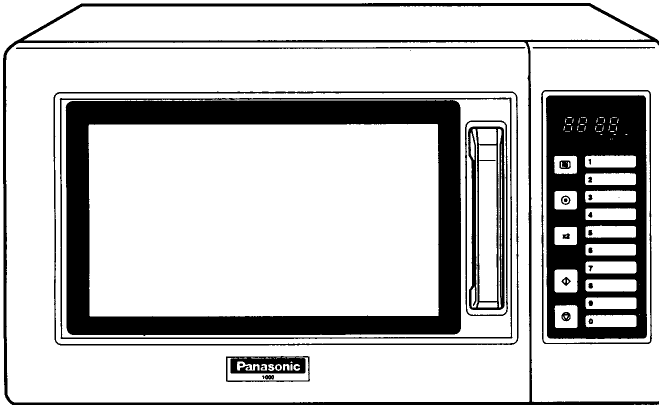


Service Manual

Microwave Oven



NE-1027
NE-1037

BTQ (U.K.)
ETG (Continental Europe)


Specifications:

Specifications:	Model:	NE-1027 BTQ	NE-1027 ETG	NE-1037 BTQ	NE-1037 ETG
Power Source:		230-240V AC Single Phase,50Hz		For BTQ Models	
		230V AC Single Phase,50Hz		For EPG Models	
Power Requirement:		1490W (6.5A)	1490W (6.5A)	1490W (6.6A)	1490W (6.6A)
Output:		1000W (IEC705)	1000W (IEC705)	1000W (IEC705)	1000W (IEC705)
Microwave Frequency:		2450MHz			
Timer:		30 min.	30 min.	99 min.99sec.	99 min.99sec.
Memory:		—	—	10 Memory Pads with Double Quantity (X 2) Pad	
Outside Dimensions:		510 mm (W) X 360 mm (D) X 306 mm (H)			
Oven Cavity Dimensions:		330 mm (W) X 330 mm (D) X 200 mm (H)			
Weight:		18.0 kg	18.0 kg	18.0 kg	18.0 kg
PbF		This product with PbF			
Specifications subject to change without notice.					

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 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/area identifications shown below for your applicable product specification.

BPQ For U.K.

ETG For Continental Europe

CAUTION

About lead free solder (PbF)

Distinction of PbF PCB: PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution: ● Pb free solder has a higher melting point than standard solder; Typically the melting point is 30 - 40°C higher.

Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 370 ± 10°C.

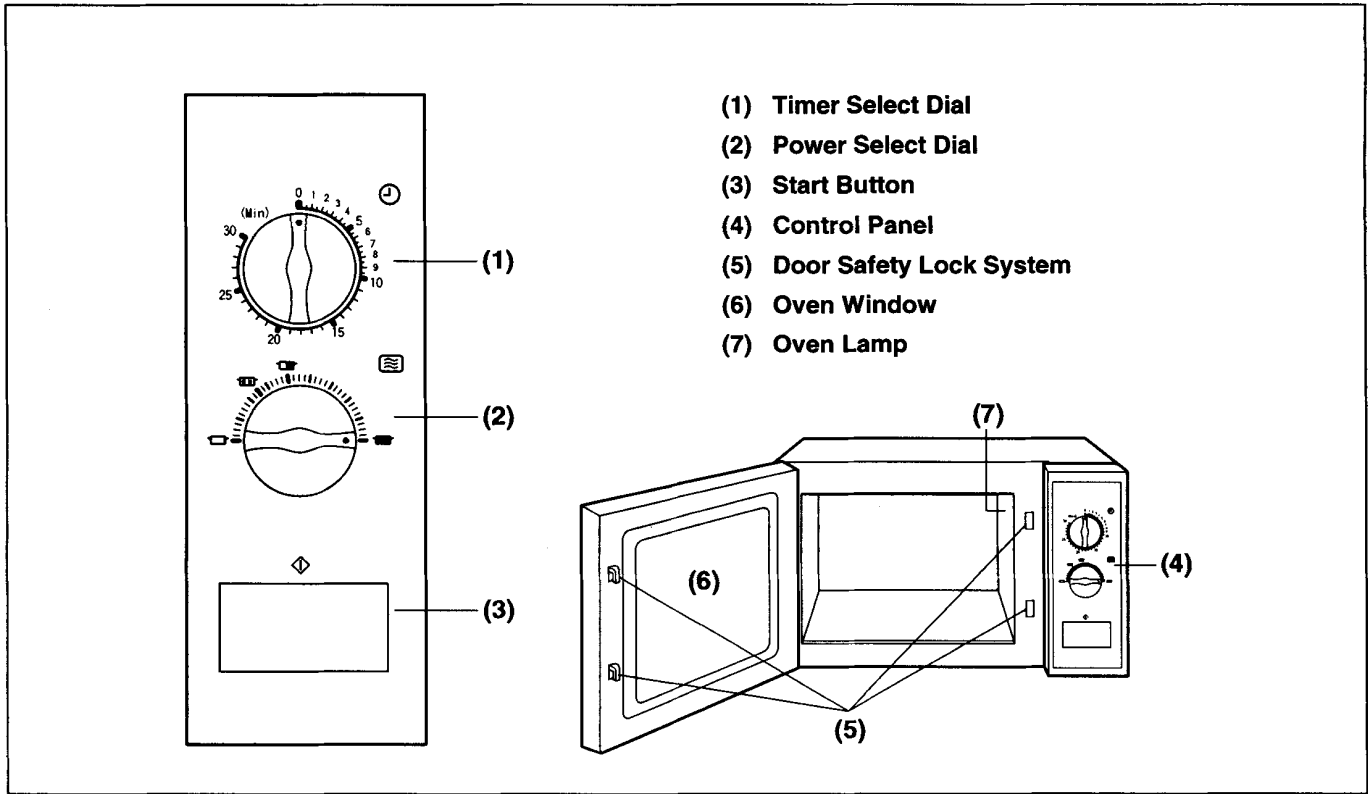
● Pb free solder will tend to splash when heated too high (about 600°C).

CONTENTS

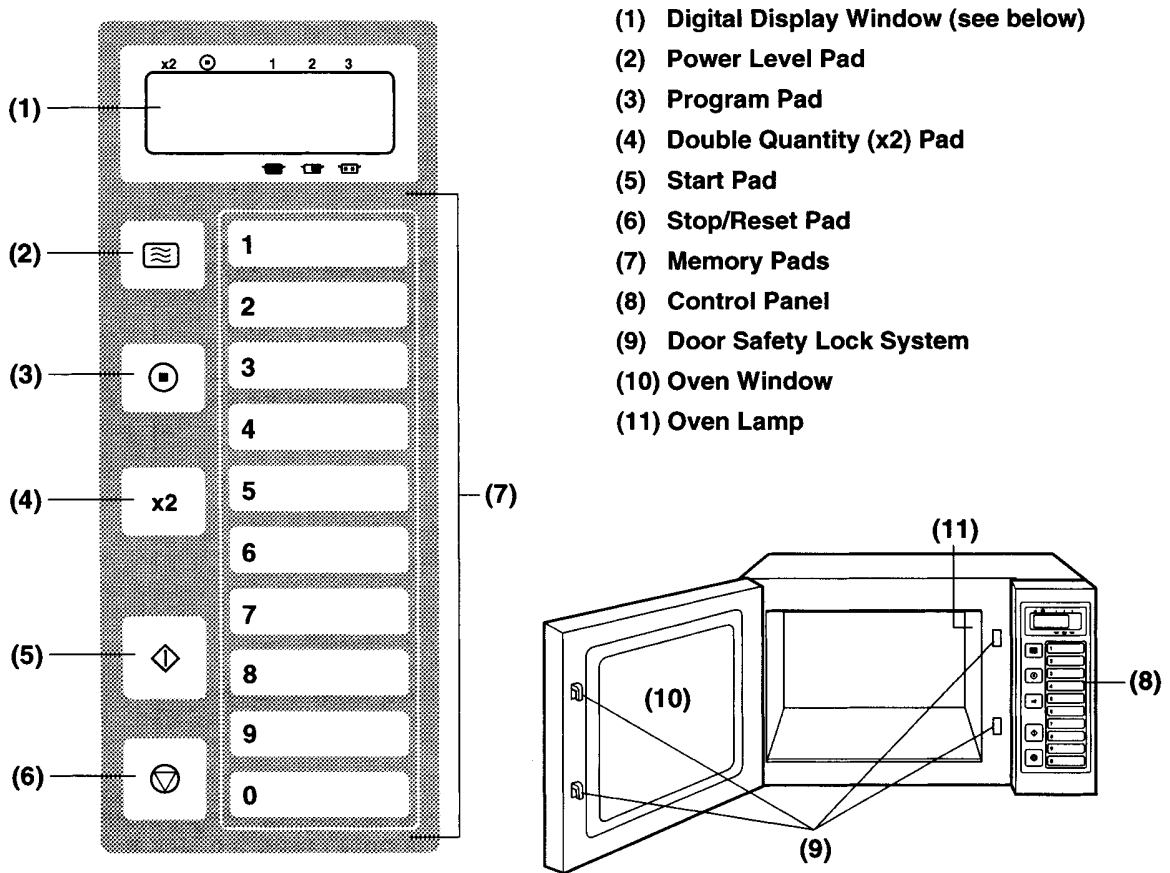
	Page		Page
1 CONTROL PANEL	4	6.3. Low voltage transformer and/or power relays (RY1, RY2, RY3, RY4) (NE-1037)	15
1.1. NE-1027	4	6.4. Fan motor	15
1.2. NE-1037	5	6.5. Stirrer motor	15
2 OPERATION PROCEDURE	6	6.6. Door assembly	16
2.1. Manual Heating for Single Stage	6	6.7. Temp sensor (thermal protector) (NE-1037)	16
2.2. Manual Heating for 2nd Stage	6	6.8. Floor shelf and/or moving antenna	16
2.3. Memory Setting for Single Stage Operation Oven is not in program lock mode.	6	7 COMPONENT TEST PROCEDURE	17
2.4. Memory setting for 2nd stage	7	7.1. Primary Latch Switch, (Door Switch and Power Relay B) Interlocks.	17
2.5. Memory Pad Heating	7	7.2. Short Switch & Monitor	17
2.6. To Read Cycle Counter	8	7.3. High voltage transformer	17
2.7. To Select Beep Tone Options (ON/OFF of Beep Tone) ...	8	7.4. High voltage capacitor	17
2.8. To Lock Program of Memory Pad	8	7.5. Magnetron	17
2.9. To Release the Memory Pad Program Lock	8	7.6. Variable power controller (NE-1027)	18
3 SCHEMATIC DIAGRAM	9	7.7. Diode	18
3.1. NE-1027	9	7.8. Protector diode	18
3.2. NE-1037	10	7.9. Membrane key board (Membrane switch assembly)(NE-1037)	18
4 DESCRIPTION OF OPERATING SEQUENCE	11	7.10. Temp sensor (Thermal protector) (NE-1037)	18
4.1. Variable power cooking control (NE-1027)	11	8 MEASUREMENTS AND ADJUSTMENTS	19
4.2. Variable power cooking control (NE-1037)	11	8.1. Adjustment of Safety switch A, Safety switch B and short switch	19
5 CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING	12	8.2. Measurement of microwave output	19
5.1. Check the earthing	12	9 TROUBLESHOOTING GUIDE	20
5.2. 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.	12	9.1. NE-1027	20
5.3. Warning about the electric charge in the high voltage capacitor	12	9.2. NE-1037	22
5.4. When parts must be replaced, remove the power plug from the outlet.	13	10 EXPLODED VIEW AND PARTS LIST	26
5.5. When the 10 Amp/2.5 Amp fuse is blown due to the operation of short switch:	13	10.1. EXPLODED VIEW	26
5.6. Avoid inserting nails, wire, etc. through any holes in the unit during operation.	13	10.2. PARTS LIST	27
5.7. Confirm after repair	13	10.3. DOOR ASSEMBLY	28
6 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE	14	10.4. ESCUTCHEON BASE ASSEMBLY	29
6.1. Magnetron	14	10.5. PACKING AND ACCESSORIES	31
6.2. Digital Programmer Circuit (D.P.C.) and membrane keyboard. (NE-1037)	14	10.6. WIRING MATERIALS	32
		11 DIGITAL PROGRAMMER CIRCUIT (NE-1037)	33
		11.1. SCHEMATIC DIAGRAM	33

1 CONTROL PANEL

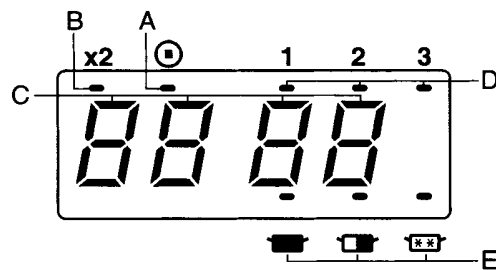
1.1. NE-1027



1.2. NE-1037



Digital Display Window Indicator Locations














- A - Program Change Indicator
- B - Double Quantity (x2) Heating Indicator
- C - Memory Pad Number and Heating Time Display (min. sec.)
- D - Stage Heating Indicator







- E - Power Level Indicator
- 1000 W
- 500 W
- ** 340 W (Defrost)












2 OPERATION PROCEDURE

2.1. Manual Heating for Single Stage









OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Place a water load in the oven and close the door.	0
3. Press Power Level  pad once. (Sets to HIGH power)	1 
4. Press  ,  ,  pads. (Sets to 2 minutes)	2 00  
5. Press Start  pad. (Sets to 2 minutes)	1 59  
6. When cooking time has elapsed, oven beeps 5 times and shuts off. Display blinks zero.	
7. Open the door and take out the water load. Display stops blinking.	0
8. Close the door. 1 minute later, display will return blank.	

2.2. Manual Heating for 2nd Stage

OPERATION	DISPLAY
1. Follow step 1 to 4 for 1st stage.	2 00  
2. Press Power Level  pad 2 times. (Sets MED power)	1 2   

OPERATION	DISPLAY
3. Press  ,  ,  pads. (Sets to 1 minute)	1 00  
4. Press Start  pad. Total time for both stages will be displayed.	3 00  
5. When the 1st stage cooking time has elapsed, oven beeps once and automatically switches to 2nd stage cooking. (2nd stage)	59  
6. When cooking time has elapsed, oven beeps 5 times and shuts off. Display blinks zero.	
7. Open the door and take out the water load. Display stops blinking.	0
8. Close the door. 1 minute later, display will turn blank.	

2.3. Memory Setting for Single Stage Operation Oven is not in program lock mode.

OPERATION	DISPLAY
1. Press Prog  pad. NOTE: Display must be blank to start programming.	
2. Press  pad. (Sets to memory pad 5)	5 
3. If memory was previously programmed, the pad number and the previously selected time and power level will appear in the display.	5 1  
	1 00  

OPERATION	DISPLAY
4. The pad number and Stage Heating Indicator will appear in the display again.	
5. Press Power Level pad 2 times. (Sets to MED power)	
6. Press , pads. (Sets to 30 seconds)	
7. Press Prog pad again.	
8. 2 seconds later, the time and power level setting for single stage will appear in the display.	
9. 2 seconds later, Double Quantity Heating Indicator and then the double heating time will appear in the display.	
10. 2 seconds later, the display will go blank.	

2.4. Memory setting for 2nd stage

OPERATION	DISPLAY
1. Follow steps 1 to 6 for memory setting for single stage. (MED power, 30 seconds for 1st stage)	
2. Press Power Level pad 3 times. (Sets defrost power for 2nd stage)	
3. Press , , pad.	
4. Press Prog pad.	



OPERATION	DISPLAY
5. 2 seconds later, the display shows your setting program.	
6. This indicates double cooking time. Example: This means: If you press "5", oven will operate 30 sec-MED, 2 min-DEF. If you press "X2" and "5" oven will operate 1 min-MED, 4 min-DEF.	
7. After all of your programming has been completed, the display will go blank.	

2.5. Memory Pad Heating








OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Place a water load in the oven and close the door.	
3. Press pad. (Sets for 2 minutes)	
4. Press Start pad.	
5. When cooking time has elapsed, oven beeps 5 times and shuts off. Display blinks zero.	
6. Open the door and take out water load. Display stops blinking.	

OPERATION	DISPLAY
7. Close the door, display will return blank after 1 minute.	



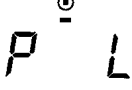
2.6. To Read Cycle Counter

OPERATION	DISPLAY
1. Open the door and leave it open.	0
2. While pressing Stop/Reset  pad, press Power Level  pad. eg. 0010 means the oven has been used 1,000 times. 9999 means the oven has been used 999,900 times.	00 10
3. 2 seconds later, the display will return to "0".	0





2.7. To Select Beep Tone Options (ON/OFF of Beep Tone)

OPERATION	DISPLAY
1. Open the door.	0
2. Press Prog  pad.	0
3. Press  pad.	
4. Press  pad again. (No beep tone setting)	
5. Press Prog  pad again. You have completed programming the beep tone option.	
6. 2 seconds later, the display will return to "0".	0

2.8. To Lock Program of Memory Pad

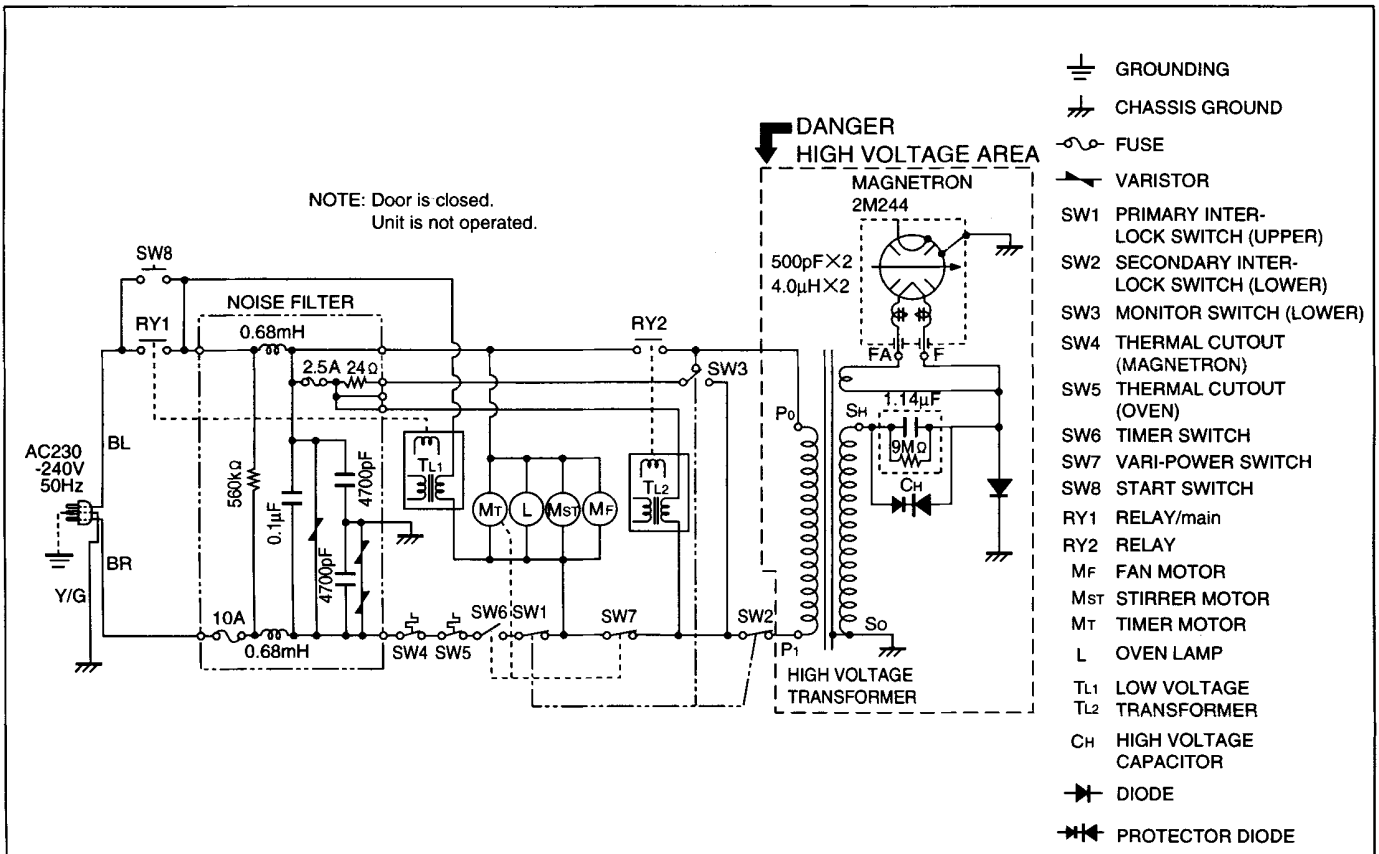
OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle. - Display must be blank -	
2. Press and hold in the Prog  pad until the display shows "P" and "L". (Approximately 6 seconds) NOTE: When oven is in "program lock mode", display will not show anything and remain blank.	 

2.9. To Release the Memory Pad Program Lock

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. While pressing and holding the Stop/Reset  pad, press and hold in the Prog  pad until the display shows "P". (Approximately 6 seconds) NOTE: When oven is in "program unlock mode", display will not show anything and remain blank.	 

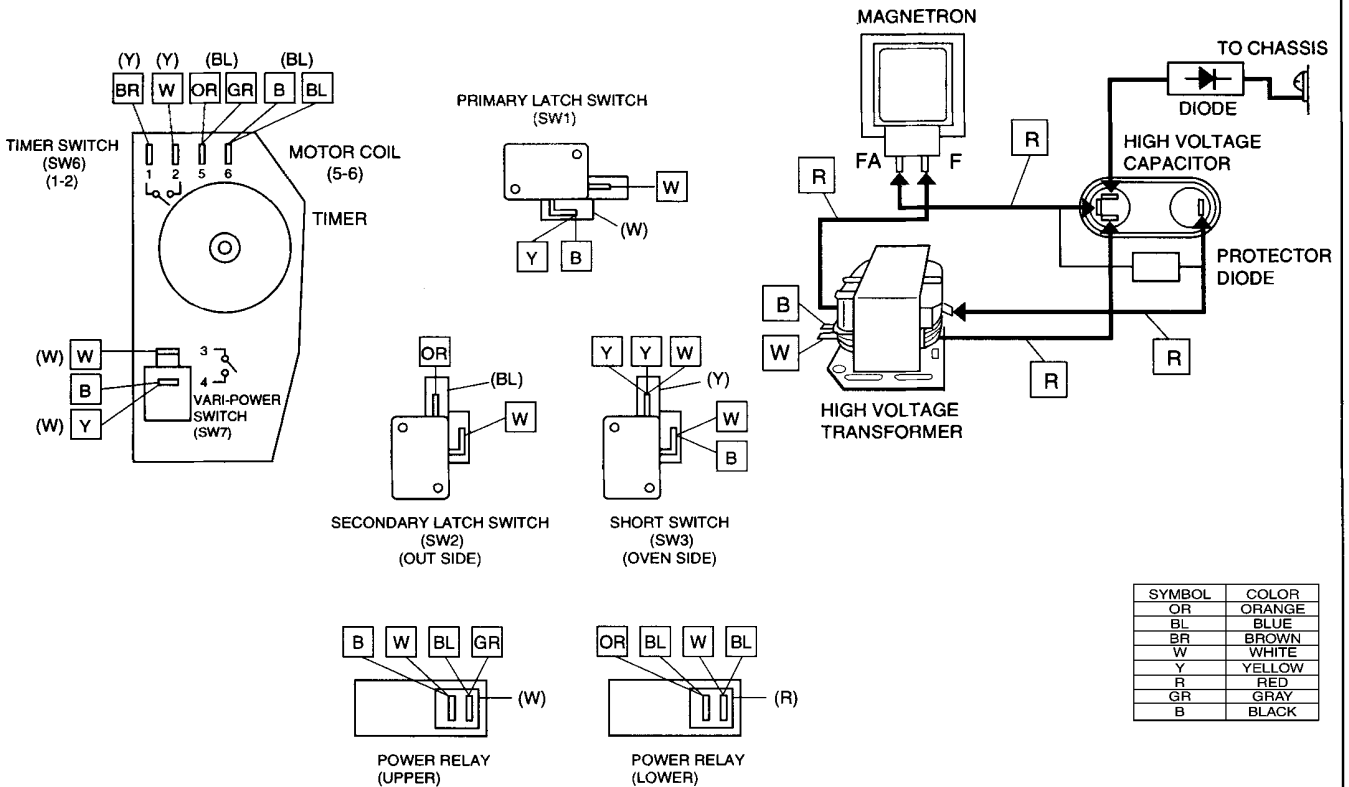
3 SCHEMATIC DIAGRAM

3.1. NE-1027

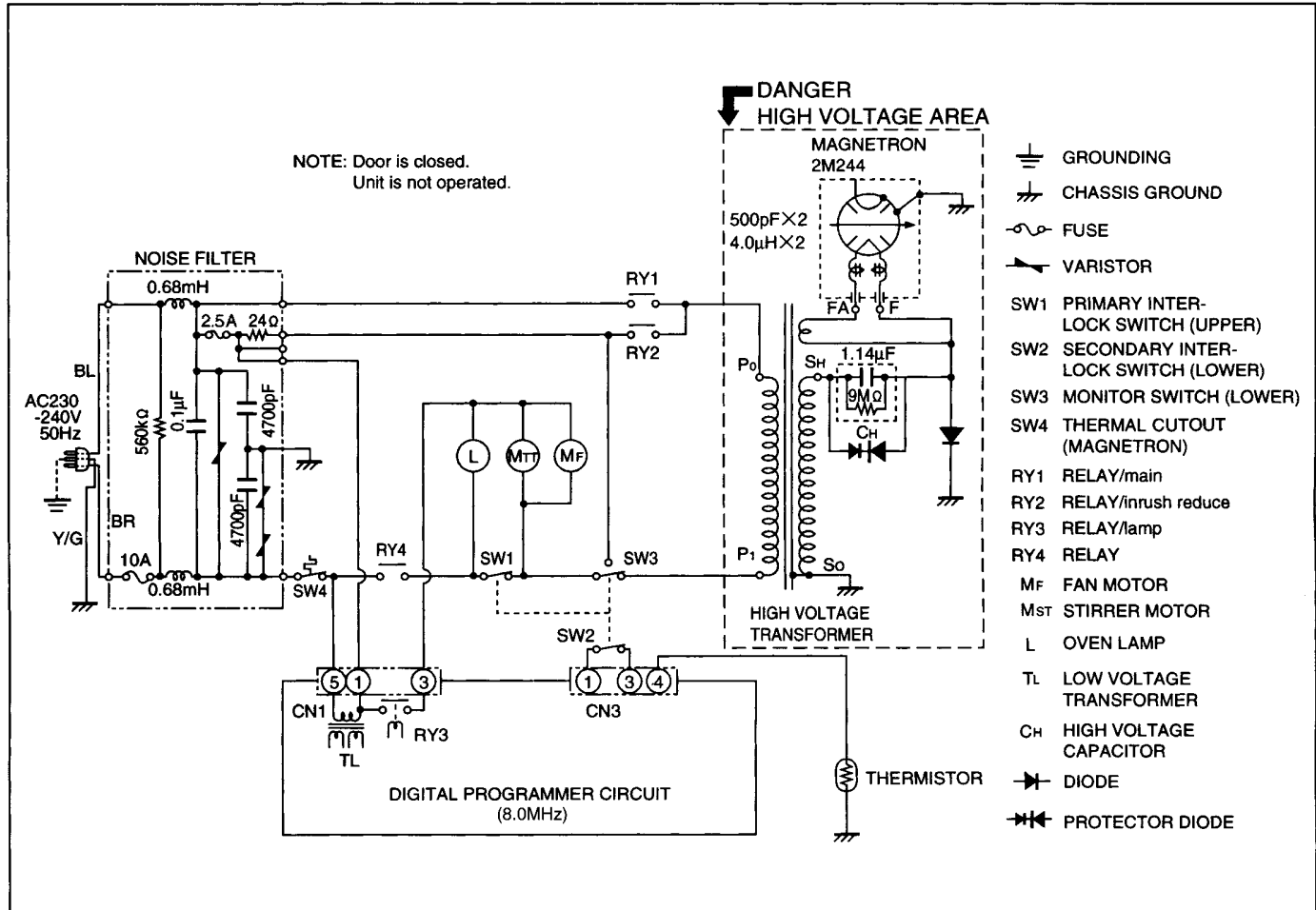


WIRING DIAGRAM

NOTE: *When replacing, check the lead wire colour as shown.
*Colours shown by () indicate colours of lead wire connector housing.

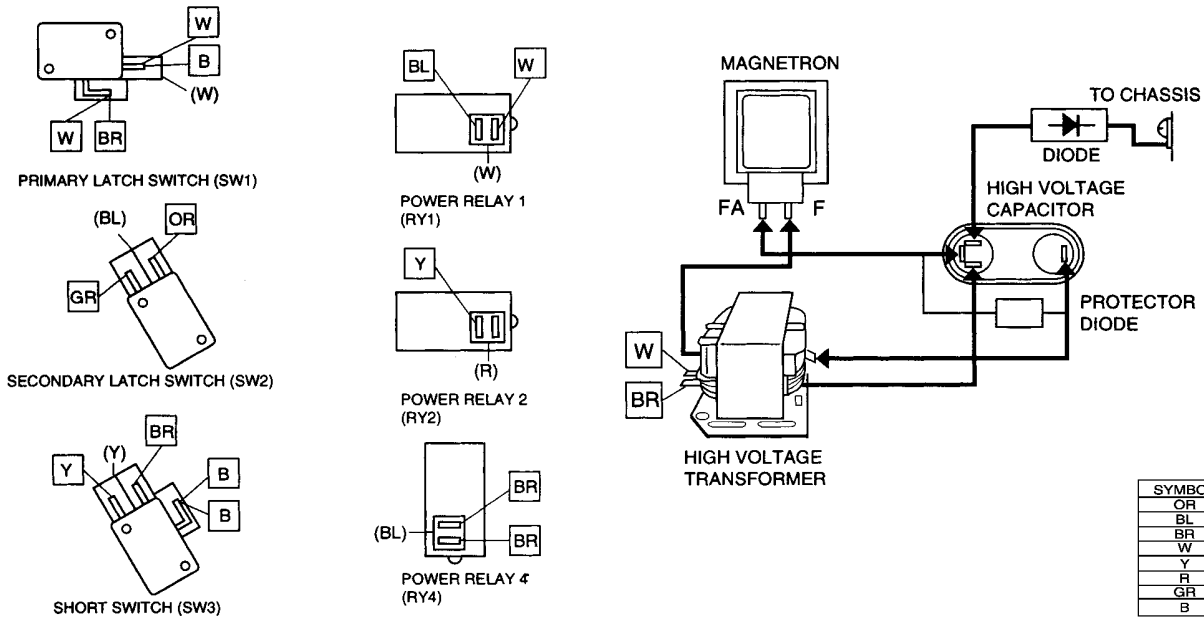


3.2. NE-1037



WIRING DIAGRAM

NOTE: *When replacing, check the lead wire colour as shown.
*Colours shown by () indicate colours of lead wire connector housing.



4 DESCRIPTION OF OPERATING SEQUENCE

4.1. Variable power cooking control (NE-1027)

The vari-power controller controls the ON-OFF time of the vari-power switch to vary the output power of the microwave oven from "100" to "1000". The vari-power controller is a part of the timer assembly. The timer assembly consists of timer motor, timer switch, vari-power switch and the combination of gears, cam and actuator lever.

One complete cycle of the vari-power controller is 26 seconds, in which the vari-power switch is turned "on" or "off" by the cam rotation is the 26 ± 2 second period.

By controlling the timing of the vari-power switch "on" period, the power AC supplied to the high voltage transformer is interrupted intermittently so that the average output power of the microwave oven is varied.

Table shows the timing chart of vari-power switch operation in respect to the power setting on the control panel.

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(W)A PPROX.	ON-OFF TIME OF VARI-POWER SWITCH (Mechanical timer model)	
		ON(SEC)	OFF(SEC)
1000	1000	26	0
600	600	20	6
440	440	15	11
DEFROST	340	10	16
250	250	8	18
100	100	4	22

4.2. Variable power cooking control (NE-1037)

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.

POWER SETTING	*OUTPUT POWER(W) APPROX.	ON-OFF TIME OF POWER RELAY B (RY1)	
		ON(SEC)	OFF(SEC)
HIGH	1000	22	0
MEDIUM	500	11	11
DEFROST	340	8	14

*IEC-705-88 test procedure.

Specifications Subject to change without notice

5 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.

5.1. 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.

5.2. 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.

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

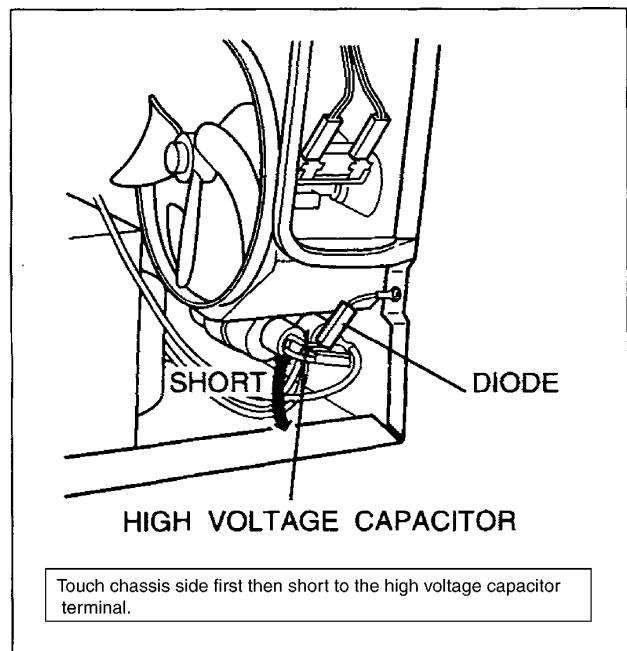
For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitor. When replacing or checking parts, remove the power plug from the outlet and short the terminal of the high voltage capacitor (terminal of lead wire from diode) to chassis ground with an insulated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



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

5.5. When the 10 Amp/2.5 Amp fuse is blown due to the operation of short switch:

WARNING

When the 10 Amp/2.5 Amp fuse is blown due to operation of the interlock monitor switch, you must replace all of the components (Primary latch switch, Door switch, Short switch and Power relay B (RY1)).

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.

5.6. 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.

5.7. 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**

USE CAUTION NOT TO BECOME EXPOSED TO RADIATION FROM THE MICROWAVE MAGNETRON OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

IMPORTANT NOTICE

1. The following components have potentials above 2000V while the appliance is operated.

- * Magnetron
- * High voltage transformer
- * High voltage diode
- * High voltage capacitor

Pay special attention to these areas.

2. When the appliance is operated with the door hinge or magnetron adjusted incorrectly, the microwave leakage can exceed more than 5mW/cm^2 . After repair or exchange, it is very important to check that magnetron and the door hinge is correctly installed.

6 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

6.1. 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 4 screws holding the magnetron.

NOTE:

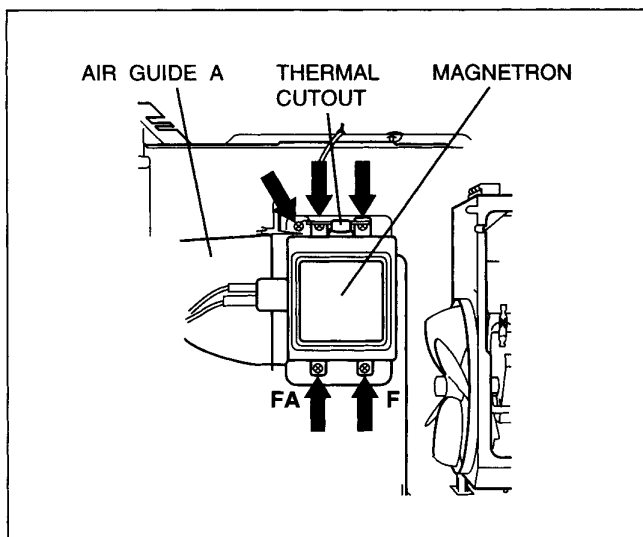
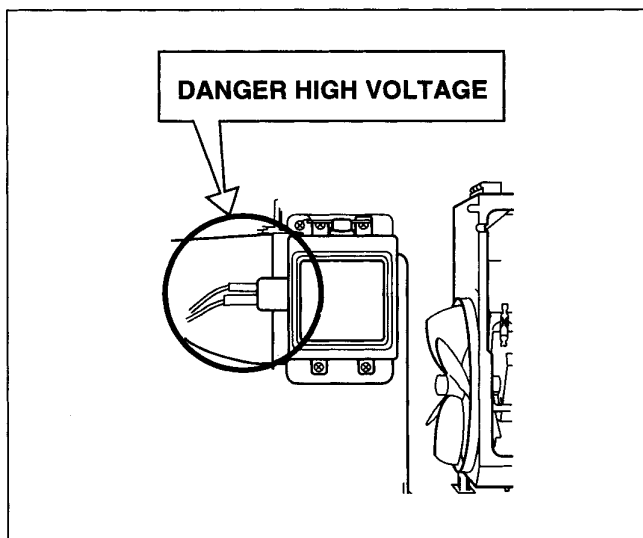
After replacement of the magnetron, tighten mounting screws properly making sure there is no gap between the waveguide and the magnetron to prevent microwave leakage.

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".



6.2. Digital Programmer Circuit (D.P.C.) and membrane keyboard. (NE-1037)

NOTE:

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

1. Disconnect all connectors from D.P.C.
2. Remove 2 screws holding escutcheon base and slide the escutcheon base upward slightly.
3. Release flat cable connector's lock of D.P.C. by pushing both levers to inside and pull them upward, and remove flat cable of membrane key board.
4. Remove 3 screws holding D.P.C.

To replace membrane key board

5. Remove escutcheon bracket from escutcheon base by freeing 4 catch hooks on the escutcheon base.
6. Remove metal trim from escutcheon base.
7. Peel off the tab of membrane key board from escutcheon base.
8. Peel off the display filter from escutcheon base.
9. 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;
Membrane key board: Right and upper edges
Escutcheon sheet: Right and upper edges

6.3. Low voltage transformer and/or power relays (RY1, RY2, RY3, RY4) (NE-1037)

NOTE:

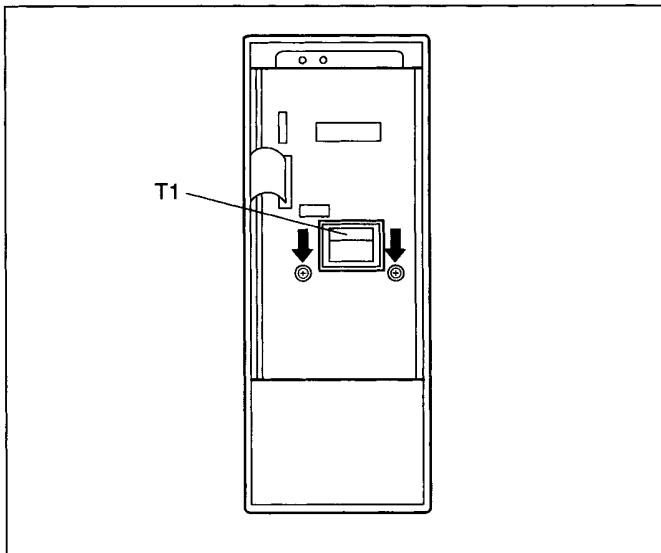
Be sure to ground any static electric charge built up on your body before handling the D.P.C..

1. 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:

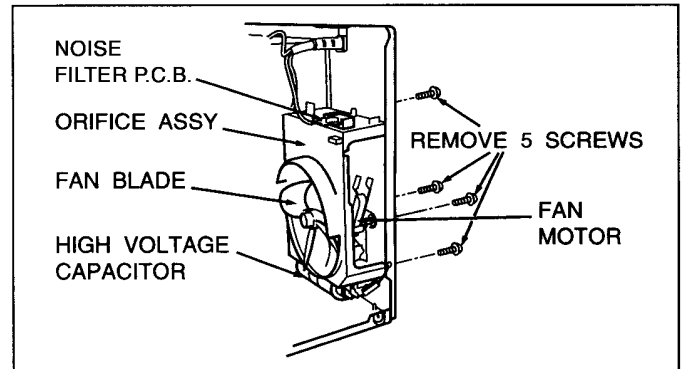
Do not use a soldering iron or desoldering tool of more than 30 watts on D.P.C. contacts.

2. With all the terminal pins cleaned and separated from D.P.C. 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.



6.4. Fan motor

1. Disconnect 2 lead wires from fan motor terminals.
2. Disconnect 3 lead wires from noise filter P.C.B. terminals.
3. Disconnect 4 high voltage lead wires from high voltage capacitor terminals.
4. Remove 5 screws holding fan motor and orifice assy, detach the orifice assy with fan motor from oven assy.
5. Remove fan blade from the fan motor shaft by pulling it straight Out.
6. Separate the fan motor from the orifice assy by freeing 2 catch hooks on the orifice assy.



6.5. Stirrer motor

1. Remove the motor cover by breaking off at the 8 spots indicated by arrows with a cutter or the like. (See Figure)

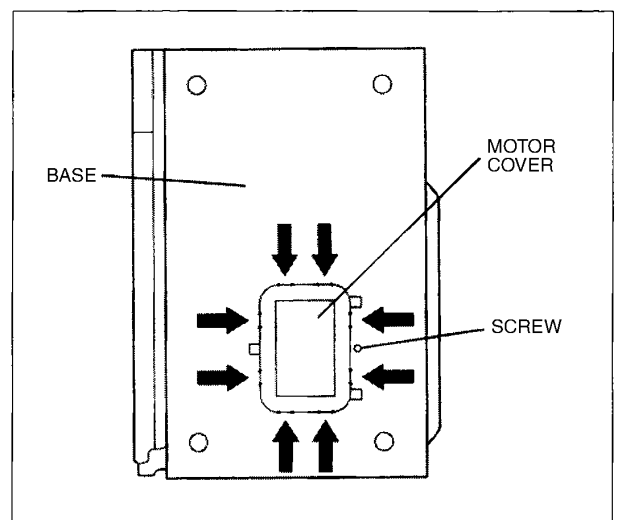
Note:

After breaking off the motor cover, make sure the cut-off portions are properly trimmed off or bend to inside so that no sharp edge will expose to outside.

2. Disconnect 2 lead wires connected to the stirrer motor.
3. Remove the stirrer motor by removing 2 screws.

Note:

To reinstall the motor cover, use 4x6 screw.



6.6. Door assembly

1. Open the door and remove door C from door E by carefully pulling outward starting from upper right hand corner.
2. Remove door key and door key spring.
3. Remove 2 screws holding side frame of door A.
4. Separate the door A from the door E by freeing catch hooks on the door A using a flat screwdriver.

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

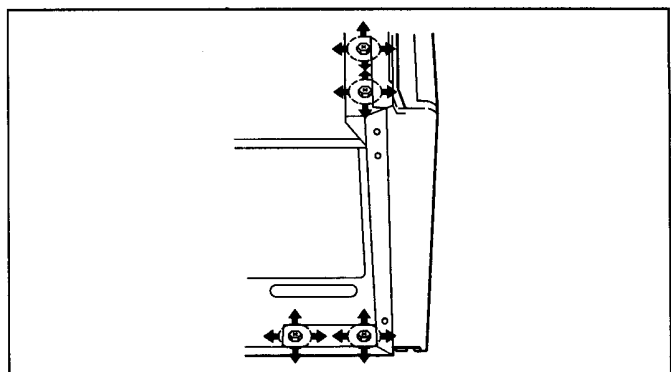
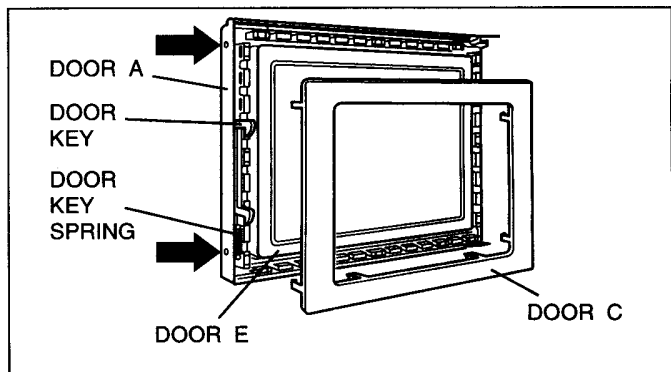
5. When mounting the door to the oven, be sure to adjust the door parallel to the bottom line of the oven face plate by moving the upper hinge and lower hinge in the direction necessary for proper alignment.
6. Adjust so that the door has no play between the inner door surface and oven front surface.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

NOTE:

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

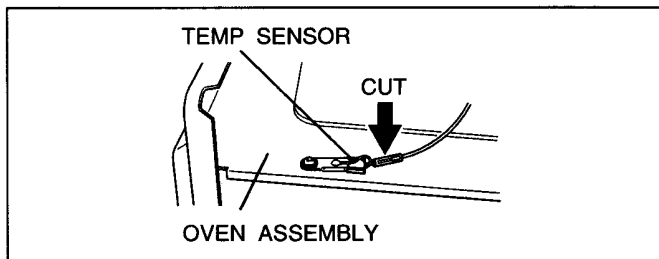
NOTE:

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



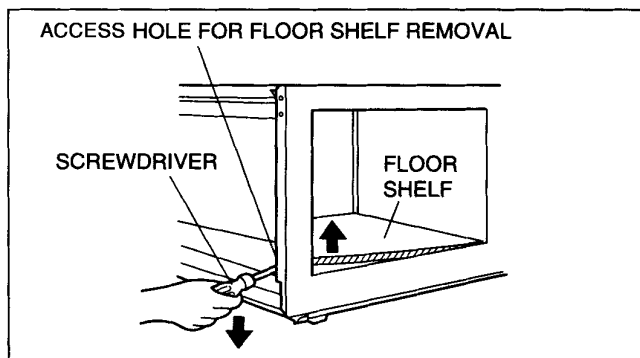
6.7. Temp sensor (thermal protector) (NE-1037)

1. Cut a lead wire at the top of sensor terminals.
2. Remove 1 screw holding the temp sensor and replace with new one.
3. Solder the lead wires securely to the sensor terminals.



6.8. Floor shelf and/or moving antenna

1. Insert a phillips type screwdriver or equivalent approx. 2" (5 cm) in shaft length in the access hole in the left side oven wall as shown in Figure.
2. Carefully lift up the floor shelf by prying up with the screwdriver until the floor shelf is lifted up over the level of oven front opening.
3. Remove the floor shelf by lifting it out through the oven front.



To replace moving antenna.

4. 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. They are necessary to stabilize the antenna by gliding around the oven bottom as the antenna turns.

7 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.

7.1. Primary Latch Switch, (Door 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 Door 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)
Door Switch	$\infty \Omega$ (open)	0 Ω (close)
Power Relay B	$\infty \Omega$ (open)	$\infty \Omega$ (open)

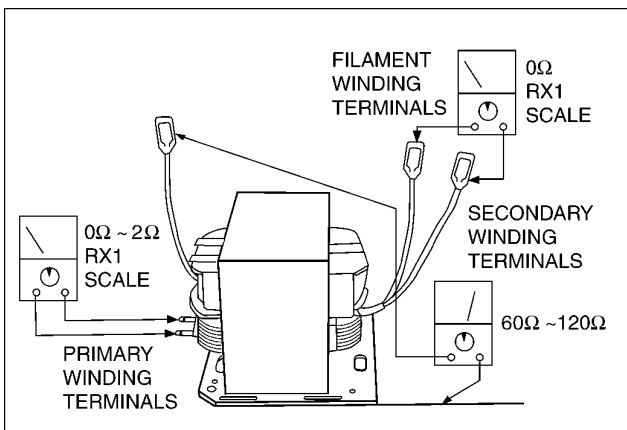
7.2. Short Switch & Monitor

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	$\infty \Omega$

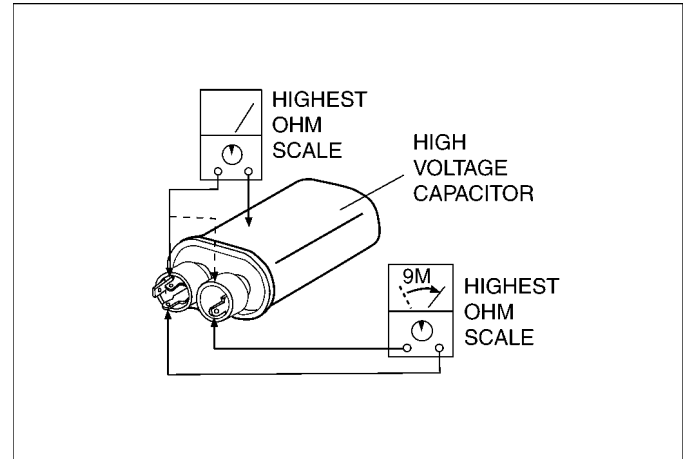
7.3. High voltage transformer

1. Remove connectors from the transformer terminals and check continuity.
2. Normal (cold) resistance readings should be as follows:
Secondary winding..... Approx. 60 Ω ~120 Ω
Filament winding..... Approx. 0 Ω
Primary winding..... Approx. 0 Ω ~2 Ω



7.4. High voltage capacitor

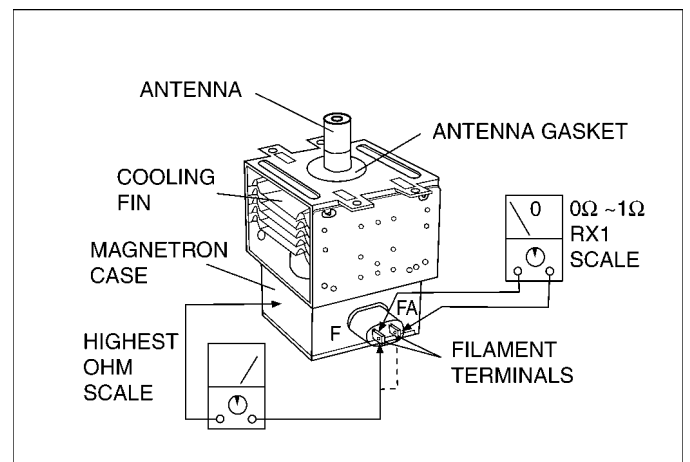
1. Check continuity of capacitor with meter on highest OHM scale.
2. A normal capacitor will show continuity for a short time, and then indicate 9M Ω once the capacitor is charged.
3. A shorted capacitor will show continuous continuity.
4. An open capacitor will show constant 9M Ω .
5. Resistance between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



7.5. Magnetron

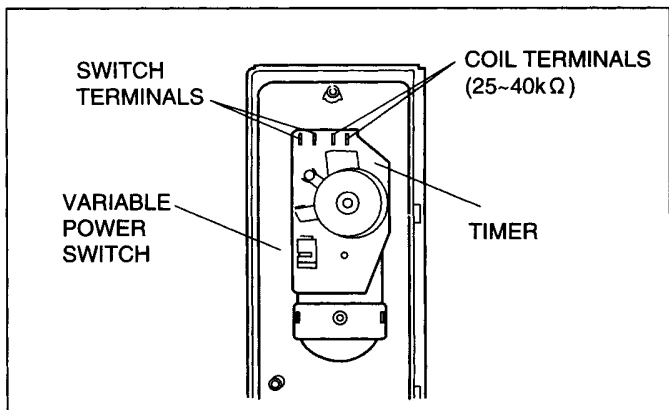
Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron:

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.



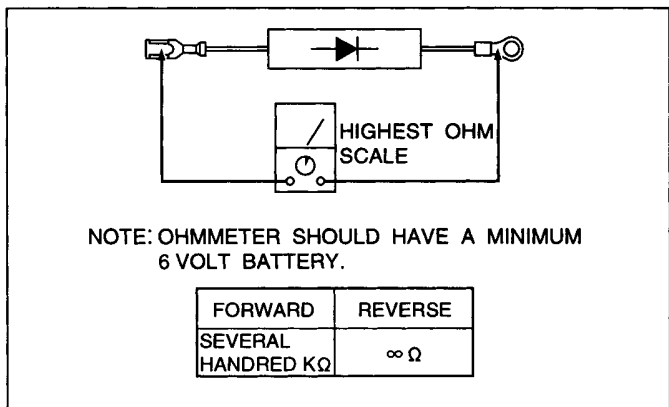
7.6. Variable power controller (NE-1027)

1. Isolate variable power switch from the circuit by disconnecting 2 leads.
2. In order to check if variable power controller is operating normally, follow the test procedures below.
 - a. Select any power other than "900" and start the oven.
 - b. Check continuity between both terminals of the variable power switch.
 - c. Variable power controller (timer and variable power switch) is working properly if the ohm meter reads open and 0 ohm within 26 ± 2 seconds interval as shown in Table on description of operating sequence.



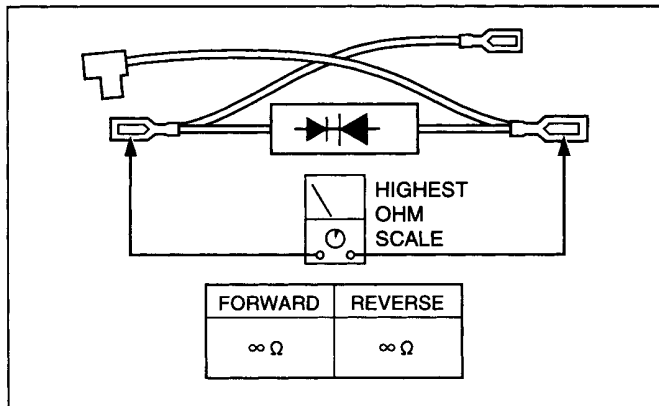
7.7. Diode

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.



7.8. Protector diode

1. Isolate the protector diode assembly from the circuit by disconnecting its leads.
2. 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.



7.9. Membrane key board (Membrane switch assembly) (NE-1037)

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.

7.10. Temp sensor (Thermal protector) (NE-1037)

A temp sensor is mounted on exhaust guide. Its purpose is to automatically shut off the oven in case the cavity overheats for any reason. The thermal protector will operate at 257°F (125°C). The device is connected to the D.P.C. on touch control models. When the thermal protector exceeds its temperature it will turn off the power to oven cavity and display will go to reset mode. The cooking program can be reset after cool-down.

THERMISTOR RESISTANCE VALUE
30K-120K at 10°C-30°C (50°F-86°F)

8 MEASUREMENTS AND ADJUSTMENTS

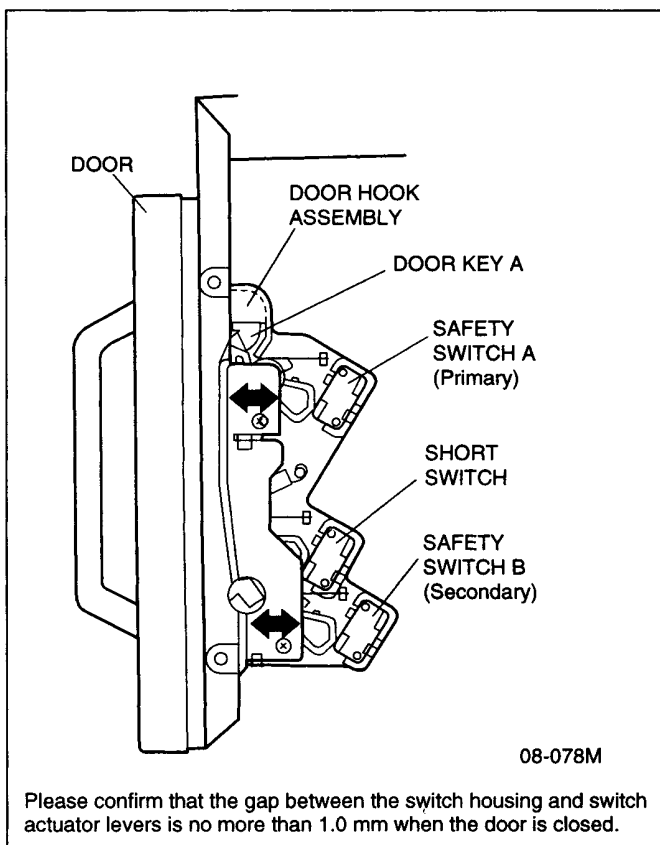
8.1. Adjustment of Safety switch A, Safety switch B and short switch

1. When mounting Safety switch A, Safety switch B and short switch to door hook assembly, mount the Safety switch A, Safety switch B and the short switch to the door hook assembly as shown in table.

NOTE:

No specific adjustment during installation of Safety switch A, Safety switch B 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 table 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.



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

TABLE (1L-1min.test)

RATED OUTPUT	TEMPERATURE RISE
1000W	Min.8.5°C

9 TROUBLESHOOTING GUIDE

9.1. NE-1027

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.
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.

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

9.1.1. [TROUBLE 1] Oven does not start cooking

	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven is dead. Fuses is OK.	1. Open or loose lead wire harness 2. Open thermal cutout (Magnetron)(Oven)	Check fan motor when thermal cutout is defective.
2.	No microwave oscillation. Other operation is OK.	1. Off-alignment of latch switches 2. Defective secondary latch switch (SW2) 3. Open or loose wiring of secondary latch switch, vari-power switch and micro select switch 4. Defective variable power switch (SW7) 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. 6. Defective high voltage component H.V. Transformer H.V. Capacitor H.V. Diode Magnetron	Adjust door and latch switches. Refer to component test procedure. Check high voltage component according to component test procedure and replace if it is defective.

9.1.2. [TROUBLE 2] Fuse is blown


	SYMPTOM	CAUSE	CORRECTIONS
1.	10A fuse is blown.	<ol style="list-style-type: none"> 1. Shorted lead wire harness 2. Shorted H.V. Capacitor 3. Shorted H.V. Diode 4. Defective magnetron 5. Shorted H.V. Transformer 6. Shorted Protector diode 	Replace H.V. Diode and protector diode (*NOTE) Replace magnetron and protector diode (*NOTE) Replace H.V. Transformer and protector diode (*NOTE)
2.	2.5A fuse is blown.	<ol style="list-style-type: none"> 1. Defective primary latch switch and short switch 2. Open or loose wiring of power relay (RY2) 3. Defective power relay (RY2) 4. Defective relay control circuit 	Check adjustment of primary, secondary latch switch and short switch including door.
		*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).	

9.1.3. [TROUBLE 3] Other troubles

	SYMPTOM	CAUSE	CORRECTIONS
1.	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
2.	Loud buzzing noise can be heard.	<ol style="list-style-type: none"> 1. Loose fan and fan motor 2. Loose screws on H.V. Transformer 	

9.2. NE-1037

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.
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. 230/240V AC is present at the shaded area  of 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.

9.2.1. [TROUBLE 1] Oven does not start cooking

	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven is dead. Fuses 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 if thermal cutout is defective.
2.	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 	<p>Refer to operation procedure.</p> <p>Refer to DPC troubleshooting.</p>
3.	Oven lamp and fan motor turn on when oven is plugged in with door closed.	<ol style="list-style-type: none"> 1. Misalignment or loose wiring of secondary latch switch 2. Defective secondary latch switch 	Adjust door and latch switches.
4.	Timer starts count down but no microwave oscillation.	<ol style="list-style-type: none"> 1. Off-alignment of latch switches 2. Defective primary latch switch 3. Open or loose wiring of power relay (RY1) 4. Defective power relay (RY1) 5. Defective DPC. 6. 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. 7. Defective high voltage component H.V. Transformer H.V. Capacitor H.V. Diode Magnetron 	<p>Adjust door and latch switches.</p> <p>Check high voltage component according to component test procedure and replace if it is defective.</p>

9.2.2. [TROUBLE 2] Fuse is blown

	SYMPTOM	CAUSE	CORRECTIONS
1.	10A 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	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).	

9.2.3. [TROUBLE 3] Other troubles

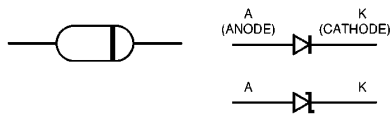
	SYMPTOM	CAUSE	CORRECTIONS
1.	Microwave output is low. Oven takes longer time to cook food.	1. Decrease in power source voltage 2. Open or loose wiring of magnetron filament circuit. (Intermittent oscillation) 3. Aging change of magnetron	Consult electrician
2.	Fan motor and oven lamp turn on when door is opened.	1. Shorted primary latch switch	
3.	Oven does not operate and return to plugged in mode.	1. Open or loose wiring of temp sensor 2. Defective temp sensor 3. Defective DPC	Check tighten screws on escutcheon base bracket, D.P.C. board and temp sensor. Refer to DPC troubleshooting.
4.	Loud buzzing noise can be heard.	1. Loose fan and fan motor 2. Loose screws on H.V. Transformer	
5.	Oven stops operation during cooking	1. Off-alignment of latch switches 2. Open or loose wiring of primary and secondary latch switch 3. Operation of thermal cutout (Magnetron)	Adjust door and latch switches.
6.	Stirrer motor does not rotate.	1. Open or loose wiring of stirrer motor 2. Defective stirrer motor	
7.	"F33" appears in display window.	1. Open temp. sensor. 2. Defective D.P.C.	
8.	"F34" appears in display window.	1. Short temp. sensor. 2. Defective D.P.C.	
9.	"F01" appears in display window and oven beeps.	1. Food is overcooked and oven exhaust temperature too high. (over 130°C)	After cool down (approx. 10 minutes) unplug oven to reset display.
10.	"F44" appears in display window.	1. Malfunctioning keypad stays on for more than 2 minutes.	

9.2.4. Trouble related to Digital Programmer Circuit

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS
No display when oven is first plugged in	1	Printed fuse pattern of D.P.C.	Normal	STEP 2
			Open (NOTE)	Shorted circuit of ZNR, L. V. T., Oven Lamp etc. Replace D.P.C.
	2	Low voltage transformer (L.V.T.) secondary voltage	Abnormal 0V	L.V.T.
			Normal	→ Step 3
	3	IC-1 pin 1 voltage (Emitter of Q1)	Abnormal	ZD1, Q1
			Normal = 5V	→ Step 4
	4	IC-1 pin 27 voltage (pin 14 of IC-2)	Abnormal	IC-2
			Normal ≈ 5V	→ IC-1, CX1, DISPLAY
<p>NOTE</p> <p><u>Procedure of fuse pattern repairing is as follows:</u></p> <p><u>1. When the fuse pattern (PF2) opens.</u></p> <p>(1) Remove jumper wire (PF1).</p> <p>(2) Insert the removed jumper wire (PF1) to "(PF2)" position and solder it. If both "PF1" and "PF2" fuse patt pattern are open, please replace D.P.C.</p> <p><u>2. When the fuse pattern (PF4) opens.</u></p> <p>(1) Remove jumper wire (PF3).</p> <p>(2) Insert the removed jumper wire (PF3) to "(PF4)" position and solder it. If both "PF4" and "PF3" fuse pattern are open, please replace D.P.C.</p> <p>NOTE:* At the time of these repairs, make 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).</p> <p>If any abnormal condition is detected, replace the defective parts.</p>				
No key input	1	Membrane switch continuity	Abnormal	Membrane switch
			Normal	IC-1
No beep sound	1	IC-1 pin 23 voltage	Abnormal	IC-1
			Normal	BZ, Q3, Q4, Q8, Q9
Power relay A(RY-3) does not turn on even though the program has been set and the start pad is tapped	1	IC-1 pin 12 voltage while operation	Abnormal	IC-1
			Normal=5V	→ Step 2
	2	short circuit between pin 1 and pin 12 of IC-2	Still not turn on	RY-2
			RY-2 turns on	IC-2
No microwave oscillation at any power setting	1	IC-1 pin 10 and pin 20 voltages while operation at high power	Abnormal	IC-1
			Normal 10---5V, 20---5V IC-1	→ Step 2
	2	Q7 transistor	Abnormal	Q2
			Normal	IC-2, 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

9.2.5. How to check the semiconductors using an OHM meter

Diode



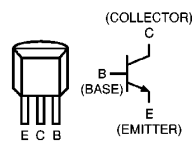
	FORWARD	REVERSE
A-K	SMALL	∞

Transistor

NPN Transistor

2SC.....

2SD.....

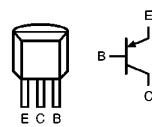


	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

PNP Transistor

2SA.....

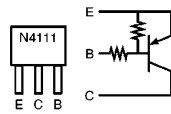
2SB.....



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

Digital Transistor

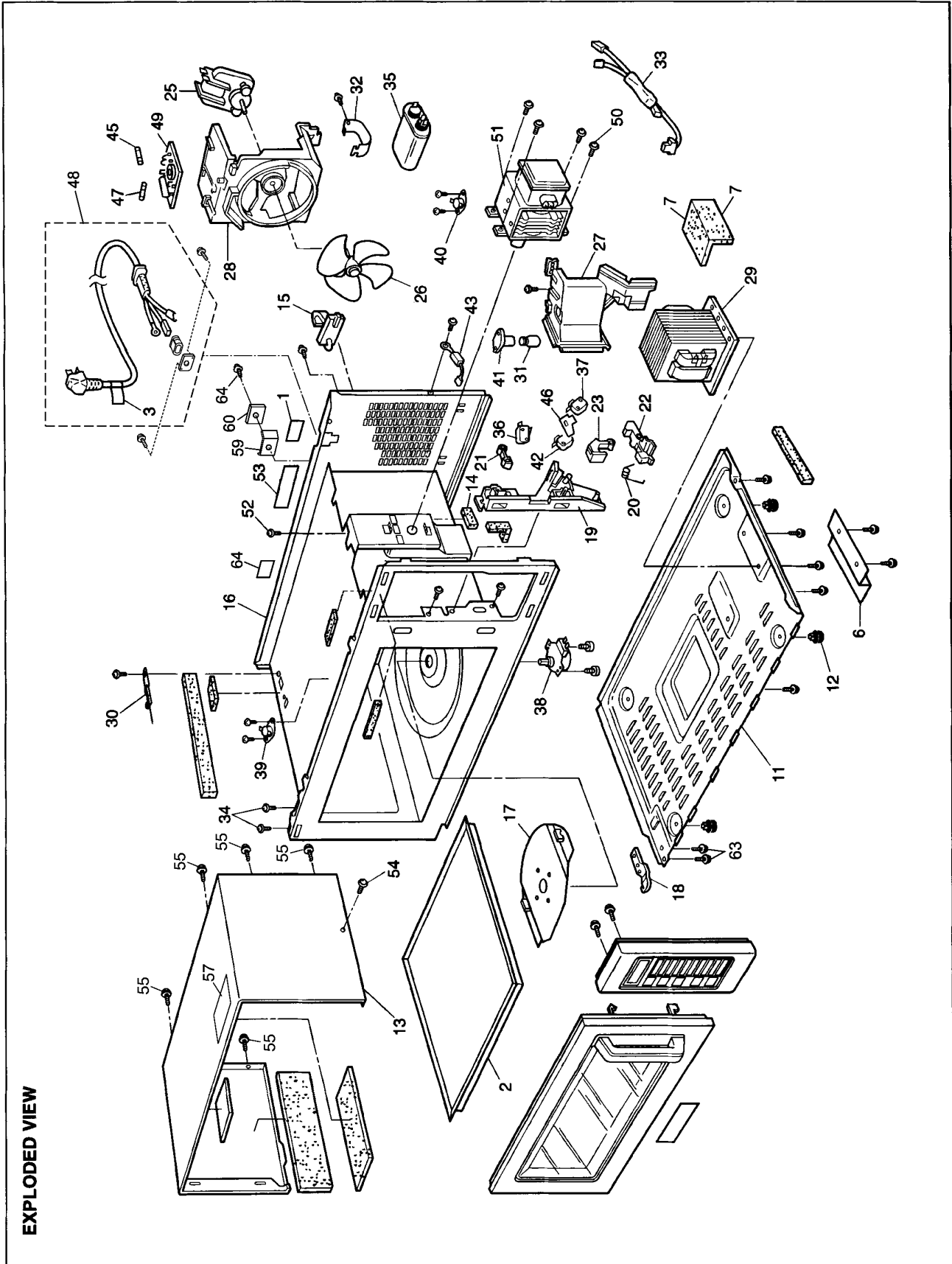
PNP Transistor



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

10 EXPLODED VIEW AND PARTS LIST

10.1. EXPLODED VIEW



10.2. 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.

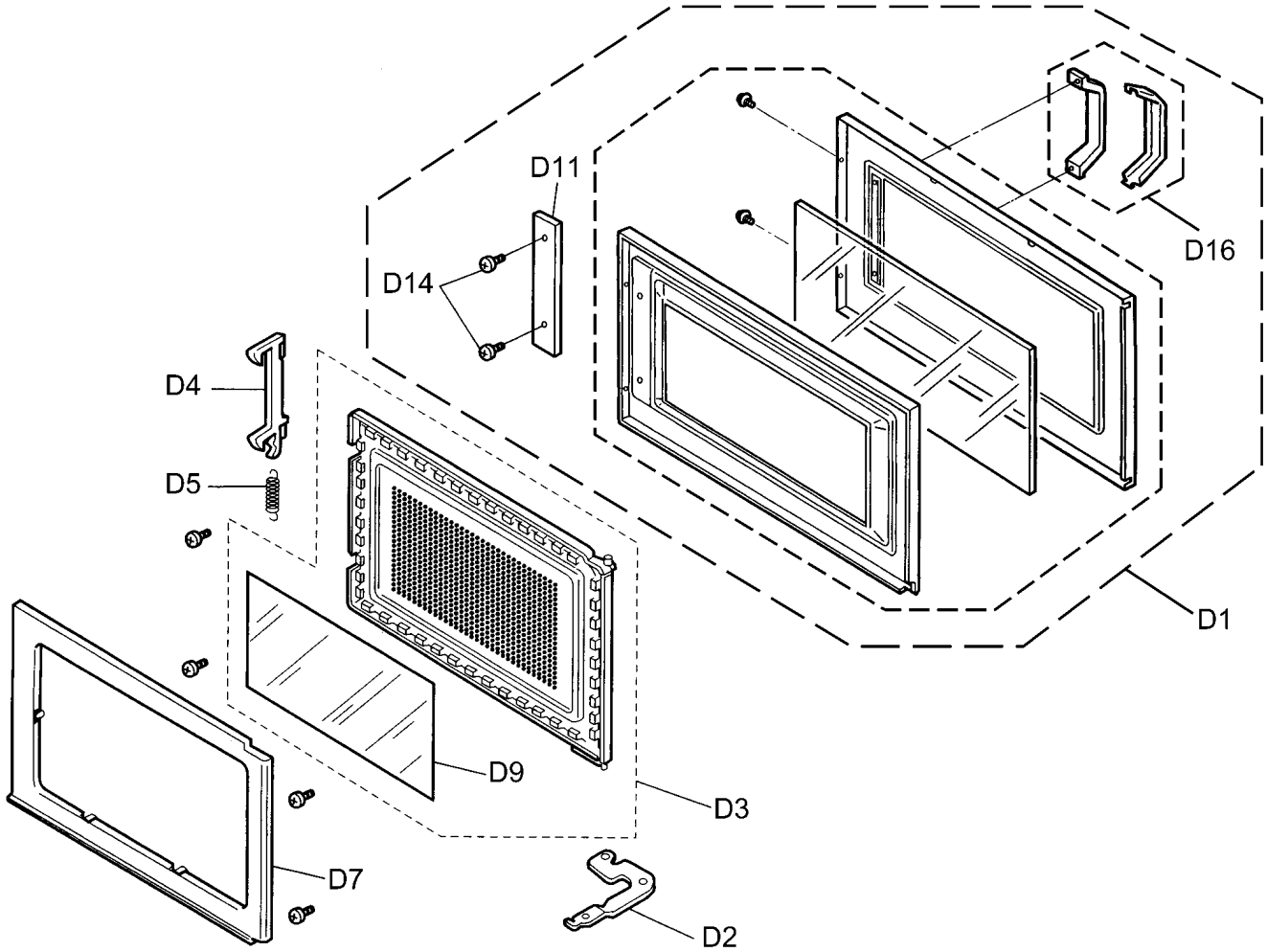
2. Important safety notice:

Components identified by \triangle mark have special characteristics important for safety.

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

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
1		Z00064080BP	CAUTION LABEL	1	BTQ
1		Z00068K30EU	CAUTION LABEL	1	ETG
2		Z010T3700BP	SHELF	1	
3		Z02395G50BP	CORD LABEL	1	BTQ
6		Z10403700BP	BASE BRACKET	1	
7		Z0912000FF	CUSHION RUBBER B	2	
11		Z10013700BP	BASE	1	
12		Z1008-1180	RUBBER FOOT	4	
13		Z11553700BP	CABINET BODY (U)	1	INCLUDING CUSHION RUBBER & INSULATION SHEET
14		Z10498K30BP	CUSHION RUBBER	1	
15		Z11406V00HP	STOPPER	1	
16	\triangle	Z200A3700GP	OVEN CAVITY	1	
17		Z203P3700BP	ANTENNA (U)	1	
18		Z30073700BP	LOWER HINGE	1	
19	\triangle	Z3020-1480	DOOR HOOK A	1	
20		Z3097-1480	SPRING	1	
21		Z3136-1480	HOOK SPACER A	1	
22		Z3137-1480	HOOK SPACER B	1	
23		Z3138-1480	HOOK SPACER C	1	
25	\triangle	Z400A3700BP	FAN MOTOR	1	
26		Z4008-1480	FAN BLADE	1	
27		Z40253700BP	AIR GUIDE A	1	
28		Z41445540AP	ORIFICE	1	
29	\triangle	Z622B3700HN	H.V. TRANSFORMER	1	
30	\triangle	Z030F8K30BP	TEMP SENSOR W/LEAD WIRE (U)	1	1037 BTQ/ETG (INCLUDING OVEN TEMP SENSOR)
31		Z60304080BP	INCANDESCENT LAMP	1	
32		Z6037-3700	CAPACITOR BRACKET	1	
33		Z606V3700BP	PROTECTOR DIODE (U)	1	
34		ZYFBFE4+AF8	SCREW	2	FOR UPPER HINGE
35	\triangle	Z60903700GP	H.V. CAPACITOR	1	
36	\triangle	Z6142-1450	MICRO SWITCH	1	(V-16G-3C26-M) PRIMARY LATCH SWITCH
37	\triangle	Z6142-1450	MICRO SWITCH	1	1027 BTQ/ETG (V-16G-3C26-M) PRIMARY LATCH SWITCH
37	\triangle	Z61425180AP	MICRO SWITCH	1	1037 BTQ/ETG (L-3C2-2) SECONDARY LATCH SWITCH
38	\triangle	Z61443660AP	ANTENNA MOTOR	1	
39	\triangle	Z61454000AP	THERMAL CUTOUT	1	1027 BTQ/ETG (FOR OVEN)
40	\triangle	Z61455840GP	THERMAL CUTOUT	1	(FOR MAGNETRON)
41		Z61524000AP	SOCKET	1	
42	\triangle	ZNE6161-3X0	MICRO SWITCH	1	(V-16G-2C25) SHORT SWITCH
43		Z6202-3280	DIODE, SI	1	
45	\triangle	Z62304210BP	FUSE	1	(10A)
46		Z63064000AP	INSULATION SHEET R	1	1027 BTQ/ETG
47	\triangle	Z65953700BP	FUSE B	1	(2.5A)
48	\triangle	Z910C3700BP	AC CORD W/PLUG (U)	1	BTQ (NOT INCLUDING CORD LABEL)
48	\triangle	Z910C3710GP	AC CORD W/PLUG (U)	1	ETG
49		Z692Y3710BP	NOISE FILTER (U)	1	1027 BTQ/ETG
49		Z692Y3700BP	NOISE FILTER (U)	1	1037 BTQ/ETG
50		ZTWFA4+12T	SCREW	4	FOR MAGNETRON
51	\triangle	Z2M244-M6J1P	MAGNETRON	1	
52		ZYDFB4+EE12F	SCREW	1	FOR EARTH
53		Z00078K40SBP	NAME PLATE	1	1027 BTQ
53		Z00078K40SEU	NAME PLATE	1	1027 ETG
53		Z00078K30SBP	NAME PLATE	1	1037 BTQ
53		Z00078K30SEU	NAME PLATE	1	1037 ETG
54		ZTC4+12BC	SCREW	1	FOR CABINET BODY SIDE
55		ZTWAFE4+8S	SCREW	5	FOR CABINET BODY
57		Z00958K30BP	CAUTION LABEL B	1	BTQ
57		Z00958K30EU	CAUTION LABEL B	1	ETG
59		ZWNANE65GV	BRACKET	1	
60		Z66623170GP	EARTH BRACKET	1	
63		ZTWFA4+12LR	SCREW	2	FOR LOWER HINGE
64		ZYF6+F20FUJ	SCREW	1	

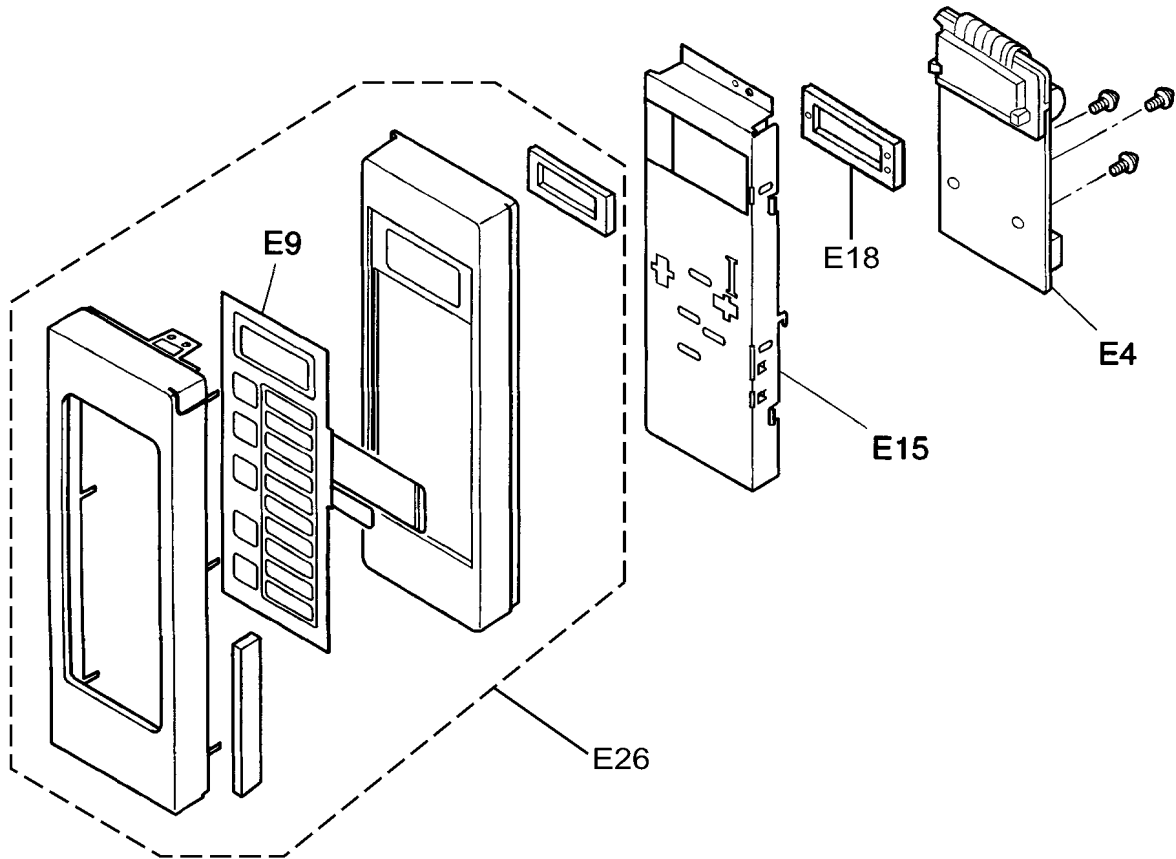
10.3. DOOR ASSEMBLY



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
D1	⚠	Z302A3700SHP	DOOR A (U)	1	1037 BTQ/ETG (INCLUDING DOOR PANEL)
D1	⚠	Z302A3710SBP	DOOR A (U)	1	1027 BTQ/ETG (INCLUDING DOOR PANEL)
D2		Z30063700BP	UPPER HINGE	1	
D3	⚠	Z302K3700BP	DOOR E (U)	1	
D4		Z3018-1480	DOOR KEY A	1	
D5		Z30214000AP	DOOR KEY SPRING	1	
D7	⚠	Z30858960HN	DOOR C	1	
D9		Z31453700BP	DOOR SCREEN A	1	
D11		Z32863700AP	HANDLE SPACER	1	
D14		ZTN4+16Q	SCREW	2	
D16		Z301F6P00AP	HANDLE (U)	1	

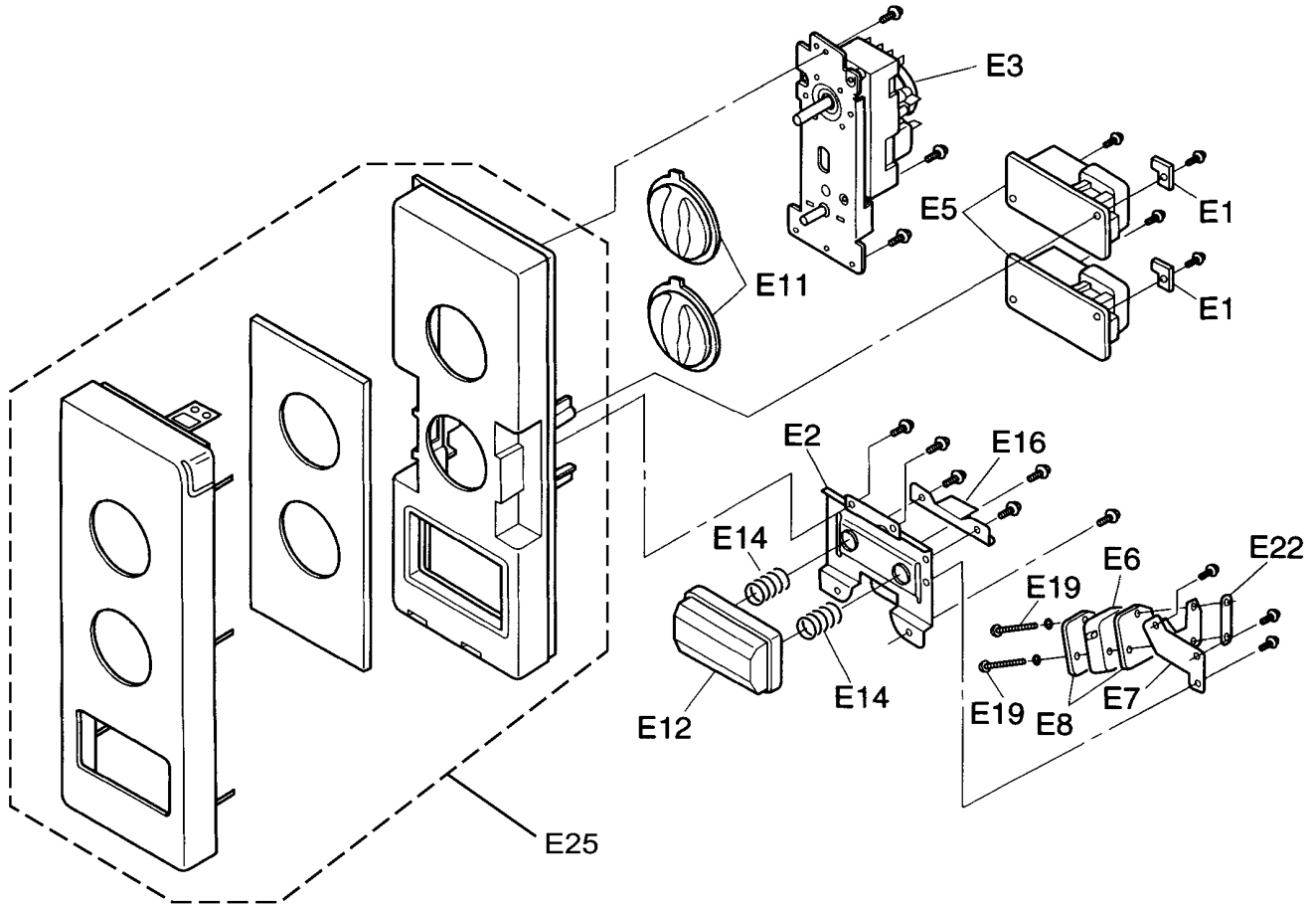
10.4. ESCUTCHEON BASE ASSEMBLY

10.4.1. NE-1037



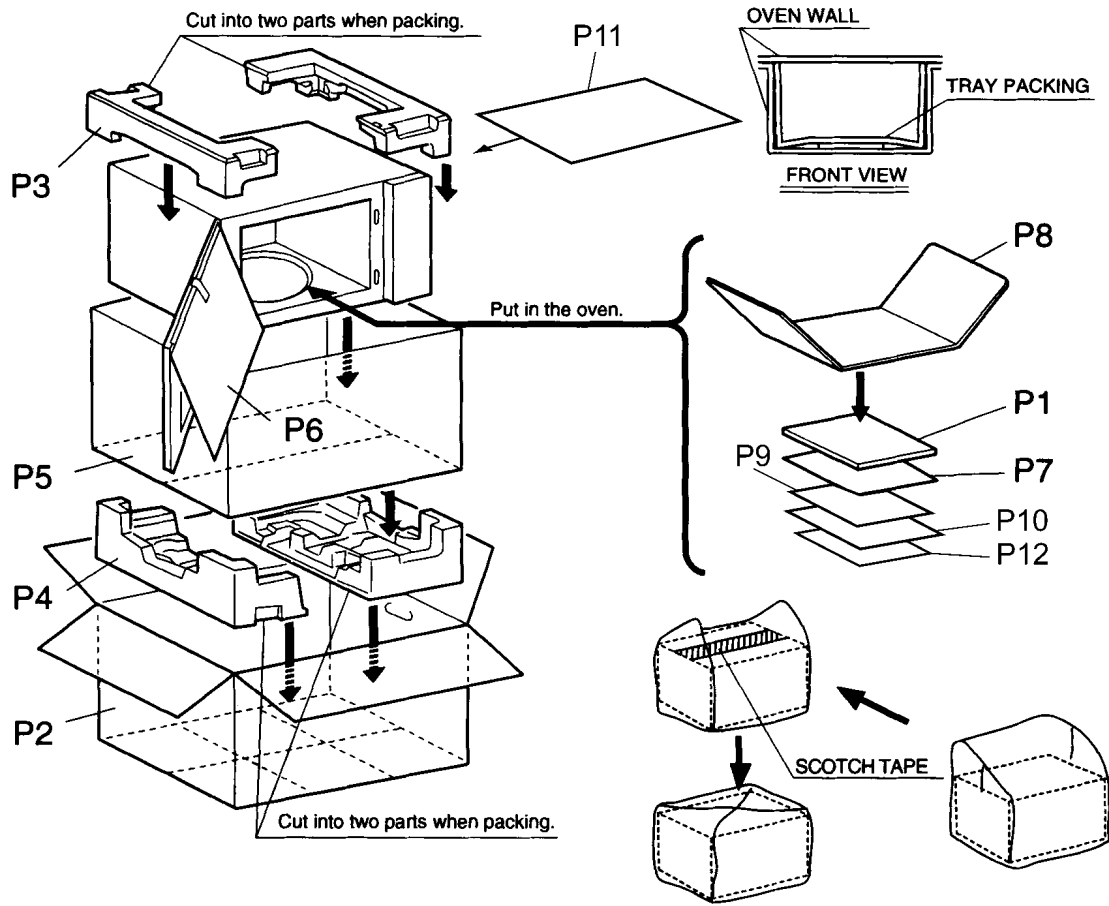
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
E4	Z603L3700EU	D.P.CIRCUIT (U)	1	1037 BTQ/ETG
E9	Z630Y8K30BP	MEMBRANE SWITCH (U)	1	1037 BTQ/ETG
E15	Z81273700AP	BACK PANEL	1	1037 BTQ/ETG
E18	Z83428K30BP	CUSHION RUBBER B	1	1037 BTQ/ETG
E26	Z800L8K30BP	ESCUTCHEON BASE (U)	1	1037 BTQ/ETG

10.4.2. NE-1027



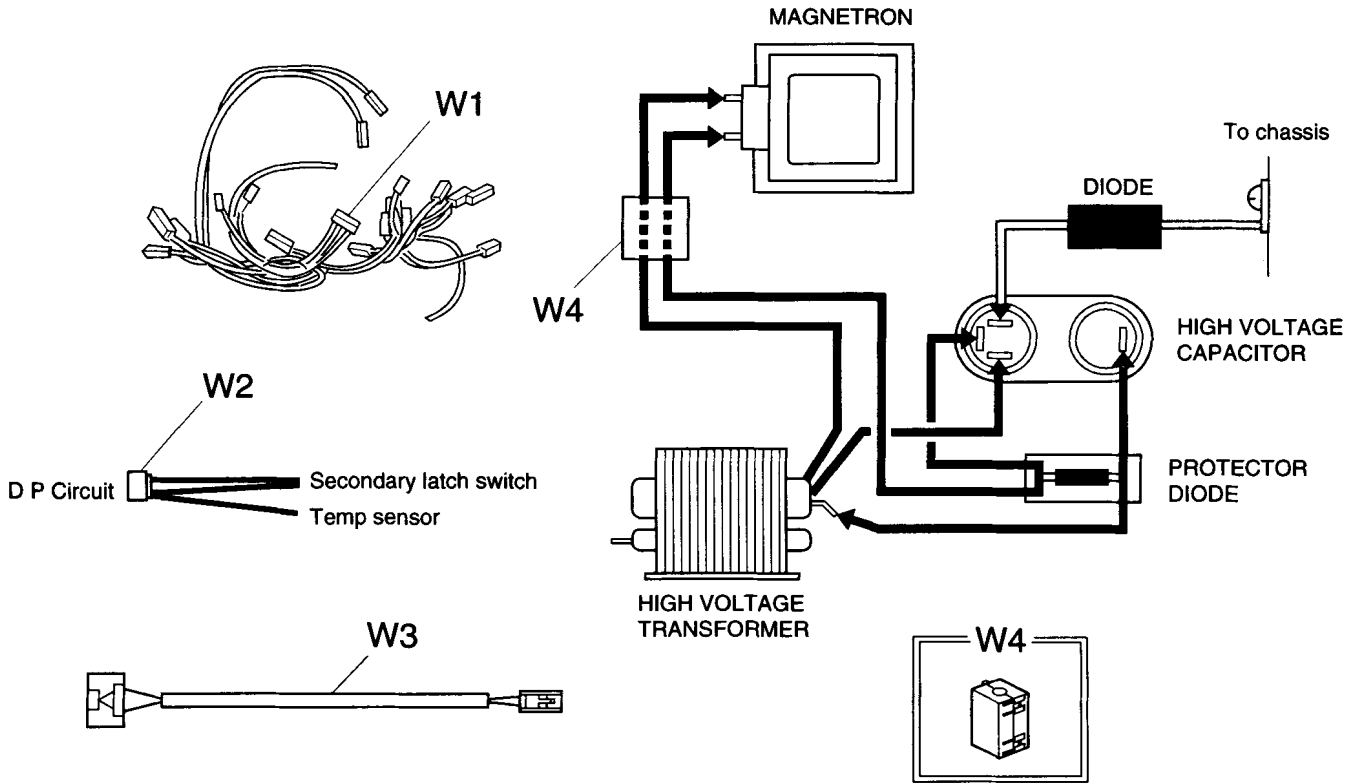
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
E1	Z62383710BP	SPACER	2	1027 BTQ/ETG
E2	Z600X8K40BP	START SWITCH BRACKET	1	1027 BTQ/ETG
E3	Z60018060BP	TIMER	1	1027 BTQ/ETG
E5	Z606X3710BP	INRUSH REDUCING CIRCUIT	2	1027 BTQ/ETG
E6	Z6142-1450	MICRO SWITCH	1	1027 BTQ/ETG
E7	Z61623710BP	START SWITCH BRACKET	1	1027 BTQ/ETG
E8	ZNE6306910AP	INSULATION SHEET R	2	1027 BTQ/ETG
E11	Z80203710BP	TIMER KNOB	2	1027 BTQ/ETG
E12	ZNE8024P00RN	COOK BUTTON	1	1027 BTQ/ETG
E14	ZNE8037P00RN	COOK BUTTON SPRING	2	1027 BTQ/ETG
E16	Z81903710BP	COOK LEVER	1	1027 BTQ/ETG
E19	ZTN3+F16S	SCREW	1	1027 BTQ/ETG
E22	Z6633P60AP	SPACER B	1	1027 BTQ/ETG
E25	Z800L8K40BP	ESCUTCHEON BASE (U)	1	1027 BTQ/ETG

10.5. PACKING AND ACCESSORIES



Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
P1	Z00033700BP	INSTRUCTION BOOK	1	1027BTQ, 1037BTQ
P1	Z00033700EU	INSTRUCTION BOOK	1	1027ETG, 1037ETG
P2	Z01028K40BP	PACKING CASE, PAPER	1	1027 BPQ
P2	Z01028K40EU	PACKING CASE, PAPER	1	1027 ETG
P2	Z01028K30BP	PACKING CASE, PAPER	1	1037 BPQ
P2	Z01028K30EU	PACKING CASE, PAPER	1	1037 ETG
P3	Z01048K30BP	UPPER FILLER	1	
P4	Z01058K30BP	LOWER FILLER	1	
P5	Z01068K00AP	VINYL COVER	1	
P6	Z01078100XN	DOOR SHEET	1	
P7	Z04203700BP	OPERATING GUIDE	1	1037 BTQ
P8	Z01088K30BP	TRAY PACKING	1	
P9	Z01568K30BP	CAUTION	1	BTQ
P10	Z01728K30BP	CAUTION LABEL	1	BTQ
P10	Z01728K30EU	CAUTION LABEL	1	ETG
P11	Z01924T00AP	SHEET	1	
P12	Z02843560BP	NO. LABEL	1	BTQ

10.6. WIRING MATERIALS



Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
W1	Z030A8K40BP	LEAD WIRE HARNESS	1	1027 BTQ/ETG
W1	Z030A8K30BP	LEAD WIRE HARNESS	1	1037 BTQ/ETG
W2	Z03538K30BP	LEAD WIRE	1	1037 BTQ/ETG
W3	Z03558K30BP	LEAD WIRE	1	
W4	Z50966520UP	FERRITE CORE	1	
33	Z606V3700BP	PROTECTOR DIODE (U)	1	

11 DIGITAL PROGRAMMER CIRCUIT (NE-1037)

11.1. SCHEMATIC DIAGRAM

