SC3 : Whole Chicken
SC4 : Taba Kabab
SC5 : Kuku Sabzi
SC6 : Shole Zard
SC7 : Fresh Pizza
SC8 : Hamburger
SC9 : Fried Potato
SC10 : Tomato Omelet
SC11 : Cake
SC12 : Popcorn</td></tr>
<tr><td>Rating Label Location</td><td>
</td></tr>
<tr><td>Accessories</td><td>Owner's manual & Cook book
High rack, Low rack
Metal tray, Rotisserie</td></tr>
</table>

This oven is designed for household use only.

It is not recommended for commercial purposes.

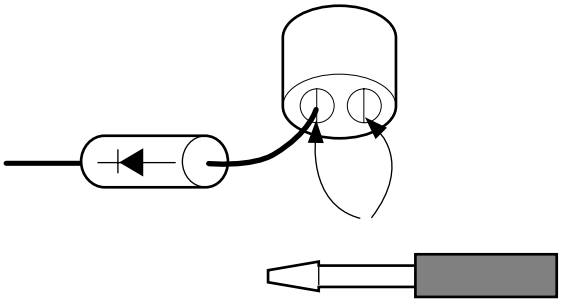
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CAUTIONS

Unlike other appliances, the microwave oven is high-voltage and high-current equipment. Though it is free from danger in ordinary use, extreme care should be taken during repair.

- DO NOT operate on a 2-wire extension cord during repair and use.
- NEVER TOUCH any oven components or wiring during operation.
- BEFORE TOUCHING any parts of the oven, always remove the power plug from the outlet.
- For about 30 seconds after the oven stops, an electric charge remains in the high voltage capacitor. When replacing or checking, you must discharge the high voltage capacitor by shorting across the two terminals with an insulated screwdriver.

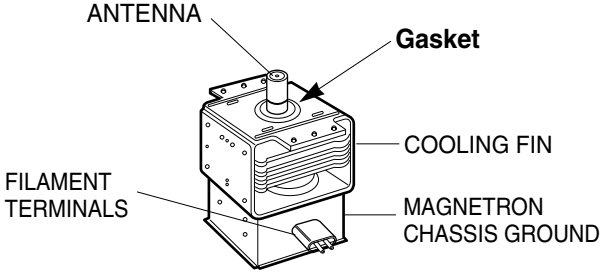


- Remove your watches whenever working close to or replacing the Magnetron.
- NEVER operate the oven with no load.
- NEVER injure the door seal and front plate of the oven cavity.
- NEVER put iron tools on the magnetron.
- NEVER put anything into the latch hole and the interlock switches area.

MICROWAVE RADIATION

Personnel should not be exposed to the microwave energy which may radiate from the magnetron or other microwave generating device if it is improperly used or connection.
All input and output microwave connections, waveguide, flange and gasket must be secure never operate the device without a microwave energy absorbing load attached.
Never look into an open waveguide or antenna while the device is energized.

- Proper operation of the microwave oven requires that the magnetron be assembled to the waveguide and cavity. Never operate the magnetron unless it is properly installed.
- **Be sure that the magnetron gasket is properly installed around the dome of the tube whenever installing the magnetron.**



MAGNETRON

THE OVEN IS TO BE SERVICED ONLY BY PROPERLY QUALIFIED SERVICE PERSONNEL.

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INSTALLATIONS

BEFORE YOU BEGIN, READ THE FOLLOWING INSTRUCTIONS COMPLETELY AND CAREFULLY.

INSTALLING

1. Empty the oven and clean inside it with a soft, damp cloth. Check for damage such as misaligned door, damage around the door or dents inside the cavity or on the exterior.

2. Put the oven on a counter, table, or shelf that is strong enough to hold the oven and the food and utensils you put in it. (Use care when handling.)

3. Do not block the vent and the air intake openings. Blocking vent or air intake openings can cause damage to the oven and poor cooking results. Make sure that the microwave oven legs are in place to ensure proper air flow.

4. The oven should not be installed in any area where heat and steam are generated, because they may damage the electronic or mechanical parts of the unit.
   Do not install the oven next to a conventional surface unit or above a conventional wall oven.

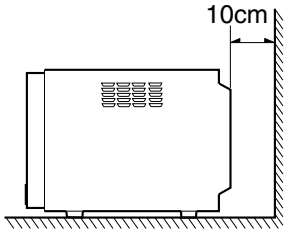
5. Use the oven in an ambient temperature less than 104°F(40°C).

6. Place the oven on a sturdy and flat surface at least 10 cm(4 inches) from the wall.

7. Place the oven as far away as possible from TV, RADIO, COMPUTER, etc., to prevent interference.

8. Do not touch the front glass during or after cooking of the Grill and convection and Combination mode. This glass is very hot during heater operating.

9. Do not operate the oven at microwave and combination mode with Grill rack placed in the cavity when the oven is empty.



EARTHING INSTRUCTIONS

This oven is designed to be used in a fully earthed condition.
It is imperative, therefore, to make sure it is properly earthed before servicing

WARNING-
THIS APPLIANCE
MUST BE EARTHED

IMPORTANT

The wires in this mains lead are colored in accordance with the following code:

Green-and-yellow:	**Earth**
Blue:	**Neutral**
Brown:	**Live**

As the colors of the wires in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows.

The wire which is colored **green-and-yellow** must be connected to the terminal in the plug which is marked with the letter **E** or by the **earth symbol** (⏚) or colored **green** or **green-and-yellow**.

The wire which is colored **blue** must be connected to the terminal in the plug which is marked with the letter **N** or colored **black**.

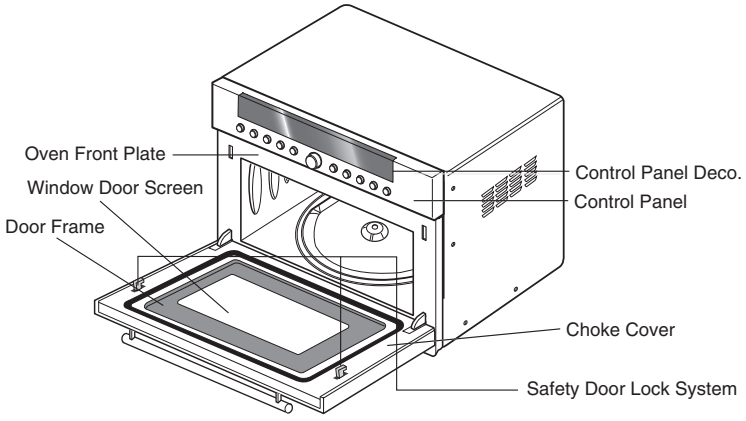
The wire which is colored **brown** must be connected to the terminal in the plug which is marked with the letter **L** or colored **red**.

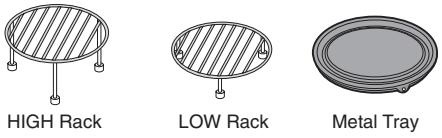
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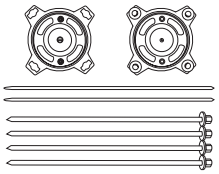
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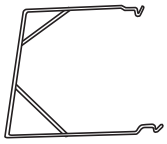
OPERATING INSTRUCTIONS

FEATURES

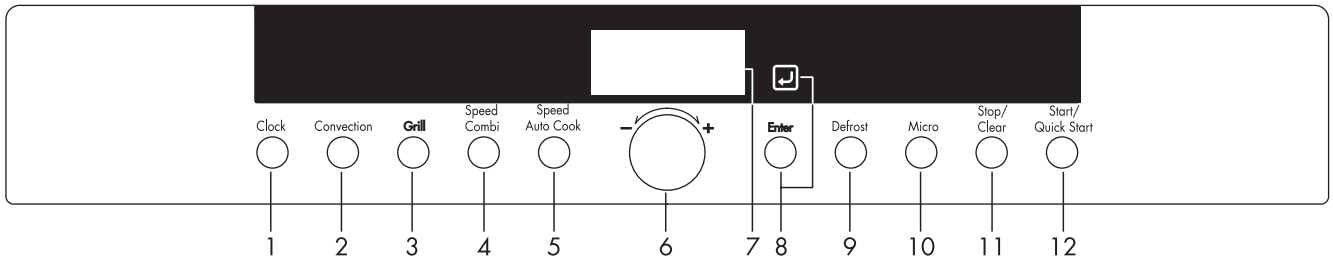





Rotisserie


Handle

CONTROL PANEL



1. Clock: You can set the time of day.

2. Convection: You can select temperature and time of convection.

3. Grill: You can select the grill categories.

4. Speed Combi: You can select the combination categories.

5. Speed Auto Cook: Speed auto cook allows you to cook most of your favorite food quickly by selecting the food type and the weight of the food.

6. Dial Knob:

- You can set cooking times, temperature, weight and cooking categories.
- While cooking with auto and manual function, you can set or change the cooking time at any point by turning the dial knob(except defrost mode).

7. Display Window: You can show time of day, cooking time, power level and cooking categories.

8. Enter: You can determine the selected cooking category, microwave power level or temperature.

9. Defrost: You can select the food type and the weight of the food.

10. Micro: You can select five power level settings.

11. Stop/Clear: You can stop over and clear all entries except time of day.

12. Start/Quick Start:

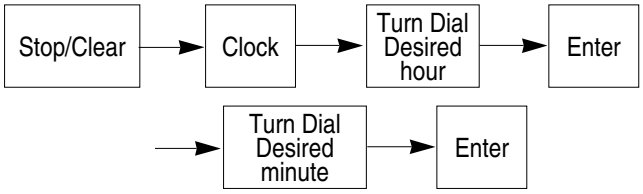
- In order to start cooking which is selected, press button one time.
- The quick start feature allows you to set 30 second intervals of HIGH power cooking with a touch of the quick start button.

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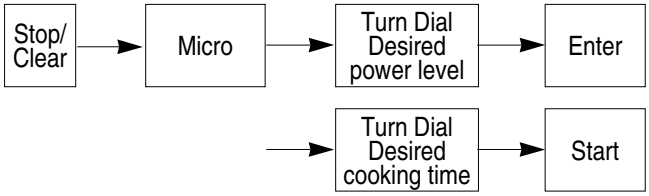
OPERATING SEQUENCE

The following is a description of component functions during oven operation.

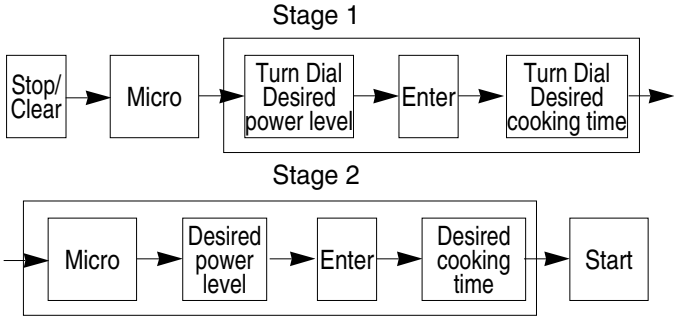
1. SETTING THE CLOCK



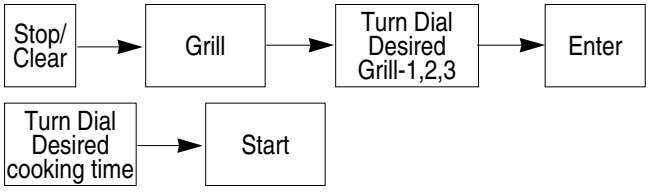
2. MICROWAVE COOKING



3. MULTI STAGE COOKING (MICROWAVE)



4. GRILL COOKING

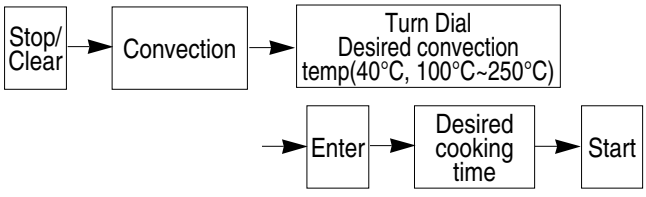


*Grill Categories

Grill-1	Upper Heater (1550W)
Grill-2	Upper Heater (1100W)
Grill-3	Lower Heater (700W)

5. CONVECTION COOKING

To cook

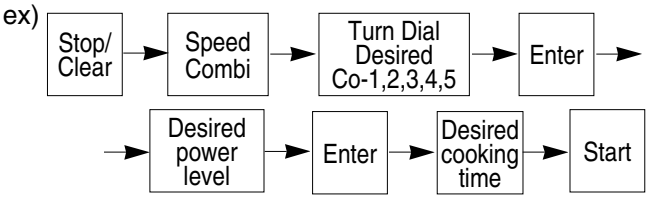


6. SPEED COMBI COOKING

*Speed combi Categories

Co-1	Grill-1 + Microwave Power
Co-2	Grill-2 + Microwave Power
Co-3	Grill-3 + Microwave Power
Co-4	Upper Heater (1550W) + Lower Heater + Microwave power
Co-5	Upper Heater (1100W) + Lower Heater + Microwave power

ex)



7. DEFROST



8. SPEED COMBI COOK



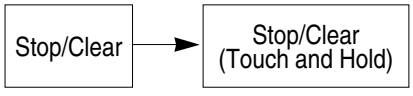
9. SPEED AUTO COOK



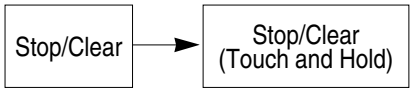
10. CHILD LOCK

This oven has a CHILD LOCK feature.

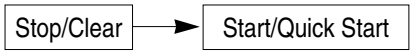
To Set CHILD LOCK



To Cancel CHILD LOCK



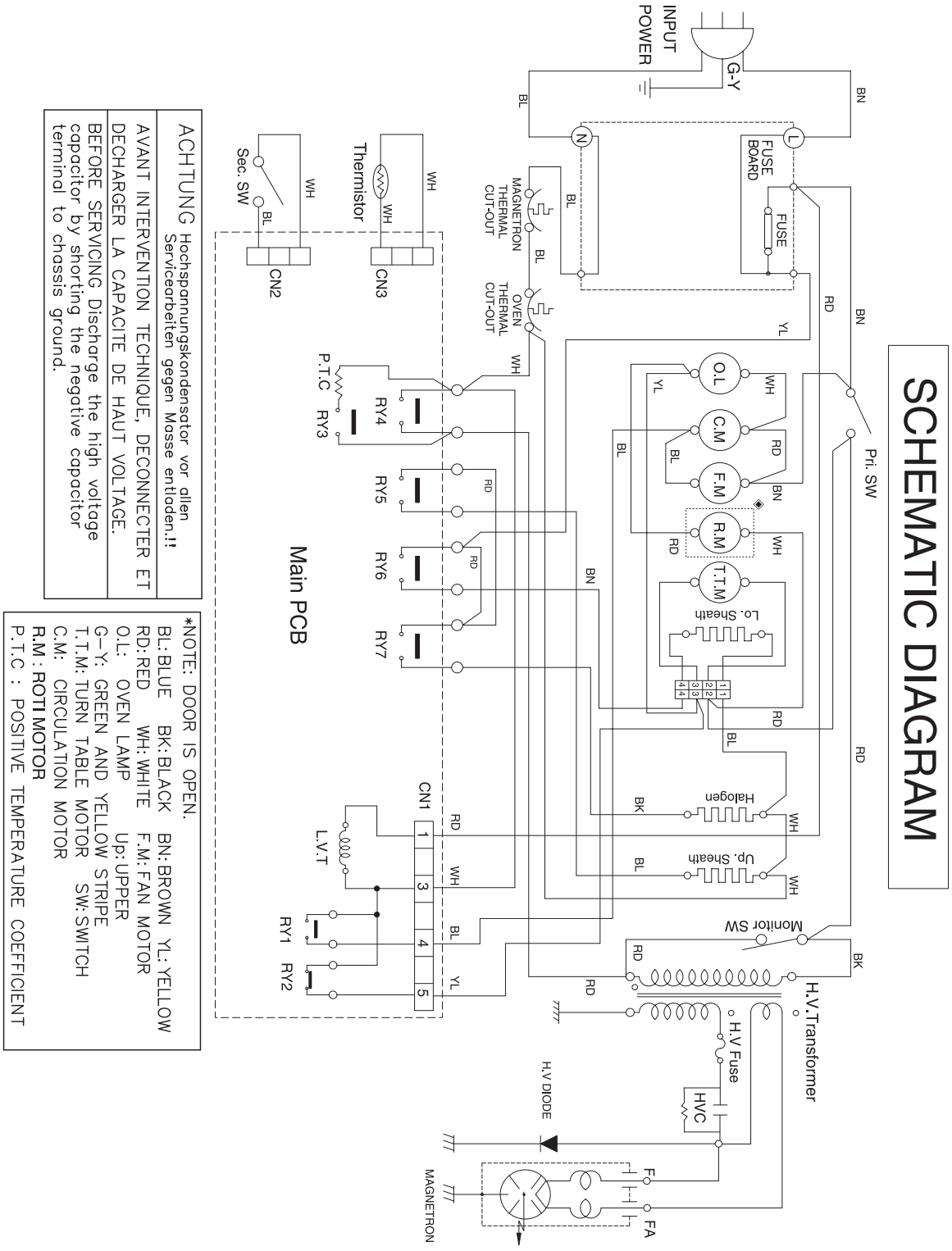
11. QUICK START



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SCHEMATIC DIAGRAM



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CIRCUIT DESCRIPTION

GENERAL DETAILS

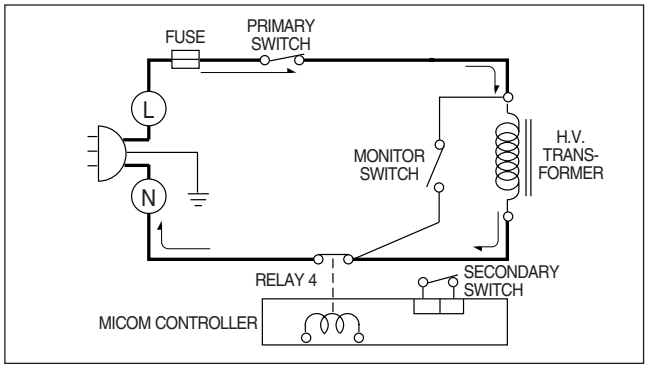
- The low voltage transformer supplies the necessary voltage to the micom controller when power cord is plugged in.
- When the door is closed, the primary switch is ON, the secondary switch is ON, and the monitor switch opens (contact COM and NO).

WHEN SELECTING COOKING POWER LEVEL AND TIME

- The micom controller memorizes the function you set.
- The time you set appears in the display window.
- Each indicator light turns on to indicate that the stage has been set.

WHEN TOUCHING THE START BUTTON

- The coil of the relay is energized by the micom controller.
- Power input is supplied to the high voltage transformer through the fuse to the primary switch and relay 4.
- Turntable rotates.



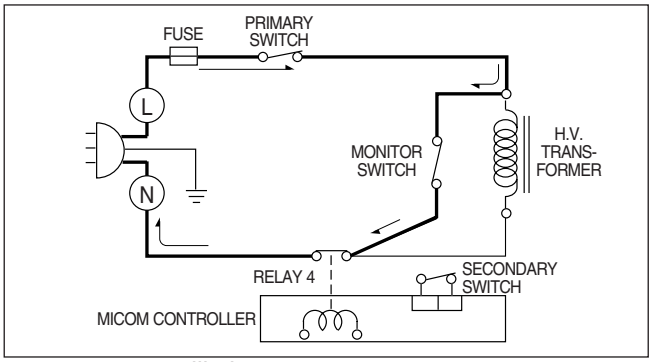
- The fan motor rotates and cools the magnetron by blowing the air (coming from the intake on the back cover).
- The air is also directed into the oven to exhaust the vapor in the oven through the upper plate.
- Cooking time starts counting down.
- 3.3 volts AC is generated from the filament winding of the high voltage transformer. This 3.3 volts is applied to the magnetron to heat the magnetron filament through two noise-preventing choke coils.
- A high voltage of approximately 2100 volts AC is generated in the secondary of the high voltage transformer which is increased by the action of the high voltage diode and charging of the high voltage capacitor.
- The negative 4000 Volts DC is applied to the filament of the magnetron.

WHEN THE OVEN IS SET AT ANY LEVEL EXCEPT MAXIMUM.

- The micom controller controls the ON-OFF time of relay 4 by the applied signal to vary the average output power of oven as POWER LEVEL. (refer to page 1-1)
- One complete cycle of relay 4 is 32 seconds.

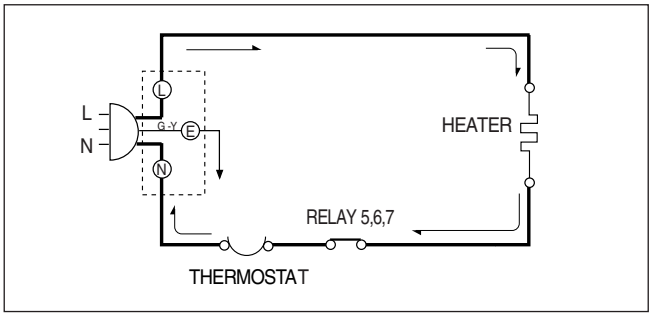
WHEN THE DOOR IS OPENED DURING COOKING

- Both the primary switch and relay 4 are cut off primary winding voltage of the high voltage transformer.
- ON-OFF of relay 4 is coupled electrically with opening and closing of the secondary switch.
- When the door is opened, the secondary switch is opened and when the door is closed, the secondary switch is closed.
- The cooking time stops counting down.
- Relay stops functioning.
- As the door is opened, if the contact of primary switch and relay 4 and/or secondary switch fails to open, the fuse opens due to the large current surge caused by the monitor switch activation, which in turn stops magnetron oscillation.



WHEN TOUCHING THE START BUTTON WITH THE HEATER COOKING FUNCTION SELECTED

- The contacts of the primary switch and the secondary switch close the circuit.
- A.C. voltage is applied to the heater through thermostat as shown by the solid line.



- Turntable rotates.
- The fan motor rotates.
- The air is also directed into the oven to exhaust the vapor in the oven through the base plate and back plate.

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SERVICE INFORMATION

TOOLS AND MEASURING INSTRUMENTS

NECESSARY TOOLS

Tools normally used for TV servicing are sufficient.
Standard tools are listed below.

- Diagonal pliers
- Long nose pliers
- Phillips screwdriver
- Flat blade screwdriver
- Wrench (size 5mm)
- Nutdriver (size 5mm)
- Adjustable wrench
- Soldering iron
- Solder
- Vinyl insulation tape
- Polishing cloth

NECESSARY MEASURING INSTRUMENTS

- TESTER(VOLTS-DC, AC., Ohmmeter)
- Microwave survey meter
  - Holaday HI-1500
    HI-1501
  - Narda 8100
    8200
- Inch scale
- 600 cc non conductive material beaker (glass or plastic), inside diameter: approx. 8.5 cm($3^1/_2$ in.)
- Cylindrical and made of borosilicate glass vessel.
  max. thickness: 3 mm
  outside diameter: approx. 190mm
  height: approx. 90mm
- Glass thermometer: 100°C or 212°F (1 deg scale)

MICROWAVE LEAKAGE TEST

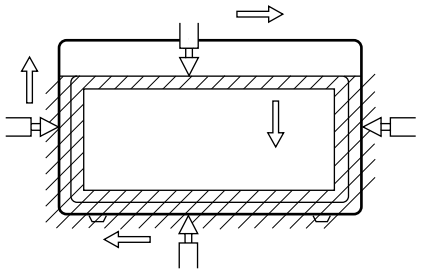
CAUTIONS

- **Be sure to check microwave leakage prior to servicing the oven if the oven is operative prior to servicing.**
- **The service personnel should inform the manufacture importer, or assembler of any certified oven unit found to have a microwave emission level in excess of 5 mW/cm²** and should repair any unit found to have excessive emission levels at no cost to the owner and should ascertain the cause of the excessive leakage. The service personnel should instruct the owner not to use the unit until the oven has been brought into compliance.
- **If the oven operates with the door open, the service personnel should:**
  - Tell the user not to operate the oven.
  - Contact the manufacturer.
- The service personnel should check all surface and vent openings for microwave leakage.
- Check for microwave leakage after every servicing. The power density of the microwave radiation leakage emitted by the oven should not exceed 4 mW/cm². Always start measuring of an unknown field to assure safety for operating personnel from radiation leakage.

MEASURING MICROWAVE ENERGY LEAKAGE

- **Pour 275±15cc of 20±5°C(68±9°F) water in a beaker which is graduated to 600 cc, and place the beaker on the center of the turntable.**
- **Set the energy leakage monitor to 2450 MHz and use it following the manufacturer's recommended test procedure to assure correct result.**
- **When measuring the leakage, always use the 2-inch (5cm) spacer supplied with the probe.**
- **Operate the oven at its maximum output.**
- **Measure the microwave radiation using and electromagnetic radiation monitor by holding the probe perpendicular to the surface being measured**

Move probe along shaded area
//////////////////////////////
Probe scanning speed
Less than 2.5 cm/sec
(1in/sec)

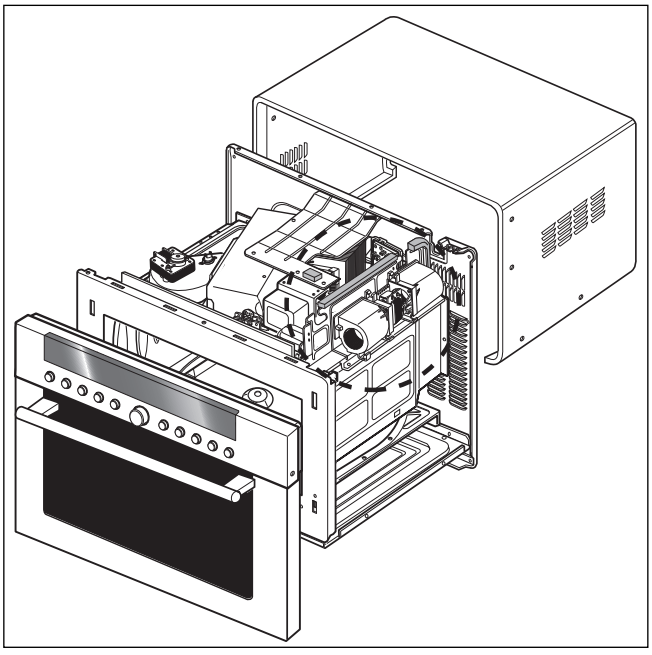


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MEASUREMENT WITH OUTER CASE REMOVED

- When you replace the magnetron, measure for microwave energy leakage before the outer case is installed and after all necessary components are replaced or adjusted.
  Special care should be taken in measuring the following parts. (Circled area of below Fig.)
  - Around the magnetron
  - The waveguide

WARNING : AVOID CONTACTING ANY HIGH VOLTAGE PARTS



MEASUREMENT WITH A FULLY ASSEMBLED OVEN

- After all components, including the outer case, are fully assembled, measure for microwave energy leakage around the door viewing window, the exhaust opening, and air inlet openings.
- Microwave energy leakage must not exceed the values prescribed below.

NOTE: Leakage with the outer case removed less than 5 mW/cm.sq. Leakage for a fully assembled oven (Before the latch switch (primary) is interrupted) with the door in a slightly opened position-less than 2 mW/cm.sq.

NOTES WHEN MEASURING

- Do not exceed meter full scale deflection.
- The test probe must be removed no faster than 1 inch/sec (2.5 cm/sec) along the shaded area, otherwise a false reading may result.
- The test probe must be held with the grip portion of the handle.
  A false reading may result if the operator's hand is between the handle and the probe.
- When testing near a corner of the door, keep the probe perpendicular to the surface making sure the probe is moved horizontally along the oven surface, this may possibly cause probe damage.

RECORD KEEPING AND NOTIFICATION AFTER MEASUREMENT

- After adjustment and repair of any microwave energy interruption or microwave energy blocking device, record the measured values for future reference. Also enter the information on the service invoice.
- The microwave energy leakage should not be more than 4 mW/cm.sq. after determining that all parts are in good condition, functioning properly and genuine replacement parts which are listed in this manual have been used.
- At least once a year, have the electromagnetic energy leakage monitor checked for calibration by its manufacturer.

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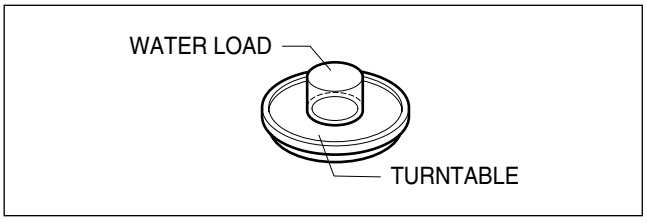
MEASUREMENT OF MICROWAVE POWER OUTPUT

- Microwave power output measurement is made with the oven supplied at its rated voltage and operated at its maximum microwave power setting with a load of (1000 ± 5)g potable water.
- The water is contained in a cylindrical borosilicate glass vessel having a maximum material thickness of 3 mm and an outside diameter of approximately 190 mm.
- The oven and the empty vessel are at ambient temperature prior to the start of the test.
- The initial temperature (±1) of the water is (10±2)°C. It is measured immediately before the water is added to the vessel. After addition of the water to the vessel, the load is immediately placed on the center of the shelf which is in the lowest position and the microwave power switched on.
- The time T for the temperature of the water to rise by a value ΔT of (10±2)°K is measured, where T is the time in seconds and ΔT is the temperature rise. The initial and final water temperatures are selected so that the maximum difference between the final water temperature and the ambient temperature is 5°K.
- The microwave power output P in watts is calculated from the following formula :

$$P = \frac{4187 \times (\Delta T) + 0.55 \times (T_2 - T_0) \times M}{T}$$

  - T_2 : Temperature after heating
  - T_0 : Temperature of bowl
  - M : Weight of bowl

  is measured while the microwave generator is operating at full power. Magnetron filament heat-up time is not included.
- The water is stirred, to equalize temperature throughout the vessel, prior to measuring the final water temperature.
- Stirring devices and measuring instruments are selected in order to minimize addition or removal of heat.



DISASSEMBLY AND ADJUSTMENT

A. OUTER CASE REMOVAL

1) Disconnect the power supply cord from the outlet.
2) Remove the screws from the rear and along side edges of the case.
   The outer case must be moved backward to be lifted off.

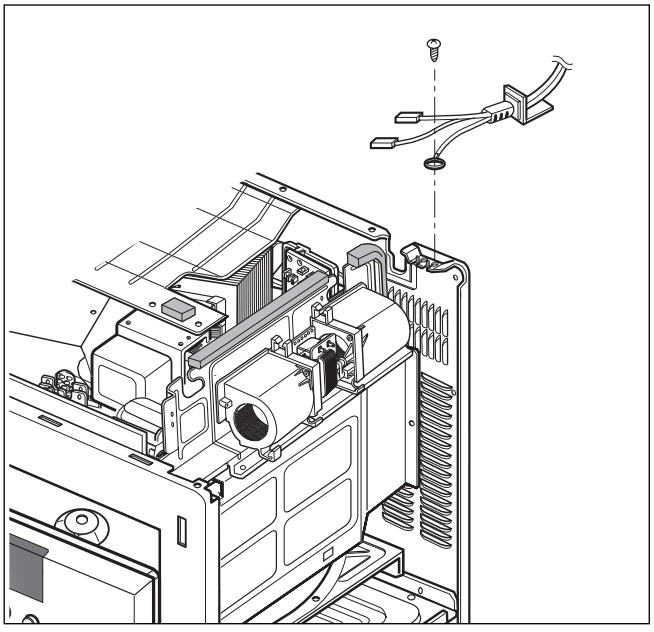
B. POWER SUPPLY CORD

1) Remove the outer case.
2) Disconnect two terminals, and remove one screw of the earth terminal.

CAUTION: DISCHARGE THE HIGH VOLTAGE CAPACITOR BEFORE SERVICING
(refer to page 2-1)

C. CONTROL PANEL ASSEMBLY

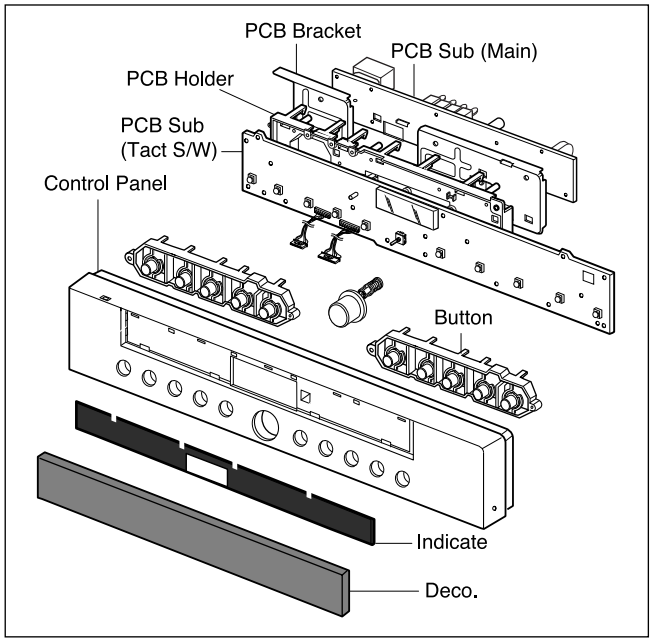
1) Disconnect the leadwire from the PCB sub assembly.
2) Remove the screws for the control bracket and securing the control panel.
3) Remove control panel assembly from the oven by the moving control panel assembly right side.



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D. PCB ASSEMBLY REMOVAL

1) Remove the control panel assembly from the cavity. (Refer to control panel assembly removal on previous page.)
2) Remove screws which hold the PCB sub assembly to the PCB holder.
3) Remove the PCB holder & PCB bracket.
4) Remove screws which hold the control panel.
5) Disconnect the flat cable from the PCB sub assembly and take off the PCB sub assembly.

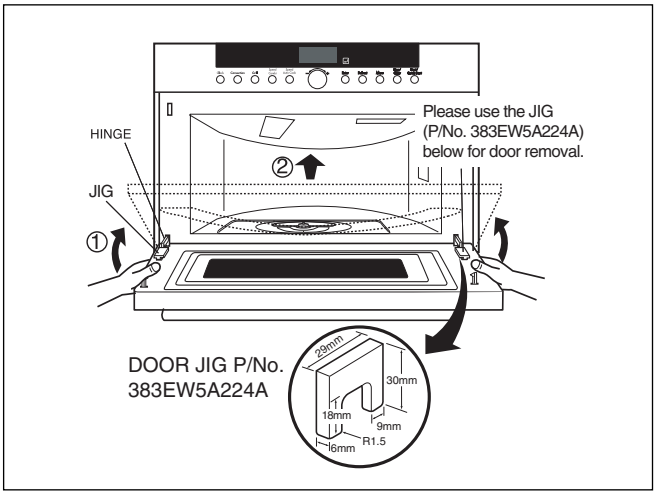


E. DOOR ASSEMBLY / REMOVAL

1) Disconnect the power cord.
2) Open the door from oven. insert “JIG ” into the choke cover hole of door.
3) Lift the door from front cavity.

NOTE:

1. After replacing the door, be sure to check that the primary switch, monitor switch, and secondary switch operate normally.
2. After replacing the door, check for microwave energy leakage with a survey meter. Microwave energy must be below the limit of 5 mW/cm^2. (with a 275 ml water load)
3. When mounting the door assembly to the oven assembly, be sure to adjust the door assembly parallel to the chassis. Also adjust so the door has no play between the inner door surface and oven frame assembly. If the door assembly is not mounted properly, microwaves may leak from the clearance between the door and the oven.



F. BRACKET ASSEMBLY REMOVAL

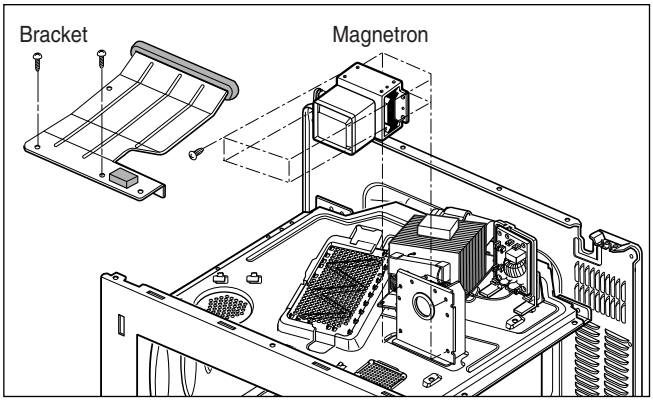
1) Remove screws on the bracket assembly and release a lug.
2) Disconnect the leadwire from thermostat and lift out the bracket assembly.

G. MAGNETRON REMOVAL

1) Remove controller assembly and bracket assembly.
2) Disconnect the leadwire from the high voltage transformer and Magnetron.
3) Carefully remove the mounting screws holding the magnetron and the wave guide.
4) Remove the magnetron until its dome is clear from the wave guide.

NOTE:

1. When removing the magnetron, make sure its dome does not hit any adjacent parts, or it may be damaged.
2. When replacing the magnetron, be sure to install the magnetron gasket in the correct position and be sure that the gasket is in good condition.
3. After replacing the magnetron, check for microwave leakage with a survey meter around the magnetron. Microwave energy must be below the limit of 5 mW/cm^2. (With a 275 ml. water load). **Make sure that gasket is rigidly attached to the magnetron.** To prevent microwave leakage, tighten the mounting screws properly, making sure there is no gap between the waveguide and the magnetron.



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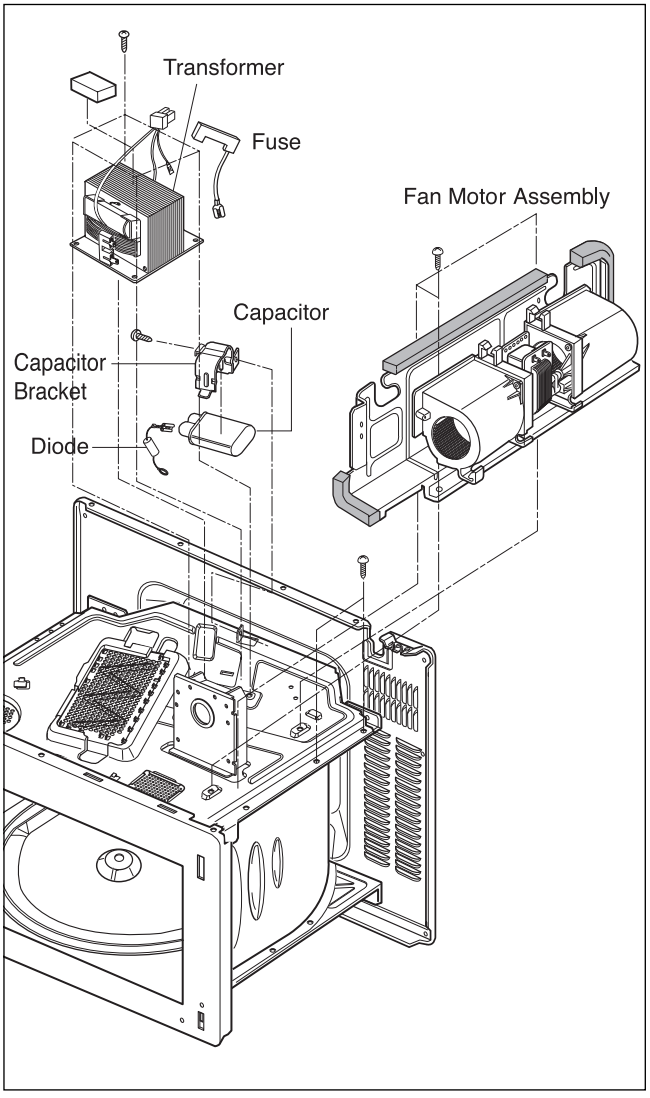
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H. FAN MOTOR ASSEMBLY / REMOVAL

1) Remove controller assembly, bracket assembly, power cord, latch board-R from upper.
2) Disconnect the leadwire from fan motor, latch board-R and noise filter.
3) Remove the three screws holding the fan motor assembly to the oven cavity.
4) Remove the fan motor assembly to the upper plate.

I. HIGH VOLTAGE CAPACITOR, FUSE, TRANSFORMER AND DIODE REMOVAL

1) Discharge the high voltage capacitor.
2) Disconnect the leadwire from transformer, magnetron, Fuse and capacitor.
3) Remove the screw holding the transformer and remove the high voltage diode earth screw.

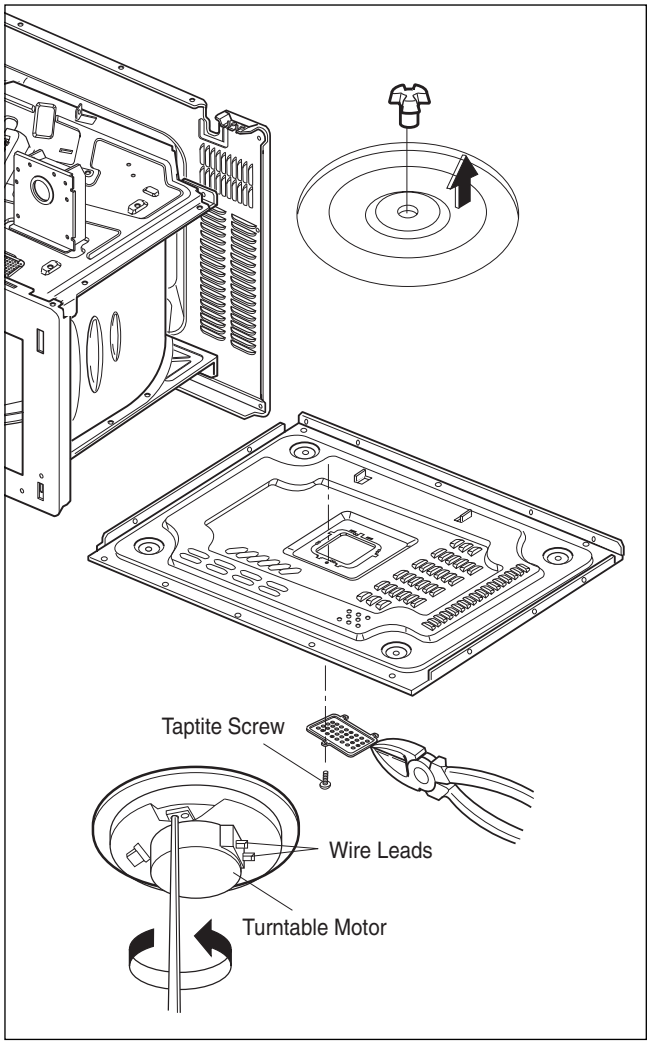


J. REMOVING THE TURNTABLE MOTOR

1) Remove the metal tray.
2) Remove the turntable shaft VERY CAREFULLY.
3) Lay the unit down on its back.
4) Remove the turntable motor cover.
   The turntable base cover is easily removed by pinching the six parts with a wire cutting.
5) Disconnect the leadwire from the turntable motor terminals.
6) Remove the screw securing the turntable motor to the oven cavity assembly.
7) After repairing the motor, rotate the removed turntable motor cover.
8) Fit the turntable motor cover's projecting part to the base plate slit and fasten a screw.
9) The taptite screw shall be used when a turntable motor cover is secured with a screw.

NOTE:

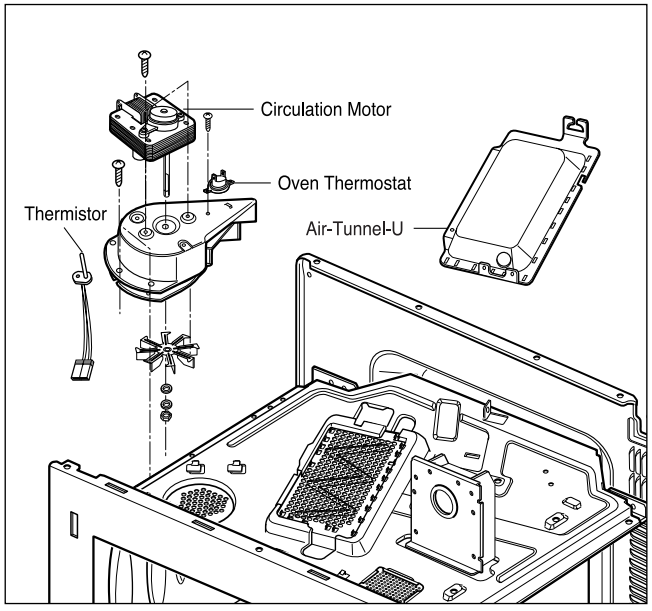
1. Remove the wire lead from the turntable motor VERY CAREFULLY.
2. Be sure to grasp the connector, not the wires, when removing



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K. C-MOTOR, THERMISTOR REMOVAL

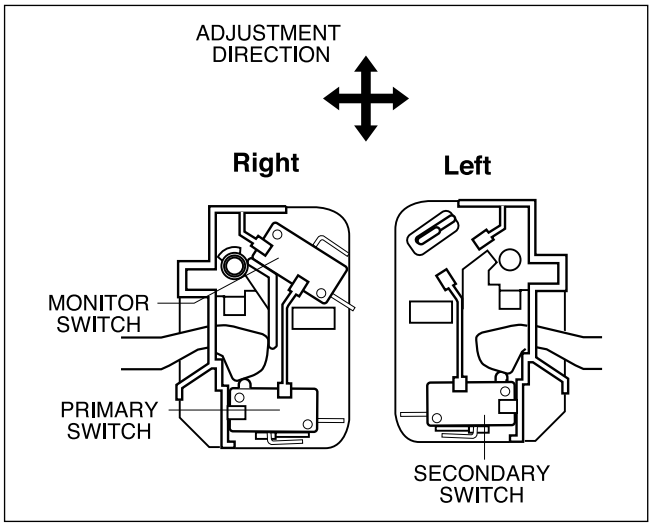
1) Remove controller assembly.
2) Disconnect the leadwire from the circulation motor terminal and oven thermostat.
3) Remove three screws of the air tunnel - U and lift it up.
4) Remove the screws of the thermistor, guide assy-chamber and lift up the guide assy-chamber.
5) Remove a hex nut securing the circulation fan to shaft of the C-motor.
6) Remove screws securing the motor shaft to the guide assy-chamber.
7) Remove hex nut securing the C-motor to the motor shaft.



L. INTERLOCK SYSTEM

1) INTERLOCK MECHANISM
The door lock mechanism is a device which has been specially designed to eliminate microwave activity when the door is opened during cooking and thus to prevent the danger resulting from the microwave leakage.

2) MOUNTING OF THE PRIMARY/MONITOR/ SECONDARY SWITCHES TO THE LATCH BOARD



3) INSTALLATION AND ADJUSTMENT OF THE LATCH BOARD TO THE OVEN ASSEMBLY

- Mount the latch board to the oven assembly.
- Adjust the latch board in the arrow direction so that oven door will not have any play in it when the door is closed.
- Tighten the mounting screw.

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M. UPPER SHEATH HEATER REMOVAL

1) Remove two hex nuts holding the sheath heater.
2) Remove the sheath heater from the oven cavity.

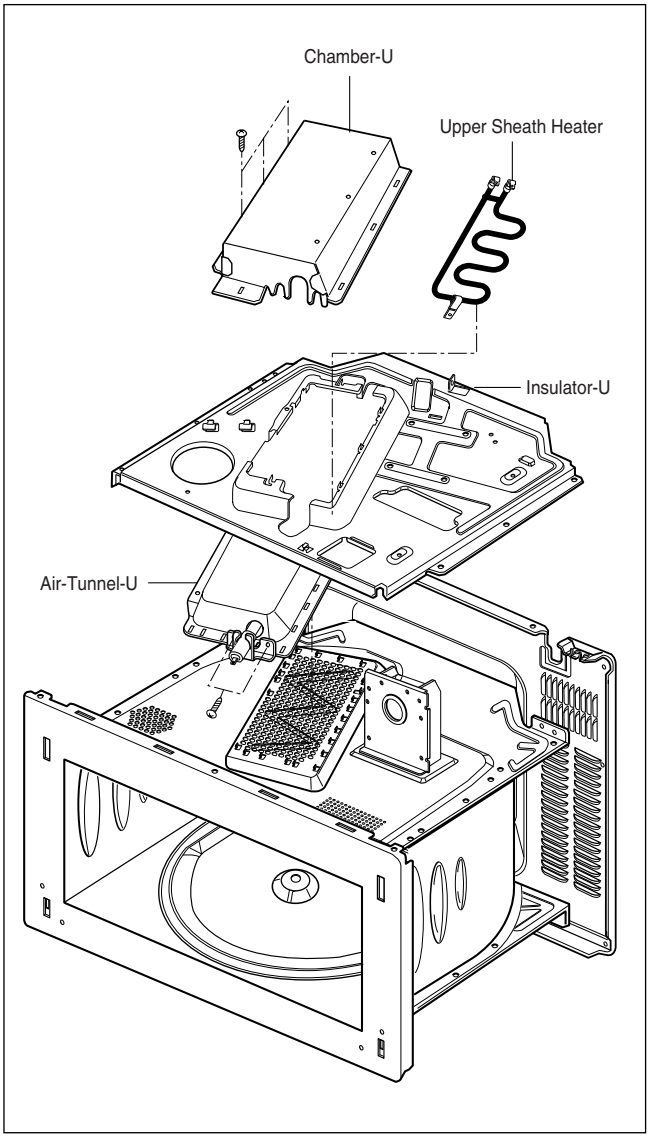
N. UPPER HALOGEN HEATER REMOVAL

• If there are broken glass pieces between the reflector and the oven cavity.

1) Remove the magnetron, air tunnel and fan motor assembly.
2) Remove the latch boards and air tunnel - L/R.
3) Remove two screws holding the insulator - U to the back plate and lift it up.
4) Remove the heater holder.
5) Remove the reflector and glass pieces.

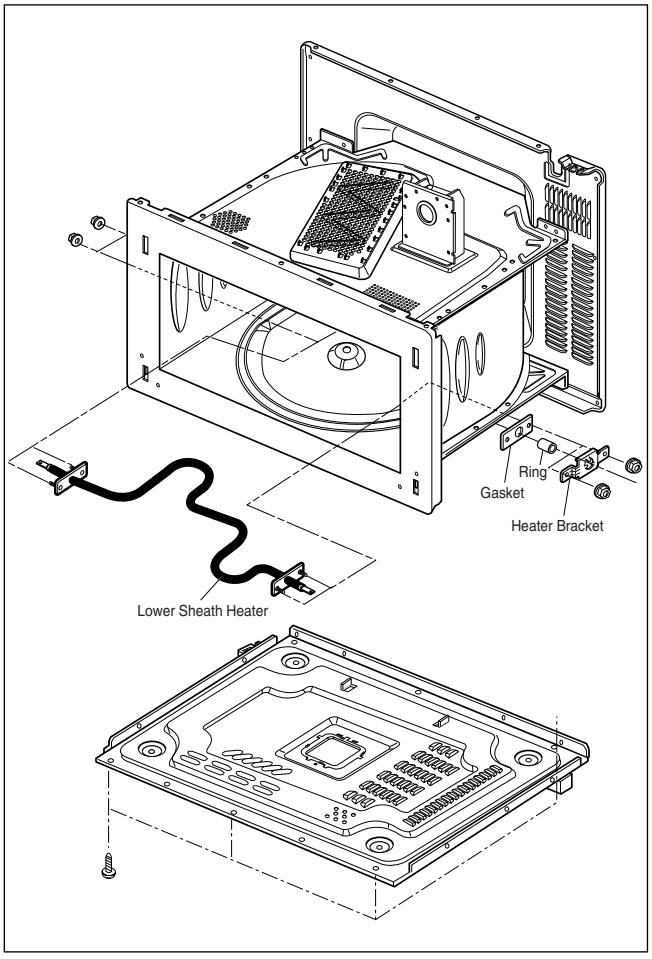
• If the hologen heater isn't broken.

1) Remove the heater holder and halogen heater.



O. LOWER HEATER REMOVAL

1) Disconnect the leadwire from the sheath heater.
2) Remove the base plate from cavity.
3) Remove the nuts from the oven cavity of the side.
4) Remove the gasket, ring and heater bracket.
5) Remove the sheath heater in the oven cavity.



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INTERLOCK CONTINUITY TEST

WARNING : FOR CONTINUED PROTECTION AGAINST EXCESSIVE RADIATION EMISSION, REPLACE ONLY WITH IDENTICAL REPLACEMENT PARTS.

TYPE NO. SZM-V 16-FA-63 FOR PRIMARY SWITCH
TYPE NO. SZM-V 16-FA-62 FOR MONITOR SWITCH
TYPE NO. SZM-V 16-FA-63 FOR SECONDARY SWITCH

A. PRIMARY INTERLOCK SWITCH TEST

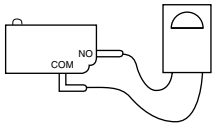
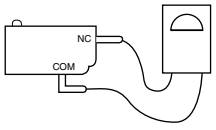
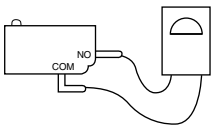
When the door is closed slowly an audible **click** should be heard at the same time or successively at intervals. When the door is opened slowly, the latches should activate the switches with an audible **click**.
If the latches do not activate the switches when the door is closed, the switches should be a adjusted in accordance with the adjustment procedure. Disconnect the wire lead from the primary switch. Connect the ohmmeter leads to the common (COM) and normally open (NO) terminal of the switch. The meter should indicate an open circuit in the door open condition.
When the door is closed, the meter should indicate a closed circuit.
When the primary switch operation is abnormal, make the necessary adjustment or replace the switch only with the same type of switch.

B. SECONDARY INTERLOCK SWITCH TEST

Disconnect the wire lead from the secondary switch.
Connect the ohmmeter leads to the common (COM) and normally open (NO) terminals of the switch. The meter should indicate a open circuit in the door open condition. When the door is closed, meter should indicate an closed circuit. When the secondary switch operation is abnormal, make the necessary adjustment or replace the switch only with the same type of switch.

C. MONITOR SWITCH TEST

Disconnect the wire lead from the monitor switch.
Connect the ohmmeter leads to the common (COM) and normally closed (NC) terminals of the switch. The meter should indicate closed circuit in the door open condition. When the door is closed, meter should indicate an open circuit. When the monitor switch operation is abnormal, replace with the same type of switch.
NOTE: After repairing the door or the interlock system, it is necessary to do this continuity test before operating the oven.

COMPONENTS	TEST PROCEDURE		RESULTS	
SWITCHES (Wire leads removed)	Check for continuity of the switch with a Multi-meter		Door open	Door close
	Primary Switch			
	Monitor Switch			
	Secondary Switch			
	NOTE : After checking for the continuity of switches, make sure that are correctly connected.			

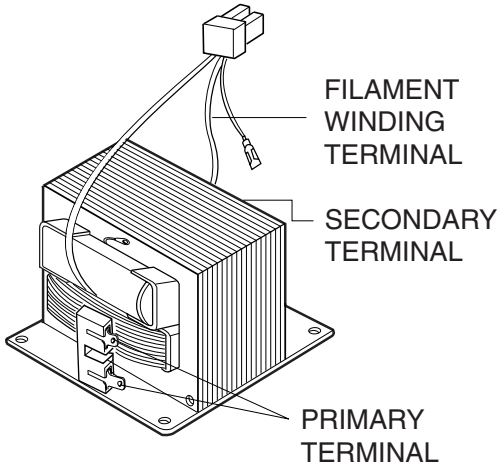
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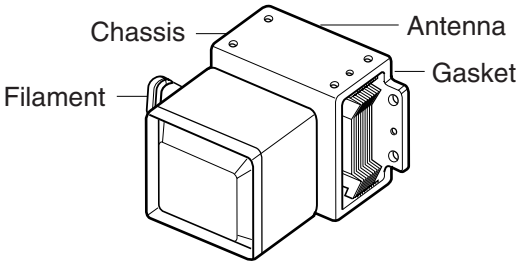
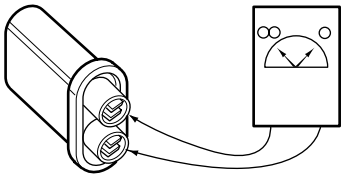
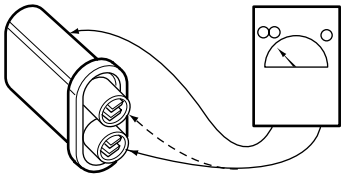
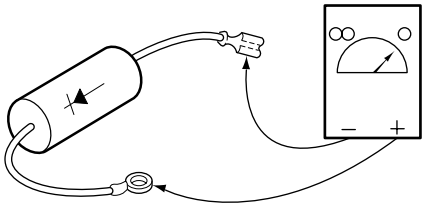
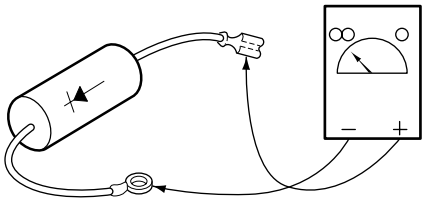
COMPONENT TEST PROCEDURE

CAUTIONS

1. DISCONNECT THE POWER SUPPLY CORD FROM THE OUTLET WHENEVER REMOVING THE OUTER CASE FROM THE UNIT. PROCEED WITH THE TEST ONLY AFTER DISCHARGING THE HIGH VOLTAGE CAPACITOR AND REMOVING THE WIRE LEADS FROM THE PRIMARY WINDING OF THE HIGH VOLTAGE TRANSFORMER. (SEE PAGE 2-1)
2. ALL OPERATIONAL CHECKS WITH MICROWAVE ENERGY MUST BE DONE WITH A LOAD (1 LITER OF WATER IN CONTAINER) IN THE OVEN.

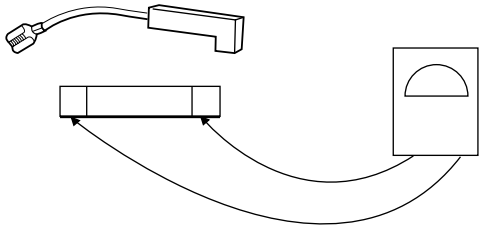
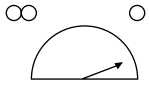
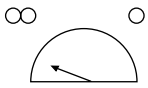
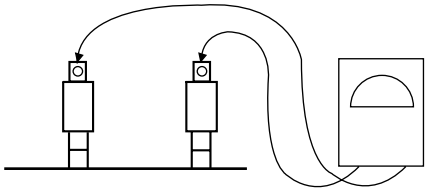
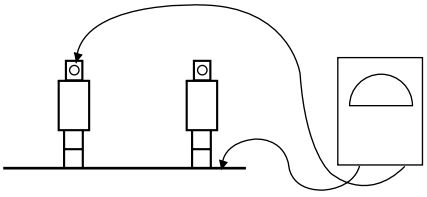
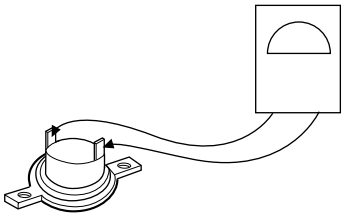
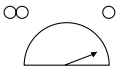
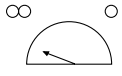
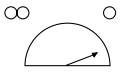
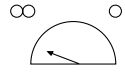
COMPONENTS	TEST PROCEDURE	RESULTS
HIGH VOLTAGE TRANSFORMER (Wire leads removed)		
	1. Measure the resistance. (Ohm-meter scale: Rx1 and Rx100) • Primary winding • Secondary winding • Filament winding	 Approx.: 1.7 ohm Approx.: 130 ohm Less than: 1 ohm
	2. Measure the resistance. (Ohm-meter scale: Rx1000) • Primary winding to ground • Filament winding to ground	 Normal: Infinite Normal: Infinite
MAGNETRON (Wire leads removed)	1. Measure the resistance. (Ohm-meter scale: Rx1) • Filament terminal	Normal: Less than 1 ohm
	2. Measure the resistance. (Ohm-meter scale: Rx1000) • Filament to chassis	Normal: Infinite

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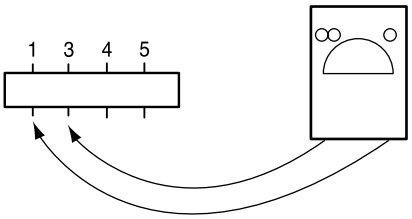
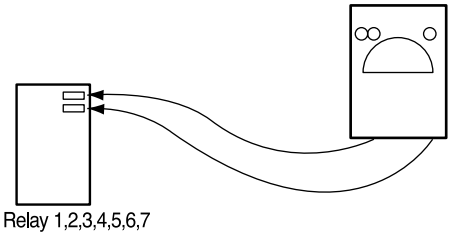
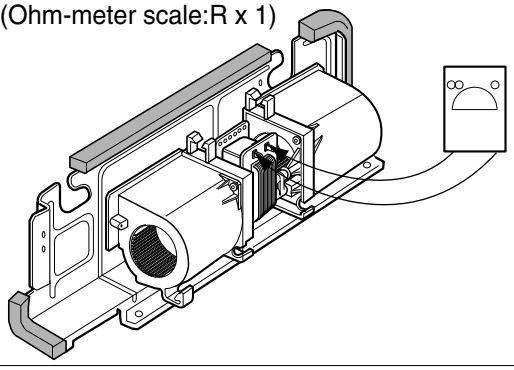
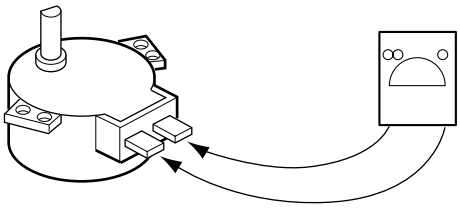
COMPONENTS	TEST PROCEDURE	RESULTS
		
	NOTE: When testing the magnetron, be sure to install the magnetron gasket in the correct position and be sure that the gasket is in good condition.	
HIGH VOLTAGE CAPACITOR	Measure the resistance. (Ohm-meter scale: Rx1000) • Terminal to terminal. 	Normal: Momentarily indicates several ohms, and then gradually returns to infinite.
	Measure the resistance. (Ohm-meter scale: Rx1000) • Terminal to case. 	Normal: Infinite.
HIGH VOLTAGE DIODE NOTE : Some inexpensive meters may indicate infinite resistance in both direction.	Measure the continuity (Forward). (Ohm-meter scale: Rx10000) 	Normal: Continuity. Abnormal: Infinite.
	Measure the continuity (Reverse). (Ohm-meter scale: Rx10000) 	Normal: Infinite. Abnormal: Continuity.

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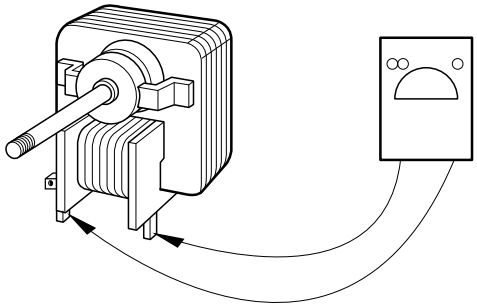
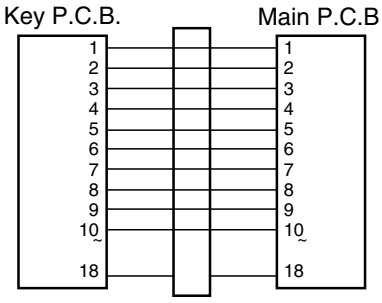
<table>
<tr><th>COMPONENTS</th><th colspan="2">TEST PROCEDURE</th><th colspan="2">RESULTS</th></tr>
<tr><td rowspan="2">FUSE
H.V. FUSE</td><td rowspan="2">Check for continuity of the fuse with an multi-meter.
</td><td>Normal</td><td>Abnormal</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td colspan="3">NOTE: If the fuse is blown, check the primary, the secondary, and the monitor switches, H.V.D. and H.V.C. before replacing the fuse.
If the fuse is blown by improper switch operation replace the defective switch and the fuse at the same time. Replace just the fuse if the switches operate normally.</td></tr>
<tr><td>HEATER ELEMENT
(Wire leads removed.)</td><td>Measure the resistance.
(Multi-meter scale: Rx1)
</td><td colspan="2">Normal:
• Upper sheath heater:
Approx. 47 ohm (230V, 1100W)
• Lower sheath heater:
Approx. 74 ohm (230V, 700W)
• Upper Halogen heater:
Approx. 15 ohm (230V, 450W)
(at 20 ~30°C)</td></tr>
<tr><td rowspan="2"></td><td>Measure the resistance with 500V-100M ohm insulation resistance meter.
</td><td colspan="2">Normal: more than 0.5 Mohm</td></tr>
<tr><td colspan="3">NOTE: Make sure heater is fully cooled when tested.</td></tr>
<tr><td rowspan="4">MAGNETRON and OVEN THERMOSTAT</td><td rowspan="4"></td><td>OVEN Thermostat</td><td>0°C~160°C</td><td>160°C</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>M.G.T Thermostat</td><td>60°C~Approx.110°C</td><td>Over 110°C</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

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COMPONENTS	TEST PROCEDURE	RESULTS
Disconnect the 4 pin connector from P.C.B. (Refer to schematic diagram)	Check for P.C.B.connector. 	Cooking Start:  OFF: 
RELAY OF P.C.B. (Wire leads removed.) Note: Relay Relay 1: Fan motor Circulation motor Relay 2: Oven lamp Turntable motor Rotisserie motor Relay 3: P.T.C Relay (Positive Temperature Coefficient) Relay 4: Microwave Relay 5: Up. sheath heater Relay 6: Lo. sheath heater Relay 7: Halogen Heater	 Relay 1,2,3,4,5,6,7	Cooking Start:  OFF: 
FAN MOTOR (Wire leads removed)	Measure the resistance. (Ohm-meter scale:R x 1) 	Normal: Approx. 60 ohm Abnormal: Infinite or several ohm.
TURNTABLE MOTOR (Wire leads removed)	Measure the resistance. (Ohm-meter scale: R x 1000) 	Normal: Approx. 10~20 kohm Abnormal: Infinite or several ohm.

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COMPONENTS	TEST PROCEDURE	RESULTS
CIRCULATION MOTOR (Wire leads removed)	Measure the resistance. (Multi-meter scale: R x 1) 	Normal : Approx. 170 ohm. Abnormal : Infinite or several ohm.
KEY PCB		Check continuity between switch terminals, by pressing an appropriate pad on key board. The contacts assignment of the respective pads on the key board is as shown left figures.

NOTE : A MICROWAVE ENERGY LEAKAGE TEST MUST ALWAYS BE PERFORMED WHEN THE UNIT IS SERVICED FOR ANY REASON.
MAKE SURE THE WIRE LEADS ARE CORRECT POSITION.
WHEN REMOVING THE WIRE LEAD FROM THE PARTS, BE SURE TO GRASP THE CONNECTOR, NOT THE WIRES.

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TROUBLE SHOOTING

WHEN YOU GET A COMPLAINT FROM YOUR CUSTOMER, EVALUATE THE COMPLAINT CAREFULLY. IF THE FOLLOWING SYMPTOMS APPLY, PLEASE INSTRUCT THE CUSTOMER IN THE PROPER USE OF THE OVEN. THIS CAN ELIMINATE AN UNNECESSARY SERVICE CALL.

CAUTIONS

1. Check grounding before checking for trouble.
2. Be careful of the high voltage circuit.
3. Discharge the high voltage capacitor. (See page 2-1)
4. When checking the continuity of the switches or of the high voltage transformer, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.
5. Do not touch any part of the circuitry on the digital programmer circuit since static electric discharge may damage this control panel.
   Always touch yourself ground while working on this panel to discharge any static charge built up in your body.

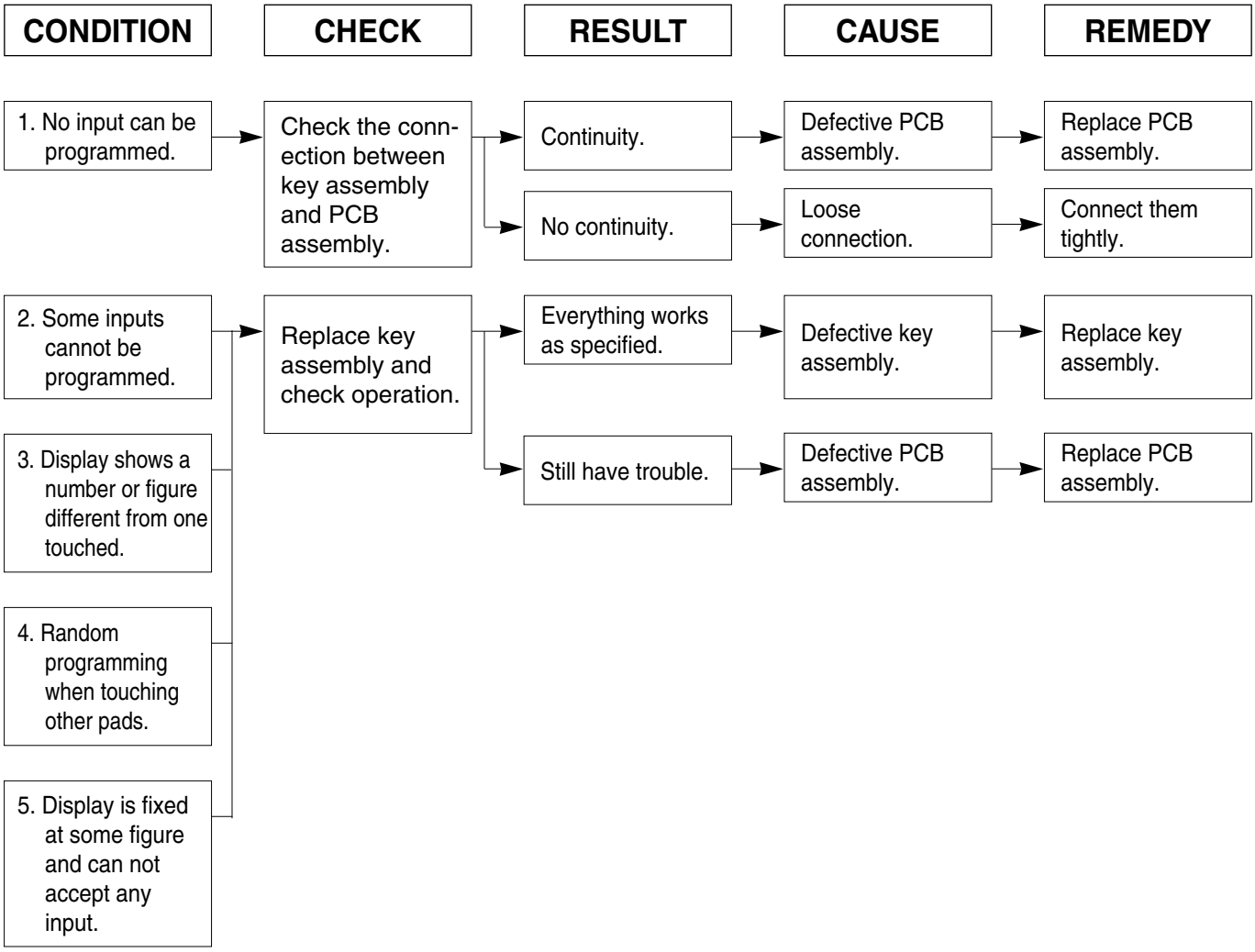
CONDITION	CAUSE	REMEDY
The oven does not work.	Inserting many plug into one plug outlet and using them at the same time (causes overloading).	Avoid using other electrical appliances when you use the oven.
	The oven plug is not inserted tightly.	Insert the oven plug securely.
Output power is too low.	Low AC input voltage.	Use the oven at adequate line voltage.
	Food temperature is too low.	This may not be a defect. It is possible that the food should be cooked for a longer time period.
Sparks occurring.	Using metallic ware and allowing it to touch the oven wall.	Do not use metallic ware for cooking except where noted in the cooking guide.
	Ceramic ware trimmed in gold or silver powder is used.	Do not use any type of cookware with metallic trimming.
Uneven cooking.	Inconsistent intensity of microwave by their characteristics.	1. Wrap the thinner part with aluminum foil. 2. Use plastic wrap or lid. 3. Stir once or twice while cooking soup, cocoa or milk, etc.

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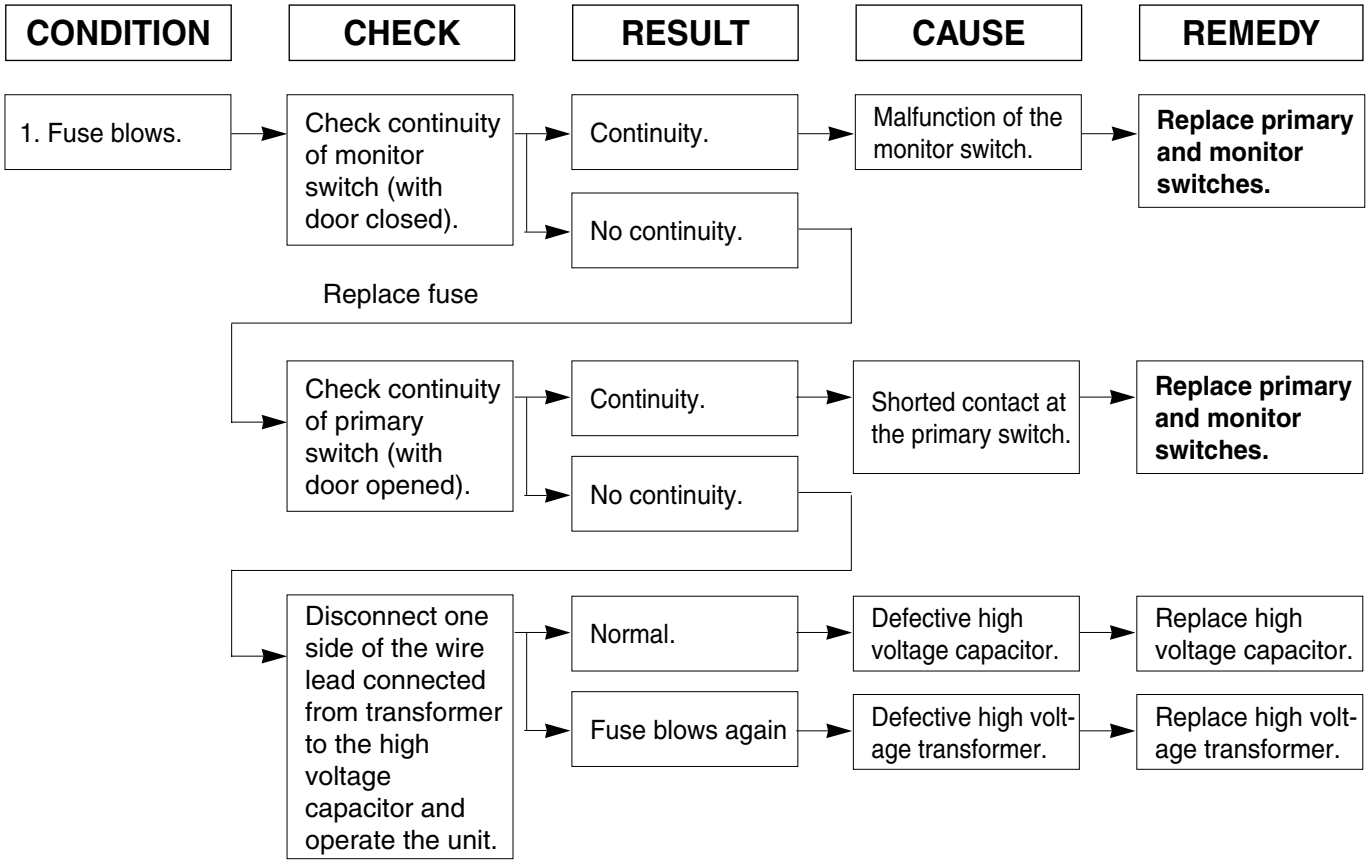
(TROUBLE 1) The following visual conditions indicate a probable defective control circuit.

1. Incomplete segments.
   - Segment missing.
   - Partial segment missing.
   - Digit flickering (NOTE: Slight flickering is normal.)
2. Colon does not turn on or blink.
3. A distinct change in the brightness of one or more numbers in display.
4. One or more digits in the display are not lighting.
5. Display does not count down with time blinking or up with clock operation.
6. Display obviously jumps in time while counting down.
7. Display counts down too fast while cooking.
8. Each indicator light does not turn on after setting cooking cycle.
9. Display time of day does not reappear when cooking is finished.
10. Beep sound is not heard when correct key is touched.

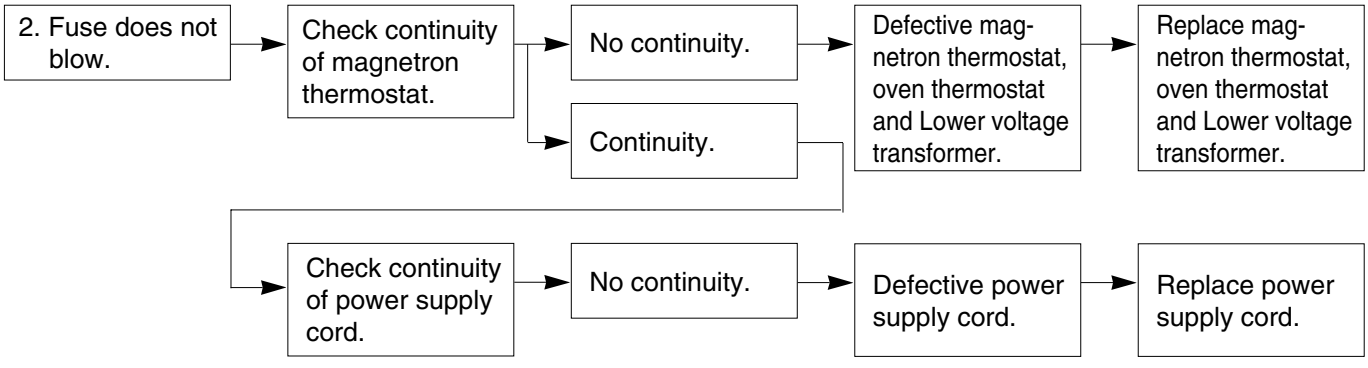


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(TROUBLE 2) Oven does not operate at all ; Display window does not display any figures and no input is accepted.



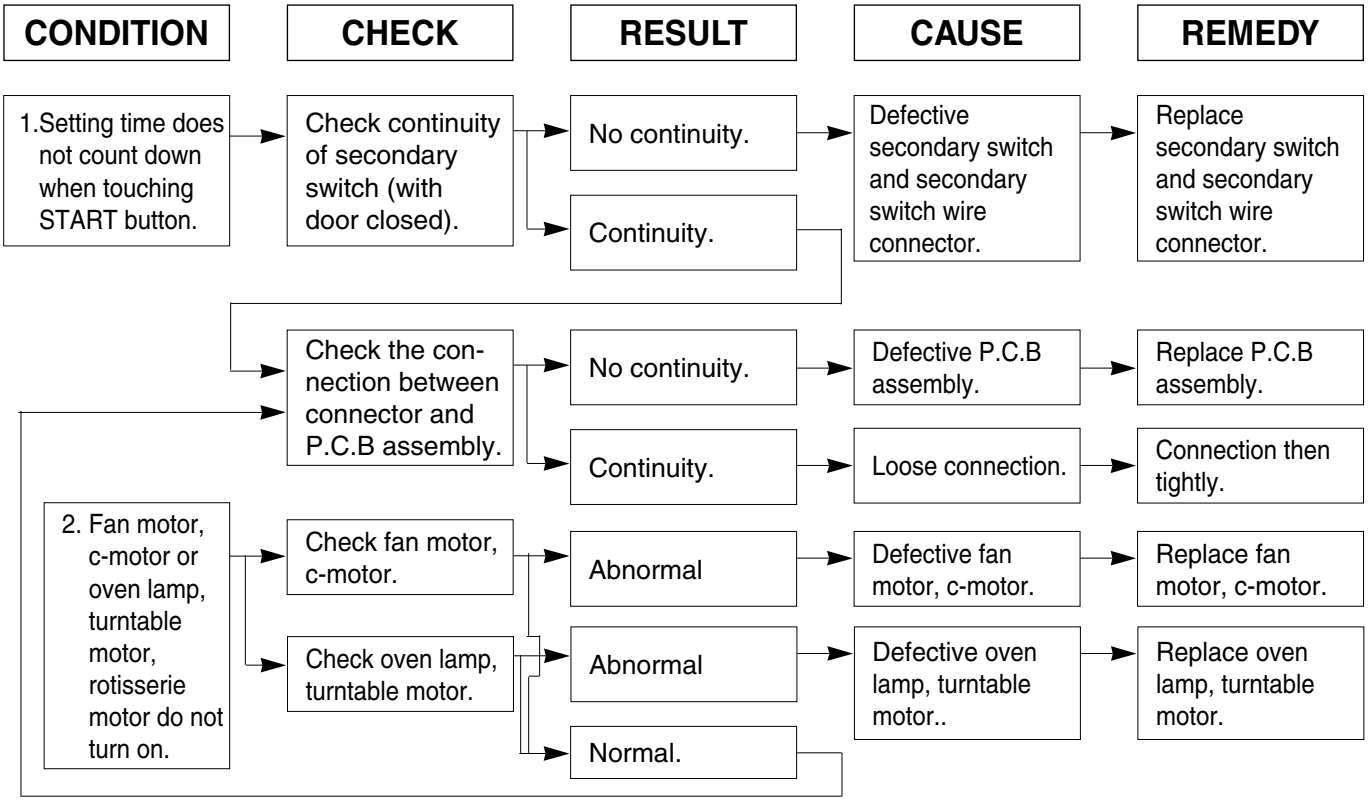
NOTE : All these switches must be replaced at the same time. Refer to page 5-6, 5-8



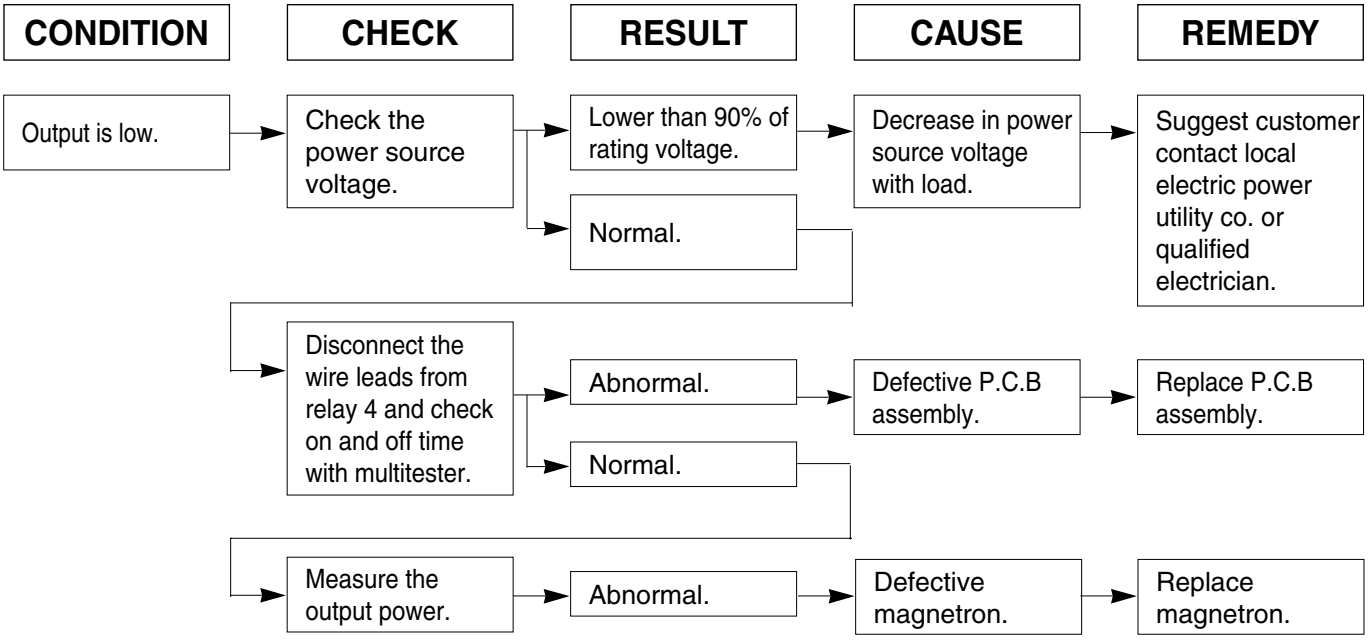
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(TROUBLE 3) Display shows all figures set, but oven does not start cooking while desired program times are set and START button is touched.



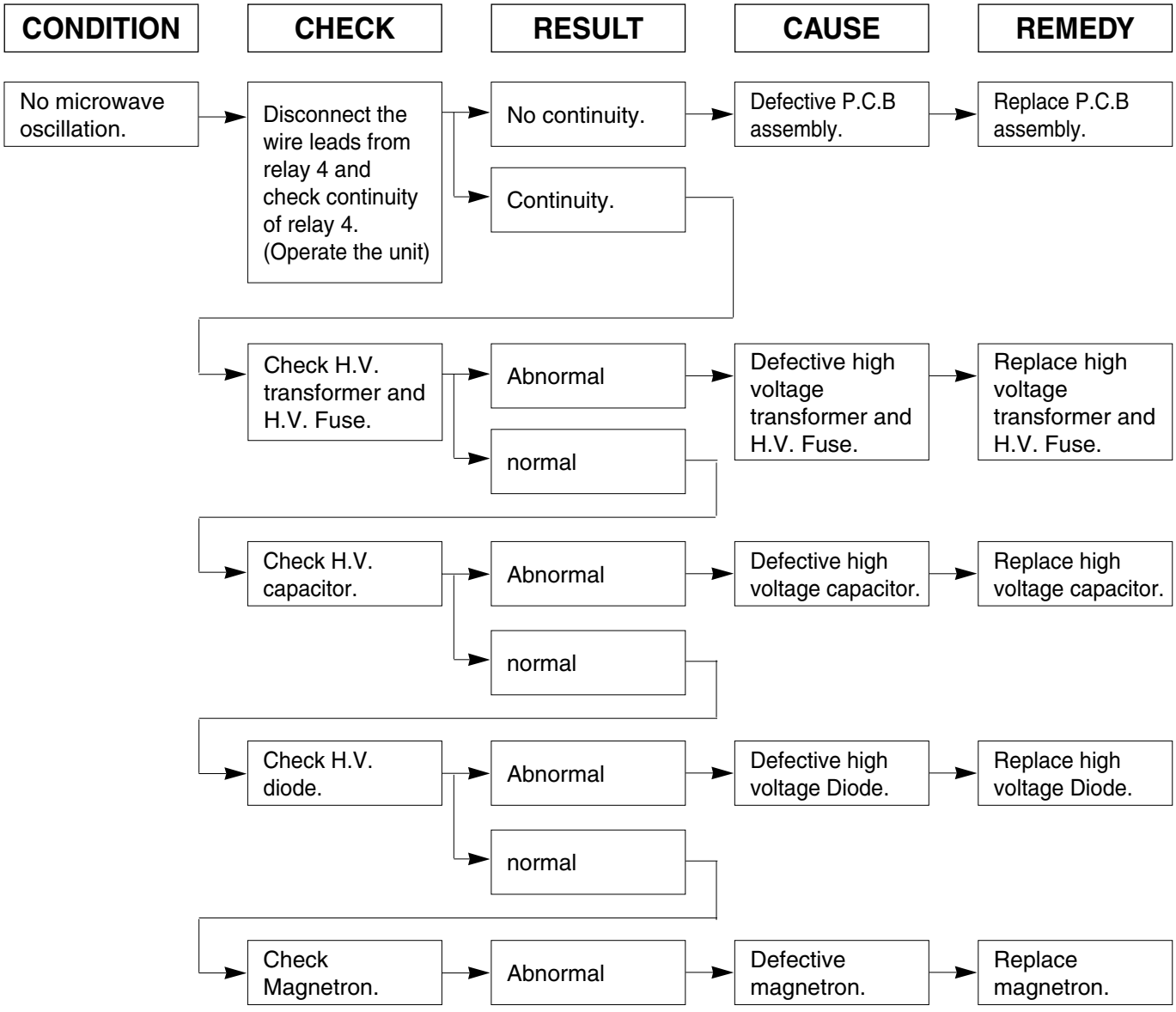
(TROUBLE 4) Oven seems to be operation but little heat is produced in oven load.



NOTE: Simple test of power output-conducted by heating one liter water for one min. if available.
Minimum 8.5°C temperature rise is normal condition.

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(TROUBLE 5) No microwave oscillation even though oven lamp and fan motor run. (Display operates properly)



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(TROUBLE 6) Oven does not cook properly when programmed for the set power level (Operates properly on HIGH)

CONDITION	CHECK	RESULT	CAUSE	REMEDY
Output is full when you set lower power level.	Disconnect the wire leads from relay 4 and check continuity relay 4. (Operate the unit)	Abnormal.	Defective P.C.B assembly.	Replace P.C.B assembly.

(TROUBLE 7) Heater → Relay 5- Up. sheath Heater
Relay 6- Lo. sheath Heater
Relay 7- Halogen Heater

CONDITION	CHECK	RESULT	CAUSE	REMEDY
1. Heater is not operating.	Heater.	Abnormal.	Malfunction of the heater.	Replace.
		Normal.		
	Thermostat and relay 5, 6, 7.	Abnormal	Malfunction of the thermostat and relay 5, 6, 7	Replace.
		Normal.		
	Wire connection.	No continuity.	Open or loosen.	Replace or connect tightly.
2. Lower temperature the oven.	Heater.	Abnormal.	Malfunction of the heater.	Replace.
		Normal.		
	Thermostat and relay 5, 6, 7.	Abnormal	Malfunction of the thermostat and relay 5, 6, 7	Replace.

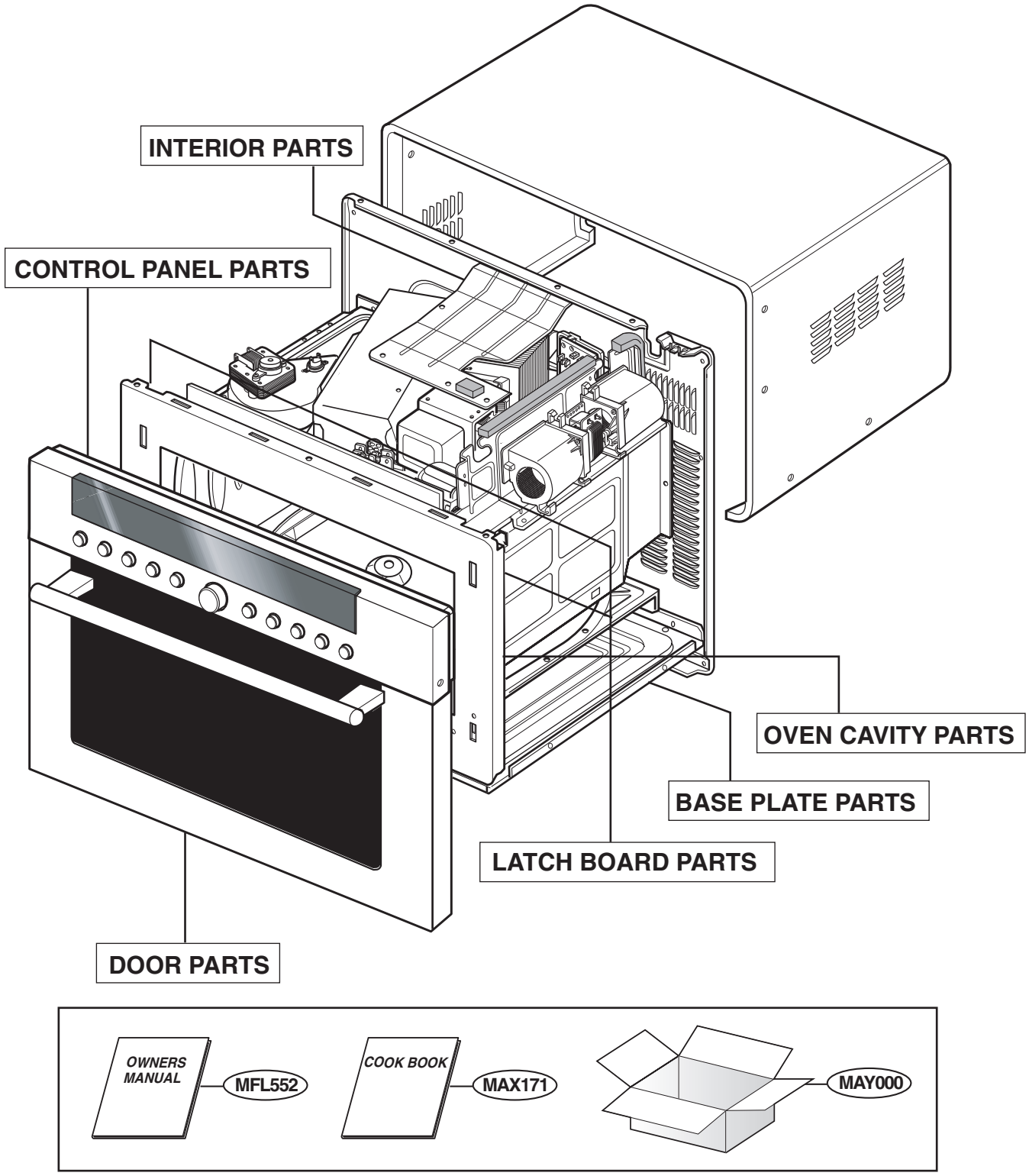
NOTE: * Make sure the wire leads are in the correct position.
* When removing the wire leads from parts, Be sure to grasp the connector not the wires.
* When removing the magnetron, be sure to install the magnetron gasket in the correct position and in good condition.

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EXPLODED VIEW

INTRODUCTION

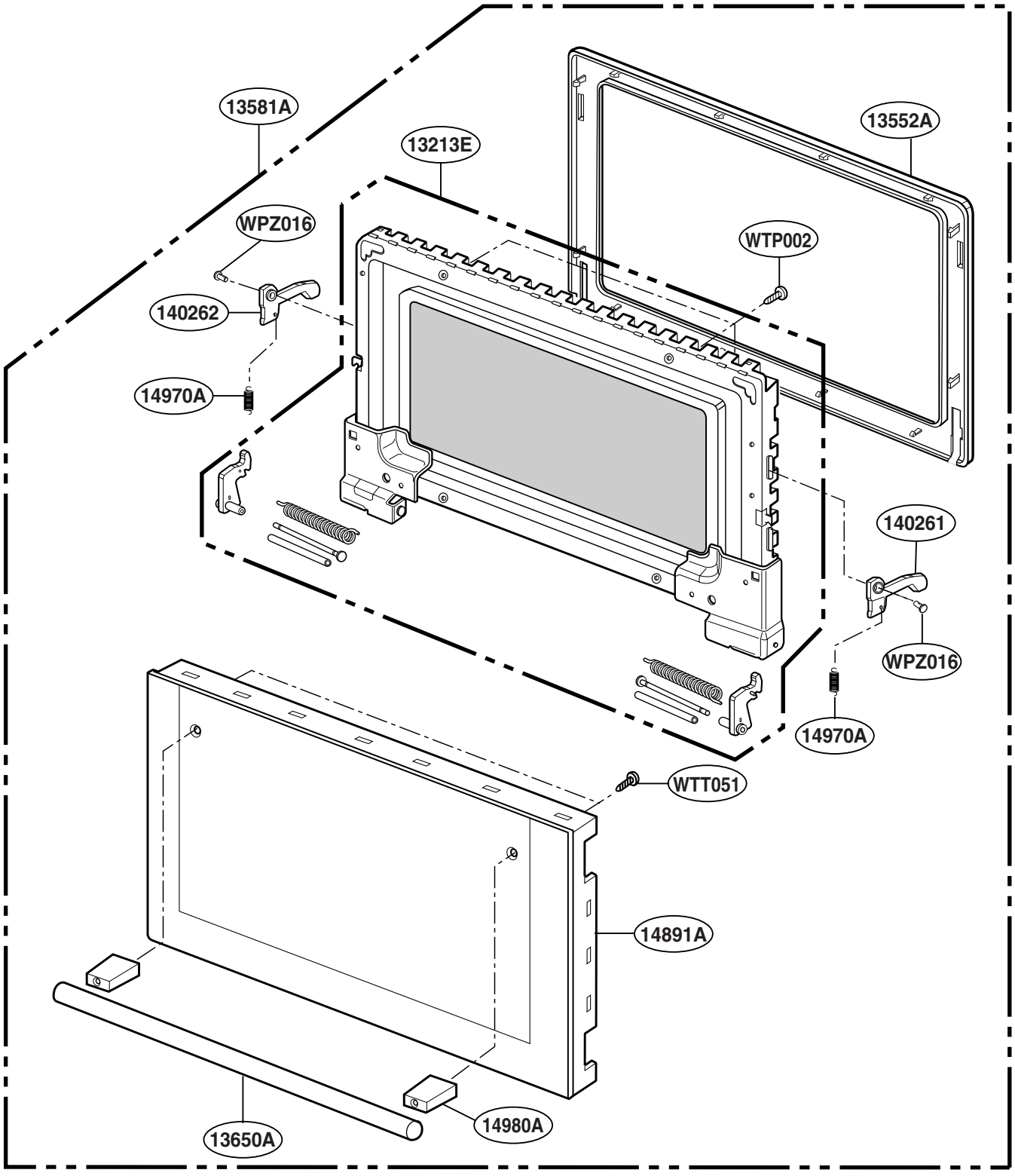
MODEL: MP9485FR



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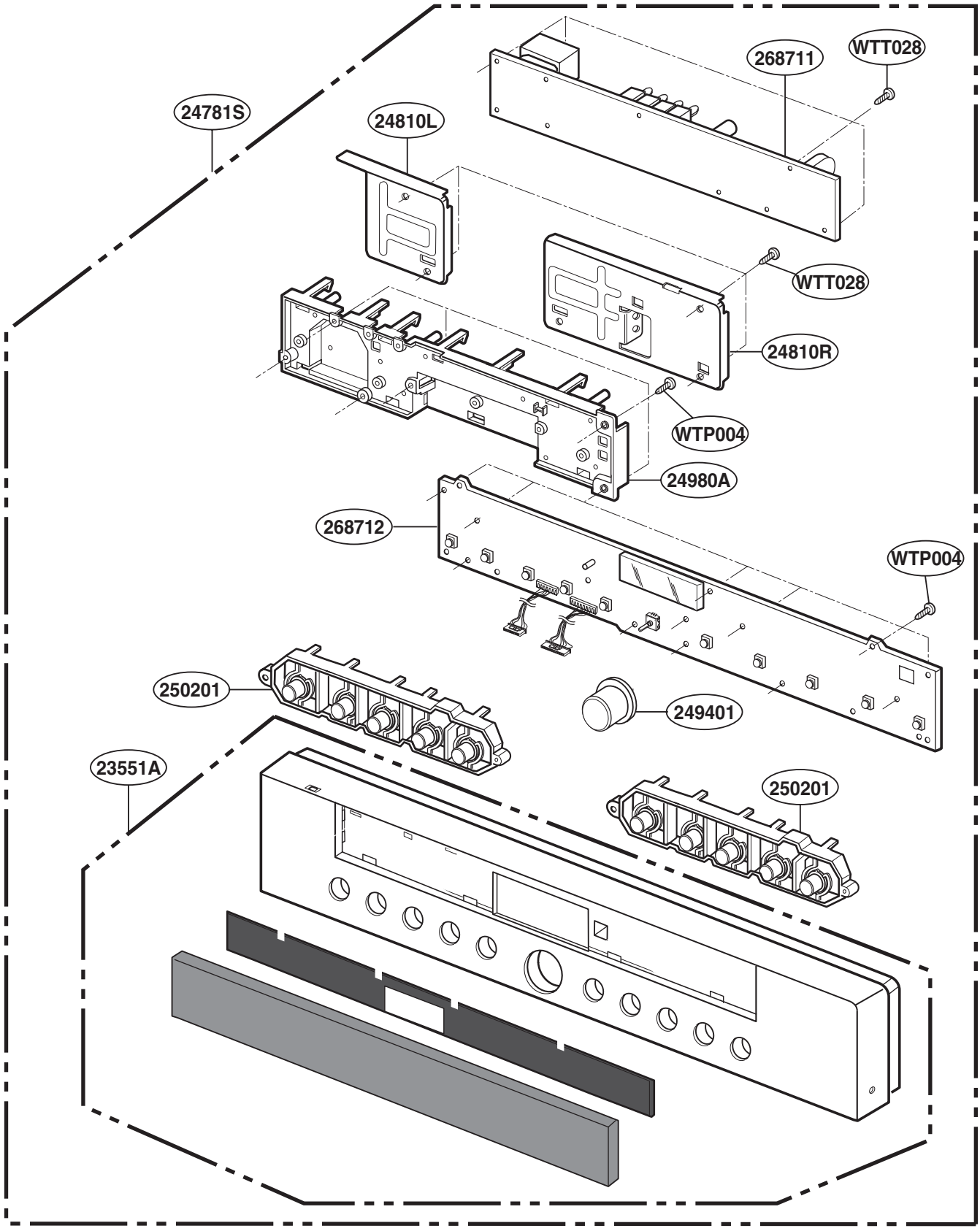
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DOOR PARTS



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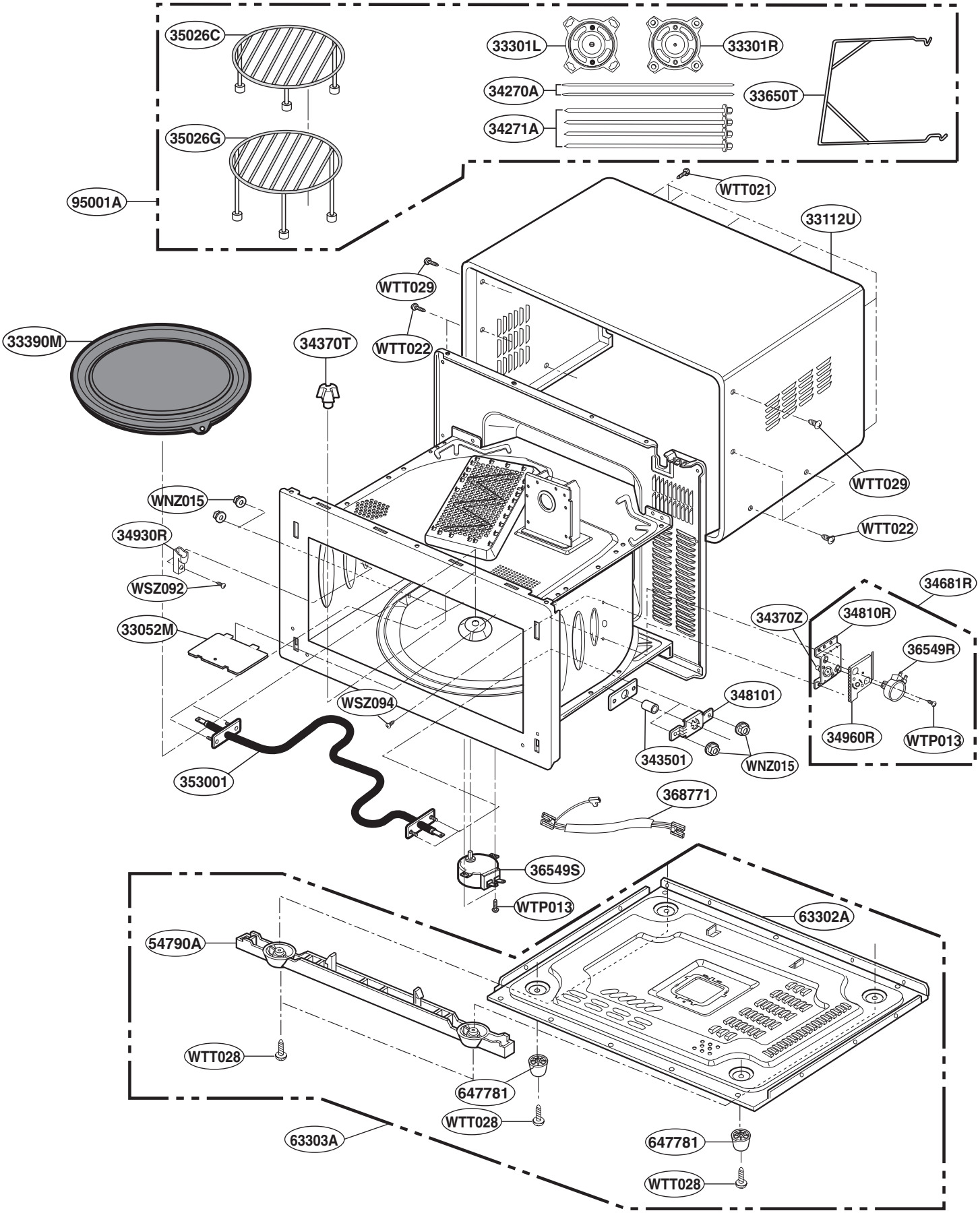
CONTROL PANEL PARTS



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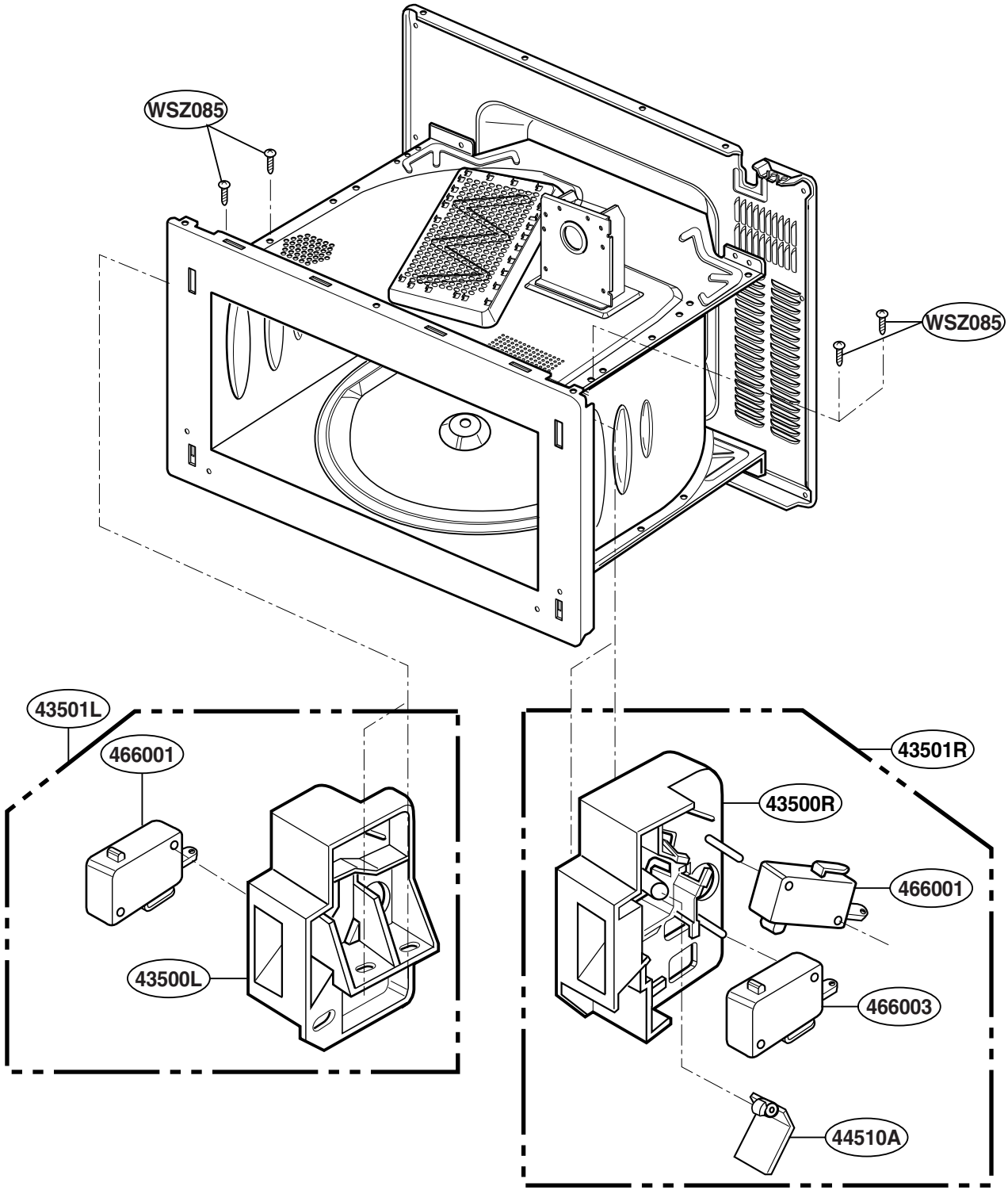
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OVEN CAVITY PARTS



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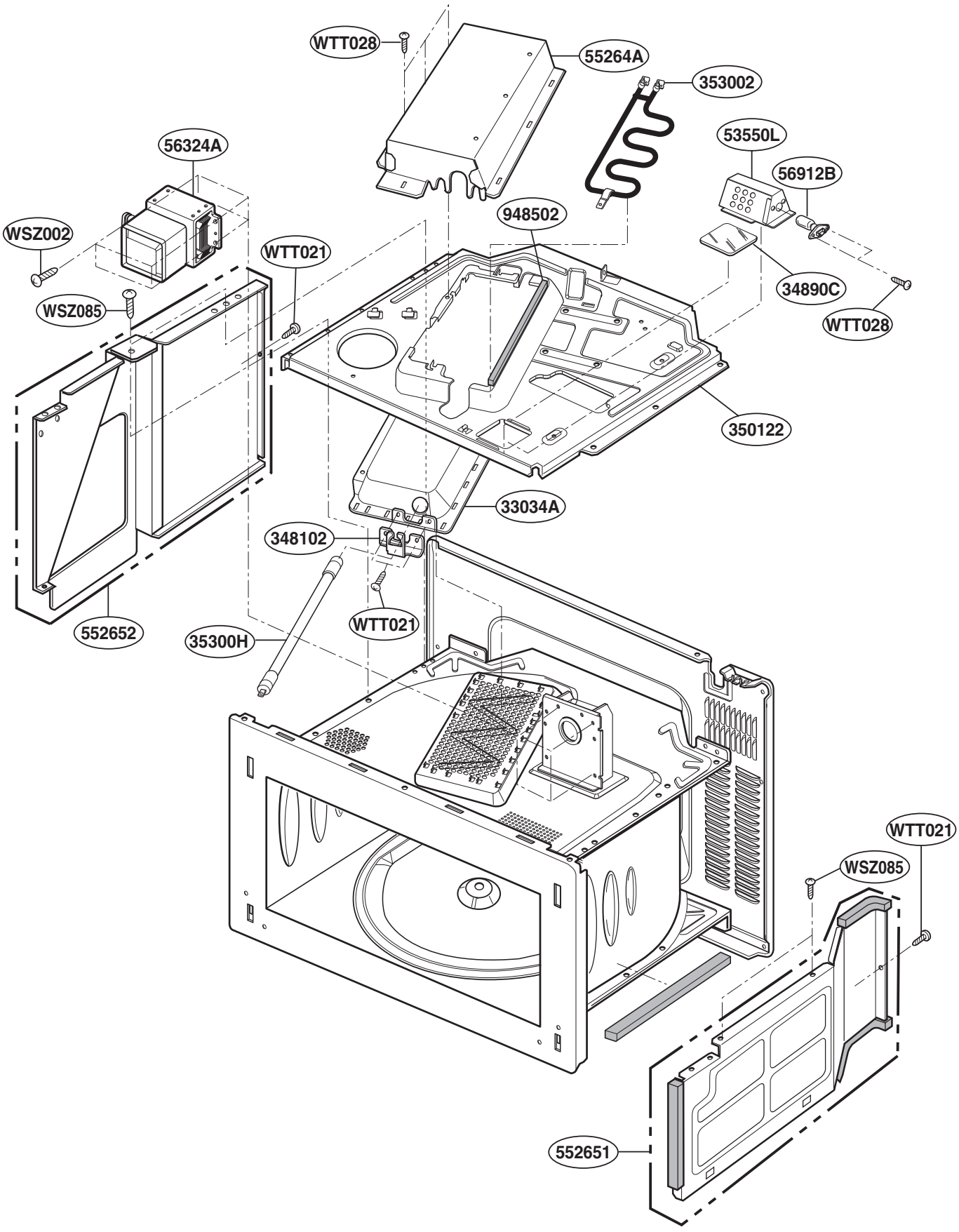
LATCH BOARD PARTS



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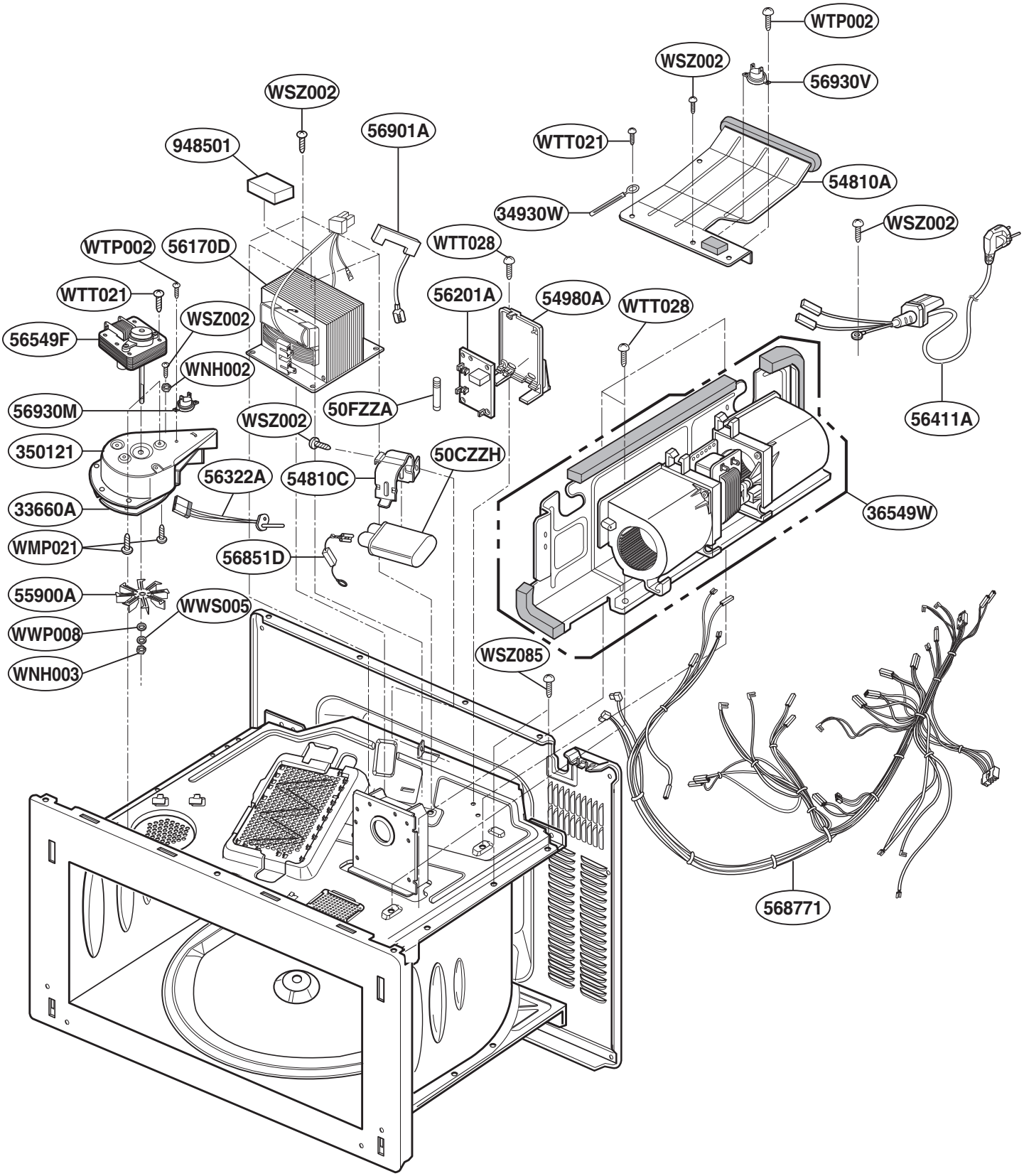
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