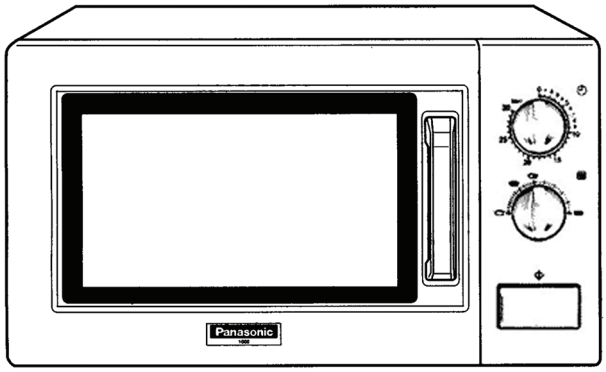
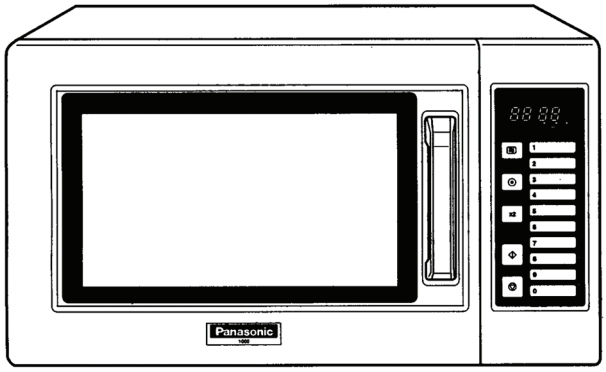
ORDER NO.MOD2101553CE

Service Manual

Microwave Oven



NE-1027



NE-1037

NE-1027
NE-1037

BDQ (United Kingdom)
EYG (Continental Europe)

Specifications

Specifications\Model	NE-1027BDQ	NE-1027EYG	NE-1037BDQ	NE-1037EYG
Power source	230-240V AC Single phase,50Hz ----------For BDQ Models 230V AC Single phase,50Hz ----------For EYG Models			
Power Requirement	1490W (6.6A)			
Output	1000W (IEC705)			
Microwave Frequency	2450MHz			
Timer	30min.		99min.99sec.	
Memory	---		10 Memory Pads with Double Quantity (X2) Pad	
Outside Dimensions	510mm (W) X 360mm (D) X 306mm (H)			
Oven Cavity Dimensions	330mm (W) X 330mm (D) X 200mm (H)			
Weight	18.0kg			
PbF	This product with PbF			
Specifications subject to change without notice.				

Panasonic®

⚠ 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 orginal 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.

BDQ ..... For United Kingdom

EYG ..... For Continental Europe

CAUTION

About lead free solder (PbF)

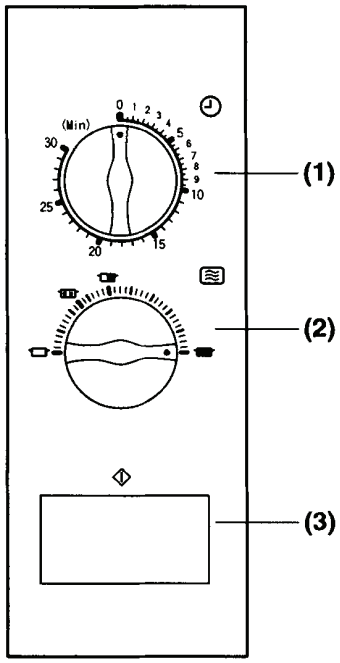
Distinction of PbF PCB: PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

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).

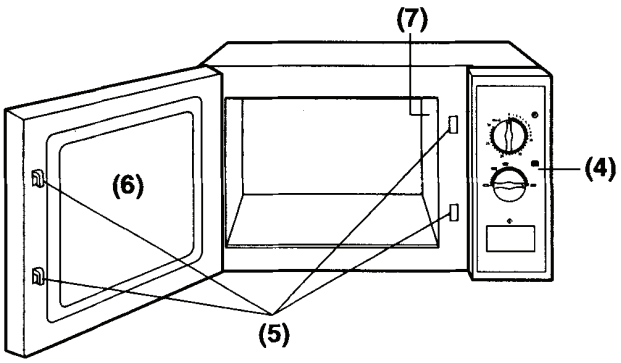
CONTENTS

1 CONTROL PANEL

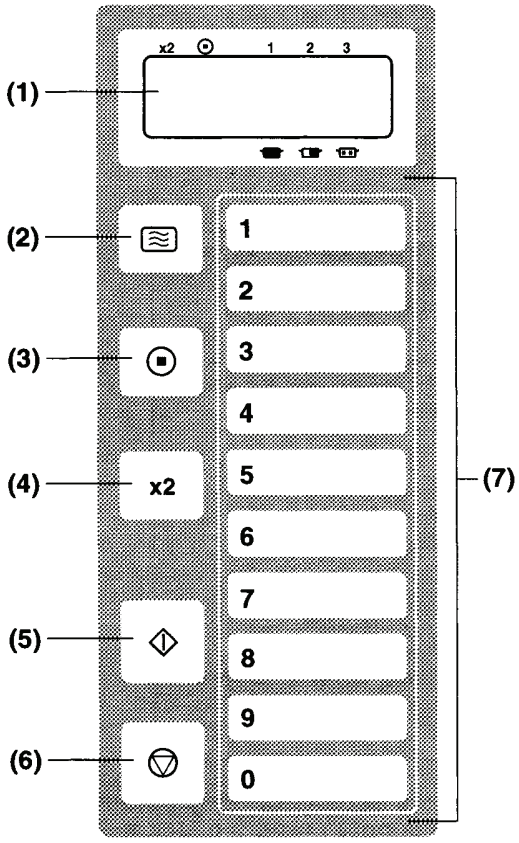
1.1. NE-1027



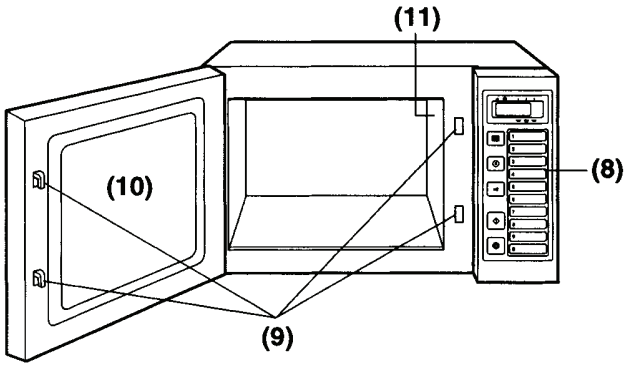
(1) Timer Select Dial
(2) Power Select Dial
(3) Start Button
(4) Control Panel
(5) Door Safety Lock System
(6) Oven Window
(7) Oven Lamp



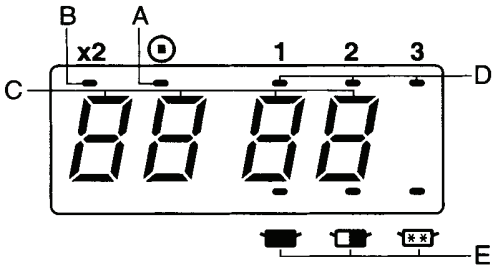
1.2. NE-1037



(1) Digital Display Window (see below)
(2) Power Level Pad
(3) Program Pad
(4) Double Quantity (x2) Pad
(5) Start Pad
(6) Stop/Reset Pad
(7) Memory Pads
(8) Control Panel
(9) Door Safety Lock System
(10) Oven Window
(11) Oven Lamp



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

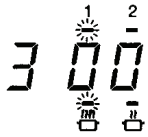
E - Power Level Indicator
1000 W
500 W
340 W (Defrost)

2 OPERATION PROCEDURE

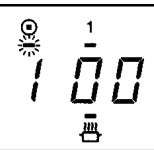
2.1. Manual Heating for Single Stage

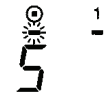
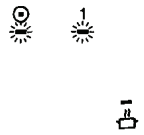
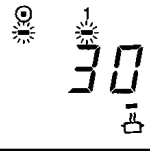
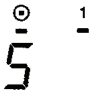
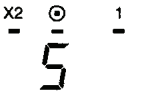
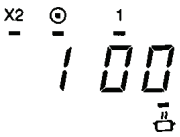
OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Place a water load in the oven and close the door.	
3. Press Power Level pad once. (Sets to HIGH power)	
4. Press 2 , 0 , 0 pads. (Sets to 2 minutes)	
5. Press Start pad. (Sets to 2 minutes)	
6. When cooking time 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.	
8. Close the door. 1 minute later, display will return blank.	

2.2. Manual Heating for 2nd Stage

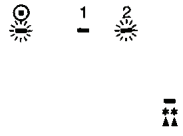
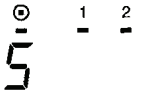
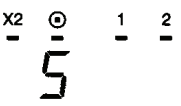
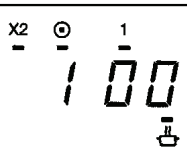
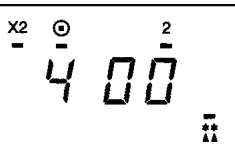
OPERATION	DISPLAY
1. Follow step 1 to 4 for 1st stage.	
2. Press Power Level pad 2 times. (Sets MED power)	
3. Press 1 , 0 , 0 pads. (Sets to 1 minute)	
4. Press Start pad. Total time for both stages will be displayed.	
5. When the 1st stage cooking time has elapsed, oven beeps once and automatically switches to 2nd stage cooking. (2nd stage)	
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.	
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 5 pad. (Sets to memory pad 5)	
3. If memory was previously programmed, the pad number and the previously selected time and power level will appear in the display.	 

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 3 , 0 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 2 , 0 , 0 pad.	
4. Press Prog pad.	
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 7 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.	

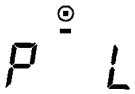
2.6. To Read Cycle Counter

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

2.8. To Lock Program of Memory Pad

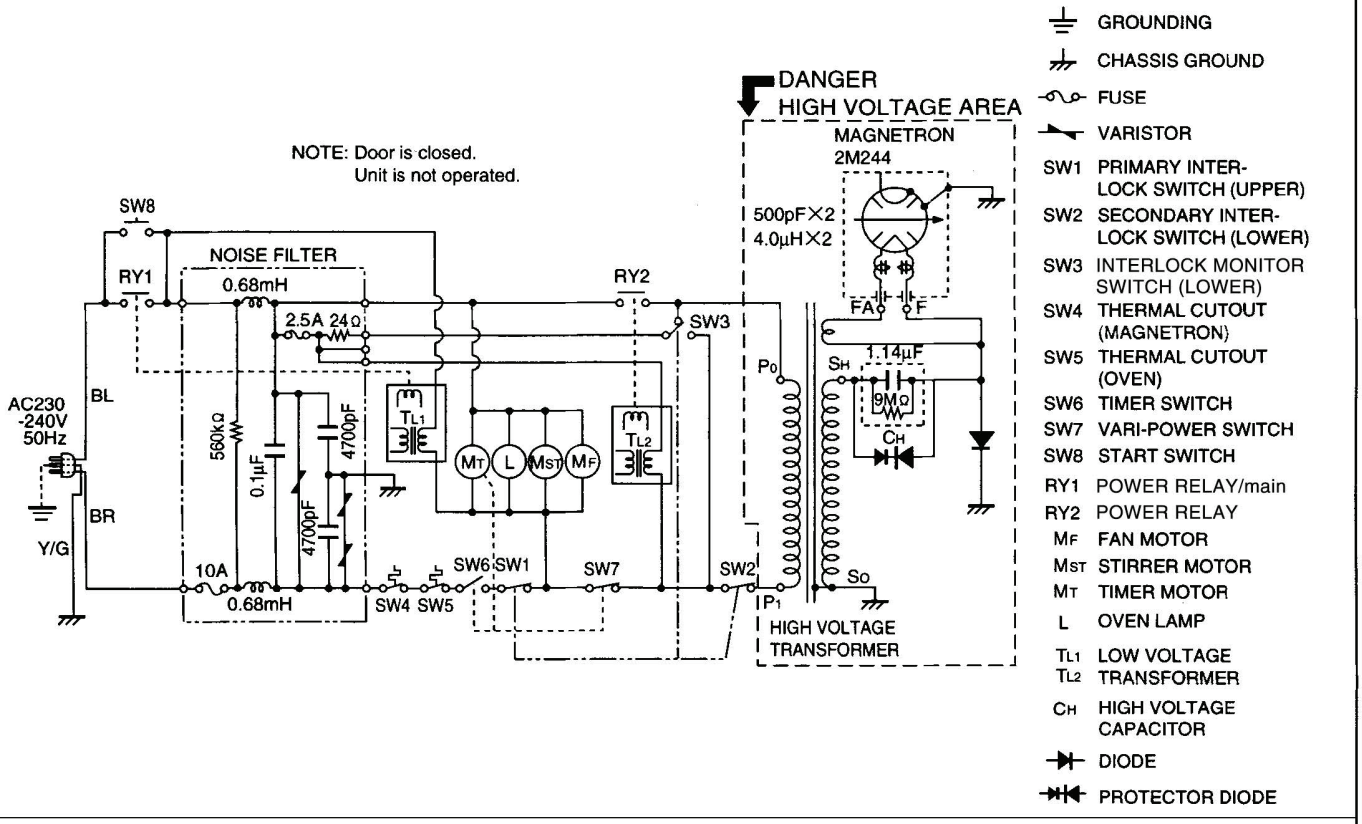
OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle. - Display must be blank -	
2. Press and hold in the Prog pad until the display shows "P" and "L". (Approximately 6 seconds) NOTE: When oven is in "program lock mode", display will not show anything and remain blank.	  P L

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.	  P

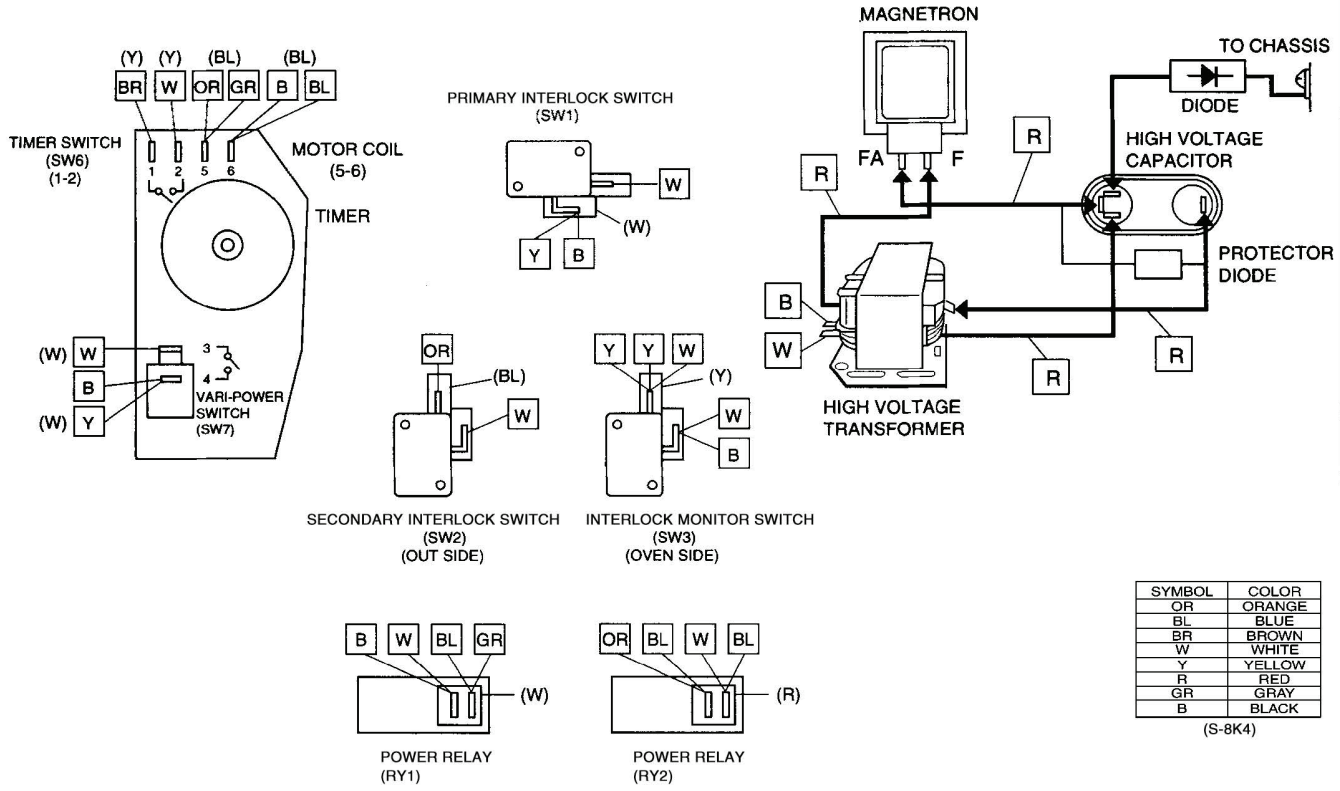
3 SCHEMATIC DIAGRAM

3.1. NE-1027



WIRING DIAGRAM

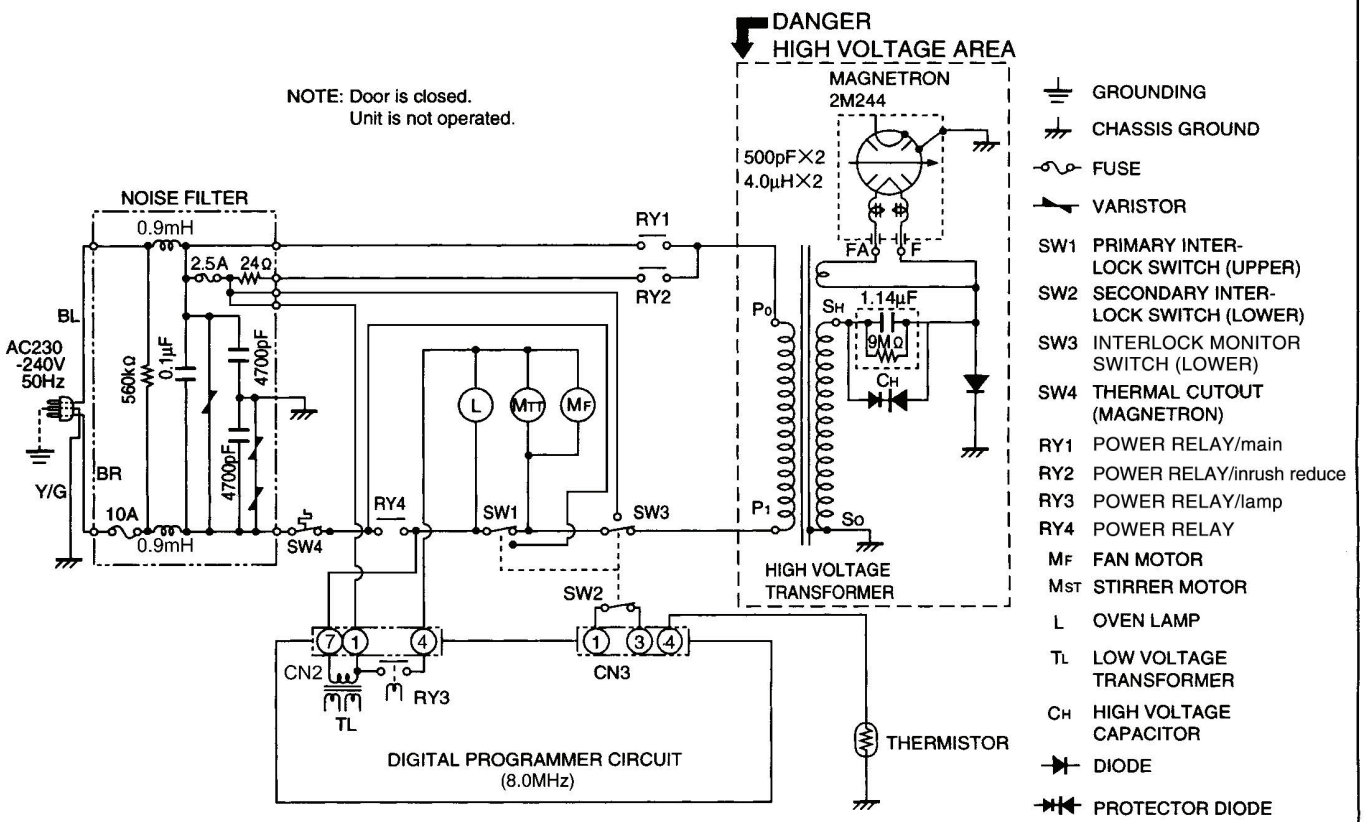
NOTE: *When replacing, check the lead wire colour as shown.
*Colours shown by ( ) indicate colours of lead wire connector housing.



SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK

(S-8K4)

3.2. NE-1037



WIRING DIAGRAM

NOTE: *When replacing, check the lead wire colour as shown.
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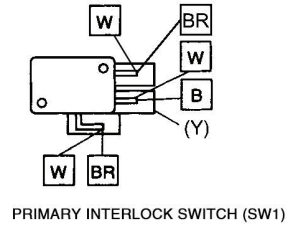
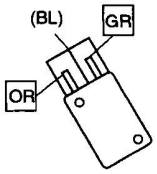
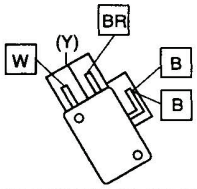


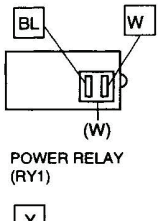
PRIMARY INTERLOCK SWITCH (SW1)



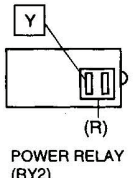
SECONDARY INTERLOCK SWITCH (SW2)



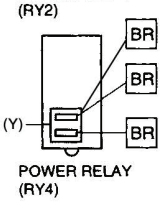
INTERLOCK MONITOR SWITCH (SW3)



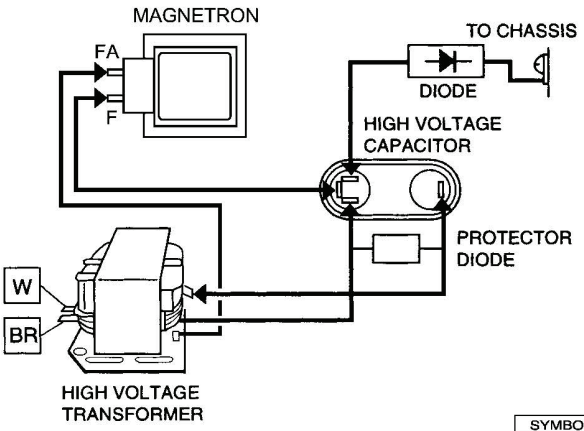
POWER RELAY (RY1)



POWER RELAY (RY2)



POWER RELAY (RY4)



SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK

(S-9J9)

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 actuater 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)APPROX.	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 (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 (RY1) 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 (RY1) 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 (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.

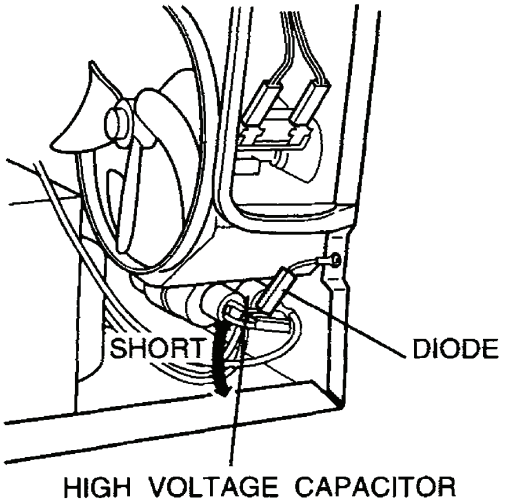
WARNING
Never operate the oven until the following are confirmed:
(A) The door is tightly closed.
(B) There is no broken hinge or door arm.
(C) The door seal is not damaged.
(D) The door is not bent or warped.
(E) There is no other visible damage.

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.



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

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 malfunction of the interlock monitor switch.

WARNING

When the 10 Amp/2.5 Amp fuse is blown due to the malfunction of the interlock monitor switch, you must replace the power relay (RY1) (or INRUSH REDUCING CIRCUIT for NE-1027, D.P.CIRCUIT (U) for NE-1037), the primary interlock switch and the interlock monitor switch. Also replace the secondary interlock switch when the continuity check reads shorted contacts.

1. This is mandatory. Refer to “Measurement and Adjustments” 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 evergy 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

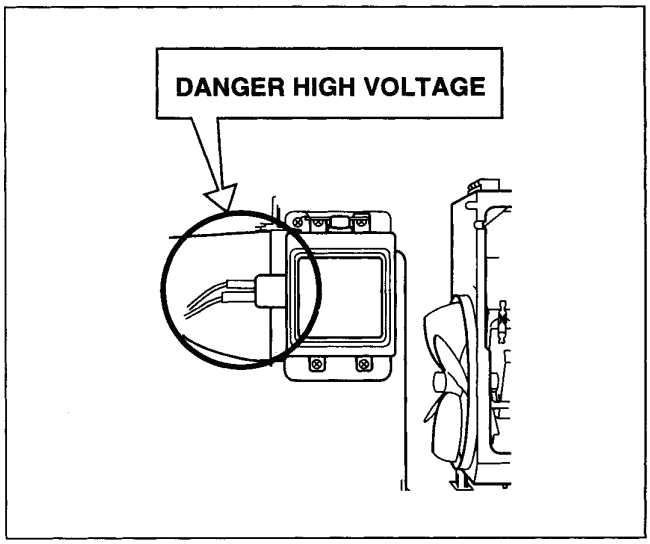
1. Discharge the high voltage capacitor.
2. Remove 2 screws holding magnetron thermal cutout.
3. Remove 1 screw holding air guide A.
4. Disconnect 2 high voltage lead wires from magnetron filament terminals.
5. Remove 4 screws holding the magnetron.

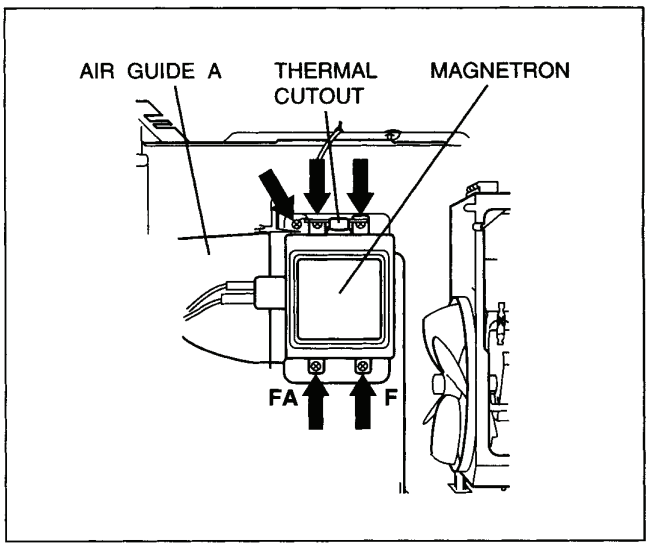
NOTE:

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:

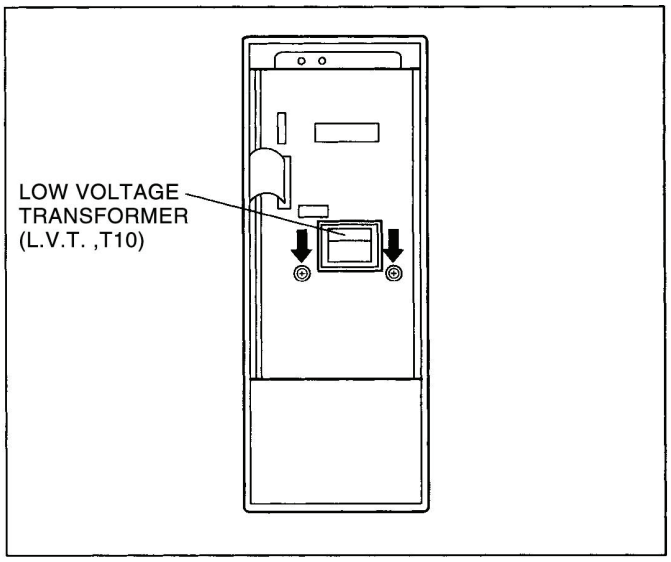
Be sure to ground any static electric charge built up on your body before handling the D.P.C..

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:

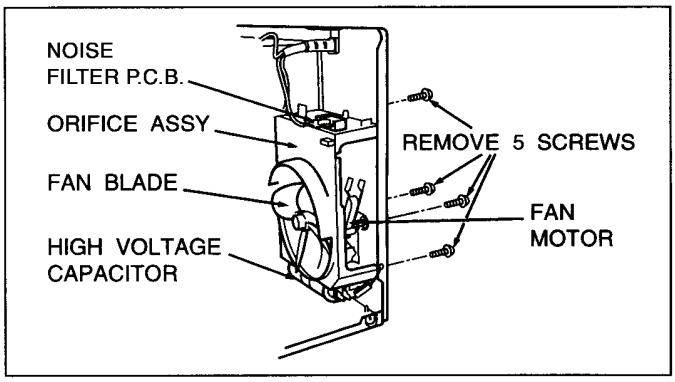
   Do not use a soldering iron or desoldering tool of more than 30 watts on D.P.C. contacts.

2. With all the terminal pins cleaned and seperated 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)

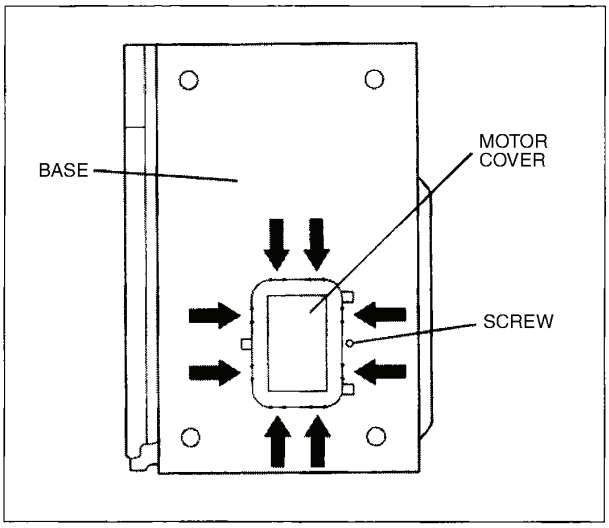
   Note:

   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. Seperate the door A from the door E by freeing catch hooks on the door A using a flat screwdriver.

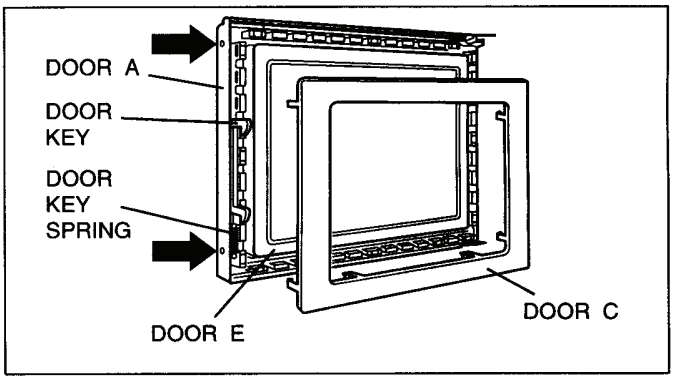
   After replacement of the defective component parts of the door, reassemble it and follow the instructions below for proper installation and adjustment so as to prevent an excessive microwave leakage.
5. When mounting the door to the oven, be sure to adjust the door parallel to the bottom line of the 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.

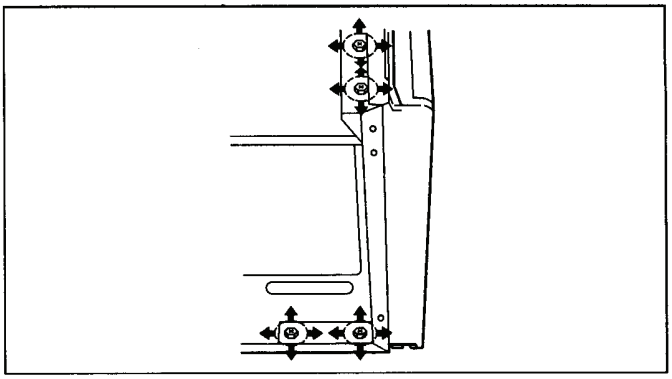
NOTE:

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

NOTE:

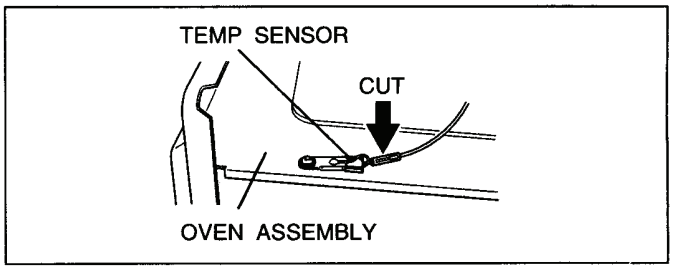
After replacement of the defective component parts of the door, reassemble, and perform microwave leakage test.





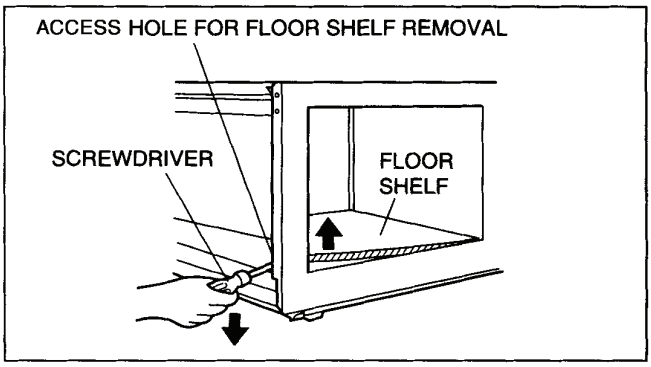
6.7. Temp sensor (thermal protector) (NE-1037)

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, Secondary interlock switch and Power relay (RY1)

1. Unplug the lead connectors to power relay (RY1) and verify continuity of the power relay (RY1) 1-2 terminals.
2. Unplug lead connectors to primary interlock switch and secondary interlock 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 interlock switch	∞ Ω (open)	0 Ω (close)
Secondary interlock switch	∞ Ω (open)	0 Ω (close)
Power relay (RY1)	∞ Ω (open)	∞ Ω (open)

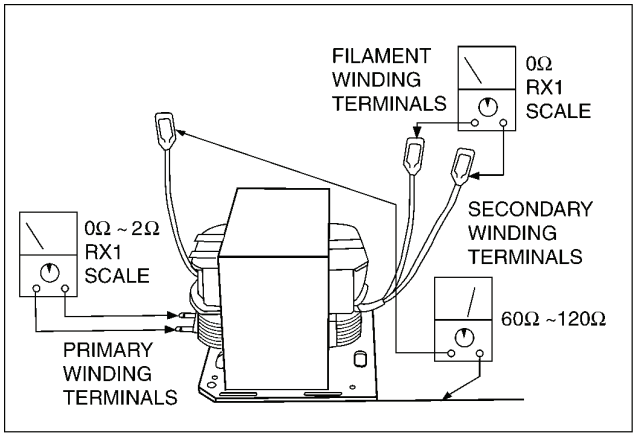
7.2. Interlock monitor switch

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 interlock monitor 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	∞ Ω

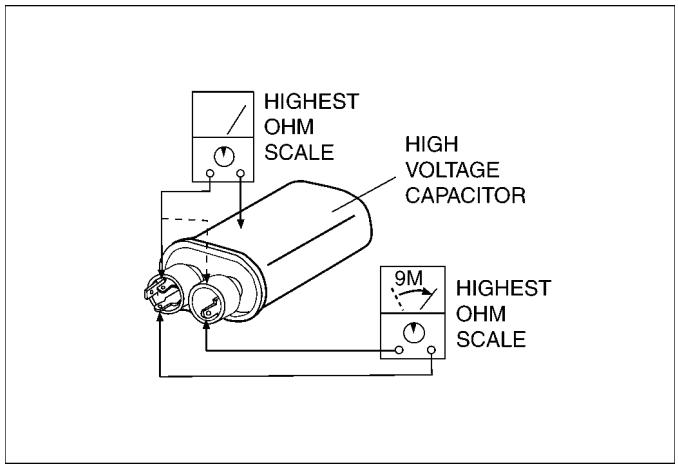
7.3. High voltage transformer

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

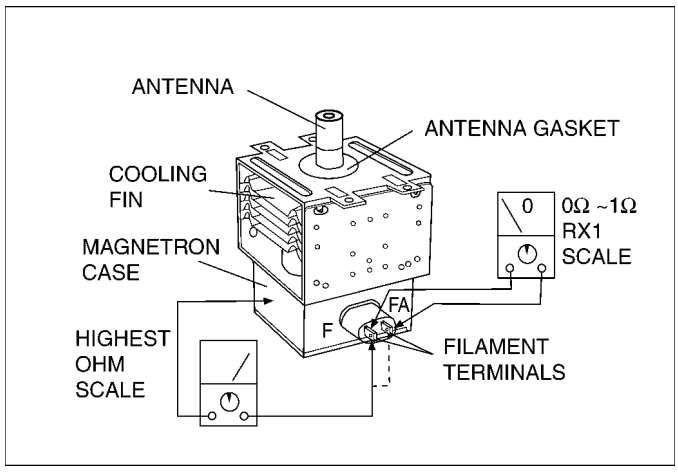
1. Check continuity of capacitor with meter on highest OHM scale.
2. A normal capacitor will show continuity for a short time, and then indicate 9MΩ once the capacitor is charged.
3. A shorted capacitor will show continuous continuity.
4. An open capacitor will show constant 9MΩ.
5. Resistance between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



7.5. Magnetron

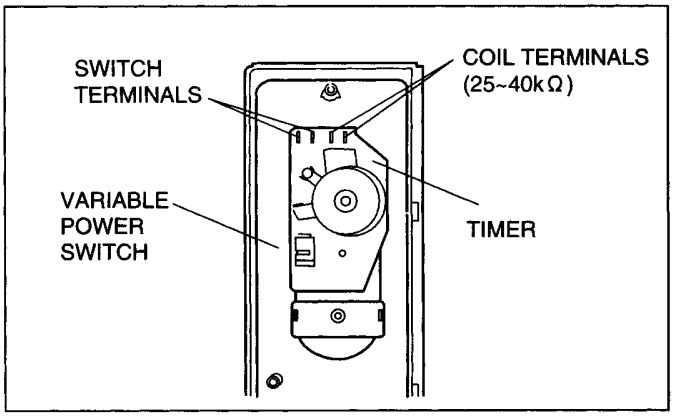
Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron:

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.



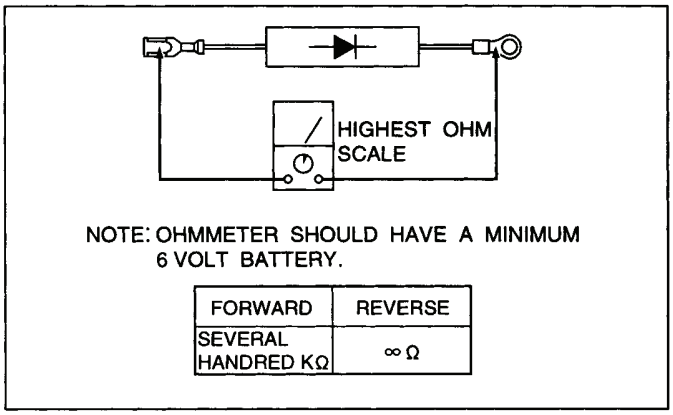
7.6. Variable power controller (NE-1027)

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.



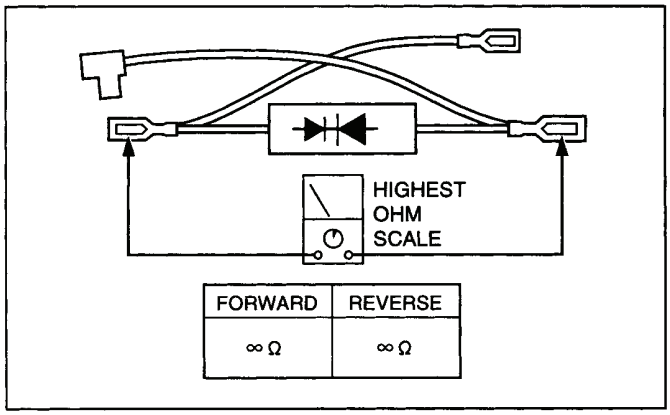
7.7. Diode

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 wil 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

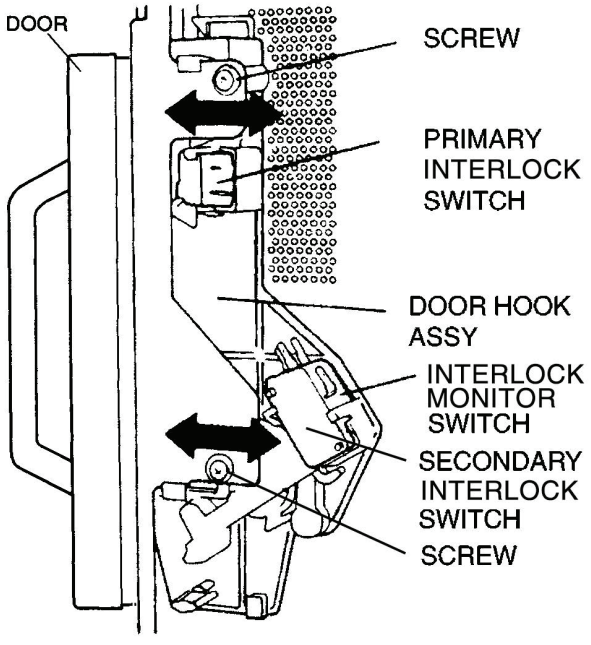
8.1. Adjustment of primary interlock switch, secondary interlock switch and interlock monitor switch

1. Mount the Primary interlock switch, the Secondary interlock switch and the Interlock monitor switch to the door hook assembly as shown in illustration.

   NOTE:

   No specific individual adjustments during installation of the Primary interlock switch, Secondary interlock switch or Interlock monitor switch to the door hook are required.

2. When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of the arrows 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 interlock monitor switch and check the continuity of the interlock monitor circuit and all interlock switches again by following the component test procedures.



Please confirm that the gap between the switch housing and switch actuator levers is no more than 1.0 mm when the door is closed.

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
- 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. Ensure proper grounding before troubleshooting.
2. Be careful of high voltage circuit.
3. Discharge high voltage capacitor.
4. When checking the continuity of the interlock 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.

Before troubleshooting, operate the microwave oven following the correct operating procedures in the instruction manual in order to find the exact cause of any trouble, since operator error may be mistaken for the oven's malfunction.

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 interlock switches 2. Defective secondary interlock switch (SW2) 3. Open or loose wiring of secondary interlock 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 interlock 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.	1. Shorted lead wire harness	
		2. Shorted H.V. Capacitor	
		3. Shorted H.V. Diode	Replace H.V. Diode and protector diode (*NOTE)
		4. Defective magnetron	Replace magnetron and protector diode (*NOTE)
		5. Shorted H.V. Transformer	Replace H.V.Transformer and protector diode (*NOTE)
		6. Shorted Protector diode	
2.	2.5A fuse is blown.	1. Defctive primary interlock switch and interlock monitor switch	Check adjustment of primary, secondary interlock switch and interlock monitor switch including door.
		2. Open or loose wiring of power relay (RY2)	
		3. Defective power relay (RY2)	
		4. Defective relay control circuit	
		*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.	1. Decrease in power source voltage	Consult electrician
		2. Open or loose wiring of magnetron filament circuit. (Intermittent oscillation)	
		3. Aging change of magnetron	
2.	Loud buzzing noise can be heard.	1. Loose fan and fan motor	
		2. Loose screws on H.V. Transformer	

9.2. NE-1037

CAUTION

1. Ensure proper grounding before troubleshooting.
2. Be careful of the high voltage circuit.
3. Discharge high voltage capacitor.
4. When checking the continuity of the interlock 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 on the digital programmer circuit (Terminals of power relays (RY1, RY2) and primary circuit of low voltage transformer). When troubleshooting, be cautious of possible electrical shock hazard.

Before troubleshooting, operate the microwave oven following the correct operating procedures in the instruction manual in order to find the exact cause of any trouble, since operator error may be mistaken for the oven's malfunction.

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.	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)	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.
3.	Oven lamp and fan motor turn on when oven is plugged in with door closed.	1. Misalignment or loose wiring of secondary interlock switch 2. Defective secondary interlock switch	Adjust door and interlock switches.
4.	Timer starts count down but no microwave oscillation.	1. Off-alignment of interlock switches 2. Defective primary interlock 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	Adjust door and interlock switches. Check high voltage component according to component test procedure and replace if it is defective.

9.2.2. [TROUBLE 2] Fuse is blown

	SYMPTOM	CAUSE	CORRECTIONS
1.	10A fuse is blown.	1. Shorted lead wire harness	
		2. Defective interlock monitor switch	Check adjustment of interlock switches and door
		3. Defective primary interlock switch	
		4. Shorted H.V. Capacitor	
		5. Shorted H.V. Diode	Replace H.V. Diode and protector diode (*NOTE)
		6. Defective magnetron	Replace magnetron and protector diode (*NOTE)
		7. Shorted H.V. Transformer	Replace H.V.Transformer and protector diode (*NOTE)
		8. Shorted Protector diode	
		*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

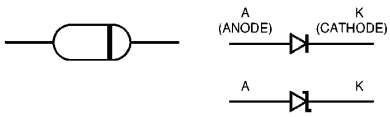
	SYMPTOM	CAUSE	CORRECTIONS
1.	Microwave output is low. Oven takes longer time to cook food.	1. Decrease in power source voltage 2. Open or loose wiring of magnetron filament circuit. (Intermittent oscillation) 3. Aging change of magnetron	Consult electrician
2.	Fan motor and oven lamp turn on when door is opened.	1. Shorted primary interlock 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 interlock switches 2. Open or loose wiring of primary and secondary interlock switch 3. Operation of thermal cutout (Magnetron)	Adjust door and interlock switches.
6.	Stirrer motor does not reotate.	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 L. V. T., Oven Lamp etc. Replace D.P.C.
	2	Low voltage transformer (L.V.T.(T10)) secondary voltage	Abnormal 0V	L.V.T.
			Normal	→ Step 3
	3	IC1 pin 7 voltage (Emitter of Q10)	Abnormal	ZD10,Q10
			Normal = 5V	→ Step 4
	4	IC1 pin 5 voltage (pin 6 of IC380)	Abnormal	IC380
			Normal ≈ 5V	→ IC1, CX320, DISPLAY
NOTE Procedure of fuse pattern repairing is as follows: 1. When the fuse pattern (PF2) opens. (1) Remove jumper wire (PF1). (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. 2. When the fuse pattern (PF4) opens. (1) Remove jumper wire (PF3). (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. 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). If any abnormal condition is detected, replace the defective parts.				
No key input	1	Membrane switch continuity	Abnormal	Membrane switch
			Normal	IC1
No beep sound	1	IC1 pin 18 voltage	Abnormal	IC1
			Normal	BZ210, Q210, Q211, Q212, Q213, ZD210
Power relay (RY3) does not turn on even though the program has been set and the start pad is tapped	1	IC1 pin 61 voltage while operation	Abnormal	IC1
			Normal=5V	→ Step 2
	2	short circuit between collector and emitter of Q226	Still not turn on	RY3
			RY3 turns on	Q226
No microwave oscillation at any power setting	1	IC1 pin 1 and pin 64 voltages while operation at high power	Abnormal	IC1
			Normal 1---5V, 64---5V IC1	→ Step 2
	2	Transistor Q220 and Q350	Abnormal	Q220 and/or Q350
			Normal	RY1
Dark or unclear display	1	Replace display and check operation	Normal	DISPLAY
			Abnormal	IC1
Missing or lighting of unnecessary segment	1	Replace IC1 and check operation	Normal	IC1
			Abnormal	DISPLAY

9.2.5. How to check the semiconductors using an OHM meter

Diode



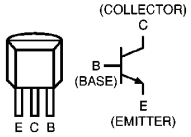
	FORWARD	REVERSE
A-K	SMALL	∞

Transistor

NPN Transistor

2SC·····

2SD·····

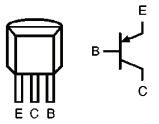


	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

PNP Transistor

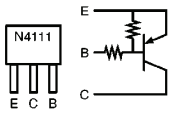
2SA·····

2SB·····



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

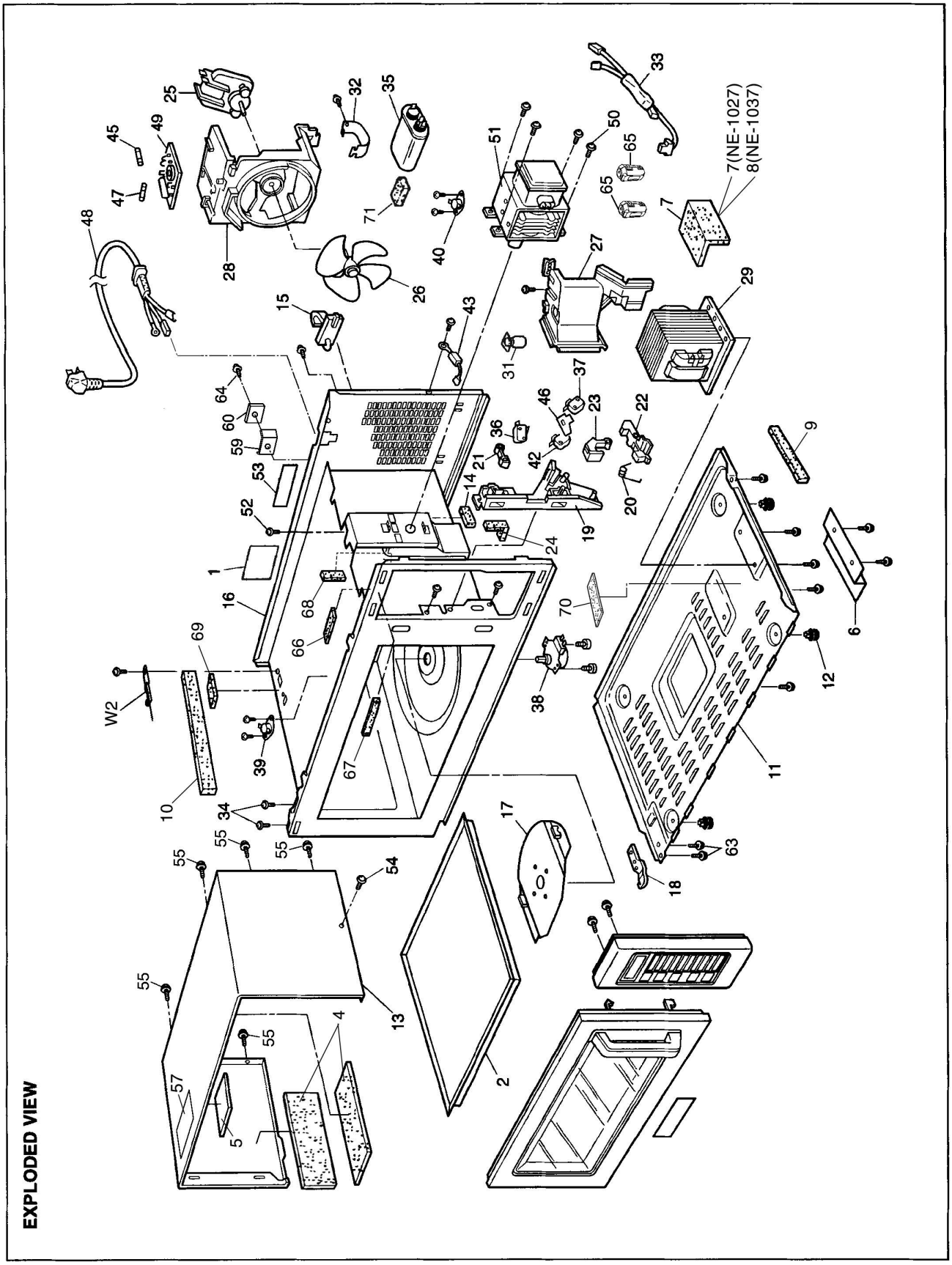
Digital Transistor
PNP Transistor



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

10 EXPLODED VIEW AND PARTS LIST

10.1. EXPLODED VIEW



10.2. PARTS LIST

NOTE:

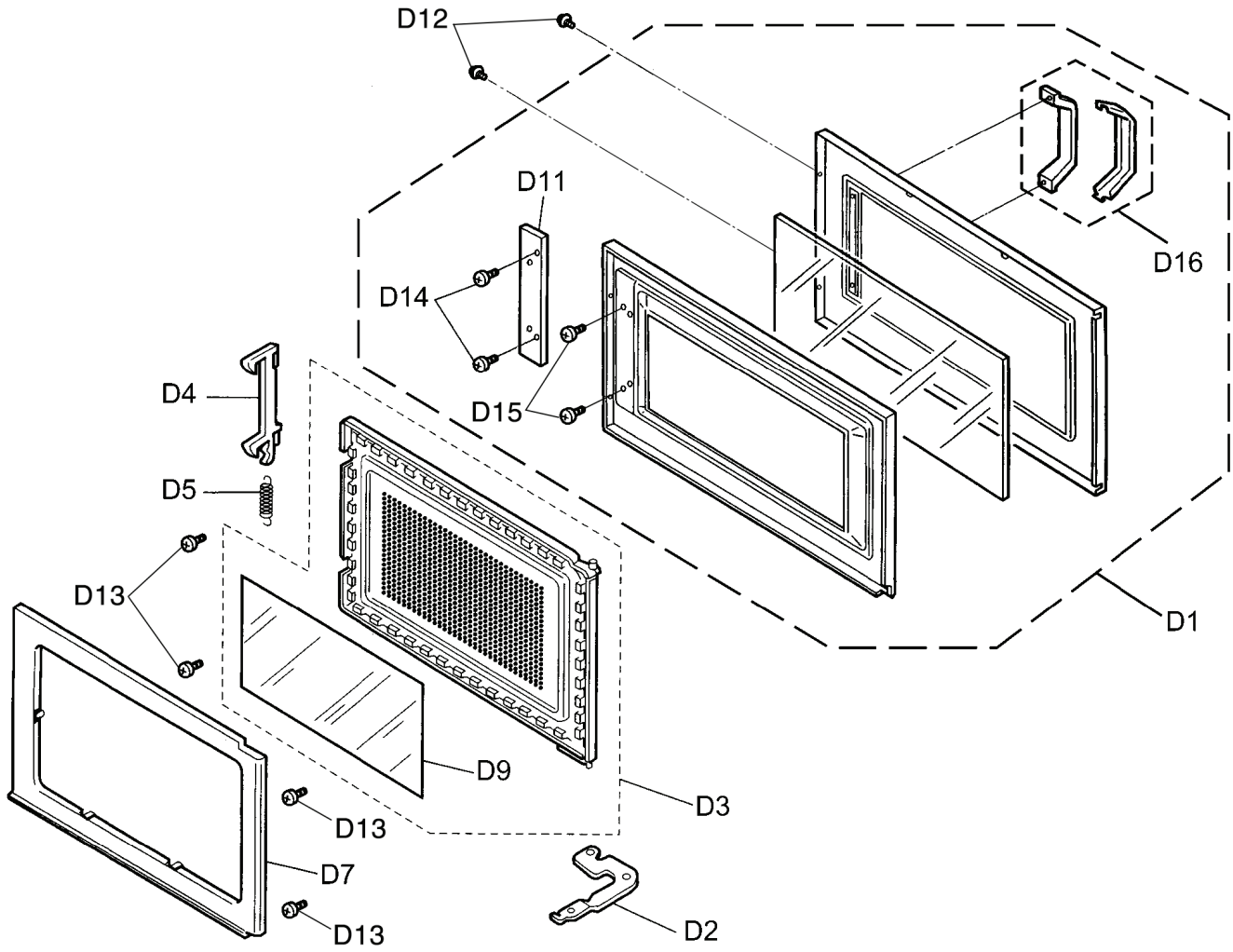
1. When ordering replacement part(s), please use part number(s) shown in this part list.
   Do not use description of the part.
2. Important safety notice:

   Components identified by ⚠ 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		ZH00064080BP	CAUTION LABEL	1	BDQ
1		Z00068K30EU	CAUTION LABEL	1	EYG
2		Z010T3700BP	SHELF	1	
4		Z12218K30BP	BODY CUSHION RUBBER	2	
5		ZH0921000JK	CUSHION RUBBER	1	
6		ZH10403700BP	BASE BRACKET	1	
7		Z0912000FF	CUSHION RUBBER	2	1027 BDQ/EYG
7		Z0912000FF	CUSHION RUBBER	1	1037 BDQ/EYG
8		ZH10499J90BP	CUSHION RUBBER	1	1037 BDQ/EYG
9		ZH0922000CH	CUSHION RUBBER	1	
10		ZH0962000AQ	CUSHION RUBBER	1	
11		ZH10013700BP	BASE	1	
12		Z1008-1180S	RUBBER FOOT	4	
13		ZH10093700BP	CABINET BODY	1	1027 BDQ/EYG
13		ZH10099J90BP	CABINET BODY	1	1037 BDQ/EYG
14		Z10498K30BP	CUSHION RUBBER	1	
15		ZH11406V00HP	STOPPER	1	
16	⚠	ZH200A8K30RU	OVEN CAVITY	1	
17		ZH203P3700BP	ANTENNA(U)	1	
18		Z30073700BP	LOWER HINGE	1	
19	⚠	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	
24		ZH0923000BDNS	CUSHION RUBBER	1	
25	⚠	Z400A3700BP	FAN MOTOR	1	
26		Z4008-1480	FAN BLADE	1	
27		ZH40253700BP	AIR GUIDE A	1	
28		ZH41445540AP	ORIFICE	1	
29	⚠	Z622B3700HN	H.V.TRANSFORMER	1	
31		Z612E9X70BP	INCANDESCENT LAMP (U)	1	
32		ZH6037-3700	CAPACITOR BRACKET	1	
33		Z606V3700BP	PROTECTOR DIODE (U)	1	
34		ZYFBFE4+AF8	SCREW	2	FOR UPPER HINGE
35	⚠	Z60903700GP	H.V.CAPACITOR	1	
36	⚠	Z6142-1450	MICRO SWITCH	1	1027 BDQ/EYG, PRIMARY INTERLOCK SWITCH
36	⚠	Z6142-1900	MICRO SWITCH	1	1037 BDQ/EYG, PRIMARY INTERLOCK SWITCH
37	⚠	Z6142-1450	MICRO SWITCH	1	1027 BDQ/EYG, SECONDARY INTERLOCK SWITCH
37	⚠	Z61425180AP	MICRO SWITCH	1	1037 BDQ/EYG, SECONDARY INTERLOCK SWITCH
38	⚠	Z61443660AP	ANTENNA MOTOR	1	
39	⚠	Z61458K30BP	THERMAL CUTOUT	1	1027 BDQ/EYG (FOR OVEN)
40	⚠	Z61458K30GP	THERMAL CUTOUT	1	FOR MAGNETRON
42	⚠	ZNE6161-3X0	MICRO SWITCH	1	INTERLOCK MONITOR SWITCH
43		Z62025G10XN	DIODE,SI	1	
45	⚠	Z62304210BP	FUSE	1	10A
46		Z63064000AP	INSULATION SHEET R	1	1027 BDQ/EYG
47	⚠	Z65953700BP	FUSE B	1	2.5A
48	⚠	Z900CCE70BP	AC CORD W/PLUG (U)	1	BDQ
48	⚠	Z900CCE70EP	AC CORD W/PLUG (U)	1	EYG
49		Z692Y3710BP	NOISE FILTER (U)	1	1027 BDQ/EYG
49		Z692Y3700BP	NOISE FILTER (U)	1	1037 BDQ/EYG
50		ZTWFL4+12T	SCREW	4	FOR MAGNETRON
51	⚠	Z2M244-M6J1-VP	MAGNETRON	1	
52		ZYDFB4+EE12F	SCREW	1	FOR EARTH
53		ZH00078K40SBP	NAME PLATE	1	1027 BDQ
53		ZH00078K40SEU	NAME PLATE	1	1027 EYG
53		ZH00079J90SBP	NAME PLATE	1	1037 BDQ
53		ZH00079J90SEP	NAME PLATE	1	1037 EYG
54		ZTC4+12BC	SCREW	1	FOR CABINET BODY SIDE
55		ZTWAFL4+8S	SCREW	5	FOR CABINET BODY

Ref. No.		Part No.	Part Name & Description	Pcs/set	Remarks
57		Z00958K30BP	CAUTION LABEL B	1	BDQ
57		Z00958K30EU	CAUTION LABEL B	1	EYG
59		ZWNANE65GV	BRACKET	1	
60		Z66623170GP	EARTH BRACKET	1	
63		ZTWFA4+12LR	SCREW	2	FOR LOWER HINGE
64		ZYF6+F20FUJ	SCREW	1	
65		Z50968K30BP	FERRITE CORE	2	
66		ZH0922000CK	CUSHION RUBBER	1	
67		ZH0921000AQ	CUSHION RUBBER	1	
68		ZH0922000BF	CUSHION RUBBER	1	
69		ZH0962000CD	CUSHION RUBBER	1	1027 BDQ/EYG
70		Z0912000BC	CUSHION RUBBER	1	FOR BASE
71		ZH0922000EB	CUSHION RUBBER	1	FOR H.V.CAPACITOR

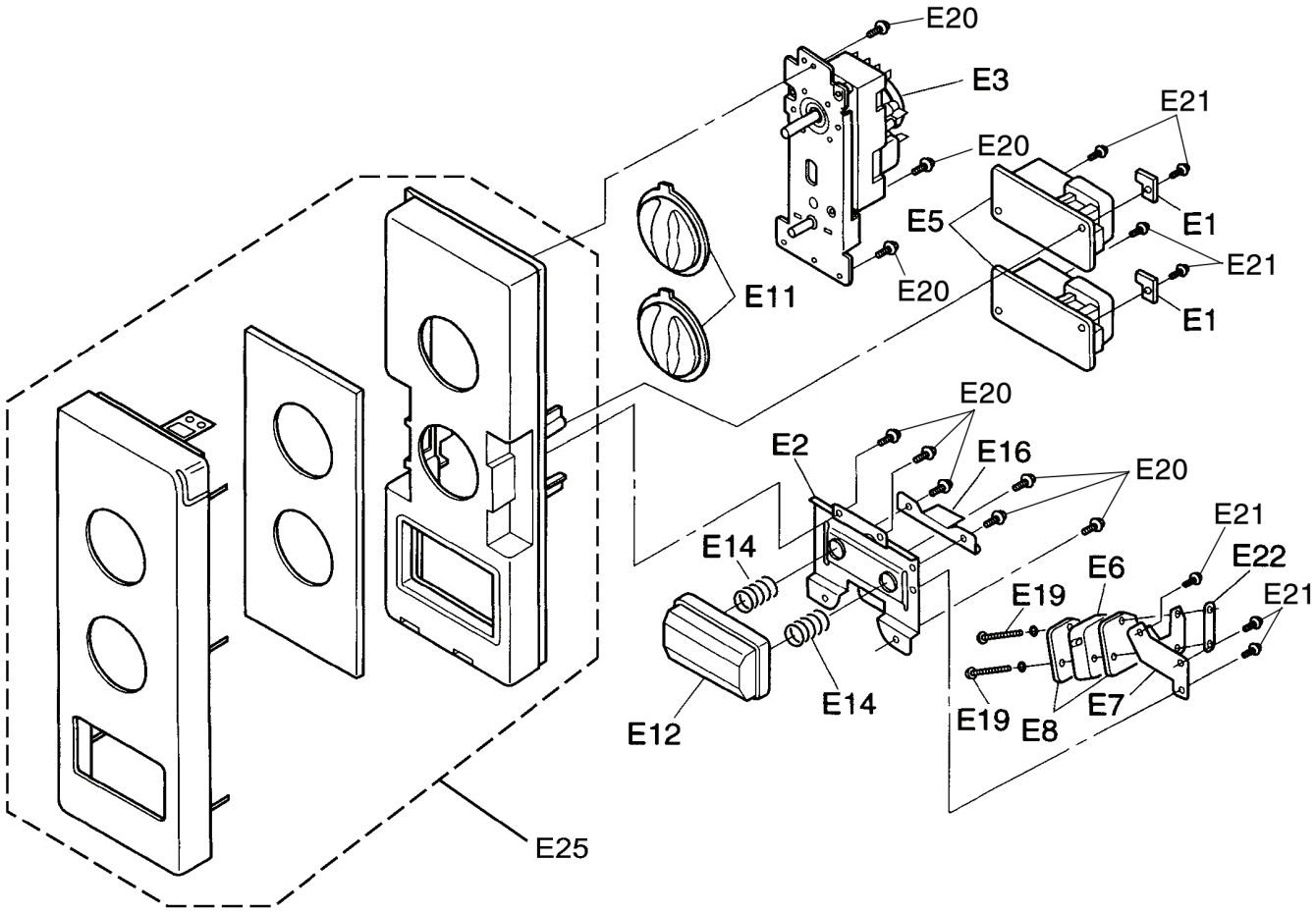
10.3. DOOR ASSEMBLY



Ref. No.		Part No.	Part Name & Description	Pcs/set	Remarks
D1	⚠	ZH302A3710SBP	DOOR A (U)	1	1027 BDQ/EYG (INCLUDING DOOR PANEL)
D1	⚠	ZH302A9J90BP	DOOR A (U)	1	1037 BDQ/EYG (INCLUDING DOOR PANEL)
D2		Z30063700BP	UPPER HINGE	1	
D3	⚠	Z302K3700BP	DOOR E (U)	1	
D4		ZF3018-CE50	DOOR KEY A	1	
D5		ZH30214000AP	DOOR KEY SPRING	1	
D7	⚠	ZH30858960HN	DOOR C	1	
D9		Z31453700BP	DOOR SCREEN A	1	
D11		ZH32863700AP	HANDLE SPACER	1	
D12		ZTN3+8BJ	SCREW	2	
D13		ZTN4+10RDN	SCREW	4	
D14		ZTN4+16Q	SCREW	2	
D15		ZTCAFL4+12AFS	SCREW	2	1037 BDQ/EYG
D16		Z301F6P00AP	HANDLE (U)	1	1027 BDQ/EYG
D16		ZH301F9J90KBP	HANDLE (U)	1	1037 BDQ/EYG

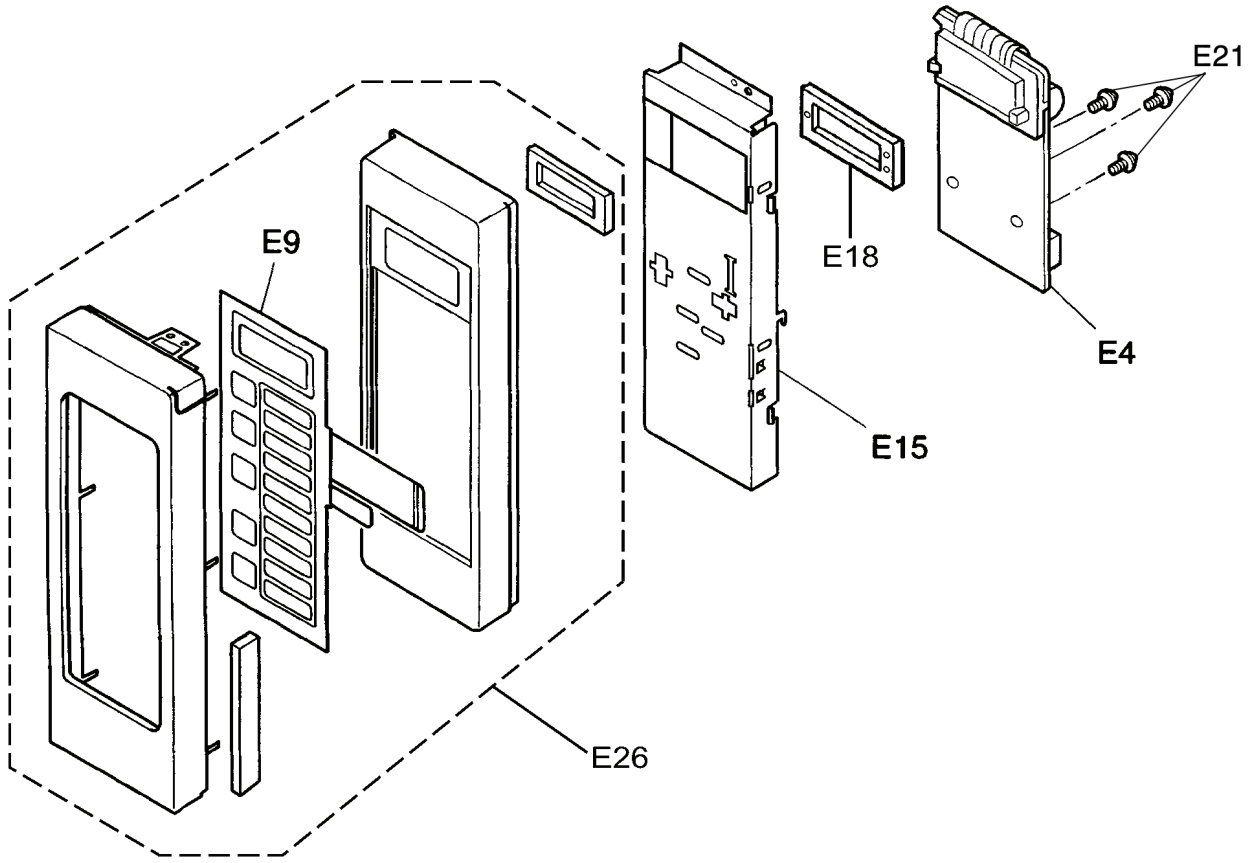
10.4. ESCUTCHEON BASE ASSEMBLY

10.4.1. NE-1027



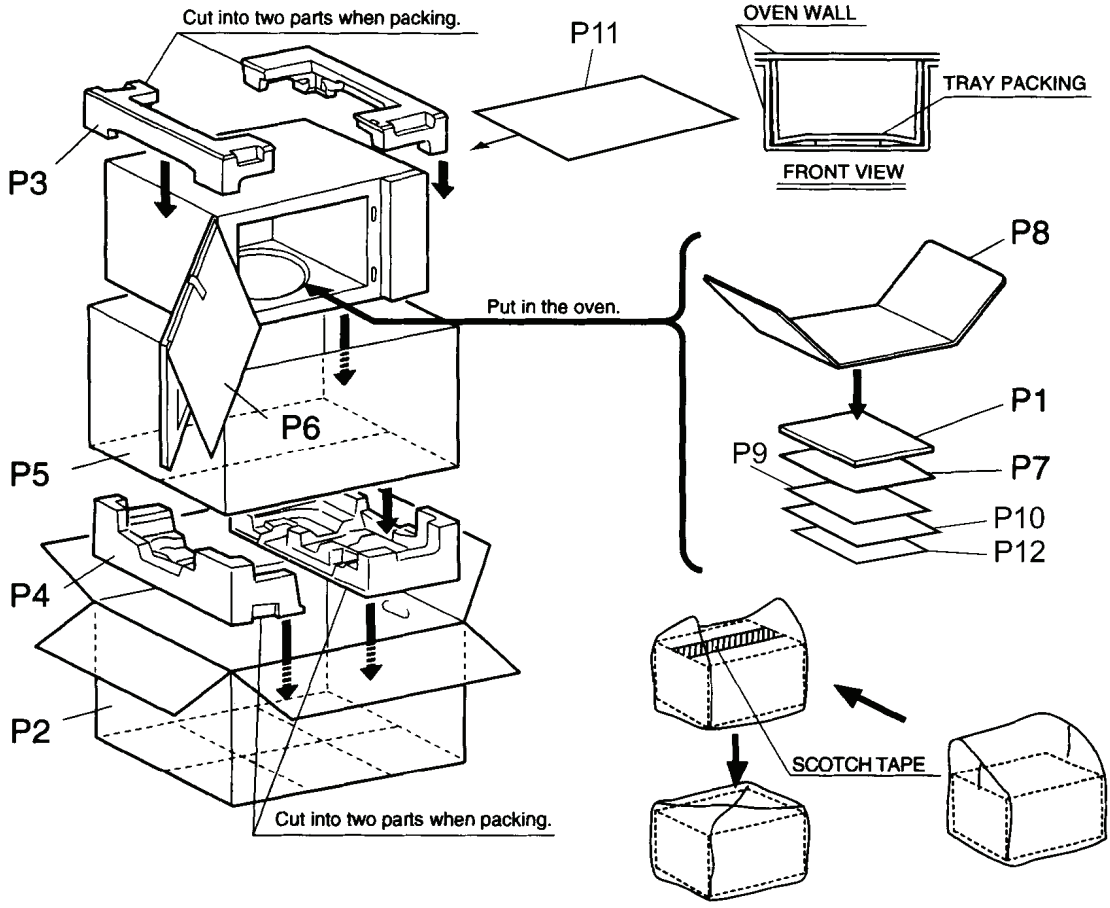
Ref. No.		Part No.	Part Name & Description	Pcs/set	Remarks
E1		ZH62383710BP	SPACER	2	1027 BDQ/EYG
E2		ZH600X8K40BP	START SWITCH BRACKET	1	1027 BDQ/EYG
E3		Z60018K40BP	TIMER	1	1027 BDQ/EYG
E5		Z606X3710BP	INRUSH REDUCING CIRCUIT	2	1027 BDQ/EYG (INCLUDING POWER RELAY (RY1))
E6		Z6142-1450	MICRO SWITCH	1	1027 BDQ/EYG
E7		ZH61623710BP	START SWITCH BRACKET	1	1027 BDQ/EYG
E8		ZNE6306910AP	INSULATION SHEET R	2	1027 BDQ/EYG
E11		ZH80203710BP	TIMER KNOB	2	1027 BDQ/EYG
E12		ZH8024P00RN	COOK BUTTON	1	1027 BDQ/EYG
E14		ZH8037P00RN	COOK BUTTON SPRING	2	1027 BDQ/EYG
E16		ZH81903710BP	COOK LEVER	1	1027 BDQ/EYG
E19		ZTN3+F16S	SCREW	1	1027 BDQ/EYG
E20		ZTWBFE4+8D	SCREW	9	1027 BDQ/EYG
E21		ZTWHNE3+8Q	SCREW	7	1027 BDQ/EYG
E22		ZH6633P60AP	SPACER B	1	1027 BDQ/EYG
E25		ZH800L8K40BP	ESCUTCHEON BASE (U)	1	1027 BDQ/EYG

10.4.2. NE-1037



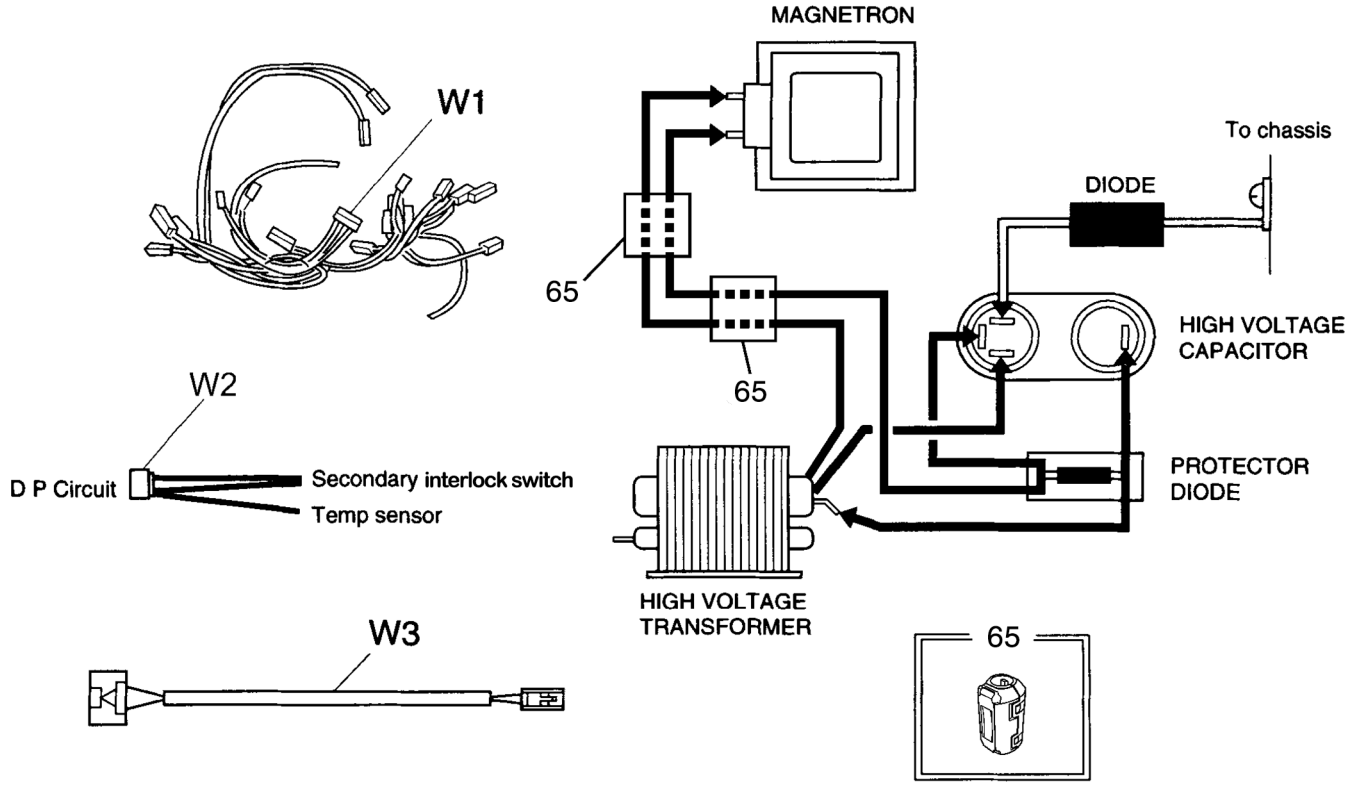
Ref. No.		Part No.	Part Name & Description	Pcs/set	Remarks
E4		Z603L9J90BZ	D.P.CIRCUIT (U)	1	1037 BDQ/EYG (INCLUDING POWER RELAY (RY1))
E9		Z630Y8K30BP	MEMBRANE SWITCH (U)	1	1037 BDQ/EYG
E15		ZH81273700AP	BACK PANEL	1	1037 BDQ/EYG
E18		Z83428K30BP	CUSHION RUBBER B	1	1037 BDQ/EYG
E21		ZTWHNE3+8Q	SCREW	3	1037 BDQ/EYG
E26		ZH800L8K30BP	ESCUTCHEON BASE (U)	1	1037 BDQ/EYG

10.5. PACKING AND ACCESSORIES



Ref. No.		Part No.	Part Name & Description	Pcs/set	Remarks
P1		ZH00033700BP	INSTRUCTION BOOK	1	1027 BDQ
P1		ZH00033700EU	INSTRUCTION BOOK	1	1027 EYG
P1		ZH00039J90BP	INSTRUCTION BOOK	1	1037 BDQ
P1		ZH00039J90EP	INSTRUCTION BOOK	1	1037 EYG
P2		ZH01028K40SBP	PACKING CASE,PAPER	1	1027 BDQ
P2		ZH01028K40SEU	PACKING CASE,PAPER	1	1027 EYG
P2		ZH01029J90SBP	PACKING CASE,PAPER	1	1037 BDQ
P2		ZH01029J90SEP	PACKING CASE,PAPER	1	1037 EYG
P3		ZH01048K30BP	UPPER FILLER	1	
P4		ZH01058K30BP	LOWER FILLER	1	
P5		ZH01068K00AP	VINYL COVER	1	
P6		ZH01074W00AP	DOOR SHEET	1	
P8		ZH01088K30BP	TRAY PACKING	1	
P9		ZH01568K30BP	CAUTION	1	BDQ
P10		Z01728K30BP	CAUTION LABEL	1	BDQ
P10		ZH01728K30EU	CAUTION LABEL	1	EYG
P11		ZH01924T00AP	SHEET	1	
P12		ZH02848K40BP	NO. LABEL	1	BDQ

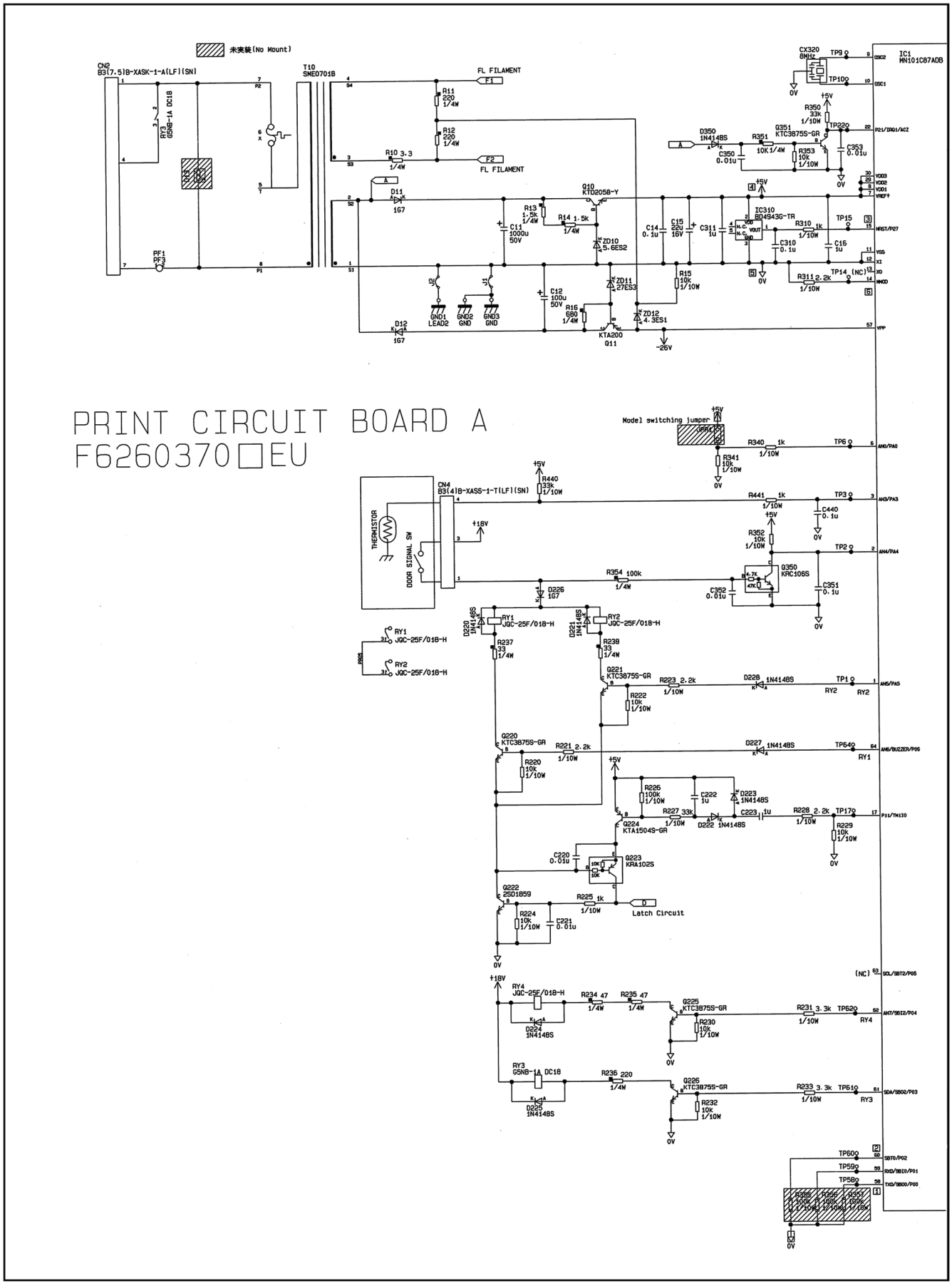
10.6. WIRING MATERIALS

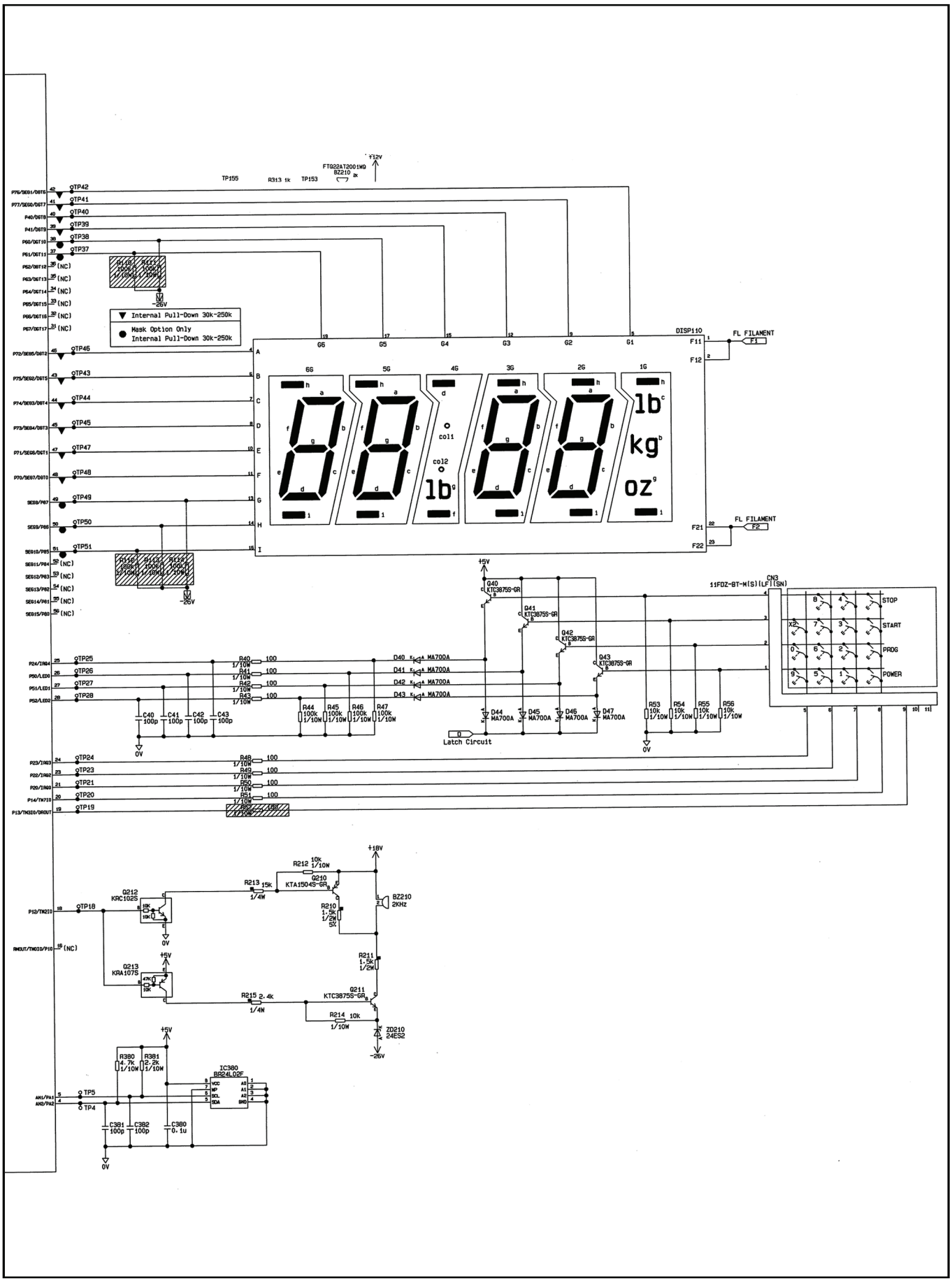


Ref. No.		Part No.	Part Name & Description	Pcs/set	Remarks
W1		ZF030ABS90EP	LEAD WIRE HARNESS	1	1027 BDQ/EYG
W1		ZF030ACE70BP	LEAD WIRE HARNESS	1	1037 BDQ/EYG
W2		ZF030F9J90BP	TEMP SENSOR W/LEAD WIRE (U)	1	1037 BDQ/EYG (INCLUDING OVEN TEMP SENSOR)
W3		Z03558K30BP	LEAD WIRE	1	1027 BDQ/EYG
65		Z50968K30BP	FERRITE CORE	2	

11 DIGITAL PROGRAMMER CIRCUIT (NE-1037)

11.1. SCHEMATIC DIAGRAM




+12V
FTG22AT2001WQ
BZ210
TP155
R313 1k
TP153
TP42
TP41
TP40
TP39
TP38
TP37
R410 100k 1/10W
R411 100k 1/10W
-26V
Internal Pull-Down 30k-250k
Mask Option Only
Internal Pull-Down 30k-250k
DISP110
G6
G5
G4
G3
G2
G1
F11
F12
F21
F22
FL FILAMENT
F1
F2
6G
5G
4G
3G
2G
1G
col1
col2
lb
kg
oz
TP46
TP43
TP44
TP45
TP47
TP48
TP49
TP50
TP51
R412 100k 1/10W
R413 100k 1/10W
R414 100k 1/10W
+5V
Q40 KTC3875S-GR
Q41 KTC3875S-GR
Q42 KTC3875S-GR
Q43 KTC3875S-GR
CN3
11FDZ-BT-N(S)(LF)(SN)
STOP
START
PROG
POWER
TP25
TP26
TP27
TP28
R40 100 1/10W
R41 100 1/10W
R42 100 1/10W
R43 100 1/10W
D40 MA700A
D41 MA700A
D42 MA700A
D43 MA700A
C40 100p
C41 100p
C42 100p
C43 100p
R44 100k 1/10W
R45 100k 1/10W
R46 100k 1/10W
R47 100k 1/10W
D44 MA700A
D45 MA700A
D46 MA700A
D47 MA700A
R53 10k 1/10W
R54 10k 1/10W
R55 10k 1/10W
R56 10k 1/10W
Latch Circuit
0V
TP24
TP23
TP21
TP20
TP19
R48 100 1/10W
R49 100 1/10W
R50 100 1/10W
R51 100 1/10W
R52 10k 1/10W
+18V
R212 10k 1/10W
Q210 KTA1504S-GR
R213 15k 1/4W
R210 1.5k 1/2W 5%
BZ210 2KHz
Q212 KRC102S
TP18
Q213 KRA107S
R211 1.5k 1/2W
R215 2.4k 1/4W
Q211 KTC3875S-GR
R214 10k 1/10W
ZD210 24ES2
-26V
R380 14.7k 1/10W
R381 2.2k 1/10W
IC380 BR24L02F
TP5
TP4
C381 100p
C382 100p
C380 0.1u