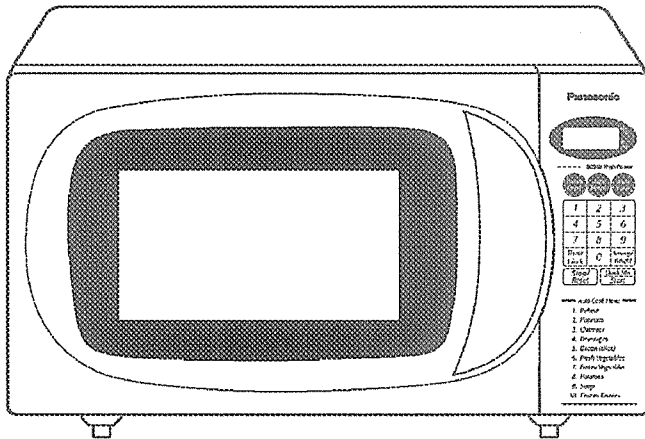


Service Manual

Microwave Oven



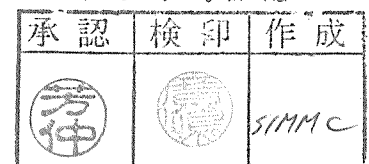
NN-MX25WF
NN-MX25WM

RPH(Mexico/Latin American)

Specification

Model	NN-MX25WF/WM
Power Source:	120V AC Single Phase, 60Hz
Power Requirement:	1200W
Output(IEC705-88):	800W
Microwave Frequency:	2450MHZ
Timer:	99min.90sec
Outside Dimensions:	482mm(W) x 357mm(D) x 282mm(H)
Oven Cavity Dimensions:	330mm(W) x 325mm(D) x 218mm(H)
Weight:	14kg
Output power:IEC705-88 Test Procedure	
Specifications subject to change without notice.	

2002年 6月 26日 No.




Panasonic®

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WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

WARNING

1. This product should be serviced only by trained, qualified personnel.
2. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage."
3. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
4. There are special components used in the microwave oven which are important for safety. These parts are marked with a  on the replacement parts list. It is essential that these critical parts should be replaced only with the manufacture's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the original design.

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.

RPH For Mexico & Latin American

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

- | | |
|--|---|
| <p>(A) Do not operate or allow the oven to be operated with the door open.</p> <p>(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:</p> <ol style="list-style-type: none"> (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 <p>(C) Before turning on microwave power for any service test or</p> | <p>inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.</p> <p>(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.</p> <p>(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.</p> |
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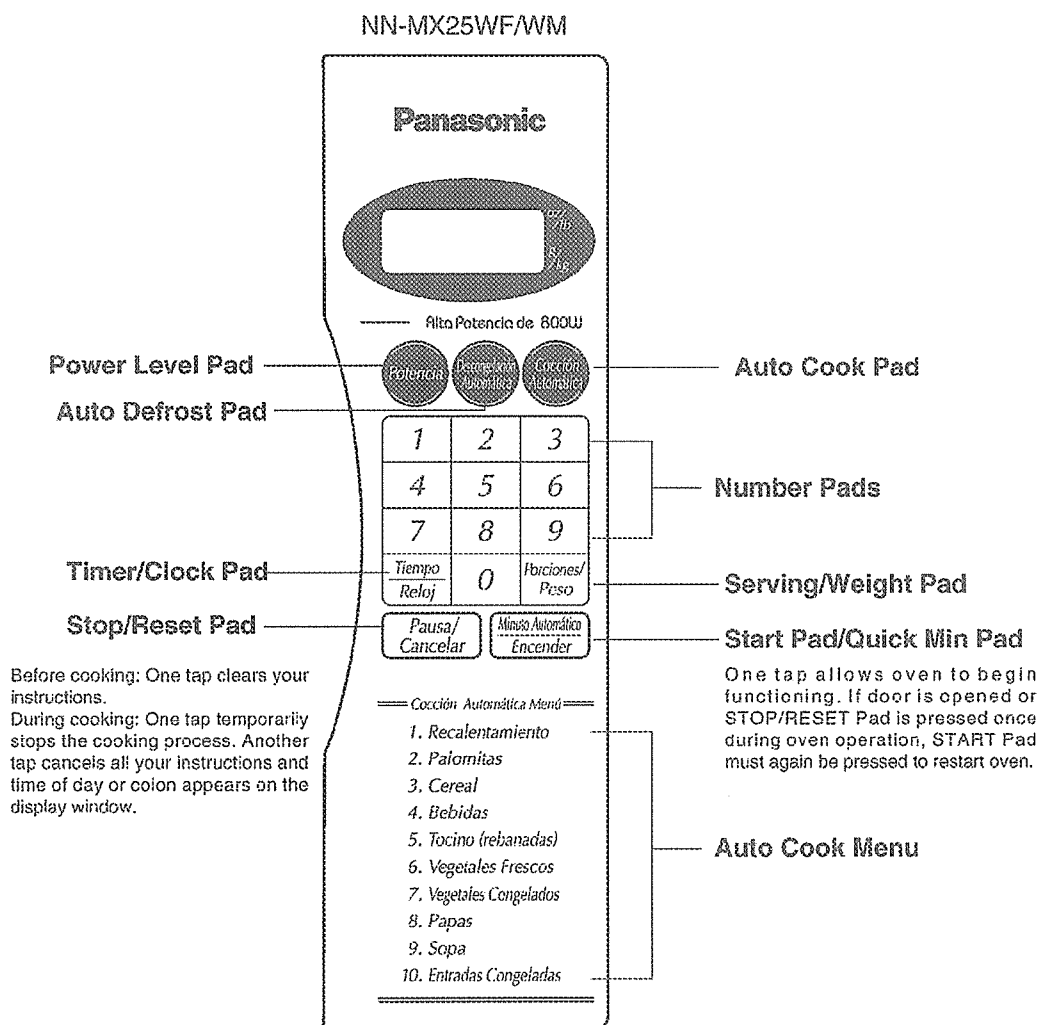
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1 FEATURE CHART

FEATURE	MODEL	NN-MX25WF	NN-MX25WM
Three Stage Cooking		○	○
Auto Defrost		○	○
Auto Cook		○	○
Power Level Select		○	○
Quick Min		○	○
Timer		○	○
Digital Clock		○	○
Child Safety Lock		○	○

2 CONTROL PANEL



Pull Door Handle:

Pull to open the door. Opening the door during cooking will stop the cooking process without cancelling the program. Cooking resumes as soon as the door is closed. The oven light will turn on and stay on whenever the door is opened. It is quite safe to open the door at any time during a cooking program and there is no risk of microwave exposure.

3 OPERATION AND DIGITAL PROGRAMMER CIRCUIT TEST PROCEDURE

When you plug the power supply cord into the wall outlet, microwave oven automatically enter into the state of lb / oz. If you want to use g / kg state, please press **Quick Min/Start** pad after plugging the power source.

3.1. To Set Clock

OPERATION	SCROLL DISPLAY
1. Plug the power supply cord into wall outlet.	88.88
2. Press Timer/Clock pad twice.	* *
3. Enter time of day (TOD) by pressing appropriate Number pads.	11*25
4. Press Time/Clock pad. TOD has now been registered into the digital programmer circuit and will count up by minutes.	11:25

3.2. Time Cooking for Two Stage

OPERATION	SCROLL DISPLAY
1. Place a water load in the oven.	
2. Press Power Level pad once to set High power. (1st stage)	P 10
3. Set for 5 seconds by pressing Number pads. 5 sec. 5	. 5
4. Press Power Level pad 6 times to set Medium power. (2nd stage)	P 5
5. Set for 1 minute by pressing Number pads. 1 Min. 1 0 0	1.00
6. Press Quick Min/Start pad.	. 5
7. When 1st stage cooking time has elapsed. Oven beeps twice and automatically switches to 2nd stage cooking.	1.00

OPERATION	SCROLL DISPLAY
8. When 2nd stage cooking time has elapsed, oven beeps 5 times and shuts off.	Time of day or colon if set appears in the display

3.3. Auto Defrost

OPERATION	SCROLL DISPLAY
1. Press Auto Defrost Pad.	*
2. Set the weight for 1 lb by pressing Number pads. 1 lb = 1 0	1.0
3. Press Quick Min/Start pad.	4.23
4. Press Stop/Reset Pad twice. Oven shuts off.	Time of day or colon if set appears in the display.

3.4. Auto Cook

OPERATION	SCROLL DISPLAY
1. Press Auto Cook pad 5 times to select Bacon.	5
2. Press Serving / Weight pad. (Select 4, 6, 10, 14 slices)	4
3. Press Quick Min/Start pad.	4.10
When cooking time has elapsed, Oven beeps 5 times and shuts off.	Time of day or colon if set appears in the display

3.5. To Set Child safety Lock

OPERATION	SCROLL DISPLAY
1. Press Stop/Reset pad 3 times continuously. "Child" appears in the display.	Child

3.6. To Reset Child Lock

OPERATION	SCROLL DISPLAY
1. Press Stop / Reset pad 3 times continuously.	Time of day or colon if set appears in the display.

5 DESCRIPTION OF OPERATING SEQUENCE

5.1. Variable power cooking control

The coil of power relay B (RY1) is 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 relay B contacts in order to vary the output power of the microwave oven from "Low" to "High" power. One complete ON and OFF cycle of power relay B is 22 seconds. The relation between indications on the control panel and the output of the microwave oven is as shown in table.

NOTE:

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.

POWERSETTING	OUTPUT POWER(%) APPROX	ON-OFF TIME OF POWER RELAY B (RY1)	
		ON(SEC)	OFF(SEC)
HIGH	100%	22	0
MEDIUM-HIGH	70%	17	5
MEDIUM	50%	13	9
MEDIUM-LOW	30%	8	14
LOW	15%	5	17
DEFROST	30%	8	14

5.2. Auto Defrost, Auto Reheat, Auto Cook control

When those Auto Control feature is selected and the Start Pad is tapped:

1. The digital programmer circuit determines the power level and cooking time to complete cooking and indicates the operating state in the display window.

Table shows the corresponding cooking times for respective serving or weight by categories.

2. When cooking time in the display window has elapsed, the oven turns off automatically by a control signal from the digital programmer circuit.

Auto Defrost

WEIGHT SELECTED	COOKING TIME
1.0KG	9 min.23 sec.

Auto Cook

CATEGORY	WEIGHT SELECTED	COOKING TIME
Oatmeal	1 SERV	4 min.30 sec.

6 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.

6.1. Check the grounding

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

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

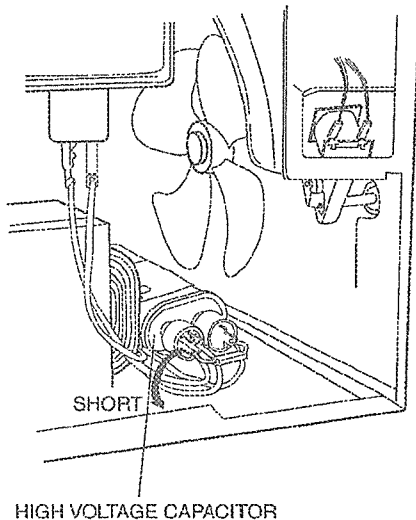
For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitor. When replacing or checking parts, remove the power plug from the outlet and short the terminal of the high voltage capacitor (terminal of lead wire from diode) to chassis ground with an insulated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

WARNING

There is high-voltage present, with high-current capabilities in the circuits of the high voltage winding and filament winding of the high voltage transformer. It is extremely dangerous to work on or near these circuits with oven energized. DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.

WARNING

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



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

6.3. When parts must be replaced, remove the power plug from the outlet.

6.4. When the 15 Amp fuse is blown due to the operation of short switch:

WARNING

When the 15 Amp fuse is blown due to the operation of short switch, you must replace Primary latch switch and short switch. Also replace power relay B (RY1) when the continuity check reads shorted contacts(1-2).

1. This is mandatory. Refer to "Adjustments and Measurement" for these switches.
2. When replacing the fuse, confirm that it has the appropriate rating for these models.
3. When replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.

6.5. Avoid inserting nails, wire, etc. through any holes in the 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.

6.6. Confirm after repair

1. After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing. Microwaves might leak if screws are not properly tightened.
2. Make sure that all electrical connections are tight before inserting the plug into the wall outlet.
3. Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage.)

CAUTION

MICROWAVE RADIATION

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

IMPORTANT NOTICE

1. The following components have potentials above 130V while the appliance is operated.
 - * Magnetron
 - * High voltage transformer
 - * High voltage diode
 - * High voltage capacitor
 Pay special attention on these portions.
2. When the appliance is operated with the door hinge or magnetron fixed incorrectly, the microwave leakage can reach more than $5\text{mW}/\text{cm}^2$. After repair or exchange, it is very important to check if magnetron and the door hinge is correctly fixed.

7 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

7.1. Magnetron

1. Discharge the high voltage capacitor.
2. Remove 2 screws holding magnetron thermal cutout.
3. Remove 1 screw holding air guide A.
4. Disconnect 2 high voltage lead wires from magnetron filament terminals.
5. Remove 2 screws holding the magnetron.

NOTE:

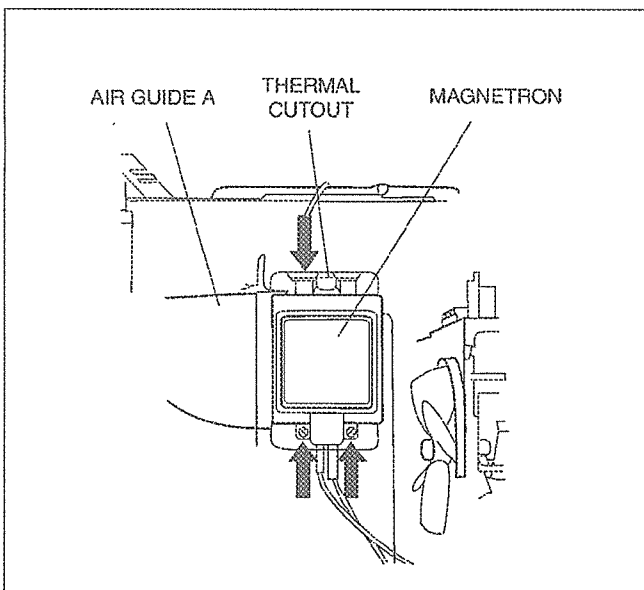
After replacement of the magnetron, tighten mounting screws properly making sure there is no gap between the waveguide and the magnetron to prevent microwave leakage.

CAUTION

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

CAUTION

When connecting 2 filament lead wires to the magnetron terminals, be sure to connect the lead wires in the correct position. The lead wire of high voltage transformer should be connected to "F terminal" and the lead wire from high voltage capacitor should be connected to "FA terminal".



7.2. Digital Programmer Circuit (DPC) and membrane key board.

NOTE:

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

1. Disconnect all connectors from D.P.C.
2. Remove 1 screw holding escutcheon base and slide the escutcheon base upward slightly.
3. Remove 1 screws holding DPC.
4. Separate D.P.C board from tabs on the escutcheon base and remove D.P.C board.
5. Remove rubber connector.
6. Separate display holder from tabs on the escutcheon base and remove display holder.
7. Remove display.

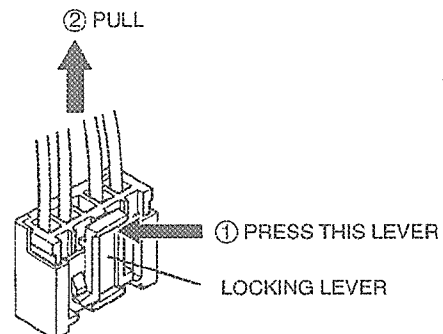
To replace membrane key board

8. Push the upper part of key board (display window portion) from back of escutcheon base and peel off escutcheon sheet and membrane key board completely from escutcheon base.

NOTE:

1. The membrane key board is attached to the escutcheon base with double faced adhesive tape. Therefore, applying hot air such as using a hair dryer is recommended for smoother removal.
2. 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.
3. Alignment position of membrane key board is as follows;
Membrane key board: Right and upper edges
Escutcheon sheet: Right and upper edges

HOW TO DISCONNECT SPECIAL LOCK CONNECTOR



7.3. Low voltage transformer and/or power relays (RY1, RY2)

NOTE:

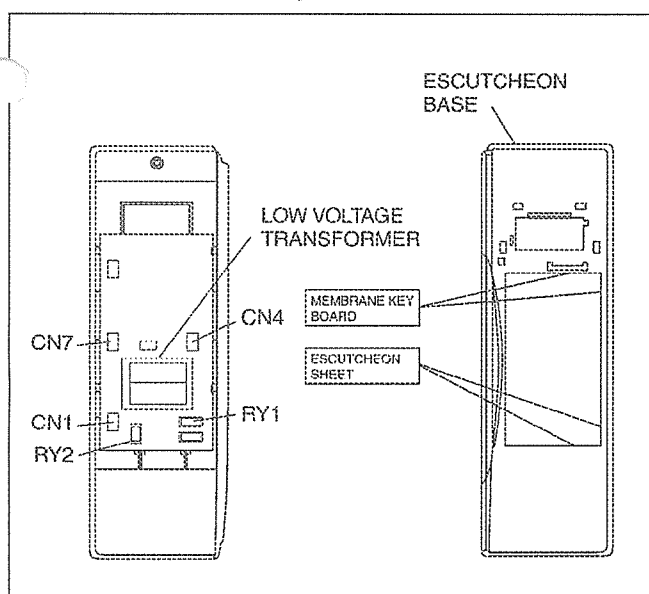
Be sure to ground any static electric charge built up on your body before handling the DPC.

(A) 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:

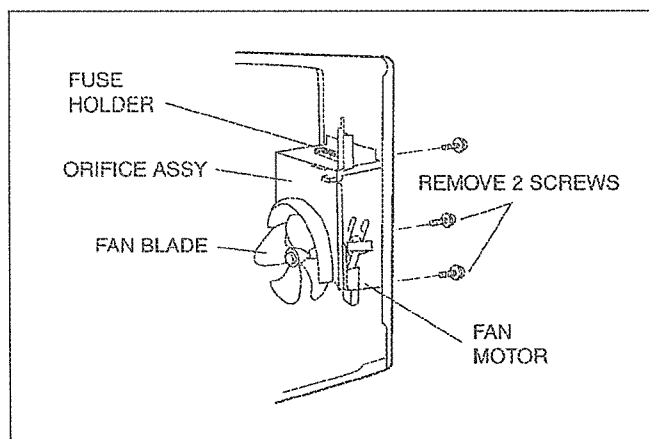
Do not use a soldering iron or desoldering tool of more than 30 watts on DPC contacts.

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



7.4. Fan motor

1. Disconnect 2 lead wires from fan motor terminals.
2. Remove 2 screws holding fan motor and orifice assy and detach the fan motor from oven assy.
3. Remove fan blade from the motor shaft by pulling it straight out.



7.5. Door assembly

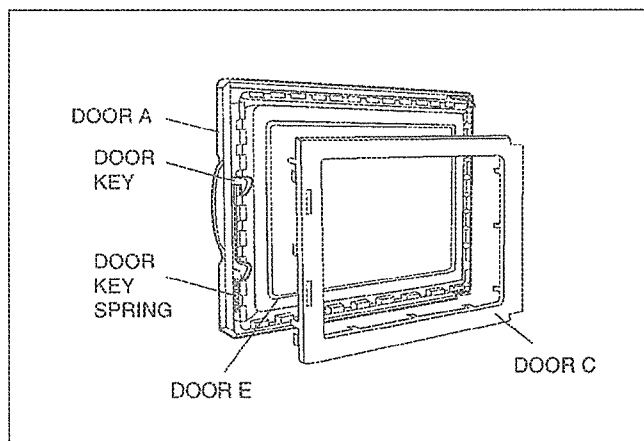
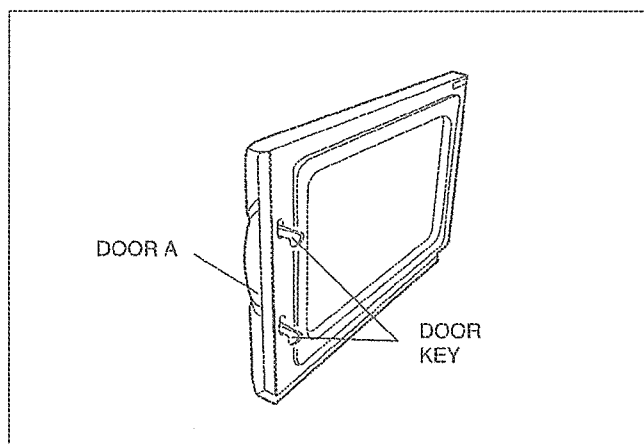
1. Remove door C from door E by carefully pulling outward starting from upper right hand corner using a flat blade screwdriver.
2. Separate door E from tabs on door A and remove door A.
3. Remove door screen B from door A.
4. Remove door key and door key spring.
5. Open Door E at the opening angle of approximately 10°(Note: The door cannot be removed if the opening angle is greater than 10°).
6. Remove the door E from its hinges by pushing the door E's bottom upward and out.
7. Replace other components.

NOTE:

Door alignment is crucial. If door is misaligned, apply pressure until alignment is achieved.

NOTE:

After replacement of the defective component parts of the door, reassemble, install, and perform microwave leakage test.



7.6. Turntable motor

1. Remove the motor cover by breaking off at the 4 spots indicated by arrows with a cutter or the like.

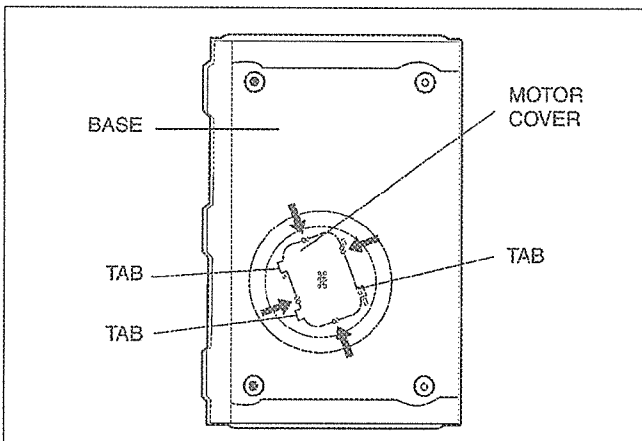
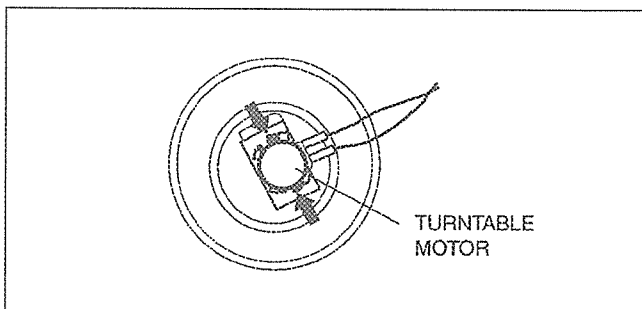
NOTE:

After breaking off the motor cover, make sure that cut-off portions are properly trimmed off or bent to inside so that no sharp edges will be exposed to the outside.

2. Disconnect 2 lead wires connected to the turntable motor.
3. Remove the turntable motor by removing 2 screw.

NOTE:

After reinstalling the new turntable motor and reconnecting the 2 lead wires, reinstall the motor cover by rotating it around 180°, tucking the 2 tabs under the base into the 2 provided slots, then screw the single tab to the base using a screw.



8 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.

8.1. Primary Latch Switch, Secondary (Secondary Latch switch and Power Relay B) Interlocks.

1. Unplug the lead connectors to Power Relay B and verify continuity of the power relay B 1-2 terminals.
2. Unplug lead connectors to primary Latch switch and Secondary Latch Switch.
3. Test the continuity of switches at door opened and closed positions with ohm meter (low scale).
Normal continuity readings should be as follows.

	Door Opened	Door Closed
Primary Latch Switch	$\infty \Omega$ (open)	0 Ω (close)
Secondary Latch Switch	$\infty \Omega$ (open)	0 Ω (close)
Power Relay B	$\infty \Omega$ (open)	$\infty \Omega$ (open)

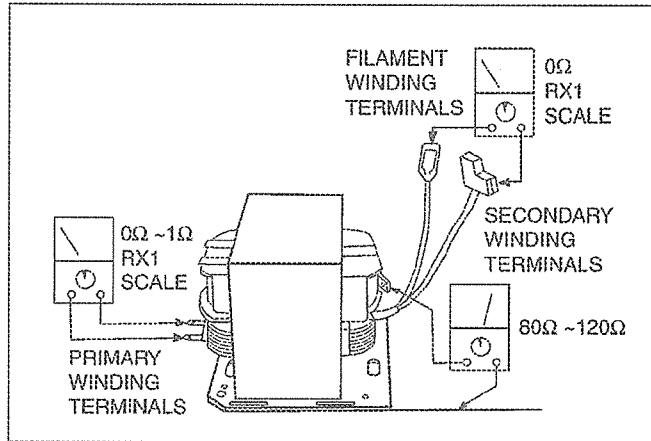
8.2. Short Switch & Monitor

1. Unplug lead wires from H.V. transformer primary terminals.
2. Connect test probes of ohm meter to the disconnected leads of the H.V. Transformer.
3. Test the continuity of short switch with door opened and closed positions using lowest scale of the ohm meter.
Normal continuity readings should be as follows.

Door Opened	Door Closed
0 Ω	$\infty \Omega$

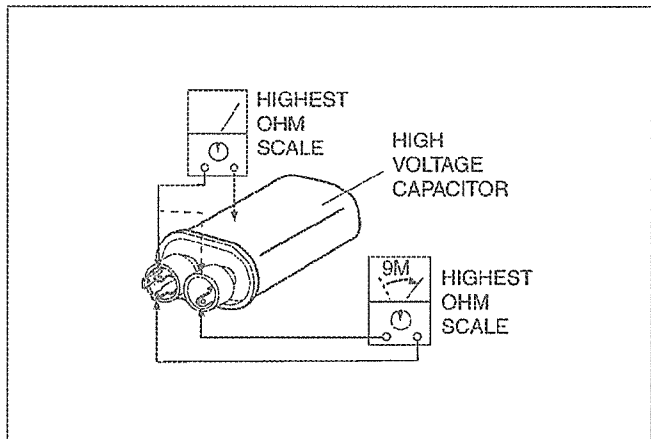
8.3. High voltage transformer

1. Remove connectors from the transformer terminals and check continuity.
2. Normal (cold) resistance readings should be as follows:
Secondary winding..... Approx. 80 Ω ~120 Ω
Filament winding..... Approx. 0 Ω
Primary winding..... Approx. 0 Ω ~1 Ω



8.4. High voltage capacitor

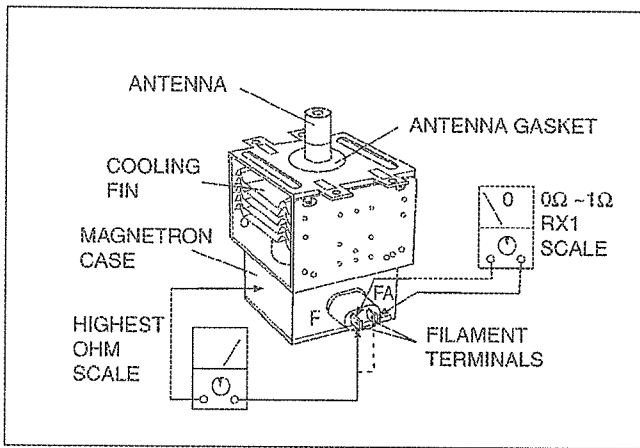
1. Check continuity of capacitor with meter on highest OHM scale.
2. A normal capacitor will show continuity for a short time, and then indicate 9M Ω once the capacitor is charged.
3. A shorted capacitor will show continuous continuity.
4. An open capacitor will show constant 9M Ω .
5. Resistance between each terminal and chassis should be infinite.



8.5. Magnetron

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

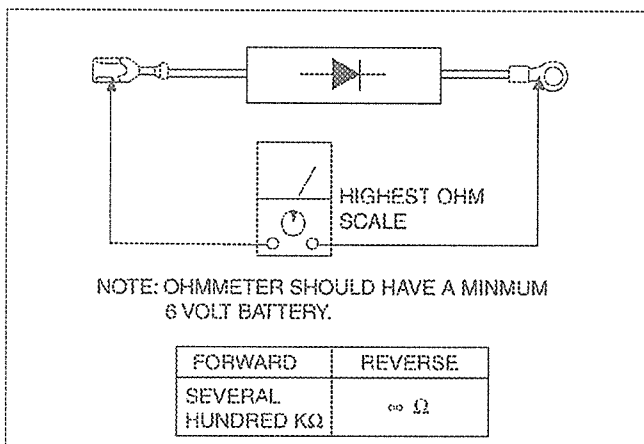
1. Isolate magnetron from the circuit by disconnecting the leads.
2. A continuity check across magnetron filament terminals should indicate one ohm or less.
3. A continuity check between each filament terminal and magnetron case should read open.



8.6. Diode

1. Isolate the diode from the circuit by disconnecting the leads.
2. 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 KΩ in the other direction.



8.7. Membrane key board (Membrane switch assembly)

Check continuity between switch terminals, by tapping an appropriate pad on the key board. The contacts assignment of the respective pads on the key board is as shown in digital programmer circuit.

9 MEASUREMENTS AND ADJUSTMENTS

WARNING

1. For continued protection against radiation hazard, replace only with identical replacement parts. (For touch models part No. ANE6142-1450 Type No. V-16G-3C26-M for Primary latch switch Part No. A61425180AP, Type No. L-3C2-2 for Secondary latch switch and Part No. A61785180AP, Type No. L-2C2-2 for short switch)
2. When the 15 Amp. fuse is blown due to the operation of short switch, you must replace Primary latch switch and short switch. Also replace power relay B (Part. No. AEG5J1EG12B/AEG5J1EG16B, Type No. G5J-1-TP) when the continuity check reads shorted contacts (1-2). Then follow the adjustment procedures below.
3. Interlock switch replacement -- In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.
4. Refer to schematic diagram to ensure proper connection.

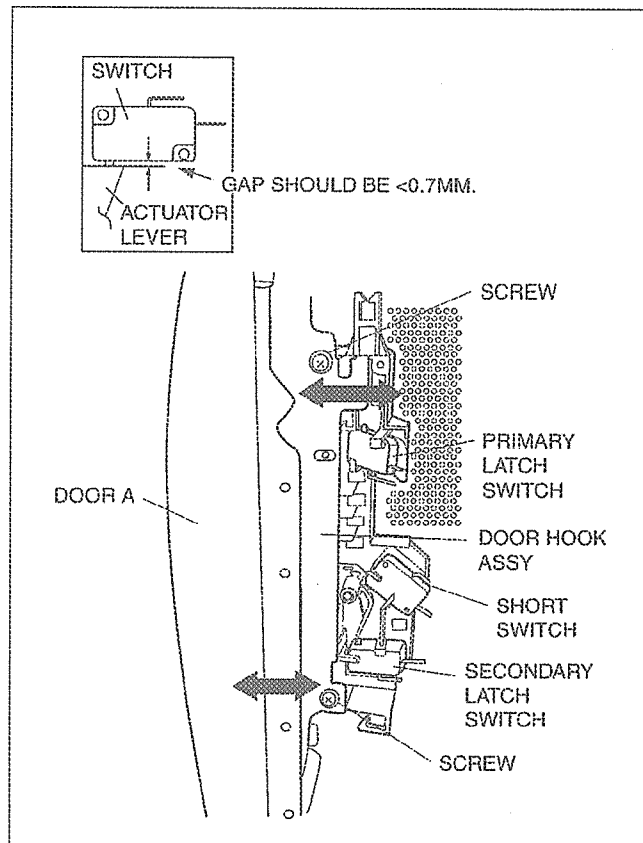
9.1. Adjustment of Primary latch switch, Secondary latch switch and Short switch.

1. 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 table.

NOTE:

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

2. When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of arrow in the illustration 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.
3. Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the components test procedures.



9.2. Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However, due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipment:

- 1 liter beaker
- Glass thermometer
- Wrist watch or stopwatch

NOTE:

Check the line voltage under load. Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurately as possible.

1. Fill the beaker with exactly one liter of tap water. Stir the water using the thermometer and record the beaker's temperature. (recorded as T1).
2. Place the beaker on the center of glass cook plate. Set the oven for High power and heat it for exactly one minute.
3. Stir the water again and read the temperature of the beaker. (recorded as T2).
4. The normal temperature rise at High power position for each model is as shown in table.

TABLE (1L-1min.test)

RATED OUTPUT	TEMPERATURE RISE
800W(IEC705-88)	Min.14.3°F(8°C)

10 PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

WARNING

Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm². After repairing or replacing any radiation safety device, keep a written record for future reference, the leakage reading must be recorded on the service repair ticket while in the customer's home.

10.1. Equipment

- Electromagnetic radiation monitor
- Glass thermometer 212 °F or 100 °C
- 600cc glass beaker

10.2. Procedure for measuring radiation leakage

Note before measuring.

- Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
- To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area in Figure no faster than 1 inch/sec (2.5cm/sec).
- Leakage with the outer panel removed less than 5mW/cm².
- Leakage for a fully assembled oven with door normally closed less than 2mW/cm².
- Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door less than 2mW/cm².

1. Pour 275 ± 15cc (9ozs ± 1/2oz) of 20°C ± 5°C (68 ± 9°F) water in a beaker which is graduated to 600cc, and place in the center of the oven.
2. Set the radiation monitor to 2450MHz and use it following the manufacturer's recommended test procedure to assure correct results.
3. When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.
4. Tap the start pad or set the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

10.2.1. Measurement with the outer panel removed.

Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.

WARNING

Avoid contacting any high voltage parts.

10.2.2. Measurements with a fully assembled oven.

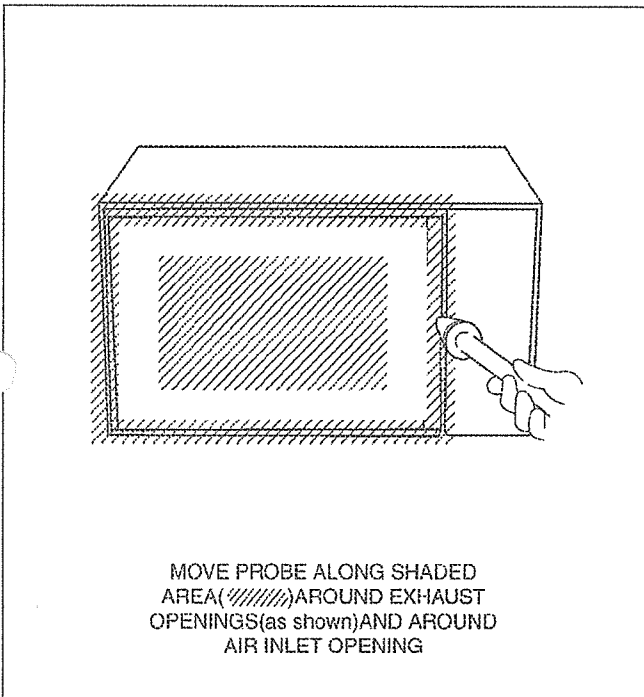
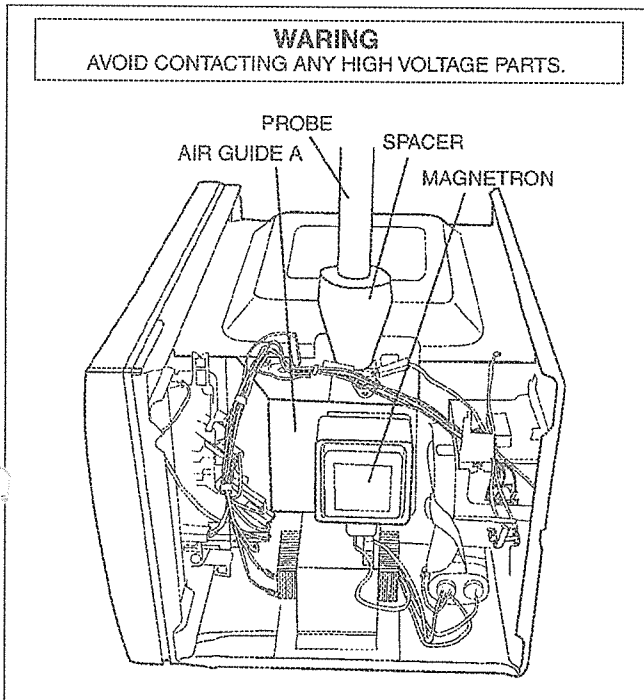
After all components, including outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening and air inlet openings.

10.3. Record keeping and notification after measurement

1. After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.

A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.

- 10.4. At least once a year, have the radiation monitor checked for calibration by its manufacturer.



11 TROUBLESHOOTING GUIDE

CAUTION

1. Check grounding before checking for trouble.
2. Be careful of 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. When disconnecting a plastic connector from a terminal, you must hold the plastic connector instead of the lead wire and then disconnect it, otherwise lead wire may be damaged or the connector cannot be removed.
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. 120V AC is present on the digital programmer circuit (Terminals of power relay's 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 in order to find the exact cause of any trouble.

	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven is dead. Fuse is OK. No display and no operation at all.	<ol style="list-style-type: none"> 1. Open or loose lead wire harness 2. Open thermal cutout (Magnetron) 3. Open low voltage transformer 4. Defective DPC 	Check fan motor when thermal cutout is defective.
2.	No display and no operation at all. Fuse is blown.	<ol style="list-style-type: none"> 1. Shorted lead wire harness 2. Defective primary latch switch (NOTE 1) 3. Defective short switch (NOTE 1) 4. Shorted H.V. Capacitor 5. Shorted H.V. Transformer (NOTE 2) <p>NOTE 1: All of these switches must be replaced at the same time. Check continuity of power relay (FY1)'s contacts (between 1 and 2) and if it has continuity, replace power relay B (RY-1)'s.</p> <p>NOTE 2: When H.V. Transformer is replaced, check diode and magnetron also.</p>	Check adjustment of primary, secondary latch switch and short switch including door.
3.	Oven does not accept key input(Program)	<ol style="list-style-type: none"> 1. Key input is not in sequence 2. Open or loose connection of membrane key pad to DPC (Flat cable) 3. Shorted or open membrane key board 4. Defective DPC 	Refer to operation procedure. Refer to DPC troubleshooting.
4.	Oven lamp and fan motor turn on when oven is plugged in with door closed.	<ol style="list-style-type: none"> 1. Misadjustment or loose wiring of secondary latch switch 2. Defective secondary latch switch 	Adjust door and latch switches.
5.	Timer starts count down but no microwave oscillation. (No heat while oven lamp and fan motor turn on)	<ol style="list-style-type: none"> 1. Off-alignment of latch switches 2. Open or loose connection of high voltage circuit especially magnetron filament circuit <p>NOTE: Large contact resistance will bring lower magnetron filament voltage and causing magnetron to lower output and/or be intermittent.</p> <ol style="list-style-type: none"> 3. Defective high voltage component H.V. Transformer H.V. Capacitor H.V. Diode Magnetron 4. Open or loose wiring of power relay B (RY-1) 5. Defective primary latch switch 6. Defective DPC or power relay B (FY-1) 	Adjust door and latch switches. Check high voltage component according to component test procedure and replace if it is defective. Refer to DPC troubleshooting
6.	Oven can program but timer does not start count-down.	<ol style="list-style-type: none"> 1. Open or loose wiring of secondary latch switch 2. Off-alignment of secondary latch switch 3. Defective secondary latch switch 	Adjust door and latch switches.
7.	Microwave output is low. Oven takes longer time to cook food.	<ol style="list-style-type: none"> 1. Decrease in power source voltage 2. Open or loose wiring of magnetron filament circuit.(Intermittent oscillation) 3. Aging change of magnetron 	Consult electrician
8.	Fan motor and oven lamp turns on when door is opened.	<ol style="list-style-type: none"> 1. Shorted primary latch switch. 	

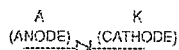
	SYMPTOM	CAUSE	CORRECTIONS
9.	Oven does not operate and return to plugged in mode.	1. Defective DPC	Check properly connected on escutcheon base bracket, D.P.C. board. Refer to failure code system.
10.	Loud buzzing noise can be heard.	1. Loose fan and fan motor 2. Loose screws on H.V. Transformer 3. Shorted H.V. Diode	
11.	8A fuse is blown.	1. Shorted lead wire harness 2. Defective short switch 3. Defective primary latch switch 4. Shorted H.V. Capacitor 5. Shorted H.V. Diode 6. Defective Magnetron 7. Shorted H.V. Transformer 8. Shorted Protector diode 9. Defective power relays 10. Defective DPC	Check adjustment of latch switches and door Replace H.V. Diode and protector diode (*NOTE) Replace Magnetron and protector diode (*NOTE) Replace H.V. Transformer and protector diode (*NOTE)
		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).	

11.1. Trouble related to Digital Programmer Circuit

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS
No display when oven is first plugged in	1	Fuse pattern of DPC	Normal	→ STEP2
			Open(NOTE)	Shorted circuit of ZNR, L.V.T,Oven Lamp etc. Replace DPC
	2	Low voltage transformer (LVT) secondary voltage	Abnormal 0V	LVT
			Normal	→ Step3
	3	IC-1 pin 16 voltage (Emitter of Q11)	Abnormal	ZD11,Q11
			Normal=5V	Display
NOTE Procedure of fuse pattern repairing is as follows: <u>1. When the fuse pattern (PF2) opens.</u> (1) Remove jumper wire (PF1). (2) Insert the removed jumper wire (PF1) to "(PF2)" position and solder it. If both "PF1" and "PF2" fuse patterns are open, please replace DPC. <u>2. When the fuse pattern (PF4) opens.</u> (1) Remove jumper wire (PF3). (2) Insert the removed jumper wire (PF3) to "(PF4)" position and solder it. If both "PF3" and "PF4" fuse patterns are open, please replace DPC. NOTE: At the time of these repairs, made visual inspection of the varistor for burning damage and examine the transformer with tester for the presence of layer short-circuit (check primary coil resistance). If any abnormal condition is detected, replace the defective parts.				
No key input	1	Membrane switch continuity	Abnormal	Membrane switch
No beep sound	1	IC-1 pin 29 voltage	Normal	IC-1
			Abnormal	IC-1
			Normal	BUZZER, Q210
Power relay A(RY-2) does not turn on even though the program had been set and the start pad is tapped	1	IC-1 pin 9 voltage while operation	Abnormal	IC-1
			Normal=5V	→ Step 2
	2	Short circuit between collector and Emitter of Q223	Still not turn on	RY-2
			RY-2 turns on	Q223
No microwave oscillation at any power setting	1	IC-1 pin 7 voltages while operation at high power	Abnormal	IC-1
			Normal 7---5V	→ Step 2
	2	Q220 transistor	Abnormal	Q220
			Normal	RY-1
Dark or unclear display	1	Replace display and check operation	Normal	DISPLAY
			Abnormal	IC-1
Missing or lighting of unnecessary segment	1	Replace IC-1 and check operation	Normal	IC-1
			Abnormal	DISPLAY

11.2. How To CHECK THE SEMICONDUCTORS USING AN OHM METER

Diode



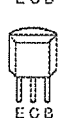
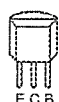
	FORWARD	REVERSE
A-K	SMALL	∞

Transistor

NPN Transistor

2SC.....

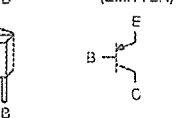
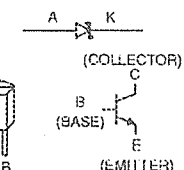
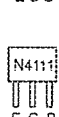
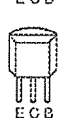
2SD.....



PNP Transistor

2SA.....

2SB.....

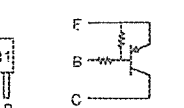
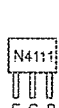


	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

	FORWARD	REVERSE
E-B	SMALL	∞
C-B	SMALL	∞
C-E	∞	∞

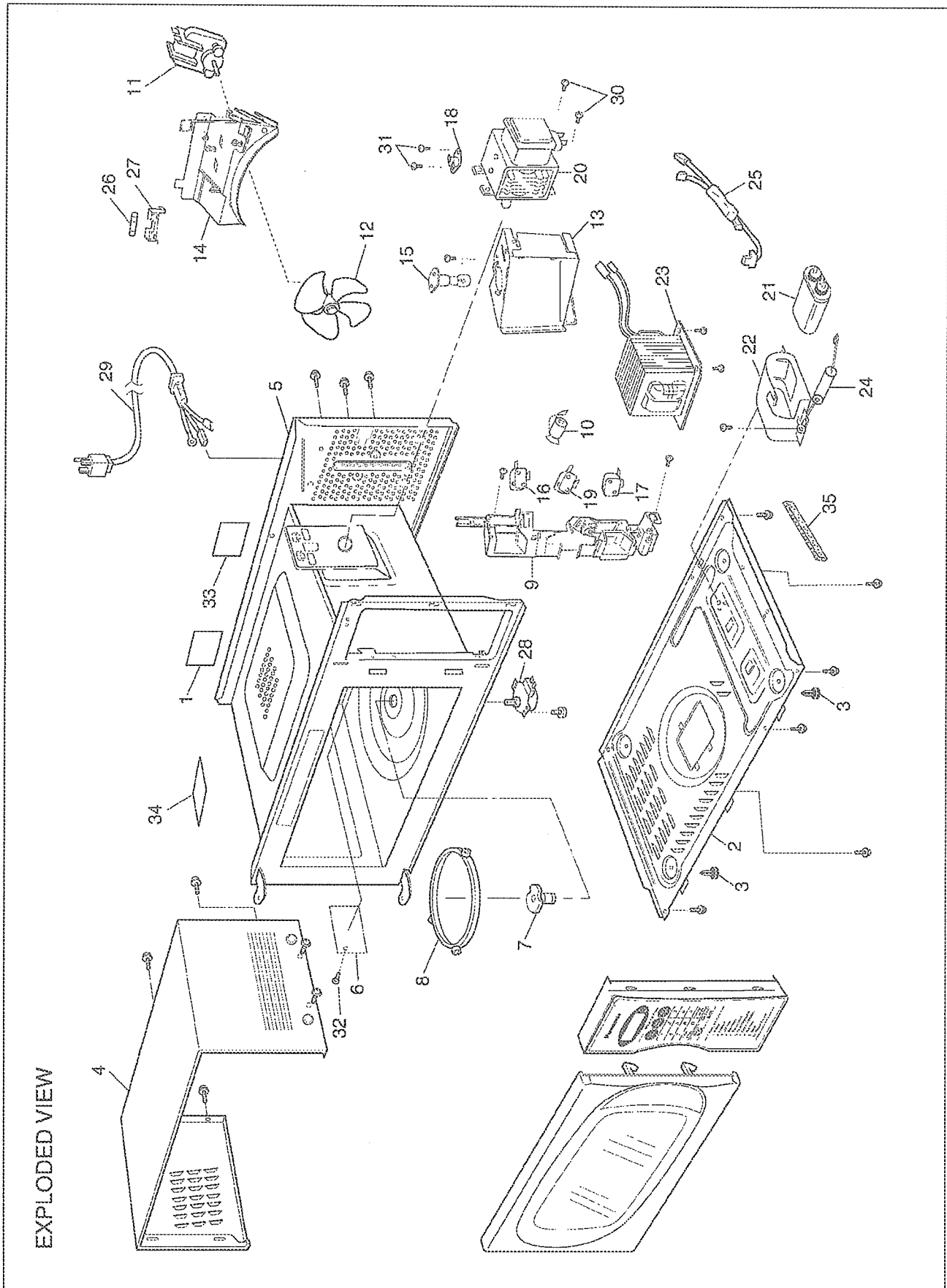
Digital Transistor

PNP Transistor



	FORWARD	REVERSE
E-B	10k Ω -30k Ω	10k Ω -30k Ω
C-B	50k Ω -90k Ω	∞
C-E	40k Ω -80k Ω	∞

12 EXPLODED VIEW AND PARTS LIST



13 PARTS LIST

NOTE:

1. When ordering replacement part(s), please use part number(s) shown in this part list.
Do not use description of the part.
2. Important safety notice:
Components identified by mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.

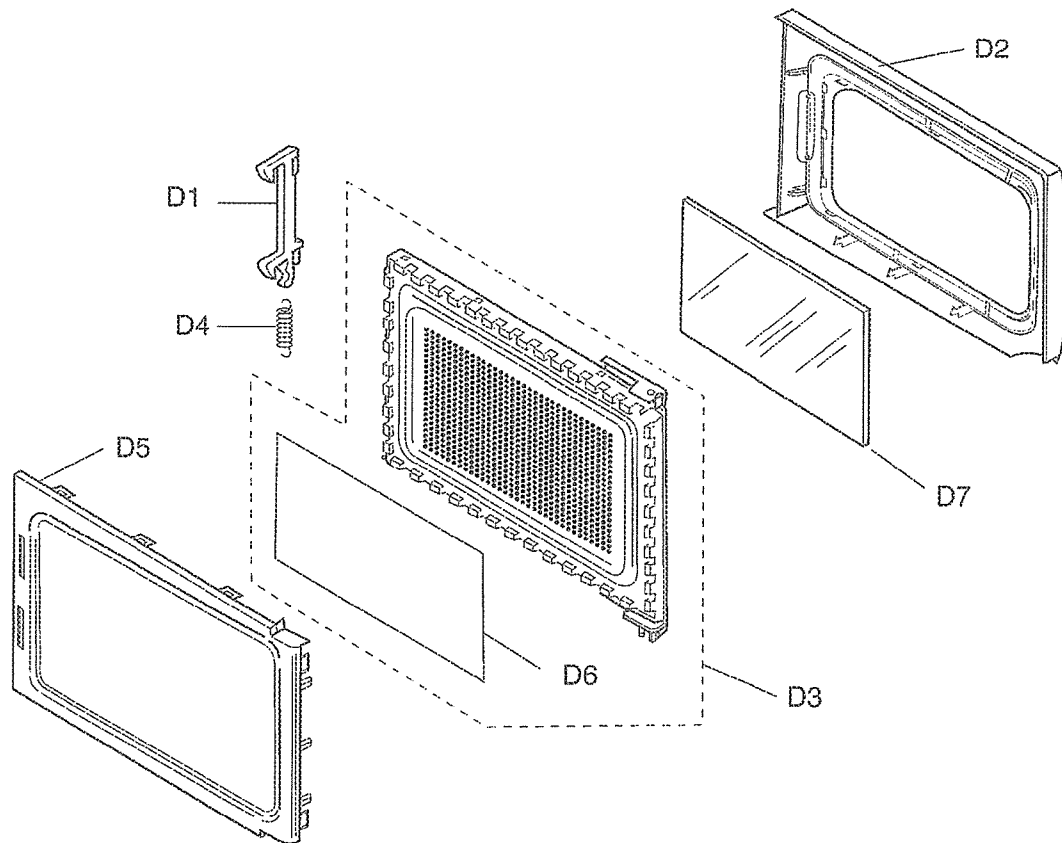
NOTE:

"A" parts are supplied by MOD (Japan)

"F" parts are supplied by SIMMC (China)

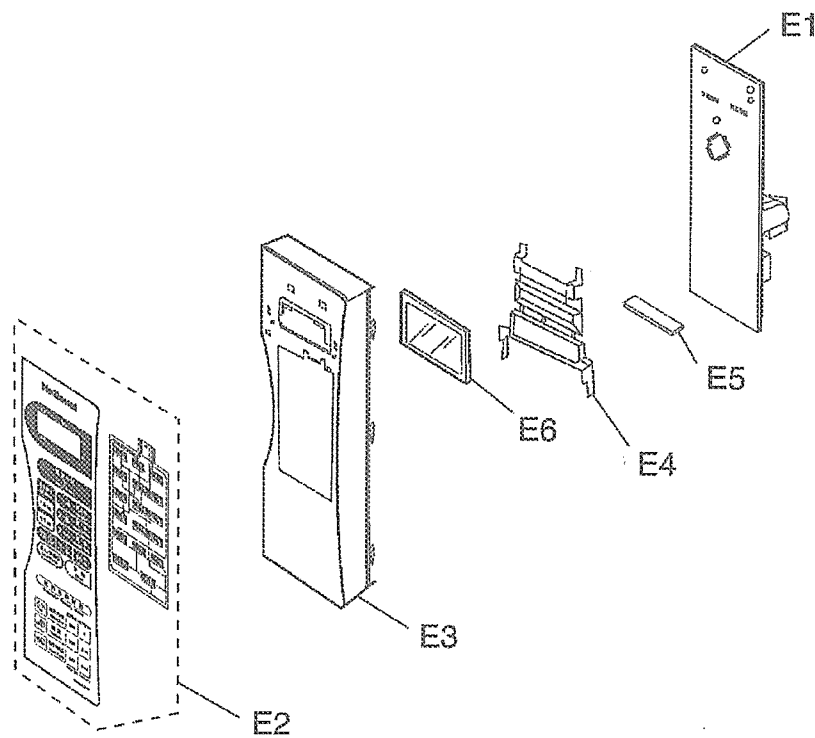
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
1		F00075G40HRP	NAME PLATE	1	
2		F10015G10XN	BASE	1	
3		F10084T00AF	RUBBER FOOT	2	
4		F110D5G10HKN	CABINET BODY	1	
5	△	F200A5G10XN	OVEN	1	
6		F20555G40AP	COVER	1	
7		F21315G10XN	PULLY SHAFT	1	
8		F290D5G10XN	ROLLER RING (U)	1	
9	△	F30205G10XN	DOOR HOOK	1	
10		F31365G10XN	HOOK LEVER A	1	
11		F400A5G40AP	FAN MOTOR	1	
12		F400B5G10XN	FAN BLADE	1	
13		F402B5G10XN	AIR GUIDE A	1	
14		F41445G40AP	ORIFICE	1	
15		F612E5G40AP	INCANDESCENT LAMP (U)	1	
16	△	J61424T00AP	MICRO SWITCH B	1	{PRIMARY LATCH SWITCH} (V-16G-3C25-M)
17	△	J61414T00AP	MICRO SWITCH A	1	{SECONDARY LATCH SWITCH} (D3V-16G-3C25)
18	△	F61454J00XN	THERMAL CUTOUT	1	60°C ON, 120°C OFF
19	△	J61784T00AP	MICRO SWITCH	1	{SHORT SWITCH} (D3V-1G-2C25)
20	△	2M210-M1F1CR	MAGNETRON	1	
21	△	F60505G10AP	H.V. CAPACITOR	1	2100V, 0.85nF
22		F60375G10XN	CAPACITOR BRACKET	1	
23	△	F621B5G40AP	H.V. TRANSFORMER	1	
24	△	F62025G10XN	DIODE	1	
25	△	F606V5G10XN	PROTECTOR DIODE (U)	1	
26	△	B62304000AP	FUSE	1	15A, 125V
27		A62314000AP	FUSE HOLDER	1	
28		F63265G40AP	TURNTABLE MOTOR	1	
29	△	F900C5G40AP	AC CORD W/PLUG	1	
30		KTWPNE4+12T	SCREW	2	FOR MAGNETRON
31		KTWAFB4+8D	SCREW	2	FOR THERMAL CUTOUT
32		ZTTFNE4+6BN	SCREW	1	FOR COVER
33		F00069G60AP	CAUTION LABEL	1	
34		F00335G40AP	FUSE LABEL	1	
35		F09220002E	CUSHION RUBBER	1	

14 DOOR ASSEMBLY



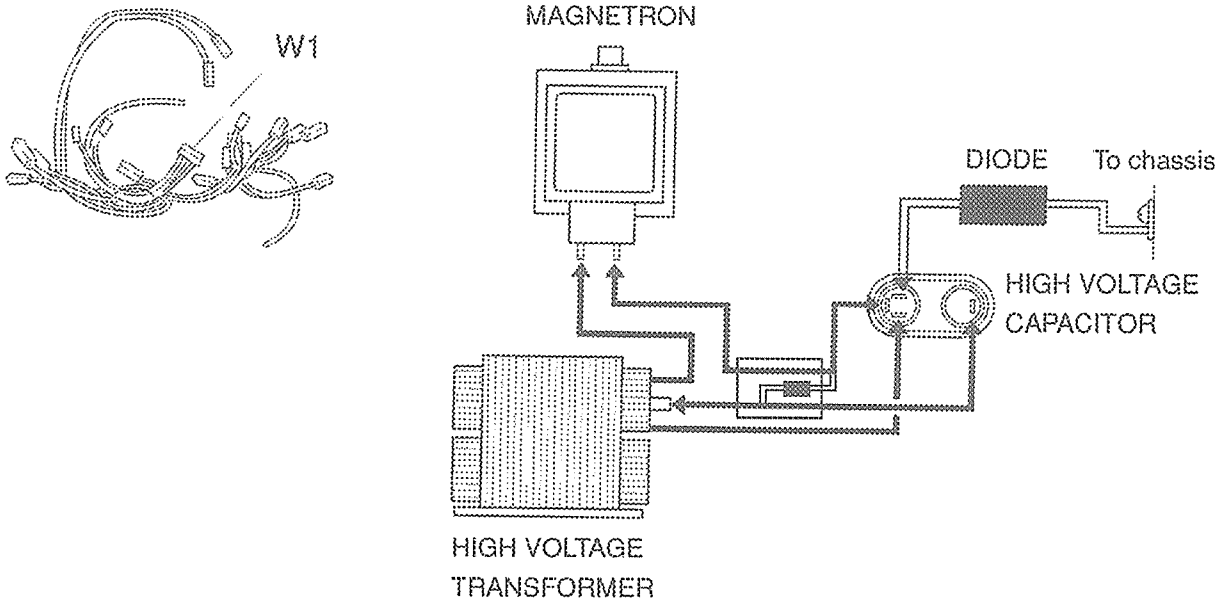
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
D1		F35185G10XN	DOOR KEY A	1	
D2	⚠	F39915G40HAP	DOOR A	1	
D3	⚠	F392K5G10XN	DOOR E(U)	1	
D4		F39215G10XN	DOOR KEY SPRING	1	
D5	⚠	F39855G10XN	DOOR C	1	
D6	⚠	F31455G10AP	DOOR SCREEN A	1	
D7		F31465G10XN	DOOR SCREEN B	1	

15 ESCUTCHEON BASE ASSEMBLY



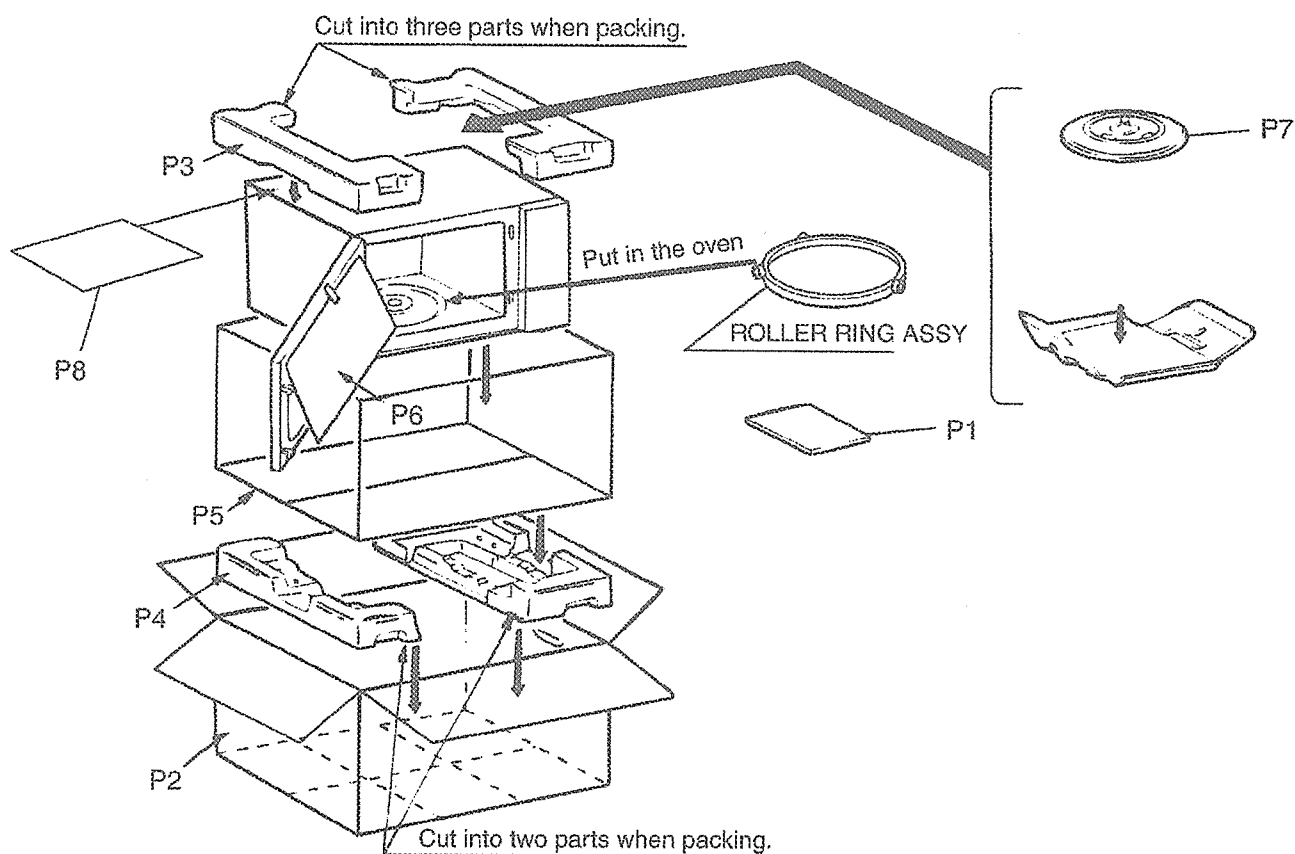
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
E1	F603L5G40RF	D.P. CIRCUIT	1	ETL (W/COMPONENT)
E2	F630Y5G40HRF	MEMBRANE SWITCH (U)	1	
E3	F80345G40HAF	ESCUTCHEON BASE	1	
E4	F66174T00AF	DISPLAY TUBE COVER	1	
E5	A67004T00AP	RUBBER CONNECTOR	1	
E6	AEDDHJ5G60XN	DISPLAY	1	

16 WIRING MATERIALS



Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
W1	F030A5G40AF	LEAD WIRE HARNESS	1	

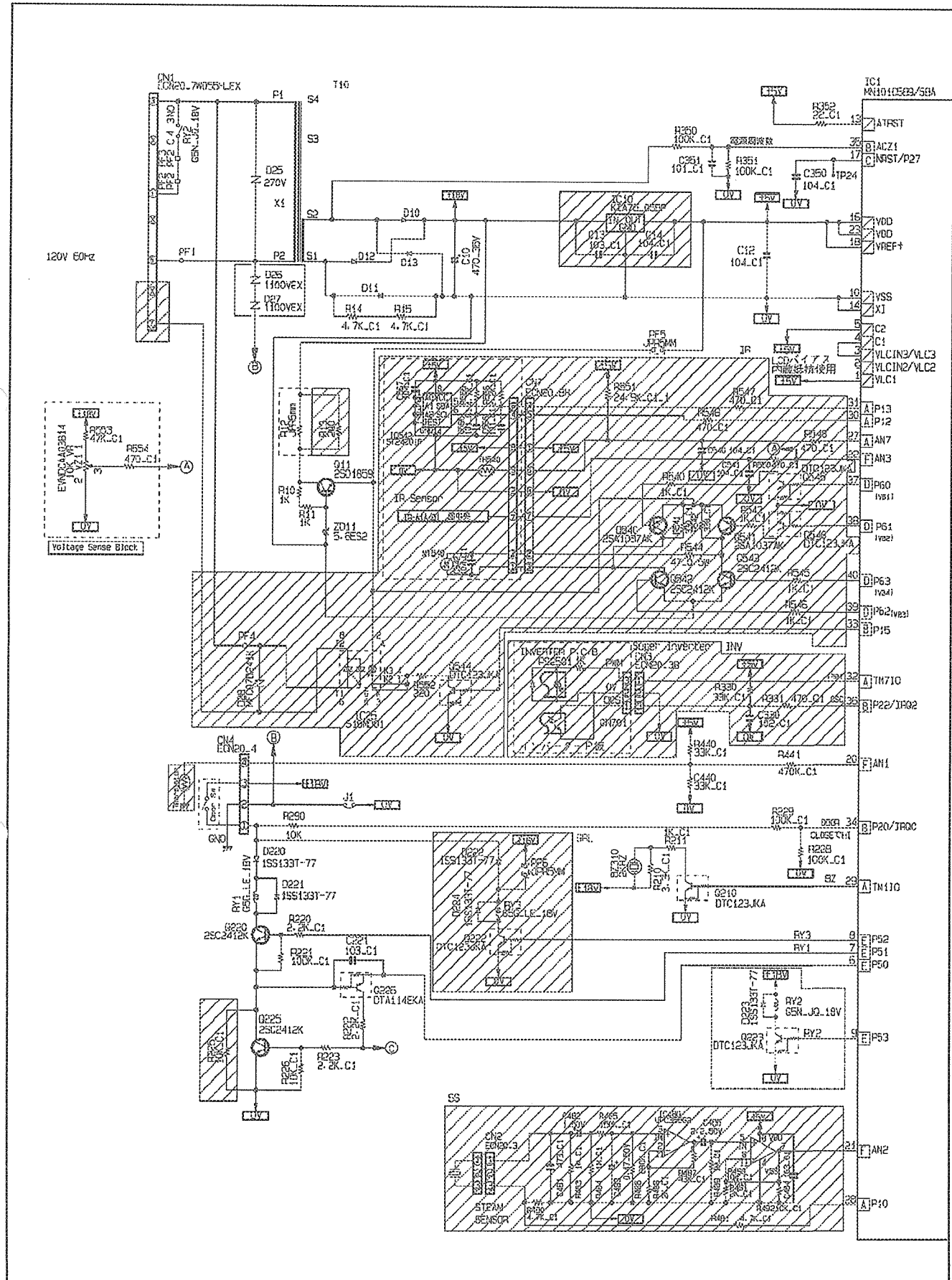
17 PACKING AND ACCESSORIES

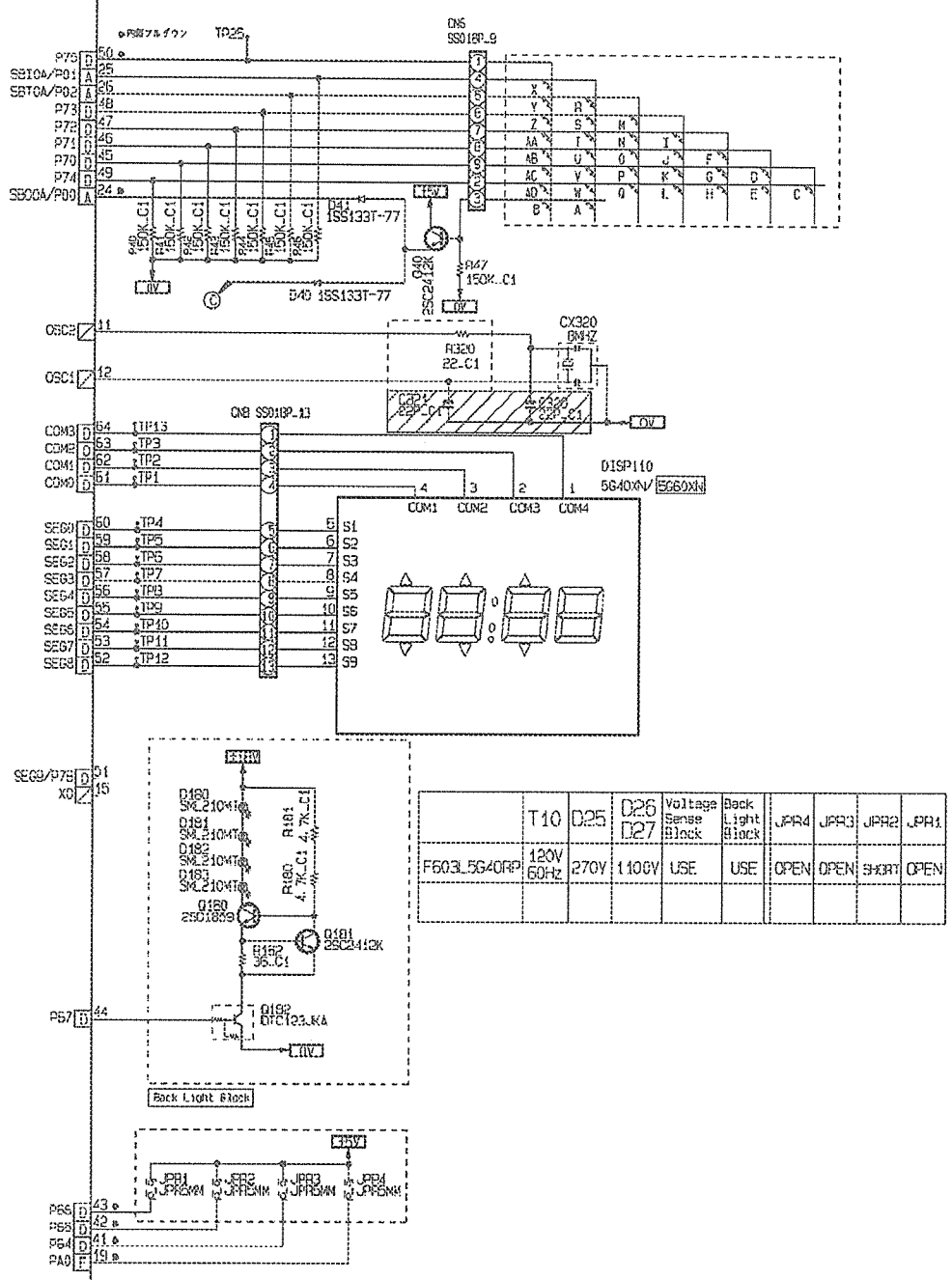


Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
P1	F00035G4GRP	INSTRUCTION MANUAL	1	
P2	F01025G4GHRP	PACKING CASE PAPER	1	
P3	F01045G4GXN	UPPER FILLER	1	
P4	F01055G4GXN	LOWER FILLER	1	
P5	F0106B10GXN	P.E.BAG	1	
P6	F01075G10GXN	DOOR SHEET	1	
P7	A06G15G10GXN	COOKING TRAY	1	
P8	A01924T00AF	SHEET	1	

18 DIGITAL PROGRAMMER CIRCUIT

SCHEMATIC DIAGRAM





19 DIGITAL PROGRAMMER CIRCUIT

PARTS LIST

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
BZ310	ABFBTFM571	BUZZER	1	2.0KHz
C10	ABCFK1V471B	AL CHEM CAPACITOR	1	470μF/35V
C221	AECU066F103Z	CHIP CAPACITOR	1	0.01μF/50V
C12,C350	AECU066F104Z	CHIP CAPACITOR	2	0.1μF/25V
CN1	AEEMXH01505W	CONNECTOR	1	
CN4	F03535G40XN	CONNECTOR	1	
CX320	AEFOS800MG06	CERAMIC RESONATOR	1	8.00MHz
D10, D11,D12,D13	AEDNERA1502	DIODE	4	
D40, D41, D220, D221,D223	AESS133T-77	DIODE	5	
D25	AERZ271KD10A	VARISTOR	1	
D26,D27	AERZ102KD10A	VARISTOR	2	
D180-D183	AESQSML210MT	CHIP LED	4	
IC1	MN101C589DB	L.S.I	1	
Q11,Q180	2SD1859TV2Q	TRANSISTOR	2	
Q40,Q181,Q220,Q225	2SC2412KT146	CHIP TRANSISTOR	4	
Q182,Q210, Q223	AESC23JKE	CHIP DIGI-TRANSISTOR	3	
Q226	AESA14KEE	CHIP DIGI-TRANSISTOR	1	
R40-R47	AERJ06J154R	CHIP RESISTOR	8	150KΩ, 1/16W ,5%
R211	AERJ06J102R	CHIP RESISTOR	1	1KΩ, 1/16W ,5%
R226	AERJ06J103R	CHIP RESISTOR	1	10KΩ, 1/16W ,5%
R221, R228,R229,R350,R351	AERJ06J104R	CHIP RESISTOR	5	100KΩ, 1/16W ,5%
R320, R352	AERJ06J226R	CHIP RESISTOR	2	22Ω, 1/16W ,5%
R220, R222, R223	AERJ06J222R	CHIP RESISTOR	3	2.2KΩ, 1/16W ,5%
R182	AERJ06J366R	CHIP RESISTOR	1	36Ω, 1/16W ,5%
R210	AERJ06J332R	CHIP RESISTOR	1	3.3KΩ, 1/16W ,5%
R440,C440	AERJ06J333R	CHIP RESISTOR	2	33KΩ, 1/16W ,5%
R441,R554	AERJ06J471R	CHIP RESISTOR	2	470Ω, 1/16W ,5%
R180,R181	AERJ06J472R	CHIP RESISTOR	2	4.7KΩ, 1/16W ,5%
R553	AERJ06J473R	CHIP RESISTOR	2	47KΩ, 1/16W ,5%
R10,R11	AERDY2TJ102T	CARBON FILM RESISTOR	2	1KΩ, 1/4W ,5%
R290	AERDY2TJ103T	CARBON FILM RESISTOR	1	10KΩ, 1/4W ,5%
VZ1	AEVT26TLT103	POTENTIOMETER	1	10KΩ, VR
RY1	AEGG5G1A16	POWER RELAY	1	
RY2	ABBJQ1A1R	POWER RELAY	1	
T10	AETP284U0AP	LOW VOLTAGE TRANSFORMER	1	
ZD11	AESZMTZJ5R6B	ZENER DIODE	1	