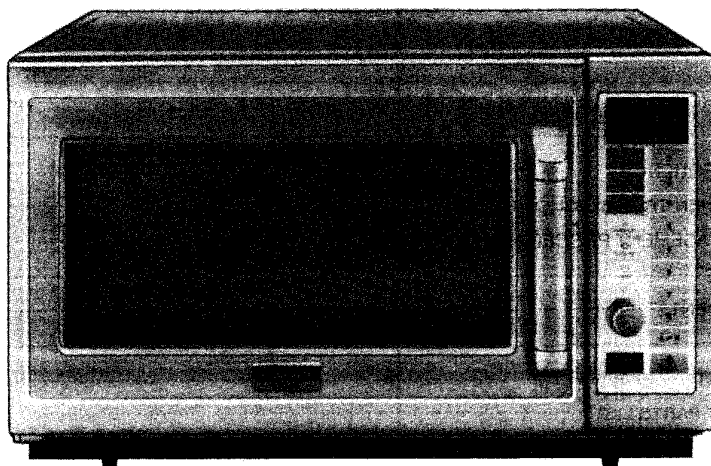


Service Manual

Microwave Oven
NE-C1453



Specifications

Power Source :	230 V AC Single Phase 50 Hz
Power Requirement :	3,300 W·····Max 2,570 W·····Microwave 1,950 W·····Grill 1,950 W·····Convection
Output :	1,350 W·····Full Microwave Power (IEC-705) 1,840 W·····Grill 1,800 W·····Convection Heater
Microwave Frequency :	2,450 MHz
Outside Dimensions :	600 mm (W) × 484 mm (D) × 374 mm (H)
Oven Cavity Dimensions :	406 mm (W) × 336 mm (D) × 217 mm (H)
Weight :	38.0 kg
Specifications subject to change without notice.	

WARNING

- * This product should be serviced only by trained, qualified personnel.
- * This service manual covers products for following markets.
When troubleshooting or replacing parts, please refer to the country identifications shown below for your applicable product specification.
EPG.....For Continental Europe

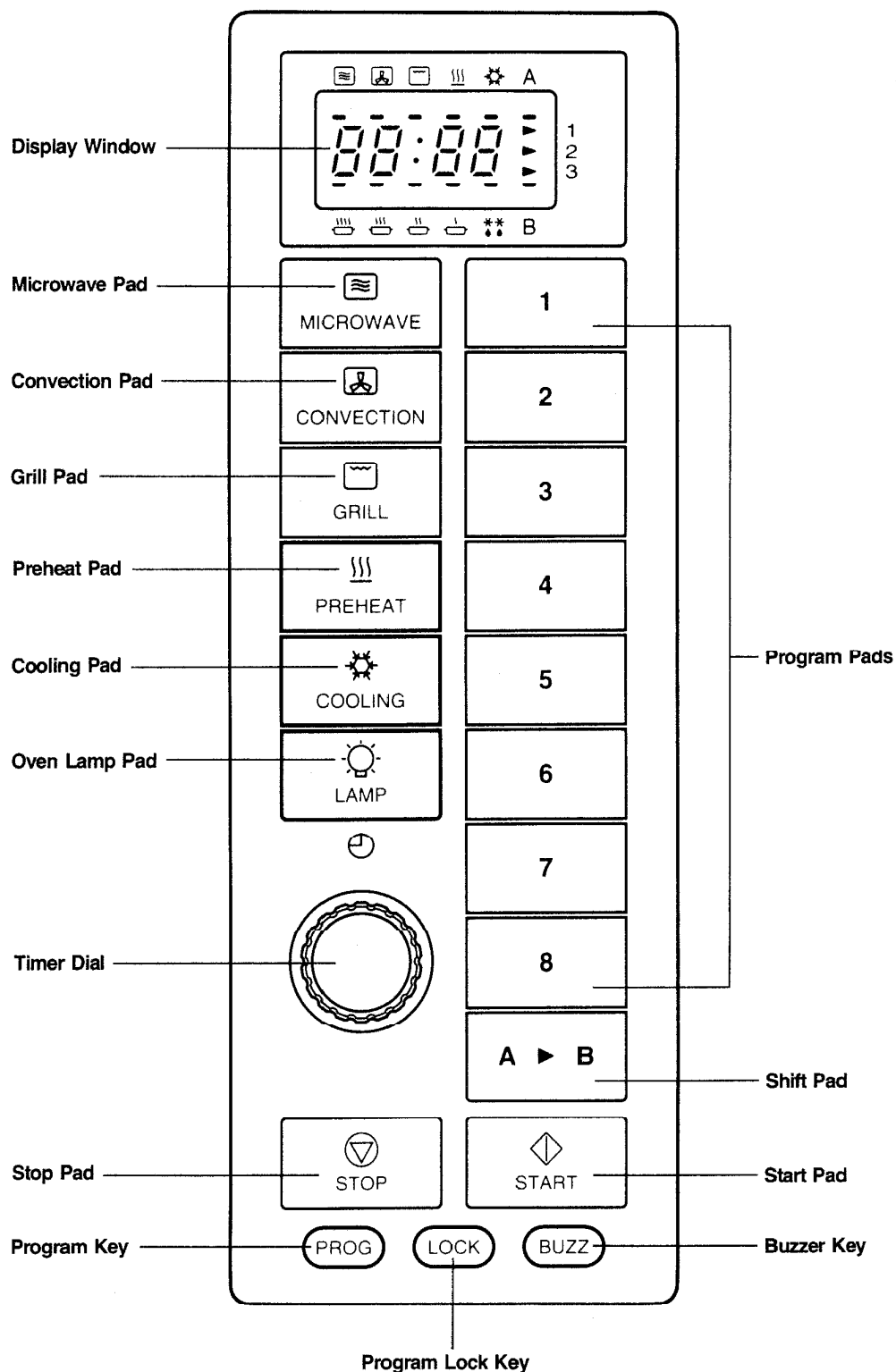
CONTENTS

	(Page)
CONTROL PANEL	3
OPERATION PROCEDURE AND DIGITAL PROGRAMMER CIRCUIT TEST PROCEDURE	4
SCHEMATIC DIAGRAM	9
DESCRIPTION OF OPERATING SEQUENCE	11
CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING	15
DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE	16
COMPONENT TEST PROCEDURE	19
MEASUREMENTS AND ADJUSTMENTS	21
TROUBLESHOOTING GUIDE	22
EXPLODED VIEW AND PARTS LIST	27
DIGITAL PROGRAMMER CIRCUIT PARTS LIST	34

FEATURE CHART

FEATURE	NE-C1453
MULTI STAGE COOKING	○
CONVECTION COOKING	○
GRILL COOKING	○
COMBINATION COOKING	○
MEMORY PROGRAM COOKING	○ A side ... 8 Memories B side ... 8 Memories
PREHEAT	○
COOLING	○

CONTROL PANEL



OPERATION PROCEDURE

1. Multi-stage (Sequential) Heating

The oven can be Programmed with up to 3 different functions to operate in sequence. These can be MICROWAVE, GRILL, CONVECTION or COMBINATION programs.

2. Changing Heating Time

The time can be increased or decreased during heating by turning the timer dial.

3. Oven Lamp

The oven lamp switches off when the door is closed. If you want to check the food, press the LAMP pad, it will then illuminate for 10 seconds. The oven lamp turns on whenever the door is opened.

1. Microwave cooking for single stage

OPERATION	DISPLAY
1. Plug the power supply cord into wall outlet.	
2. Open the door and place a water load in the oven and close the door.	0
3. Press MICROWAVE pad once to set High power.	 0 * 1
4. Set the desired time by turning the timer dial. Max time you can set: High/Medium ... 15 mins Low/Simmer/Defrost/Stand ... 60 mins	 1 00 * 1
5. Press START pad.	 59 * 1
6. When the time is up, you hear 3 beeps sound.	
7. Open the door and take the water load out. The display goes back to previously setting time.	 1 00 ' 1
8. Close the door. 1 minute later, display will return blank.	

NOTE 1: When using HIGH, MEDIUM, LOW and SIMMER powers, the half of grill elements and convection fan operate to reduce the build up of condensation.

2: For 2nd and 3rd stage cooking, enter heating program, between steps 4 and 5 above.

2. Convection cooking

OPERATION	DISPLAY
1. Open the door and place a food in the oven and close the door.	0
2. Press CONVECTION pad 6 times to set 200°C.	 200C * 1
3. Set the desired time by turning the timer dial.	 15 00 * 1
4. Press START pad.	 14 59 * 1
5. When the time is up, you hear 3 beeps sound.	
6. Open the door and take food out. The display goes back to previously setting time.	 15 00 ' 1
7. Close the door. 1 minute later, display will return blank.	

NOTE: For 2nd and 3rd stage cooking, enter heating program, between steps 3 and 4 above.

3. Grill Cooking

OPERATION	DISPLAY
1. Open the door and place a food in the oven and close the door.	0
2. Press GRILL pad twice to set Grill 2.	2 ¹  
3. Set the desired time by turning the timer dial.	5:00  
4. Press START pad.	4:59  
5. When the time is up, you hear 3 beeps sound.	
6. Open the door and take food out. The display goes back to previously setting time.	5:00  
7. Close the door. 1 minute later, display will return blank.	

NOTE: For 2nd and 3rd stage cooking, enter heating program, between steps 3 and 4 above.

4. Combination Cooking

OPERATION	DISPLAY
1. Open the door and place a food in the oven and close the door.	0
2. Press CONVECTION pad 6 times to set 200°C.	200C  
3. Press MICROWAVE pad once to set Low power.	200C   
4. Set the desired time by turning the timer dial.	10:00   
5. Press START pad.	9:59   
6. When the time is up, you hear 3 beeps sound.	
7. Open the door and take food out. The display goes back to previously setting time.	10:00   
8. Close the door. 1 minute later, display will return blank.	

NOTE: For 2nd and 3rd stage cooking, enter heating program, between steps 4 and 5 above.

5. Setting the Memory Program

OPERATION	DISPLAY
1. Open the door.	0
2. Press PROG pad for more than 2 seconds. "P" flashers in the display.	
3. Press 2 pad to set program number A2.	P 2 ¹
4. Press MICROWAVE pad once to High power.	 0 ¹
5. Set the desired time by turning the timer dial.	 1 00 ¹
6. Press PROG pad.	 1 00 ¹
7. After 3 seconds display returns to "0".	0

NOTE: To program B side memories

Press **A/B** pad between steps 2 and 3 above.

Once the Memory area B has been selected it cannot be changed back to Memory area A. If you do not require Memory area B, cancel it by touching the cancel pad and begin again.

6. Memory Program Cooking

OPERATION	DISPLAY
1. Open the door and place food in the oven and close door.	0
2. Press 2 pad.	 1 00 ¹
3. Press START pad.	 59 ¹

7. Setting the Program Lock

OPERATION	DISPLAY
1. Open the door.	0
2. Press LOCK pad and hold until "PL" appears in the display.	P L
3. After 3 seconds, display returns to "0".	0

NOTE: When program lock is activated in ONE TOUCH mode i.e. Press required memory program number and oven immediately starts.

8. To release the Program Lock

OPERATION	DISPLAY
1. Open the door.	0
2. Press LOCK pad and hold until "P" appears in the display.	P
3. After 3 seconds, display returns to "0".	0

9. Preheat

OPERATION	DISPLAY
1. Press REHEAT pad.	
2. Press START pad. Preheat temperature will be maintained at 170°C.	
3. Once oven has reached preheat temperature, "P" flashes. If not used, oven will automatically switch off after 1 hour.	

10. Cooling

OPERATION	DISPLAY
1. Press COOLING pad.	
2. Press START pad.	
3. When finish cooling, the display goes to blank. The oven will cool in 3-30 minutes depending on temperature (70°C).	

11. To Select Beep Tone Level

OPERATION	DISPLAY
1. Open the door.	
2. Press PROG pad for 2 seconds.	
3. Press BUZZ pad to choose sound level. e.g.: twice for Middle	
4. Press PROG pad.	
5. After 3 seconds, display returns to "0".	

12. To Read the Cycle Count

OPERATION	DISPLAY
1. Open the door.	0
2-1. While pressing START pad, press MICROWAVE pad. The display shows the total number of heating cycles at 1/100 times.	12 50 125000 Times
2-2. While pressing START pad, press 5 pad. The display shows the total hour of heating time at 1/100 hour.	25 2500 Hours
2-3. While pressing START pad, press 6 pad. The display shows the total number of microwave cycles at 1/100 times.	3 45 34500 Times
2-4. While pressing START pad press 7 pad. The display shows the total hour of microwave time at 1/100 hour.	15 1500 Hours
3. After 3 seconds, display returns to "0".	0

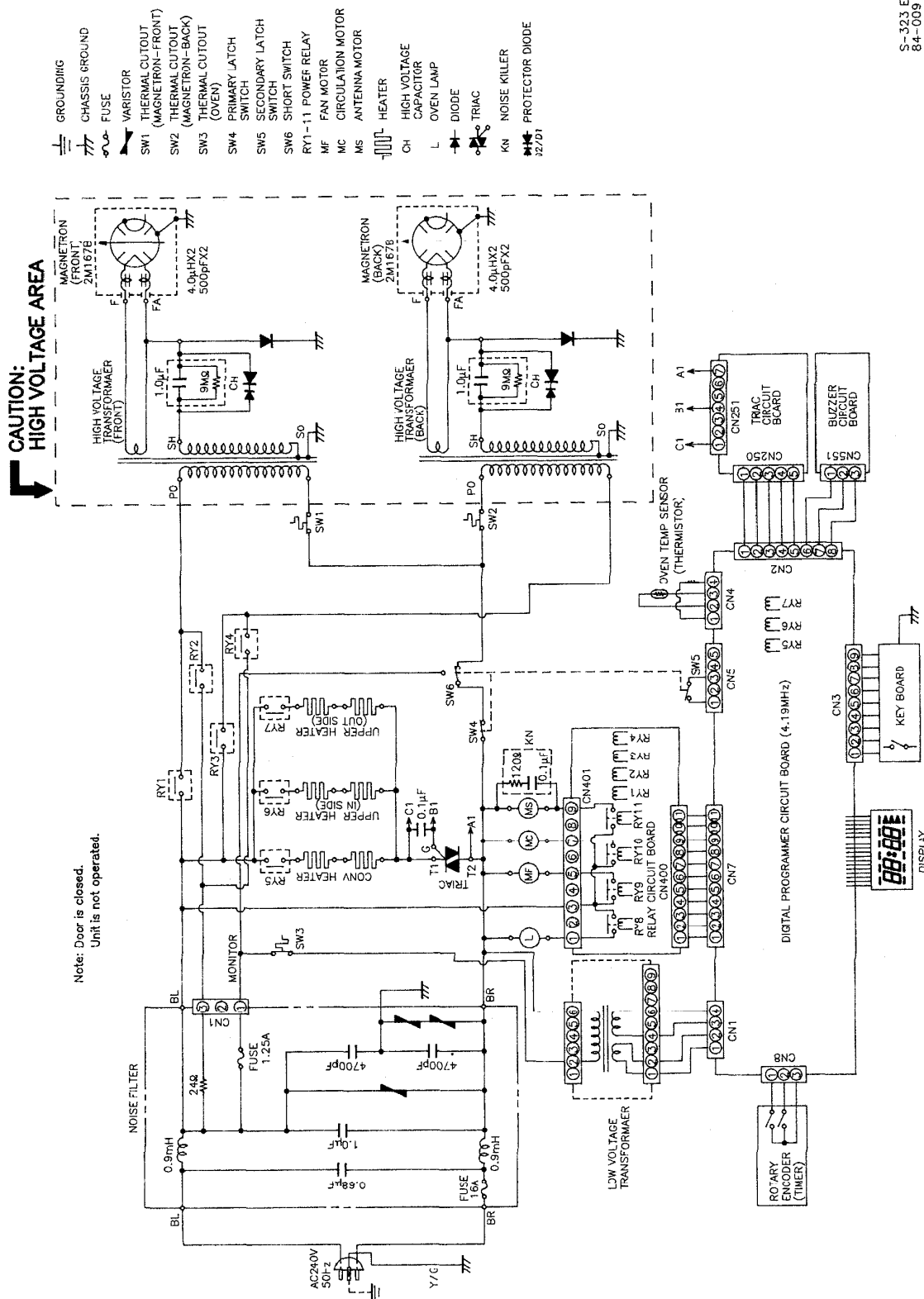
NOTE: When total number of heating cycle/hour exceed 9999, the count will return to "0".

Program List:

It is possible to check the program that have been entered into the 16 memory pads. When the door is open, press START pad and Memory pad No.1 simultaneously.

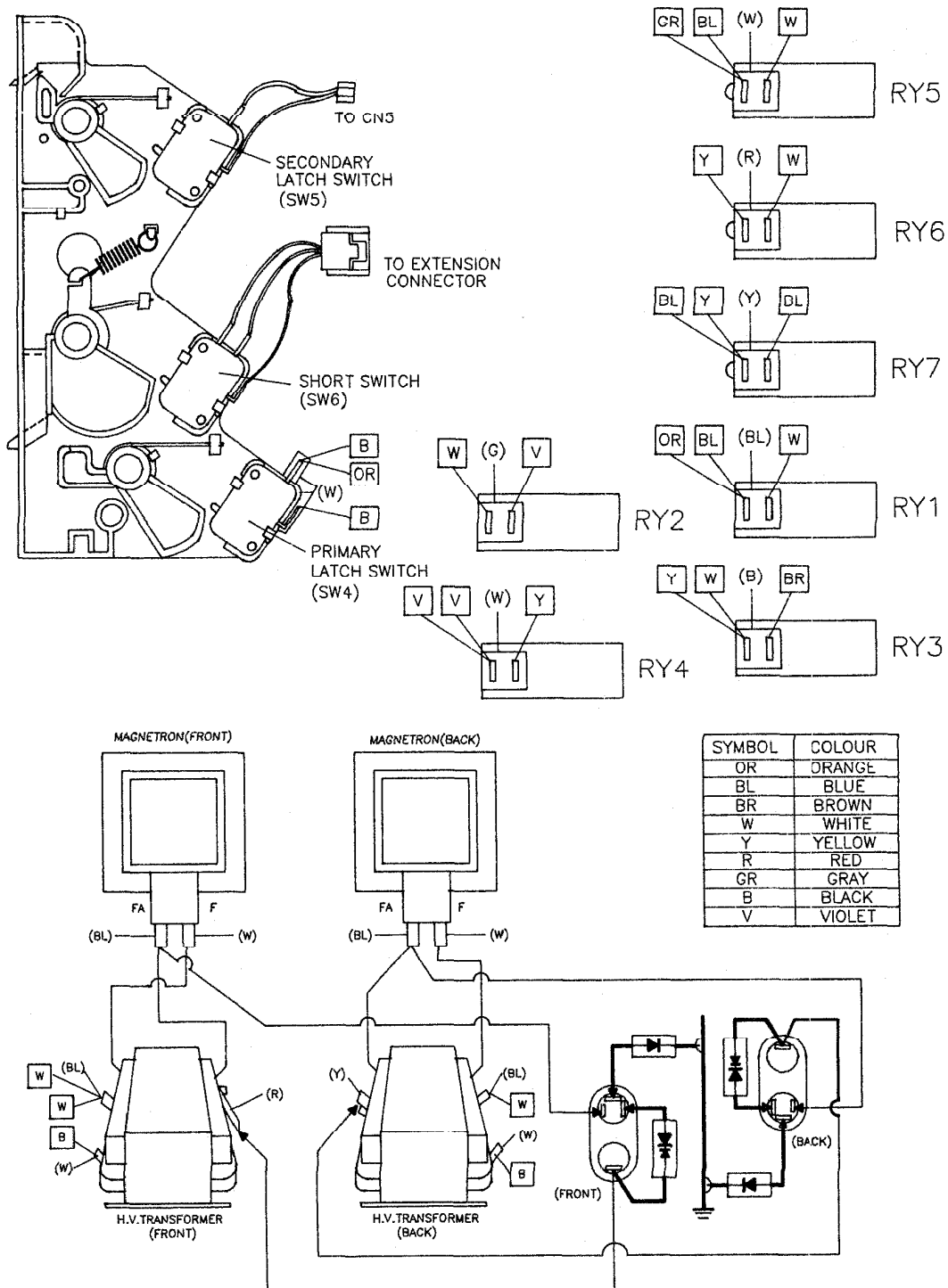
After 2 seconds, the display window will show each individual stage of each Memory Program in the order A1, B1 A2 etc. Finally, it will display the beep tone setting and the program Lock symbol (PL) before clearing to "0".

SCHEMATIC DIAGRAM

S-323 EPG
84-009

WIRING DIAGRAM

NOTE: When replacing, check the lead wire color as shown.
Colors shown by () indicate colors of lead wire connector housing.



84-010

DESCRIPTION OF OPERATING SEQUENCE

1. Variable power cooking control

The coil of power relays are energized intermittently by the digital programmer circuit, when the oven is set at any power selection except for High power position. The digital programmer circuit controls the ON-OFF time of power relays contacts in order to vary the output power of the microwave oven.

The relation between indications on the control panel and the output of the microwave oven is as shown in table.

NOTE 1: The ON/OFF time ratio does not correspond with the percentage of microwave power since approximately 2 seconds are required for heating of magnetron filament.

NOTE 2: ON-OFF time of power relays are changed by digital programmer circuit when remaining cooking time or selected cooking time are within 1 minutes 30 seconds at MED, LOW, SIMMER and Defrost cooking mode.

NOTE 3: When using HIGH, MEDIUM, LOW and SIMMER powers, the inside of upper heaters and circulation fan motor operate to reduce the build up of condensation.

NOTE 4: After microwave cooking, if oven temperature is over than 100°C, fan motor rotates for 1 to 5 minutes to cool the oven.

POWER	POWER RELAY	ON-OFF TIMING OF POWER RELAY
HIGH (1350W)	RY 1	ON OFF
	RY 3	ON OFF
MEDIUM (650W)	RY 1	ON OFF
	RY 3	ON OFF
LOW (420W)	RY 1	ON OFF
	RY 3	ON OFF
SIMMER (240W)	RY 1	ON OFF
	RY 3	ON OFF
DEFROST (180W)		300W (P1) 120W (P2) 30% 70% TOTAL DEFROSTING TIME
	RY 1	ON OFF
	RY 3	ON OFF
	RY 1	ON OFF
	RY 3	ON OFF

2. Convection cooking control

The digital programmer circuit controls the ON-OFF time of upper and convection heater in order to control the oven cavity temperature, see table and figure.

- (A) The digital programmer circuit generates the power relays control signals at a specific timing as shown in table.
- (B) When the oven reaches the selected temperature, the digital programmer circuit senses the temperature through oven temp sensor and stops supplying 18V DC to the power relays resulting in turn off of upper and convection heaters. After the heaters have been turned off, the oven temperature will continue to increase a while then decrease as shown in figure.
- (C) When the oven temperature drops below selected temperature, the digital programmer circuit senses the oven temperature and starts supplying 18V DC to the coils of power relays alternately again.

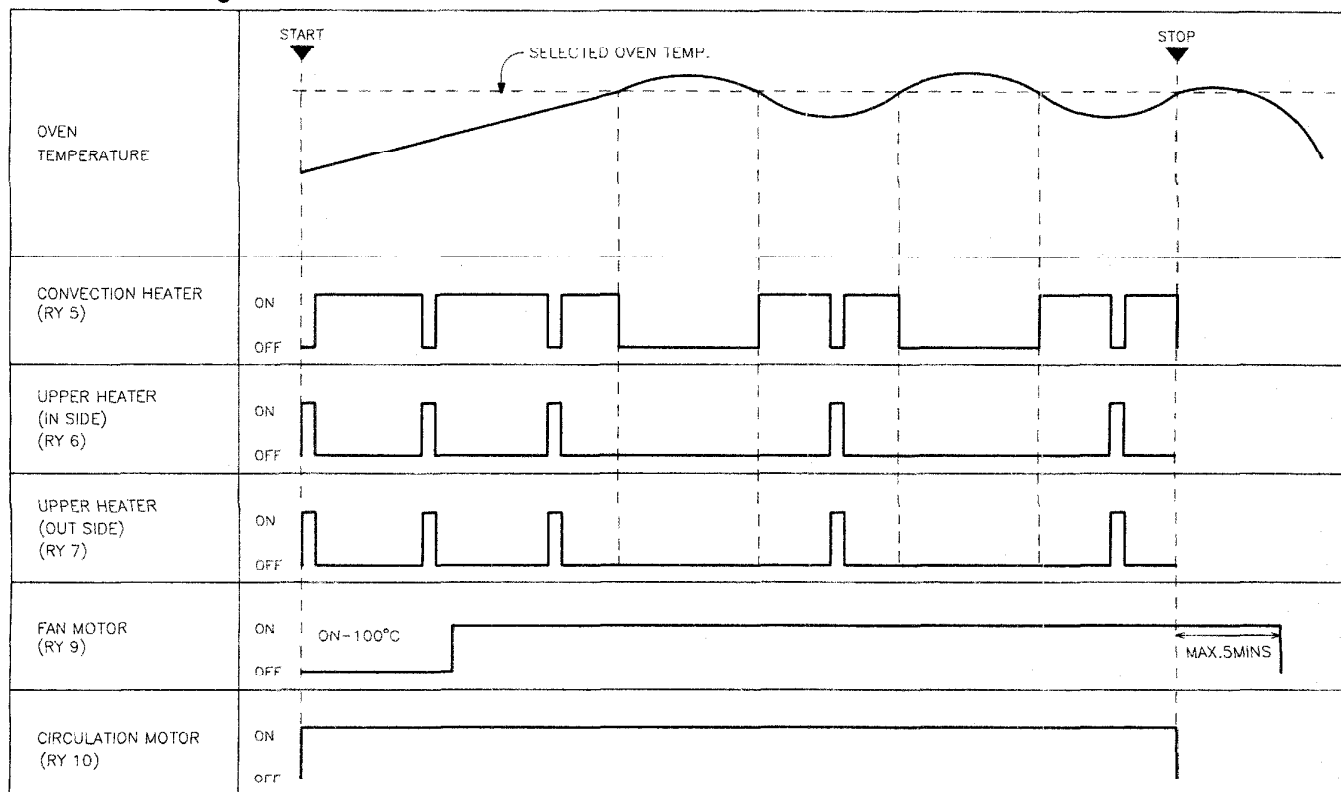
NOTE 1: When convection is selected with temperature setting of 100-250°C, off period of both heaters is also programmed while oven temperature is lower than selected temperature, as shown in figure.

NOTE 2: After convection process, if oven temperature is higher than predetermined temperature, fan motor rotates for 5 minutes at maximum time to cool the electric components and oven.

Heater ON-OFF Time for Convection Cooking

Selected oven Temperature	UPPER HEATER (IN-SIDE)		UPPER HEATER (OUT-SIDE)		CONVECTION HEATER	
	ON	OFF	ON	OFF	ON	OFF
100°C~250°C	5	61	5	61	61	5

Convection Cooking



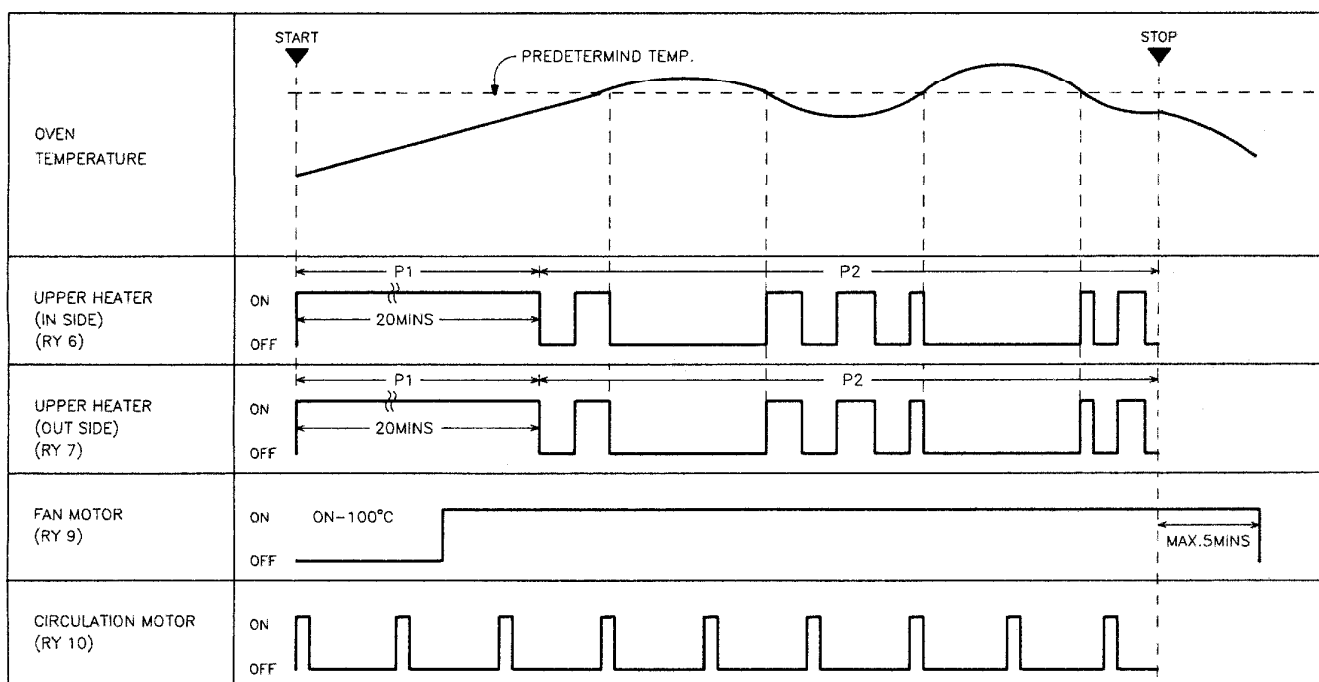
3. Grill cooking control

- (A) The digital programmer circuit generates the power relays control signals at a specific timing as shown in figure.
- (B) When the oven temperature reaches the predetermined temperature, the digital programmer circuit stops supplying power relays control signals resulting in both upper to turn off.
- (C) When the oven temperature drops below the predetermined temperature, the digital programmer circuit generates power relays control signals again at the timing predetermined.

NOTE 1: After grill process, if oven temperature is higher than predetermined temperature, fan motor rotates for 5 minutes at maximum time to cool the electric components and oven.

GRILL		UPPER HEATER (IN-SIDE) (RY6)		UPPER HEATER (OUT-SIDE) (RY7)	
		ON	OFF	ON	OFF
1	P1	66	0	66	0
	P2	33	33	33	33
2	P1	54	12	54	12
	P2	33	33	33	33
3	P1	42	24	42	24
	P2	33	33	33	33

Grill Cooking (Category 1)



83008

4. Combination cooking control

Combination cooking is accomplished by operating the microwave and heater mode alternately during one combination cooking cycle.

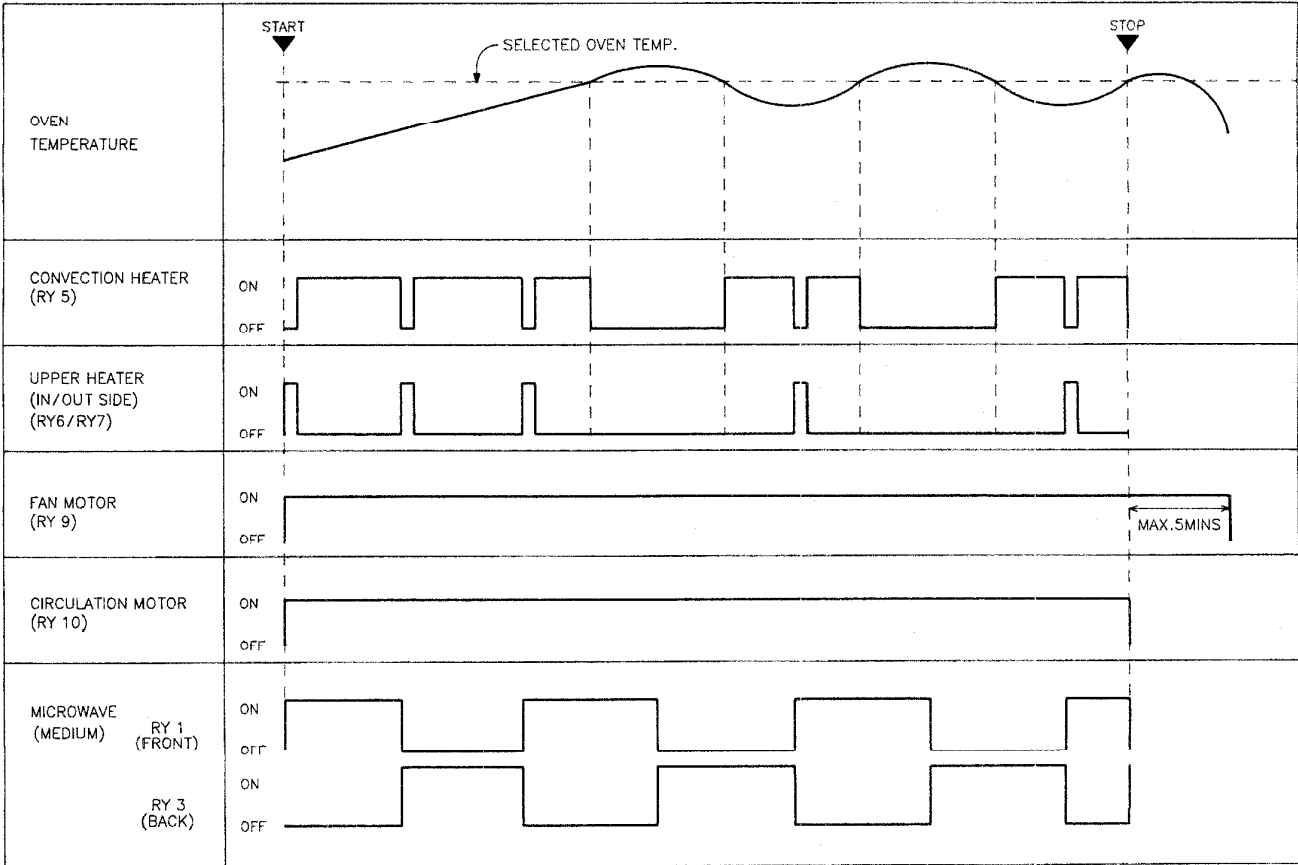
There are 2 combination mode:

- 1. Grill combination (Grill + Microwave)
- 2. Convection combination (Convection + Microwave)

- (A) The digital programmer circuit generates the power relays control signals at a specific timing as shown in figure.
- (B) When the oven temperature reaches the predetermined temperature, the digital programmer circuit stops supplying power relays control signals resulting in heaters to turn off. During this, digital programmer circuit continues supplying power relay 1, 3 control signal so that microwave activity continue at predetermined duty ratio as shown in figure. The microwave activity continue to cycle until entire cooking programme is completed.
- (C) When the oven temperature drops below the selected temperature, the digital programmer circuit generates power relays control signals again at the timing predetermined.

NOTE 1: After combination process, if oven temperature is higher than predetermined temperature, fan motor rotates for 5 minutes at maximum time to cool the electric components and oven.

Combination (Convection + Microwave)



CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

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

CAUTION

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

1. Check the earthing

Do not operate on a 2 wire extension cord. The microwave oven is designed to be used in a completely earthed condition. It is imperative, therefore, to make sure it is properly earthed before beginning repair work.

2. If the door lock, the door switch, the door seal or the door develops a malfunction, be sure not to operate the oven until complete repairs are made.

If the oven is operated with any of these parts in imperfect condition, hazardous microwave leakage might occur.

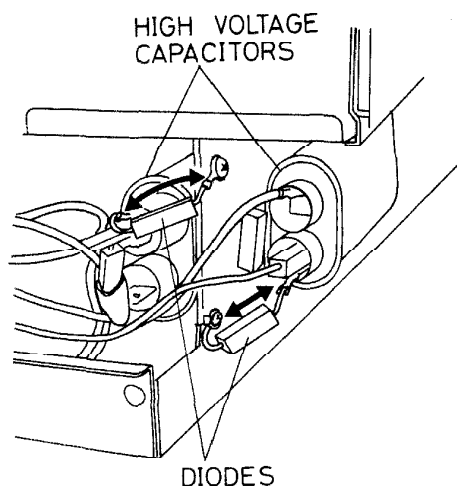
WARNING

Never operate the oven until the following are confirmed:

- (A) The door is tightly closed.
- (B) There is no broken hinge or door arm.
- (C) The door seal is not damaged.
- (D) The door is not bent or warped.
- (E) There is no other visible damage.

3. Warning about the electric charge in the high voltage capacitor.

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitor. When replacing or checking parts, remove the power plug from the outlet, wait 30 seconds and short the terminal of the high voltage capacitor (terminal of lead wire from diode) to chassis ground with an insulated jumper lead wire or an insulated handle screwdriver to discharge.



05-033

Touch chassis side first then short to the high voltage capacitor terminal.

Important Note

1. High voltage above 250 volts are existing on following parts during operation.

- *Magnetron
- *High Voltage Transformer
- *High Voltage Diode
- *High Voltage Capacitor

Unusual attention should be paid during repair or troubleshooting of product.

2. If the microwave oven is operated with incorrect installed door hinge or magnetron, it can cause microwave leakage of over 5mW/cm².

Hence it is absolutely necessary to check if magnetron and door hinge are correctly and safely installed after repairs or replacement.

WARNING

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

4. When parts must be replaced, always remove the power plug from the outlet, and discharge the high voltage capacitor.

5. Confirm after repair

- (A) After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing. Microwave might leak if screws are not properly tightened.
- (B) Make sure that all electrical connections are tight before inserting the plug into the wall outlet.

6. Avoid inserting nails, wire, etc. through holes in unit during operation.

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any other holes or gaps, because such objects may work as an antenna and cause microwave leakage.

7.

CAUTION 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 connected. All input and output microwave connections waveguides, flanges, 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.

8.

CAUTION

High voltage parts may become uncovered when outer cabinet is removed.

DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

1. Magnetron (Front and Back)

- Discharge the high voltage capacitors.
- Remove 5 screws holding air guides.
- Disconnect magnetron, triac and thermal cutout lead wire connectors.
- Loose wire harness and lift up air guide.
- Remove 4 screws holding each magnetron.
- Remove 2 screws holding thermal cutout.

NOTE: To prevent microwave leakage, tighten mounting screws properly making sure there is no gap between the waveguide and the magnetron.

CAUTION

When replacing the magnetron, be sure the antenna gasket is in place.

2. Digital programmer circuit (DPC)

- Remove 1 screw holding tub of membrane switch.
- Remove 2 screws holding escutcheon base and slide the escutcheon base upward slightly.
- Disconnect all connector from DPC.
- Remove 3 screws holding DPC.

To replace membrane key board

- Bent escutcheon A catch hooks slightly and separate escutcheon A and base.
- Remove smoke panel.
- Push the upper part of key board (display window) from back of escutcheon base and peel off membrane key board.

NOTE 1. The membrane key board is attached to the escutcheon base with double faced adhesive tape. Therefore, applying hot air such as using of hair dryer is recommended for smoother removal.

- When installing new membrane key board, make sure that the surface of escutcheon base is cleaned sufficiently so that any problems (shorted contacts or uneven surface) can be avoided.
- Alignment position of membrane key board is as follows (see figure);

Membrane key board: Right and lower edges

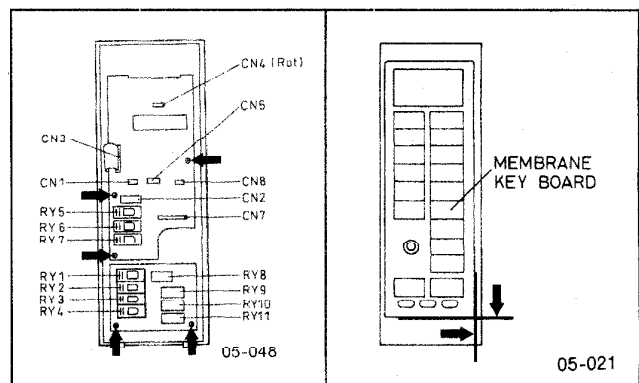
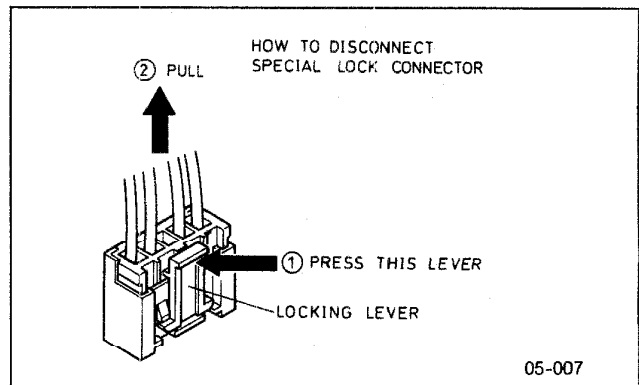
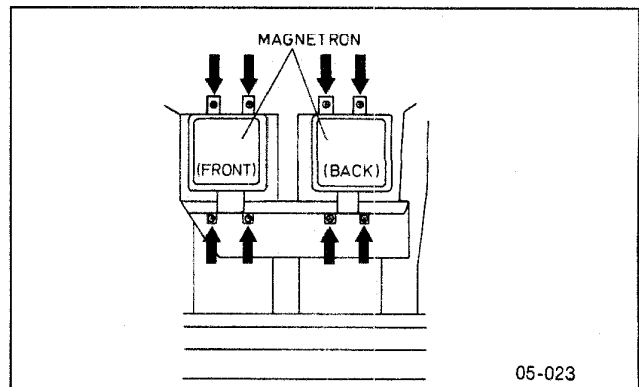
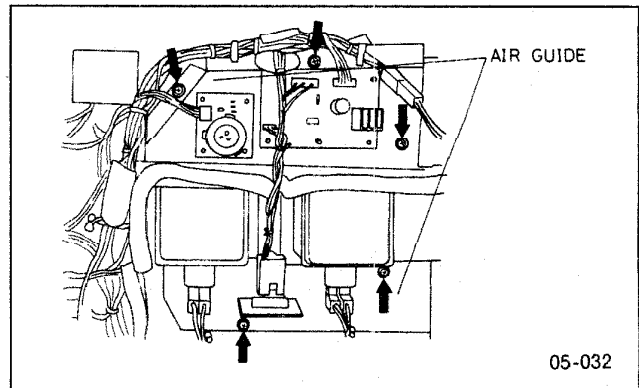
3. Low voltage transformer and/or power relays

NOTE: Be sure to ground any static electric charge built up on your body before handling the DPC.

- Using solder wick or a desoldering tool and 30W soldering iron, carefully remove all solder from the terminal pins of the low voltage transformer and/or power relays.

NOTE: Do not use a soldering iron or desoldering tool of more than 30 watts on DPC contacts.

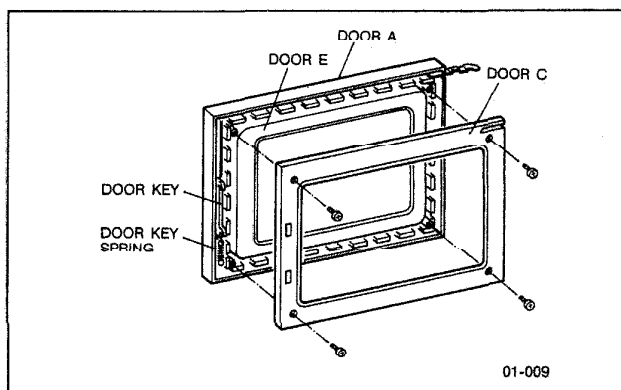
- With all the terminal pins cleaned and separated from DPC contacts, remove the defective transformer/power relays and install new transformer/power relays making sure all terminal pins are inserted completely. Resolder all terminal contacts carefully.



4. Door assembly

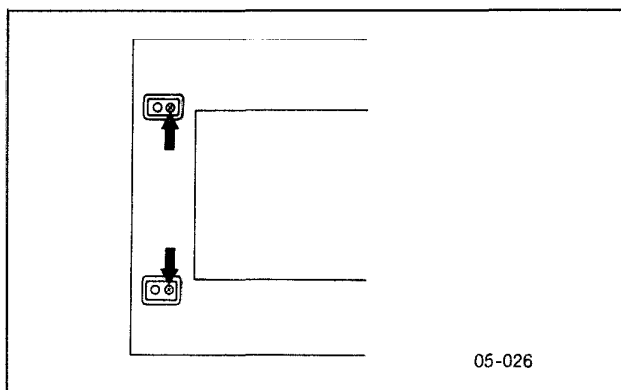
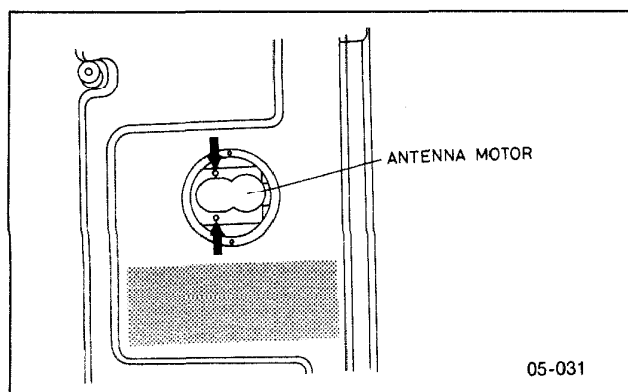
- (A) Remove 2 screws holding the upper hinge to the oven.
- (B) Open the door and while pulling the door toward you, work the upper hinge out through the hole in the oven.
- (C) Remove 4 screws holding the door C.
- (D) Remove the door C by carefully pulling outward starting from the upper right hand corner.
- (E) Remove 2 screws holding door E.
- (F) Separate the door A from door E by carefully freeing catch hooks on door A while pulling outward.
- (G) Remove the door key spring and the door key.
- (H) Remove 2 screws holding door handle.
- (I) 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.

Also adjust so that the door has no play between the inner door surface and oven frame. If the door is not mounted properly, microwave may leak from the clearance between the door and the oven.



5. Antenna motor

- (A) To remove the antenna motor, carefully place the unit on its left side.
- (B) Remove 2 screws holding motor cover.
- (C) Remove 2 screws holding antenna motor.
- (D) Disconnect motor lead wire.



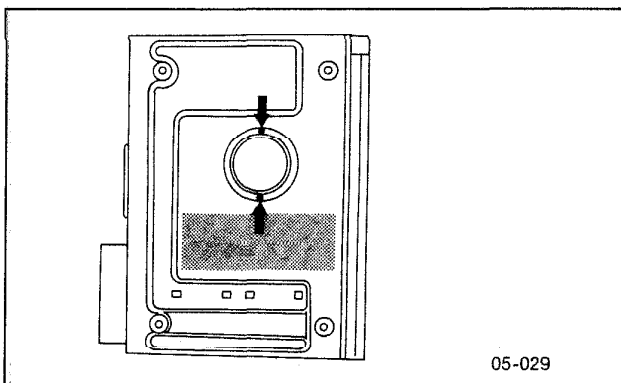
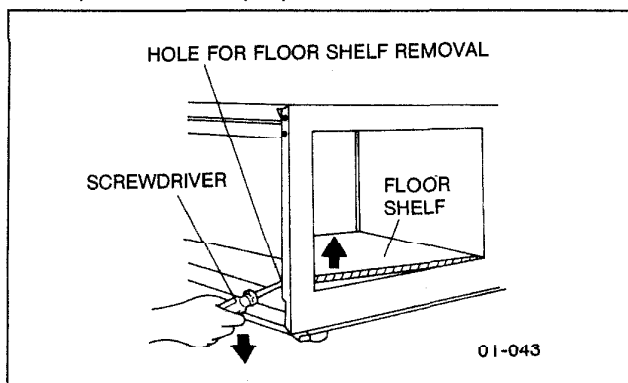
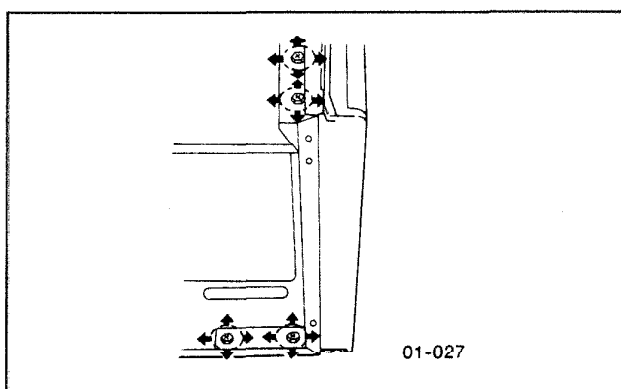
6. Floor shelf and/or moving antenna

- (A) Insert a philips type screwdriver or equivalent approx. 2" (5cm) in shaft length in the hole of left side oven wall as shown in Figure.
- (B) Carefully lift up the floor shelf by using the screwdriver until the floor shelf is lifted up over the level of oven opening front.
- (C) Remove the floor shelf by lifting it up from oven front.

To replace moving antenna.

- (D) Remove the moving antenna by simply lifting it up off the stirrer motor shaft.

NOTE: When replacing the moving antenna, make sure the plastic stirrer spacers are correctly in place.

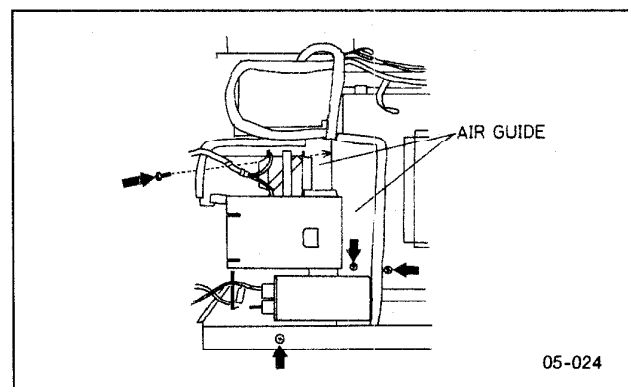
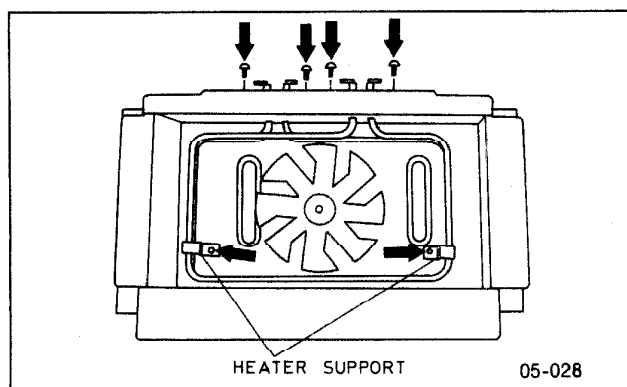
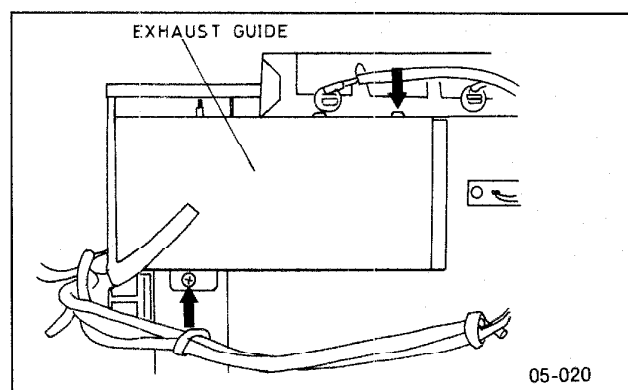
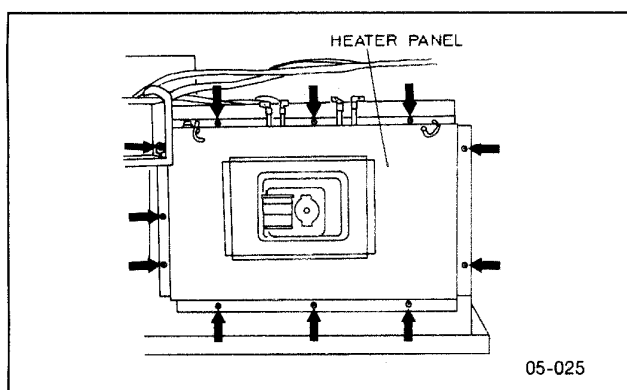
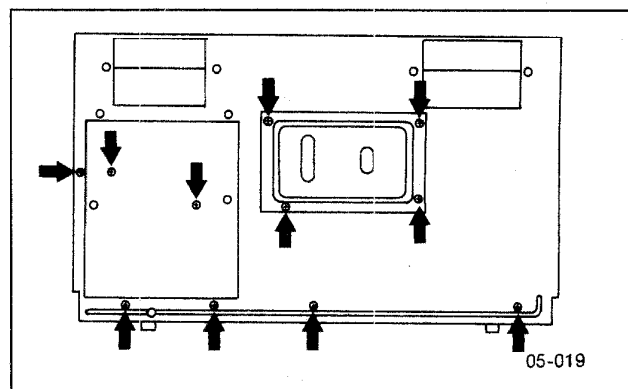
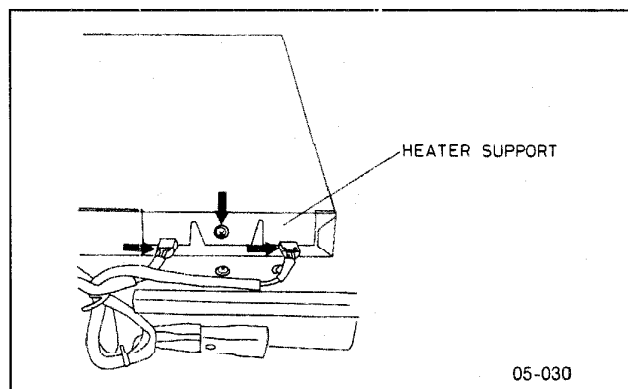


7. Upper Heater

- (A) Disconnect upper heater lead wire connector.
- (B) Remove 1 screw holding heater support.
- (C) Remove the heater by pulling it out.

8. Convection Heater

- (A) Remove 11 screws holding back panel.
- (B) Disconnect heater and circulation fan motor lead wire connector.
- (C) Remove 2 screws holding exhaust guide.
- (D) Remove 4 screws holding air guide and H.V.Capacitor bracket.
- (E) Remove 11 screws holding heater panel.
- (F) Remove 6 screws holding heater support and heater.



COMPONENT TEST PROCEDURE

CAUTION

1. High voltage is present at the high voltage terminal of the high voltage transformer 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.

1. High voltage transformer

- (A) Remove connections from the transformer terminals and check continuity.
- (B) Normal (cold) resistance readings should be as follows:
- | | |
|-----------------------------|---------------------------------------|
| Secondary winding | Approx. $80\ \Omega \sim 120\ \Omega$ |
| Filament winding | Approx. $0\ \Omega$ |
| Primary winding (0V ~ 230V) | Approx. $0\ \Omega \sim 3\ \Omega$ |

2. High voltage capacitor

- (A) Check continuity of capacitor with ohmmeter on highest OHM scale.
- (B) A normal capacitor will show continuity for a short time, and then indicate $9M\ \Omega$ once the capacitor is charged.
- (C) A shorted capacitor will show continuous continuity.
- (D) An open capacitor will show constant $9M\ \Omega$.
(Due to internal $9M\ \Omega$ resistor)
- (E) Resistance between each terminal and chassis should be infinite.

3. Diode

- (A) Isolate the diode assembly from the circuit by disconnecting the leads.
- (B) With the ohmmeter set on the highest resistance scale, measure the resistance across the diode terminals. Reverse the meter leads and again observe the resistance reading. 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.
- A normal diode's resistance will be infinite in one direction and several hundred $K\ \Omega$ in the other direction.

4. Magnetron

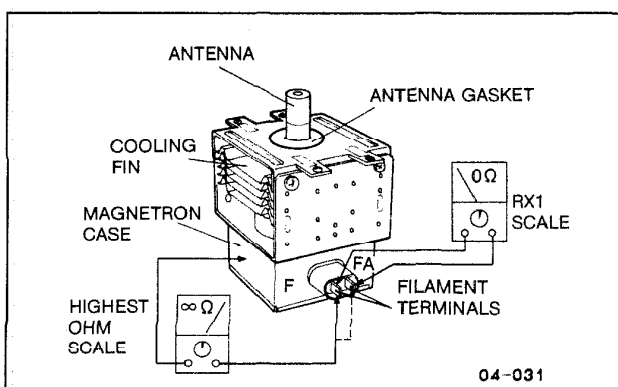
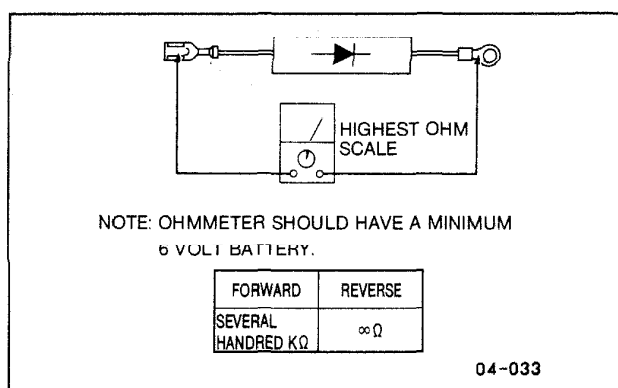
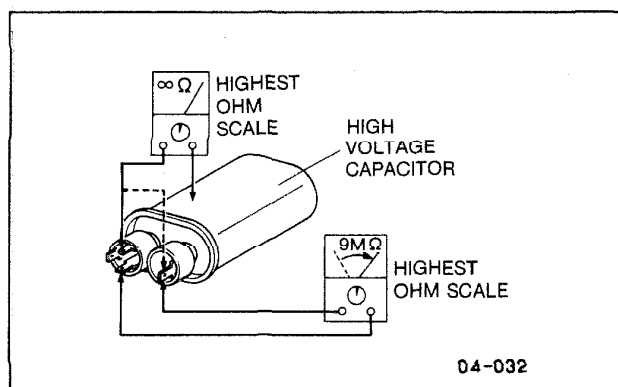
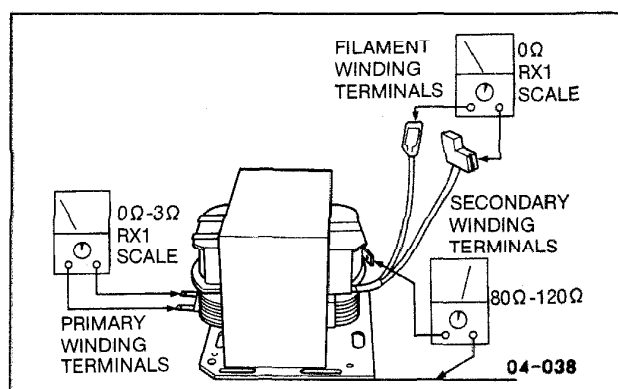
Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron,

- (A) Isolate magnetron from the circuit by disconnecting the leads.
- (B) A continuity check across magnetron filament terminals should indicate one ohm or less.
- (C) A continuity check between each filament terminal and magnetron case should read open.

5. Membrane key board (Membrane switch assembly)

Check continuity between switch terminals, by pressing an appropriate pad on the key board.

The contacts assignment of the respective pads on the key board is as shown in the schematic diagram of DPC.



6. Protector diode

- (A) Isolate the protector diode assembly from the circuit by disconnecting its leads.
- (B) With the ohmmeter set on the highest resistance scale, measure the resistance across the protector diode terminals. Reverse the meter leads and again observe the resistance reading. A normal protector diode's resistance will be infinite in both directions. It is faulty if it shows continuity in one or both directions.

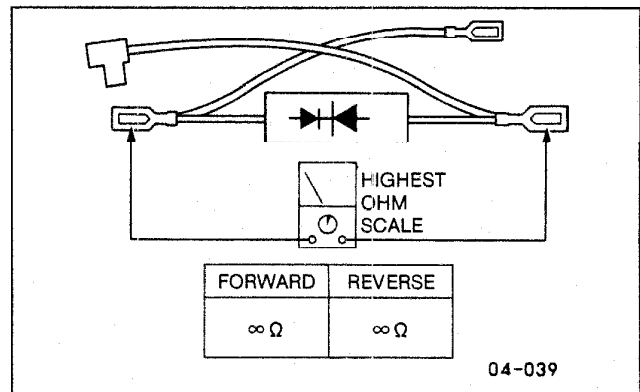
7. To test the oven temp sensor thermistor

This sensor monitors the heat produced by the heater circuit and maintains the oven temperature the user had selected. Normal room temperature, especially in a kitchen can vary anywhere from 10°C to 32°C. The reading across the oven sensor thermistor should be within 360K ohm to 1500K ohm when reading in an area within the 10°C to 32°C room temperature range.

If the resistance reading is out of the range stated here, the sensor is defective and must be replaced with sensor unit.

NOTE 1: When measuring resistance disconnect the 4-pin connector (CN4) from the DPC otherwise a false reading may be indicated.

NOTE 2: If checking an oven sensor thermistor just after the microwave oven has been operating, the sensor of course won't be room temperature. In this case the sensor must be removed and allowed to cool down to the 10°C to 32°C range.



MEASUREMENTS AND ADJUSTMENTS

1. Adjustment of Primary latch switch, Secondary latch switch and short switch

(A) When mounting Primary latch switch, Secondary latch switch and short switch to door hook assembly, mount the Primary latch switch, the Secondary latch switch and the short switch to the door hook assembly as shown in Figure.

NOTE: No specific adjustment during installation of Primary latch switch, Secondary latch switch and short switch to the door hook is necessary.

(B) When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of arrow in Figure 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 door hook assembly to the oven assembly.

2. Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However, it is possible to test the magnetron by following procedure outlined below.

Necessary equipment:

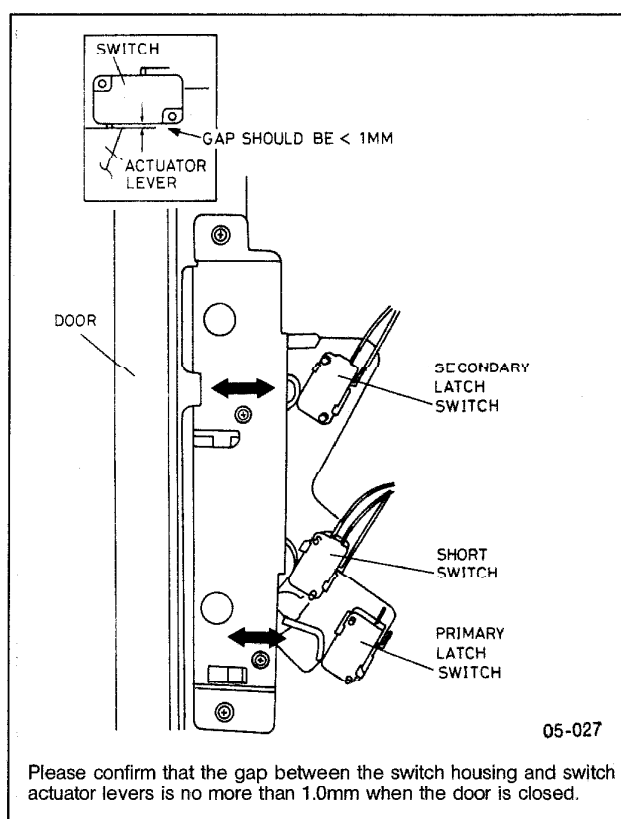
- * 1 litre beaker
- * Glass thermometer
- * Wrist watch or stopwatch

NOTE: Check the line voltage under load to ensure it meets specifications. Low voltage condition will cause a reduction in magnetron output. Temperature readings and heating time, should be as accurate as possible.

Output power performance test procedure.

- (A) Fill the beaker with exactly one litre of tap water.
Stir the water using the thermometer and note the temperature.
(Record as T1)
- (B) Place the beaker in the center of cook plate.
Set the oven for High power and heat for exactly one minute.
- (C) After completion of the heating cycle, stir the water again with the thermometer and note the temperature.
(Record as T2).

The normal temperature rise (T2—T1), for these models should be more than 11.5°C using the High power selection with the oven operating at the specified line voltage.



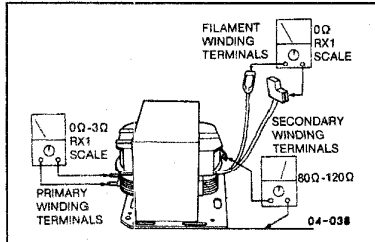
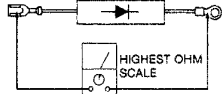
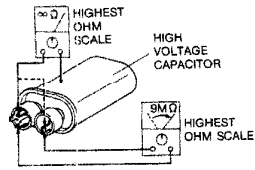
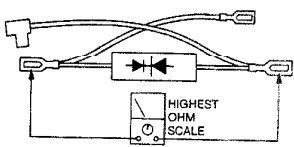
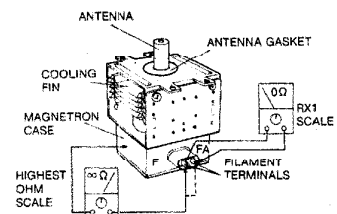
TROUBLESHOOTING GUIDE

CAUTION

1. Check grounding before checking for trouble.
2. Be careful of the high voltage circuit.
3. Discharge high voltage capacitor.
4. When checking the continuity of the switches or 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 parts of the circuitry on the digital programmer circuit, since static electric discharge may damage this control panel.
Always touch yourself to ground while working on this panel to discharge any static charge in your body.
6. A 230V AC is present at the shaded area  of the digital programmer circuit (Terminals of power relays and primary circuit of low voltage transformer). When troubleshooting, be cautious of possible electrical shock hazard.

First of all operate the microwave oven following the correct operating procedures described in order to find the exact cause of any trouble.

[TROUBLE 1] Oven is dead

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS				
1.25A fuse is blown.	1	Primary latch switch and short switch	Abnormal	Replace and adjust latch switch and door				
			Normal	→ STEP 2				
	2	Low voltage transformer	Shorted	Defective L.V.T or DPC				
			Normal	Check lead wire harness				
16A fuse is blown. * Defective front or back side magnetron circuit.	1	Check which magnetron circuit is defectives following proocdure. 1. Disconnect back side magnetron thermal cutout lead connector. 2. Replace 16A fuse. 3. Operate oven at high power for front side magnetron circuit only.	Oscillates and 16A fuse is not blow	Check Back side magnetron circuit → STEP 2				
			No Oscillation and 16A fuse is blown again.	Check Front side magnetron circuit → STEP 2				
	2	Check high voltage components assumed defective side circuit. H.V.Transformer H.V.Capacitor H.V.Diode Magnetron Protector diode	Component check procedure:					
								
 NOTE: OHMMETER SHOULD HAVE A MINIMUM 6 VOLT BATTERY. <table><tr><td>FORWARD</td><td>REVERSE</td></tr><tr><td>SEVERAL HUNDRED KΩ</td><td>∞ Ω</td></tr></table> 04-033					FORWARD	REVERSE	SEVERAL HUNDRED KΩ	∞ Ω
FORWARD	REVERSE							
SEVERAL HUNDRED KΩ	∞ Ω							
 04-032								
 04-039								
 04-031								
NOTE: Be sure to replace protector diode together with those H.V.Components. In this case, only D2 of protector diode may be shorted due to faulty H.V.Component. Therefore, if protector diode is not replaced together, high voltage transformer will be damaged (over heated).								

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS
* Shorted heater circuit	1	Unplug triac lead wire connector and check continuity between heater terminal and chassis.	Leaked to chassis	Replace defective heater
Oven is dead. Fuse are OK.	1	Thermal cutout (Oven/SW3)	Open	Replace
			Normal	→ STEP 2
	2	Low voltage transformer	Open	Replace
			Normal	Check DPC Open or loose lead wire harness

[TROUBLE 2] Oven start cooking but lower microwave output power

SYMPTOM	→ STEP	CHECK	RESULT	CAUSE/CORRECTIONS
Low microwave output power. Defective Front or Back magnetron circuit.	1	Heat 1 liter of water for exactly one minute at HIGH power and check temperature rise	Greater than 11.5°C	Customer education
			Less than 11.5°C	Front or Back side magnetron circuit is faulty → STEP 2
	2	Thermal cutout SW1 (Front) and SW3 (Back) (Magnetron)	Abnormal	Replace and check fan motor operation
			Normal	→ STEP 3
	3	Power relay operation (RY1 and RY3)	Abnormal	Defective relay or DPC
			Normal	→ STEP 4
	4	Check operation by following procedure 1. Disconnect Back side of magnetron thermal cutout 2. Operate oven at High power for Front magnetron circuit only	Heated water	Defective Back side magnetron circuit → STEP 5
			No heat	Defective Front side magnetron circuit → STEP 5
	5	Open or loose connection of high voltage circuit especially magnetron filament circuit NOTE: Large contact resistance will bring lower magnetron filament voltage and causing magnetron to lower output and/or intermittent oscillation.	Abnormal	Repair loose connection
			Normal	→ STEP 6
	6	Check high voltage component for assumed defective front or back side circuit H.V.Transformers H.V.Capacitor H.V.Diode Magnetron		Check high voltage component according to component test procedure and replace if it is defective.

[TROUBLE 3] Oven does not start cooking

SYMPTOM	CAUSE	CORRECTIONS
1. Oven does not accept key input (Program)	1. Key input is not in-sequence	Refer to operation procedure.
	2. Open or loose connection of membrane key pad to DPC (Flat cable)	
	3. Open membrane key board	
	4. Defective DPC	Refer to DPC troubleshooting.
2. Oven lamp turn on when oven is plugged in with door closed. Oven can program but not start	1. Misalignment or loose wiring of secondary latch switch	Adjust door and latch switches
	2. Defective secondary latch switch	
3. Timer starts count down but no microwave oscillation.	1. Off-alignment of latch switches	Adjust door and latch switches
	2. Defective Primary latch switch	
	3. Defective short switch	
	4. Defective DPC	

[TROUBLE 4] Other trouble

SYMPTOM	CAUSE	CORRECTIONS
1. "F 01" appears in the display with continuous beep sounds	1. Burning food in the oven cavity due to over cook	It is appeared when exhaust temperature is too high.
2. "F 30" appears in the display	1. Open or shorted oven temp sensor 2. Open or loose oven temp sensor connector 3. Defective DPC	It is appeared 1 minute after start pad is pressed.
3. "F 35" appears in the display	1. Defective oven temp sensor 2. Open triac 3. Open heater element 4. Defective heater relays 5. Defective DPC	It is appeared 10 minutes after start pad is pressed at heater cooking mode. Oven temperature is not reached 80°C within 10 minutes.
4. "F 44" appears in the display	1. Shorted membrane switch 2. Defective DPC	It is appeared when membrane switch is shorted for more than 2 minutes.
5. No beep sound	1. Check beep sound level 2. Defective buzzer 3. Open or loose connection 4. Defective DPC	If beep sound level is set at "0" change it level.

[TROUBLE 5] Trouble related to Digital programmer circuit

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS
No display when oven is first plugged in and door is open.	1	Low voltage transformer (L.V.T) secondary voltage	Abnormal (0V)	L. V. T
			Normal	→ STEP 2
	2	CN2 pin 3 voltage	Abnormal	Q250,Q251,ZD250,C250
			Normal (18V)	→ STEP 3
	3	IC1 pin 64 voltage (Emitter of Q1)	Abnormal	ZD1, Q1
			Normal	→ STEP 4
	4	IC1 pin 27 voltage (14 pin of IC2)	Abnormal	IC2
			Normal (Approx 5V)	IC1, CX1, DISPLAY
No key input.	1	Membrane switch continuity	Abnormal	Membrane switch
			Normal	IC1
Oven lamp does not turn on.	1	Oven lamp	Open	Oven lamp
			Shorted	→ STEP 2
			Normal	→ STEP 3
	2	Fuse pattern of relay board	Open (NOTE)	Repair
			Normal	Replace oven lamp
	3	Membrane switch LAMP pad continuity	Open	Membrane switch
			Normal	→ STEP 4
	4	IC1 pin 22 voltage	Abnormal	IC1
			Normal	IC2, RY8

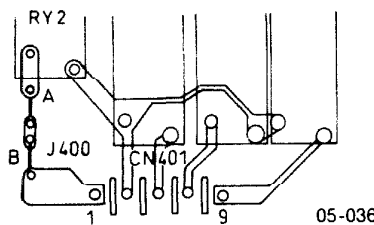
NOTE

Procedure of fuse pattern repairing is as follows:

1. Remove jumper wire (J400).

2. Insert removed jumper wire (J400) to "A" position and solder it.

If both "A" and "B" fuse pattern are open, please replace PCB.

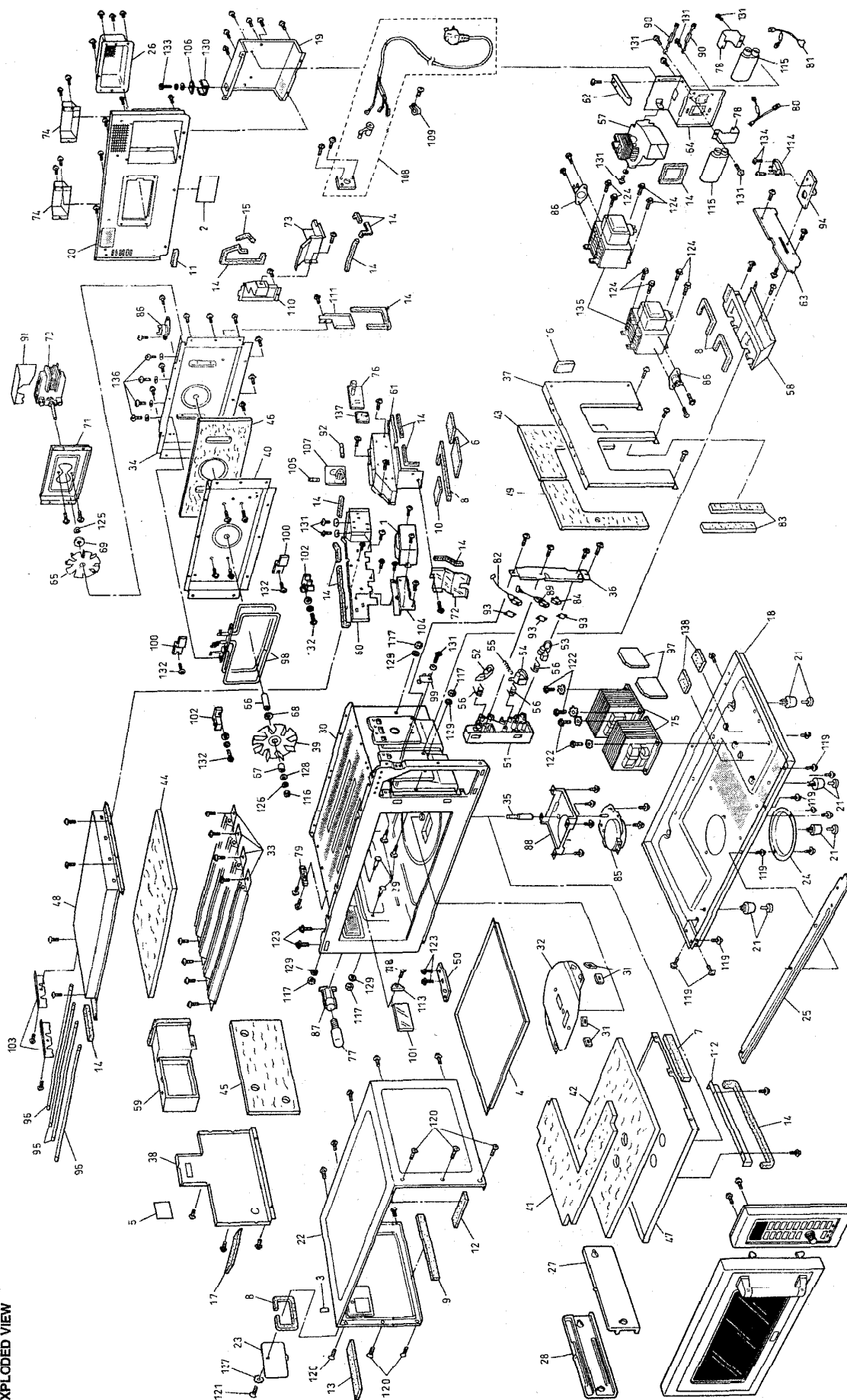


Microwave power relay (RY 1) does not turn on. (Front side magnetron circuit)	1	IC1 pin 54 and 11 voltage (at High power operation)	Abnormal	IC1
			Normal 54---5V, 11---5V	→ STEP 2
	2	Q5 transistor	Abnormal	Q5
			Normal	IC2, RY1
Microwave power relay (RY3) does not turn on. (Back side magnetron circuit)	1	IC1 pin 54 and 13 voltage (at High power operation)	Abnormal	IC1
			Normal 54---5V, 13---5V	→ STEP 2
	2	Q6 transistor	Abnormal	Q6
			Normal	IC2, RY3
Triac does not turn on.	1	IC1 pin 10 voltage	Abnormal	IC1
			Normal (5V)	→ STEP 2
	2	Shorted CN2 pin 5 and 2 and start heater mode operation	Turn on	IC4
			Not turn on	IC251, Triac

MEMO

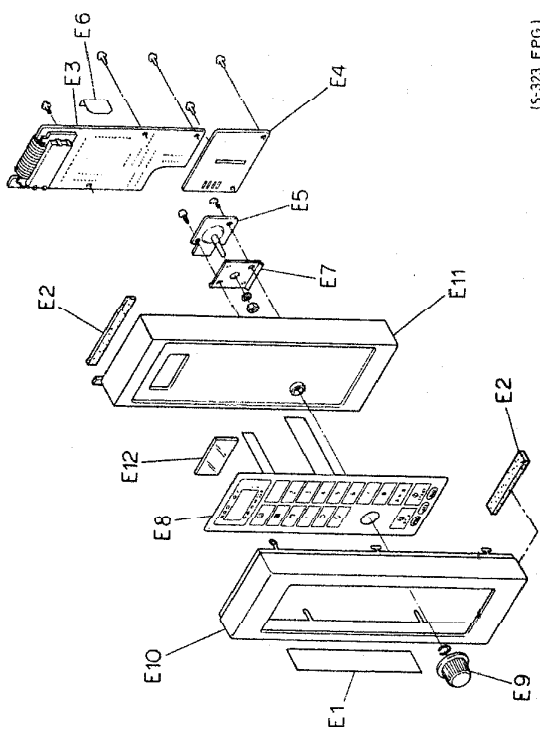
EXPLODED VIEW AND PARTS LIST

EXPLODED VIEW



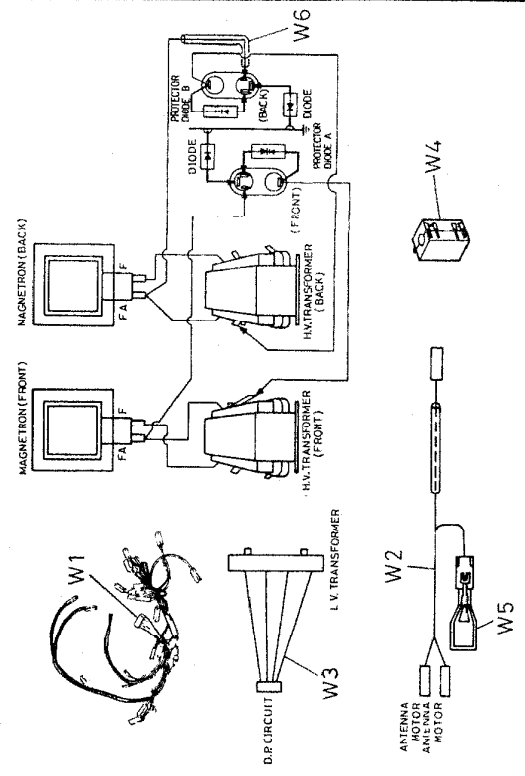
(5323 EPG)

ESCUTCHEON BASE ASSEMBLY



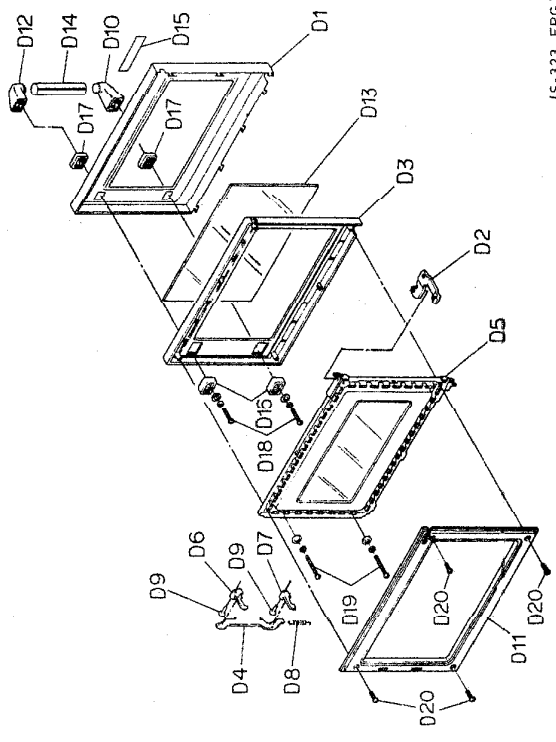
(S-323 EPG)

WIRING MATERIAL



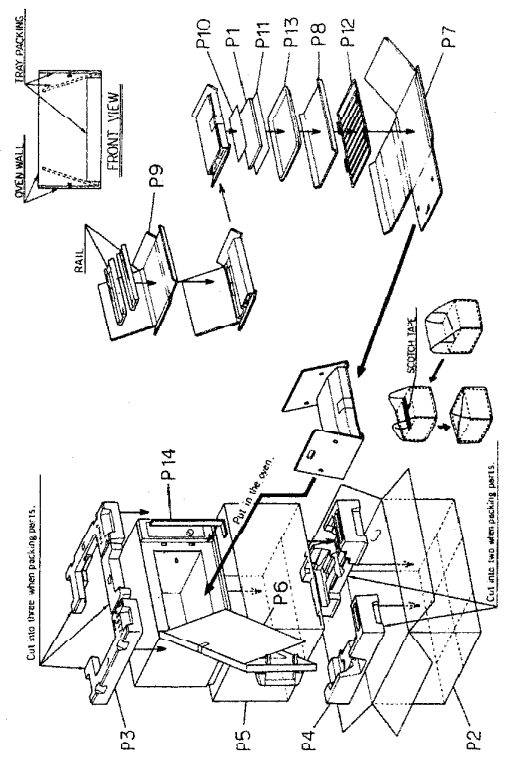
(S-323 EPG)

DOOR ASSEMBLY



(S-323 EPG)

PACKING AND ACCESSORIES



(S-323 EPG)

PARTS LIST

NOTE: Part numbers are indicated on most mechanical parts. Please use these part numbers for parts orders.

Important safety notice:

Components identified by Δ mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
1	Δ ETP48SJY919N	LV TRANSFORMER	1		62	A40213230BP	FAN CASE COVER	1	
2	ANE00068UOEP	CAUTION LABEL	1		63	A40313230BP	AIR GUIDE C	1	
3	ANE0072270GP	CAUTION LABEL	1		64	A41573230BP	FAN BRACKET A	1	
4	A010T5020AQ	SHELF	1		65	A41592020AP	FAN	1	
5	A02433230BP	TERMINAL LABEL	1		66	A41613230BP	FAN SPACER A	1	
6	ANE0911000DF	CUSHION RUBBER B	2		67	A41622020AP	FAN SPACER B	1	
7	ANE092A000BK	CUSHION RUBBER B	1		68	A41632020AP	FAN SPACER C	1	
8	ANE000Z000AA	CUSHION RUBBER C	4		69	A41636000BP	FAN SPACER C	1	
9	ANE000Z000AD	CUSHION RUBBER C	1		70	A41793230BP	HEATER FAN MOTOR	1	[34W]
10	ANE0922000EF	CUSHION RUBBER C	1		71	A41806000BP	HEATER FAN MOTOR BRACKET	1	
11	ANE0922000EH	CUSHION RUBBER C	1		72	A42123230BP	AIR GUIDE I	1	
12	ANE0922000FJ	CUSHION RUBBER C	1		73	A42563230BP	AIR GUIDE J	1	
13	ANE0922000JQ	CUSHION RUBBER C	1		74	A441Y3230BP	EXHAUST COVER	2	
14	ANE000Z000AB	CUSHION RUBBER C	14		75	Δ A600B3230GP	H.V. TRANSFORMER	2	[1.2KV]
15	ANE0924000AJ	CUSHION RUBBER C	1		76	A603M3230BP	PC BOARD B (U)	1	
16	ANE0926000CE	CUSHION RUBBER	1		77	ANE6030Q50GN	INCANDESCENT LAMP	1	[240V, 25W]
17	ANE0927000BK	CUSHION RUBBER	1		78	A60373230BP	CAPACITOR BRACKET	2	
18	A100A3230BP	BASE	1		79	A605Y3230BP	OVEN TEMP SENSOR	1	
19	A100L3230BP	BACK PANEL COVER	1		80	A606V3230BP	PROTECTOR DIODE A	1	
20	A100Q3230BP	BACK PANEL	1		81	A606W3230BP	PROTECTOR DIODE B	1	
21	A10083130AP	RUBBER FOOT	4		82	Δ A610A3230BP	SAFETY SWITCH A	1	[V-16G-3E8]
22	A11003230BP	CABINET BODY (U)	1		83	A23853230BP	ADIABATIC MATERIAL H	2	
23	A10263030GP	OVEN LAMP COVER (U)	1		84	Δ A61413230BP	LATCH SWITCH A	1	[V-16G-3C28-M]
24	ANE10288UOAP	ANTENNA MOTOR COVER	1		85	Δ ANE61448V0AP	ANTENNA MOTOR	1	[3W]
25	A10473230BP	LOWER SASH	1		86	Δ A61455850GP	THERMAL CUTOUT	3	
26	A11836000BP	BACK PANEL B	1		87	Δ A61523230BP	SOCKET	1	
27	A18073230BP	RIGHT RAIL	1		88	A61983230BP	MOTOR BRACKET	1	
28	A18083230BP	LEFT RAIL	1		89	A620X3230BP	CHANGE-OVER SWITCH	1	[V-15G-1E5-M]
29	A18593230BP	SHELF SUPPORT	4		90	ANE6202-3X0	DIODE SI	2	
30	A200A3230BP	OVEN	1		91	A62193230BP	INSULATION COVER A	1	
31	A20194210AQ	ANTENNA STOPPER	4		92	Δ ANE6230P10GN	FUSE	1	[16A]
32	A202K3230BP	MOVING ANTENNA	1		93	ANE6235X20AP	SPACER	3	
33	A202L3230BP	REFLECTION PLATE	4		94	A62443230BP	HEAT SINK	1	
34	A203M3230BP	CIRCULATION FAN CASE	1		95	Δ A631E3230GP	HEATER A (U)	1	
35	A202J3230BP	ANTENNA SHAFT	1		96	Δ A699D3230GP	HEATER B (U)	1	
36	A20853230BP	DOOR HOOK MOUNTING A	1		97	A63023230BP	INSULATION COVER B	2	
37	A22363230BP	RIGHT HEATER PANEL	1		98	A631D3230GP	HEATER C	2	
38	A22373230BP	LEFT HEATER PANEL	1		99	A6408-2050	WASHER	1	
39	A22392020AP	CIRCULATION FAN	1		100	A64173230BP	HEATER SUPPORT A	2	
40	A22413230BP	BACK ADIABATIC PANEL	1		101	A6437-1600	GLASS PLATE	1	
41	A22423230BP	ADIABATIC MATERIAL A	1		102	A64643230BP	HEATER SUPPORT B	2	
42	A22433230BP	ADIABATIC MATERIAL B	1		103	A65533230BP	HEATER BRACKET	2	
43	A22583230BP	ADIABATIC MATERIAL C	1		104	A65643230BP	TRANSFORMER BRACKET	1	
44	A22593230BP	ADIABATIC MATERIAL D	1		105	Δ A65953170GP	FUSE B	1	[1.25A]
45	A22603230BP	ADIABATIC MATERIAL E	1		106	A66623170GP	SPACER	1	
46	A22613230BP	ADIABATIC MATERIAL F	1		107	Δ A692Y3230GP	NOISE FILTER (U)	1	
47	A22773230BP	LOWER HEATER PANEL	1		108	Δ A901A3230GP	AC CORD W/PLUG (U)	1	[220-230V]
48	A22783230BP	UPPER HEATER PANEL	1		109	ANE9107A20GN	CORD HOLDER	1	
49	A23793230BP	ADIABATIC MATERIAL G	1		110	A97213230BP	BRACKET A	1	
50	A301L3230BP	HINGE	1		111	A97223230BP	BRACKET B	1	
51	A30203230BP	DOOR HOOK	1		112	A97233230BP	BRACKET C	1	
52	ANE31368UOAP	HOOK SPACER A	1		113	A98243230BP	BRACKET	1	
53	ANE31378UOAP	HOOK SPACER B	1		114	AESMBCCR30GM	TRIAC	1	
54	ANE31388UOAP	HOOK SPACER C	1		115	MS212105KW91	H.V. CAPACITOR	2	[0.85 μ FAC2100V]
55	ANE32398UOAP	LEVER SPRING A	1		116	XNG4EVS	NUT	1	[FOR HEATER FAN MOTOR]
56	ANE32628UOAP	LEVER SPRING B	3		117	XNW5EFN	NUT	4	[FOR SHELF SUPPORT]
57	Δ A400A3230BP	FAN MOTOR	1	[85W]	118	XST4-16VS	SCREW	1	4X8 [FOR GLASS PLATE]
58	A400E3230BP	AIR GUIDE A	1		119	XTT4-12BVK	SCREW (BLACK)	6	4X12 [FOR BASE]
59	A400K3230BP	EXHAUST GUIDE	1		120	XTC4-10BC	SCREW	6	4X10 [FOR CABINET BODY]
60	A400T3230BP	AIR GUIDE D	1		121	XTC4-10FC	SCREW	1	4X10 [FOR OVEN LAMP COVER]
61	A402A3230BP	AIR GUIDE E	1		122	XTEA6-E10F	SCREW	4	5X10 [FOR H.V. TRANSFORMER]

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
123	XSWANE5+10U	SCREW	4	5X10 (FOR HINGE)
124	XTWANE4+10RU	SCREW	8	4X10 (FOR MAGNETRON)
125	XUEANE32KP	RING	1	(FOR HEATER FAN MOTOR)
126	XWA4BV	WASHER	1	(FOR HEATER FAN MOTOR)
127	XWC4BPN	WASHER	1	(FOR OVEN LAMP COVER)
128	XWG4BV	WASHER	1	(FOR HEATER FAN MOTOR)
129	XWG5BV	WASHER	4	(FOR SHELF SUPPORT)
130	XWNAME65GV	WASHER	1	(FOR BACK PANEL COVER)
131	XYCANE4+EE8	SCREW	8	(FOR EARTH, DIODE, FAN MOTOR, CAPACITOR BRACKET, WASHER)
132	XYC4+F16XN	SCREW	4	4X16 (FOR HEATER SUPPORT)
133	XYE6+F20F	SCREW	1	6X12 (FOR EARTH)
134	XYN4+J10FN	SCREW	2	4X10 (FOR TRIAC)
135	2M167B-M14E	MAGNETRON	2	
136	XTTANE4+B10S	SCREW	4	4X10 (FOR CIRCULATION FAN CASE)
137	A605S3030GP	P.C. BOARD H (U)	1	
138	ANE0911000CC	CUSHION RUBBER B	2	

DOOR ASSEMBLY

D1	A300A3230BP	DOOR B	1	
D2	A300B3230BP	UPPER HINGE	1	
D3	A30013230BP	DOOR A (U)	1	
D4	ANE301H8U0AP	DOOR KEY LEVER B	1	
D5	A302K3230BP	DOOR E (U)	1	
D6	A30183230BP	DOOR KEY A	1	
D7	A30193230BP	DOOR KEY B	1	
D8	ANE30218U0AP	DOOR KEY SPRING	1	
D9	ANE30562Q0AP	HANDLE PIN	2	
D10	ANE3070P60AP	HANDLE PEICE A	1	
D11	A30853230BP	DOOR C	1	
D12	ANE3134P60AP	HANDLE PEICE B	1	
D13	A31463230BP	DOOR SCREEN B (U)	1	
D14	A31473230BP	HANDLE PEICE C	1	
D15	A31863230GP	DOOR PANEL	1	
D16	A32133230BP	DOOR HANDLE SPACER A	2	
D17	A32163230BP	HANDLE SPACER	2	
D18	XYN4+F25FN	SCREW	2	4X25
D19	XYN4+J30FN	SCREW	2	4X30
D20	XTBANE4+12FK	SCREW (BLACK)	4	4X12 (FOR BASE)

ESCUTCHEON BASE ASSEMBLY

E1	A01573230EP	NAME PLATE	1	
E2	ANE0962000AH	CUSHION RUBBER D	2	
E3	A603L3230EP	D.P.CIRCUIT (U)	1	RTL (W/COMPONENT)
E4	A605Q3230GP	P.C. BOARD F (U)	1	
E5	A605S3230BP	TIMER	1	
E6	A61563230BP	INSULATION PANEL	1	
E7	A63433230BP	TIMER BRACKET	1	
E8	A64793230BP	MEMBRANE SWITCH	1	
E9	A800U3230BP	TIMER KNOB	1	
E10	A800N3230BP	ESCUTCHEON A	1	(NOTE 1)
E11	A80343230BP	ESCUTCHEON BASE	1	
E12	A81263230BP	SMOKE PANEL	1	

PACKING AND ACCESORIES

P1	A0003230EP	INSTRUCTION BOOK	1	
P2	A01023230EP	PACKING CASE,PAPER	1	
P3	A01043230BP	UPPER FILLER	1	

P4	A01053230BP	LOWER FILLER	1	
P5	A01065130AP	VINYL COVER	1	
P6	ANE0107580AP	DOOR SHEET	1	
P7	A01083230BP	TRAY PACKING	1	
P8	A01173230BP	TRAY PACKING B	1	
P9	A02193230BP	RAIL PACKING	1	
P10	A03343230BP	MENU LABEL	1	
P11	A04203230EP	OPERATING GUIDE	1	
P12	A06023230BP	WIRE RACK SHELF	1	
P13	A06033230GP	CERAMIC INSULATING TRAY	1	
P14	A01453230BP	DOOR SHEET B	1	

WIRING MATERIAL

W1	A030A3230GP	LEAD WIRE HARNESS	1	
W2	A03603230BP	LEAD WIRE	1	(W/NOISE KILLER)
W3	A03813230BP	LEAD WIRE	1	
W4	A50966520UP	FERRITE CORE	2	
W5	A604Q6000BP	NOISE KILLER	1	
W6	A61393230BP	INSULATION TUBE	1	

REF. NO. 76 P.C. BOARD B (U)

C250	ECA1HM102E	ELECTROLYTIC CAPACITOR-AL	1	1000 μ F/50V
C251	ECQU2A104MNA	POLYESTER CAPACITOR	1	0.1 μ F/250V
CN250	AEEMMF01F05V	CONNECTOR	1	5PIN
CN251	AEEMMD04907W	CONNECTOR	1	7PIN
IC251	AEICTLP665JF	LSI	1	
Q250	A6244UE1625	HEAT SINK	1	
Q250	2SD1266PQ-S	TRANSISTOR,SI	1	
Q251	2SD1991AQSTA	TRANSISTOR,SI	1	
R250	ERDS2TJ302T	CARBON FILM RESISTOR	1	3K Ω , 1/4W, $\pm$ 5%
R251	ERDS2TJ511T	CARBON FILM RESISTOR	2	510K Ω , 1/4W, $\pm$ 5%
252				
R253	ERQ12AJ201P	FUSE RESISTOR	1	200K Ω , 1/2W, $\pm$ 5%
R254	ERQ14AJ331P	FUSE RESISTOR	1	330K Ω , 1/4W, $\pm$ 5%
R255	ERG1SJ101P	RESISTOR	1	100K Ω , 1W, $\pm$ 5%
R256	ERDS2TJ103T	CARBON FILM RESISTOR	1	10K Ω , 1/4W, $\pm$ 5%
ZD250	AEDZ20ES3T1	ZENER DIODE	1	

REF. NO. 107 NOISE FILTER (U)

C1	ECQU2A105MXA	POLYESTER CAPACITOR	1	1.0 μ F/250V
C2,3	ECQU2A472MXA	POLYESTER CAPACITOR	2	0.0047 μ F/250V
C4	ECQU2A684MXA	POLYESTER CAPACITOR	1	0.68 μ F/250V
CN1	AEEMMD00703W	CONNECTOR	1	3PIN
F1	A62316010BP	FUSE HOLDER	2	
F2	A62316000GP	FUSE HOLDER	2	
L1	A621A-1810	FILTER COIL	1	
R1	ERF15ZXJ240	RESISTOR	1	240K Ω , 15W, $\pm$ 5%
ZNR1	ERZC10DK621F	VARISTOR	1	
ZNR2,3	ERZC10DK112A	VARISTOR	2	

REF. NO. 137 P.C. BOARD H (U)

BZ	EFBRL37C20	BUZZER	1	
CN551	AEEMMB00703R	CONNECTOR	1	3PIN
Q551	MA196-(TA5)	DIODE,SI	1	
Q551	2SD639-PQRS	TRANSISTOR,SI	1	
R551	ERDS2TJ681T	CARBON FILM RESISTOR	1	180K Ω , 1/4W, $\pm$ 5%
R553	ERDS2TJ103T	CARBON FILM RESISTOR	1	10K Ω , 1/4W, $\pm$ 5%

(S-223 PPG)

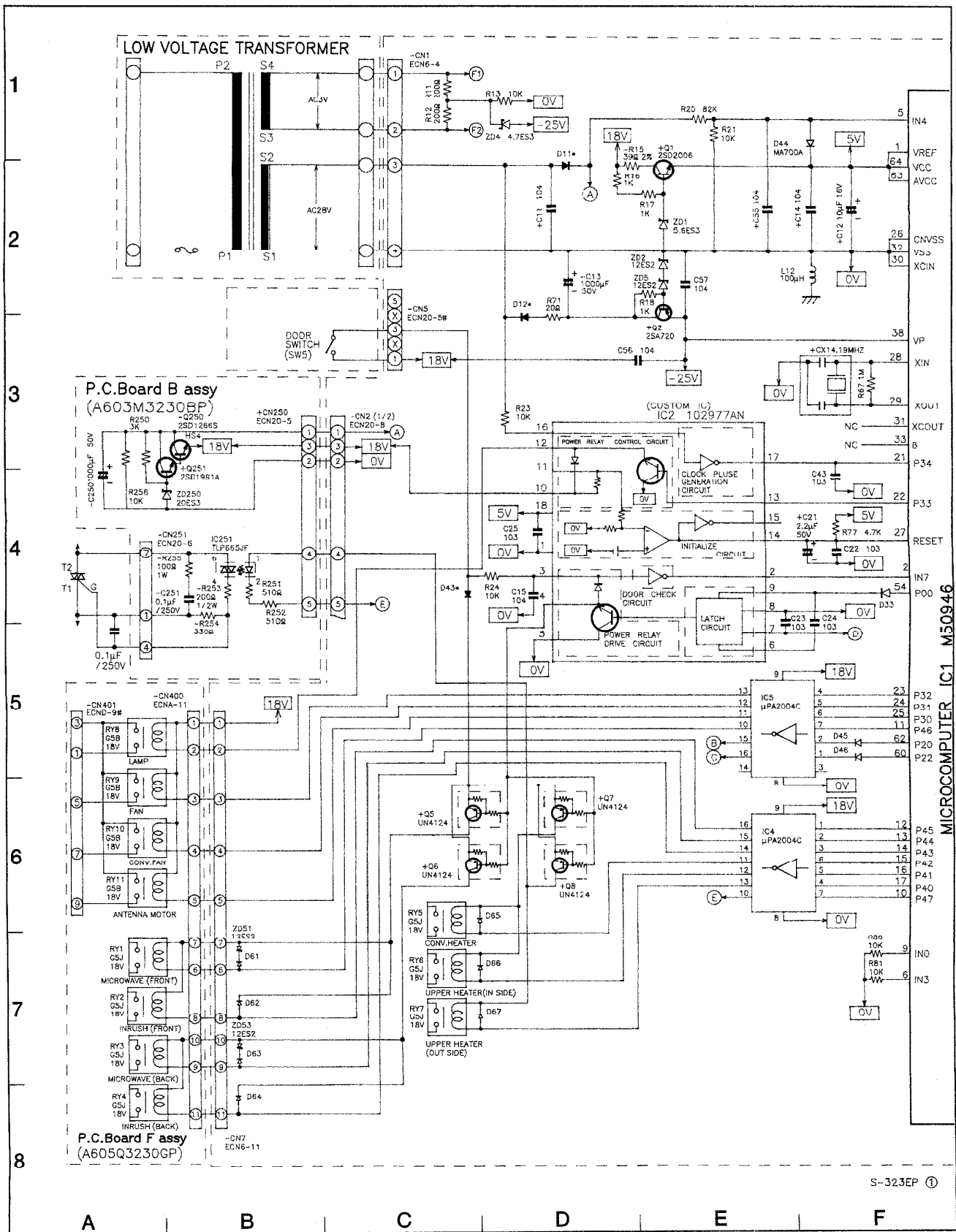
Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
REF. NO. E4 P.C. BOARD F (U)					
RY1,2,3,4	△	AEG5J1EM18B	POWER RELAY	4	
RY8,9,10,11	△	AEBG5B18P-1	POWER RELAY	4	

NOTE 1: Please order name plate together.

MEMO

DIGITAL PROGRAMMER CIRCUIT

SCHEMATIC DIAGRAM



S-323EP ①



DIGITAL PROGRAMMER CIRCUIT**PARTS LIST**

Ref. No.	Part No.	Description	Pcs/ Set	Remarks	Ref. No.	Part No.	Description	Pcs/ Set	Remarks
C11,14,15, 41,42,48,55, 56,57	AECF50F104Z	CERAMIC CAPACITOR	9	0.1MF/50V/ -20%+80%	R37	ERDS2TJ914T	CARBON FILM RESISTOR	1	910K Ω , 1/4W, $\pm$ 5%
C12	ECEA1CKA100B	ELECTROLYTIC CAPACITOR AL	1	10MF/16V/ $\pm$ 20%	R67	ERDS2TJ105T	CARBON FILM RESISTOR	1	1M Ω , 1/4W, $\pm$ 5%
C13	ECA1HM102E	ELECTROLYTIC CAPACITOR AL	1	1000MF/50V/ $\pm$ 20%	R71	ERDS2FJ200T	CARBON FILM RESISTOR	1	20 Ω , 1/4W, $\pm$ 5%
C21	ECEA1HKA2R2B	ELECTROLYTIC CAPACITOR AL	1	2.2MF/50V/ $\pm$ 20%	R77	ERDS2TJ472T	CARBON FILM RESISTOR	1	4.7K Ω , 1/4W, $\pm$ 5%
C22,23,24, 25,35,36,43, 49,50	ECBT1E103ZF5	CERAMIC CAPACITOR	9	0.01MF/25V/ -20%+80%	RY5,6,7	Δ AEG5J1EM18B	POWER RELAY	3	(18V)
C44,45,46,47	ECBT1H101KB5	CERAMIC CAPACITOR	4	0.0001MF/50V/ $\pm$ 10%	SPACER	A82845540GP	SPACER CUSHION	1	FOR DISP
CN1	AEEMB04BEHA	CONNECTOR	1	4PIN	Z1	AEXBM4X104JT	COMPOUND-RESISTOR	1	100K Ω X4
CN2	AEEMMD0FF08W	CONNECTOR	1	8PIN	ZD1	AEDZ5R6ES3T1	ZENER DIODE,SI	1	
CN3	AEEM09FDZBTM	CONNECTOR	1		ZD2,5,51,53	AEDZ12ES2T1	ZENER DIODE,SI	4	
CN4	AEEMMF00F04R	CONNECTOR	1	4PIN (RED)	ZD4	AEDZ4R7ES3T1	ZENER DIODE,SI	1	
CN5	AEEMMD01505W	CONNECTOR	1	5PIN	JPR1	ERDS2TJ183T	CARBON FILM RESISTOR	1	18K Ω , 1/4W, $\pm$ 5%
CN7	AEEMB11BEHA	CONNECTOR	1	11PIN					
CN8	AEEMB03BPHK	CONNECTOR	1	3PIN					
CX1	EFOGC4194T4	RESONATOR	1	4.19MHZ					
D11,12,43	AEDNERA1502	DIODE,SI	3	(0.1A)					
D13,33,41, 42,45,46,51, 52,53,54,55, 61,62,63,64, 65,66,67	MA196—(TA5)	DIODE,SI	18	(0.1A)					
D44	MA700A—(TA)	DIODE,SI	1	(0.03A)					
DISP	A64563230BP	FLUORESCENT TUBE	1						
IC1	AEIC50946238	IC,SI	1						
IC2	AEIC102977AN	IC	1						
IC3	AEICX24C04	IC	1						
IC4,5	AEICUPA2004C	IC	2						
L11,12	ALAP02TA101K	INDUCTOR	2	100MH					
Q1	2SD2006QRTA	TRANSISTOR,SI,1.2W	1	(120MHZ)					
Q2	2SA720PRTA	TRANSISTOR,SI,400MW	1	(200MHZ)					
Q5,6,7,8	UN4124—(TA)	TRANSISTOR,SI,300MW	4						
Q17,21	2SC1318QSTA	TRANSISTOR,SI,400MW	2	(200MHZ)					
Q20	UN4111—(TA)	TRANSISTOR,SI,300MW	1						
R11,12	ERDS2FJ201T	CARBON FILM RESISTOR	2	200 Ω , 1/4W, $\pm$ 5%					
R13,21,23, 24,31,32,57, 58,80,81	ERDS2TJ103T	CARBON FILM RESISTOR	10	10K Ω , 1/4W, $\pm$ 5%					
R15	ERD2FCG390P	CARBON FILM RESISTOR	1	39 Ω , 1/4W, $\pm$ 2%					
R16,17,18, 60,61,62,63, 72,73,74,75, 76	ERDS2TJ102T	CARBON FILM RESISTOR	12	1.0K Ω , 1/4W, $\pm$ 5%					
R20	ERDS2TJ823T	CARBON FILM RESISTOR	1	82K Ω , 1/4W, $\pm$ 5%					
R22,26,78,79	ERDS2TJ471T	CARBON FILM RESISTOR	4	470 Ω , 1/4W, $\pm$ 5%					
R25	ERDS2TJ153T	CARBON FILM RESISTOR	1	15K Ω , 1/4W, $\pm$ 5%					
R30	ERDS2TJ332T	CARBON FILM RESISTOR	1	3.3K Ω , 1/4W, $\pm$ 5%					
R34	ERDS2TJ202T	CARBON FILM RESISTOR	1	2K Ω , 1/4W, $\pm$ 5%					
R35	ERDS2TJ272T	CARBON FILM RESISTOR	1	2.7K Ω , 1/4W, $\pm$ 5%					
R36	ERDS2TJ751T	CARBON FILM RESISTOR	1	750 Ω , 1/4W, $\pm$ 5%					

SERVICE FIXTURES AND TOOLS**EXTENSION CABLES**

NOTE: To be used when repairing the DPC board assembly directly on the oven for easy access of the board.

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
	AT40P004	4 pin Extension Cable	1	Cable No. 47
	AT40P005	5 pin Extension Cable	1	Cable No. 46
	AT40P008	8 pin Extension Cable	1	Cable No. 51
	AT40K004	4 pin Extension Cable	1	Cable No. 52
	AT40E006	1 pin X 6 Extension Cable	1	Cable No. 9

DPC COMMON CHECKER AND ITS CABLE

NOTE: To be used only when DPC common checker is available.

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
	ANE600ZK70GP	DPC Common Checker	1	
	AT30A3230BP	DPC Checker Cable	1	NOTE

MEMO