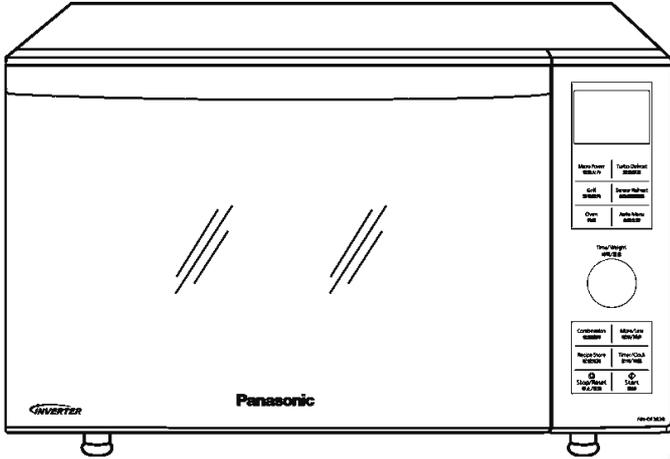


Service Manual

Microwave Oven

NN-DF383B



HPE (Hong Kong)
 YPQ (Singapore)
 MPQ (Malaysia)
 TPE (Thailand)
 TTE (Indonesia)
 FCE (India)
 YTE (Others)

Specification

Models		NN-DF383B
Power Source:		240V AC Single Phase, 50Hz.....For MPQ, YPQ Models 220V AC Single Phase, 50Hz..... For HPE, TPE, TTE, FCE, YTE Models
Power Consumption:	Microwave	1070W
	Upper Heater	1040W
	Lower Heater	600W
Output:	Microwave	1000W
	Upper Heater	1000W
	Lower Heater	600W
Microwave Frequency:		2450MHz
Timer:		30min. /Stage (1000W Power) ~ 3 Stage Maximum 90min. 00 sec/Stage (Other Power Levels) ~ 3 Stage Maximum
Outside Dimensions:		483mm(W) x 396mm(D) x 310mm(H)
Oven Cavity Dimensions:		299mm(W) x 350mm(D) x 199mm(H)
Weight:		13.3kg
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 identifications shown below for your applicable product specification.

- HPE For Hongkong
- YPQ For Singapore
- MPQ For Malaysia
- TPE For Thailand
- TTE For Indonesia
- FCE For India
- YTE For Others

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).

DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)

⚠ WARNING

This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current. Take cautionary measures when disassembling and troubleshooting the Inverter circuit. Improper handling can result in an electrical shock or burns, which might lead to injury or death.

IT HAS: 1. Very high voltage and high current circuits.

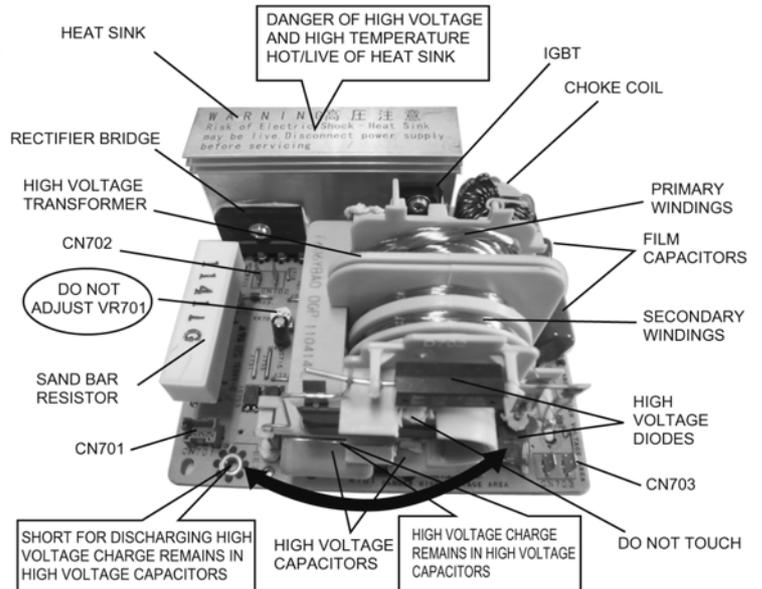
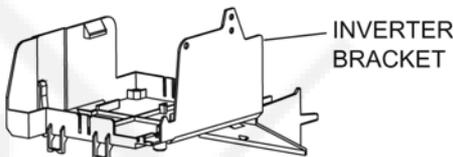
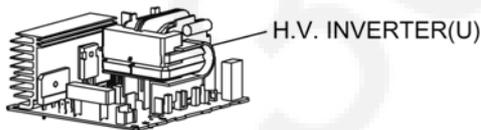
It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.

2. Aluminum heat sink that is energized with very high voltage and high heat energy.
3. Very high voltage which may remain in circuitry even when oven is off. High voltage charge may remain in the capacitors on the board.

DO NOT:

- * 1. Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage charge may remain in circuits.
- * 2. Do not touch aluminum heat sink because it is energized with very high voltage and is also very hot in high heat energy.
- * 3. Do not try to adjust or tamper with preset control on the Inverter board because it is very dangerous to adjust without proper test equipment.
- * 4. Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.

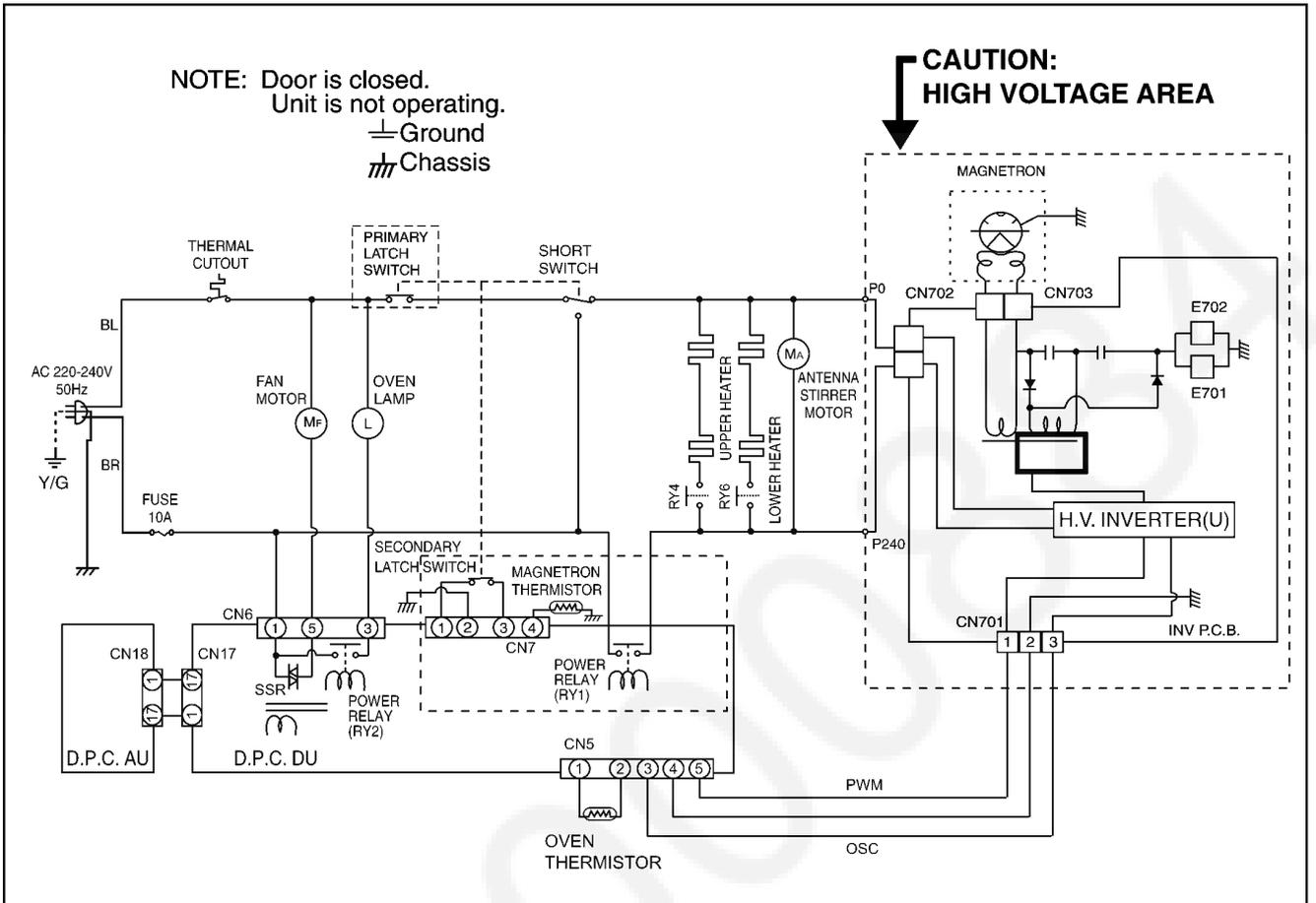
INVERTER POWER SUPPLY



CONTENTS

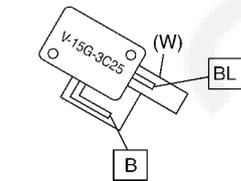
	Page		Page
1 SCHEMATIC DIAGRAM	5	5.1. Primary, Secondary Latch Switch interlocks & Power Relay RY1	21
2 DESCRIPTION OF OPERATING SEQUENCE	6	5.2. Short Switch	21
2.1. Variable power cooking control	6	5.3. Magnetron	21
2.2. Inverter power supply circuit	6	5.4. key board membrane (Membrane switch assembly)	21
2.3. Turbo defrost, Auto cook	6	5.5. Inverter power supply (U)	22
2.4. Sensor cooking	6	5.6. Temperature thermistor	22
2.5. Steam sensor and digital programmer circuit	7	6 MEASUREMENTS AND ADJUSTMENTS	23
2.6. Grill cooking control	7	6.1. Adjustment of Primary latch switch, Secondary latch switch and Short switch.	23
2.7. Combination Cooking	7	6.2. Measurement of microwave output	24
2.8. Oven cooking control	7	7 TROUBLESHOOTING GUIDE	25
3 CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING	8	7.1. (Troubleshooting) Oven stops operation during cooking	26
3.1. Check the grounding	8	7.2. (Troubleshooting) Other problems	27
3.2. Inverter warnings	8	7.3. Troubleshooting of inverter circuit (U) and magnetron	28
3.3. Part replacement.	9	7.4. Trouble related to Digital Programmer Circuit	29
3.4. When the 10A fuse is blown due to the malfunction of the short switch:	9	7.5. Simple way of H.V. Inverter/magnetron troubleshooting	30
3.5. Avoid inserting nails, wire etc. through any holes in the unit during operation.	9	7.6. How to check the semiconductors using an OHM meter	30
3.6. Verification after repair	9	7.7. H.V. INVERTER MAIN PARTS LIST (F606YBA00QP/F606YBA00HP)	31
3.7. Sharp edges	9	8 EXPLODED VIEW AND PARTS LIST	32
4 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE	10	8.1. EXPLODED VIEW	32
4.1. H.V. Inverter	10	8.2. PARTS LIST	33
4.2. Magnetron	12	8.3. ESCUTCHEON BASE ASSEMBLY	35
4.3. Digital programmer circuit (D.P.C) & Membrane Sheet	13	8.4. DOOR ASSEMBLY	36
4.4. Low voltage transformer and/or power relays	15	8.5. WIRING MATERIALS	37
4.5. Fan motor	15	8.6. PACKING AND ACCESSORIES	38
4.6. Upper Heater (Heater BU)	16	9 DIGITAL PROGRAMMER CIRCUIT	39
4.7. Door assembly	16	9.1. SCHEMATIC DIAGRAM	39
4.8. Stirrer motor	18	9.2. PARTS LIST	41
4.9. Lower Heater (Heater AU)	18		
5 COMPONENT TEST PROCEDURE	21		

1 SCHEMATIC DIAGRAM

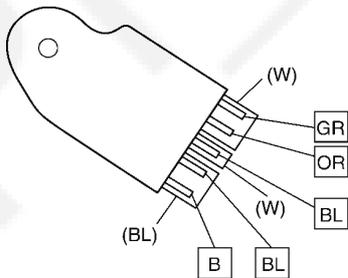


WIRING DIAGRAM

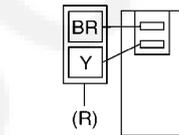
NOTE: * When replacing, check the lead wire color as shown.
* Colors shown by () indicate colors of lead wire connector housing.



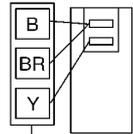
PRIMARY LATCH SWITCH INSIDE



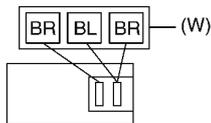
SECONDARY LATCH SWITCH + SHORT SWITCH OUTSIDE



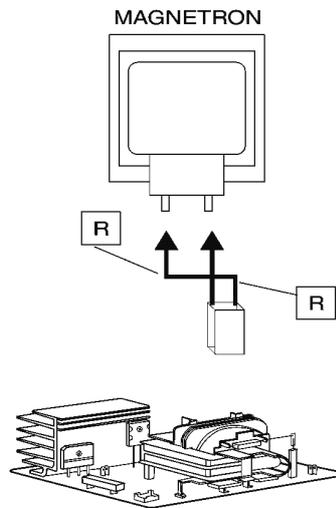
POWER RELAY (RY4)



POWER RELAY (RY6)



POWER RELAY (RY1)



HIGH VOLTAGE INVERTER(U)

WARNING: H.V.

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

(S-BG4)

2 DESCRIPTION OF OPERATING SEQUENCE

2.1. Variable power cooking control

High Voltage Inverter Power Supply (U) controls output power by the signal from Digital Programmer Circuit (DPC). Power relay always stay on, but PWM (Pulse Width Modulation) signal controls microwave output power.

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.

Variable Power Cooking

POWER SETTING	OUTPUT POWER(%) APPROX.	MANUAL MICROWAVE DUTY	
		ON(SEC)	OFF(SEC)
HIGH	100%	22	0
MEDIUM-HIGH	80%	22	0
MEDIUM	60%	22	0
MEDIUM-LOW	40%	22	0
DEFROST	30%	18	4
LOW	20%	13	9

2.2. Inverter power supply circuit

The Inverter Power Supply circuit powered from the line voltage, 220-240V 50Hz AC input supplies 4,000V DC to the magnetron tube, and functions in place of the H.V. transformer, the H.V. capacitor and H.V. diode.

1. The AC input voltage 220-240V 50Hz is rectified to DC voltage immediately.
2. DC voltage will be supplied to the switching devices called IGBT. These devices are switched ON-OFF by the 20 to 40 kHz PWM (pulse width modulation) signal from the microcomputer in the DPC.
3. This drives the High voltage transformer to increase voltage up to 2,000V AC.
4. Then the half-wave doubler voltage rectifier circuit, consisting of the H.V. diodes and capacitors, generates the necessary 4,000V DC needed for the magnetron.
5. Output power of the magnetron tube is always monitored by the signal output from the current transformer built into the inverter circuit.
6. This signal is fed back to the microcomputer in the DPC to determine operating conditions and output necessary to control PWM signal to the Inverter Power Supply for control of the output power.

2.3. Turbo defrost, Auto cook

When the Auto Control feature is selected and the Start pad is tapped:

1. The digital programmer circuit determines the power level and cooking time to complete cooking and indicates the operating state in the display window.
2. When cooking time in the display window has elapsed, the oven turns off automatically by a control signal from the digital programmer circuit.

Turbo Defrost

PROGRAM	WEIGHT SELECTED	COOKING TIME
VEGETABLES	200g	2 min 10 sec.

2.4. Sensor cooking

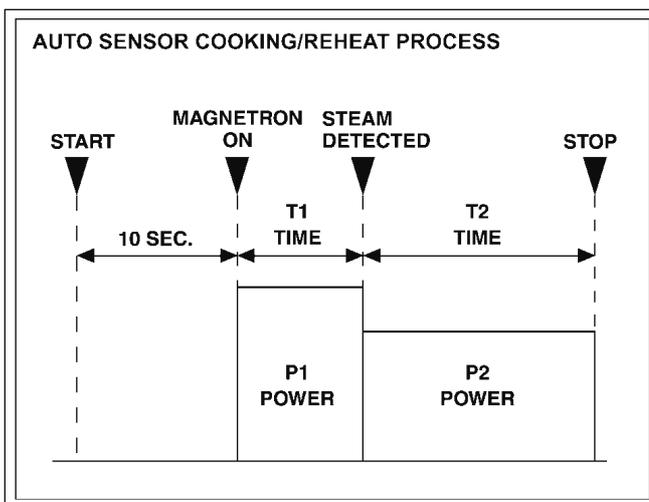
Auto sensor cooking without setting a power level or selecting a time. All that is necessary is to select an Auto Sensor Program before starting to cook.

Understanding Auto Sensor Cooking

As the food cooks, a certain amount of steam is produced. If the food is covered, this steam builds up and eventually escapes from the container. In Auto Sensor Cooking, a carefully designed instrument, called the steam sensor element, senses this escape of steam. Then, based upon the Auto Sensor Program selected, the unit will automatically determine the correct power level and the proper length of time it will take to cook the food.

NOTE:

Auto Sensor Cooking is successful with the foods and recipes found in the Auto Sensor Cooking Guide. Because of the vast differences in food composition, items not mentioned in the Cooking Guide should be prepared in the microwave oven using power select and time features. Please consult Variable Power Microwave Cookbook for procedures.



Explanation of the Auto Sensor Cooking process

1. During the first 10 second period there is no microwave activity. When calculating the T2 time by using the formula below make sure this 10 seconds is subtracted from the T1 time. In other words, T1 time starts at the end of the 10 second period.
2. **T1 time** The total amount of time it takes the microwave oven to switch to T2 time after the 10second period.
3. **T2 time** When the steam escapes from the cooking container placed in the oven, the steam sensor detects it and the microprocessor calculates the balance of cooking time. This T2 time is then shown in the display and begins counting down.

Balance of cooking time (T2 time)

The balance of cooking time which is called T2 time, can be calculated by the following formula.

$$T2 \text{ time (in sec.)} = T1 \text{ time} \times K \text{ factor}$$

NOTE:

Remember, the T1 time starts after the 10 second period. The coefficient K is programmed into the microprocessor memory and they are listed in the following tables along with the P1 and P2 powers.

NOTE:

When "More" or "Less" pad is selected, the K factor varies resulting in T2 time to be increased or decreased.

Example of calculating the T2 time

Example 1: If the T1 time is measured to be 2 minutes and 40 seconds after the 10 second period.

$$T2 = T1 \times K \pm 10 \text{ sec.}$$

$$= 2 \text{ min. and } 40 \text{ sec.} \times 0.1 \pm 10 \text{ sec.}$$

$$= 16 \text{ sec.} \pm 10 \text{ sec.}$$

$$= \pm 10 \text{ sec.}$$

CATEGORY	P1 POWER	P2 POWER	K FACTOR STANDARD
SENSOR REHEAT	MEDIUM POWER	LOW POWER	0

2.5. Steam sensor and digital programmer circuit

In order to determine if the steam sensor function of the digital programmer circuit is working, do the following test.

1. Place a water load (100 cc) in the oven.
2. Tap Sensor Reheat pad.
3. Tap Start pad.
4. Steam Sensor detects steam about 1.5 to 2 minutes after the Start pad is tapped.
5. T1 time cooking automatically switches to remaining time for cooking (T2).
6. The remaining cooking time (T2) appears in display window. If the following cooking time appears, Steam Sensor function is normal.

T1 TIME	T2 TIME (Remainingcooking time)
50 Sec. ~ 2 Min.	0 Sec. ~ 24 Sec.

2.6. Grill cooking control

Grill cooking is accomplished by upper heaters only. One grill cooking cycle is 33 seconds.

1. During grill cooking, the digital programmer circuit controls power relay RY4's ON-OFF time. In all three grill cooking categories, power relay RY1 always stay ON, but RY4's ON-OFF time are shown in Figure.

GRILL CATEGORY	GRILL (RY4)		MICROWAVE (DUTY)	
	ON (sec.)	OFF (sec.)	ON (sec.)	OFF (sec.)
1	33	0	0	33
2	24	9		
3	18	15		

2.7. Combination Cooking

Combination cooking is accomplished by microwave and grill cooking (upper heaters) being done synchronously during one combination cooking cycle. One combination cooking cycle is 33 seconds.

1. During combination cooking, the digital programmer circuit controls power relay RY4 & RY1's duty ON-OFF time. In all three combination cooking categories, power relay RY4 & RY1's duty ON-OFF time are as shown in Figure.

COMBINATION CATEGORY	GRILL(RY4)		MICROWAVE(DUTY)	
	ON(sec.)	OFF(sec.)	ON(sec.)	OFF(sec.)
1	33	0	33	0
2	24	9	33	0
3	16	17	23	10

2.8. Oven cooking control

The digital programmer circuit controls the ON-OFF time of the heater in order to control oven cavity temperature.

1. After selecting desired oven cavity temperature of oven (the range of selected oven temp is 100°C-220°C) and pressing [Start] pad, a high level signal comes out of the micro computer and applies to power relays, RY4 & RY6.
2. When RY4 & RY6 are switched to ON, power source voltage is applied to the upper heater & lower heater, and the heaters turn on.
3. The digital programmer circuit senses the oven cavity temperature through oven temp sensor (thermistor). When the oven temperature reaches the set temperature, DPC stops supplying high level signal to the power relays, and the heaters turn off.
4. After the upper heater and lower heater turn off, the oven temperature will continue increasing for a while and then decrease as shown in Figure.

When the oven temperature drops below the set temperature, the digital programmer circuit senses the signal and starts supplying a high level signal to RY4 & RY6 again.

3 CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

Unlike many other appliances, the microwave oven is a high voltage, high current device. It is free from danger in ordinary use, though extreme care should be taken during repair.

⚠ CAUTION

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

3.1. Check the grounding

Do not operate on a two wire extension cord. The microwave oven is designed to be grounded when used. It is imperative, therefore, to ensure the appliance is properly grounded before beginning repair work.

3.2. Inverter warnings

⚠ WARNING HIGH VOLTAGE AND HIGHTEMPERATURE (HOT/LIVE) OF THE INVERTERPOWER SUPPLY (U)

The High Voltage Inverter Power Supply generates very high voltage and current for the magnetron tube. Though it is free from danger in ordinary use, extreme care should be taken during repair.

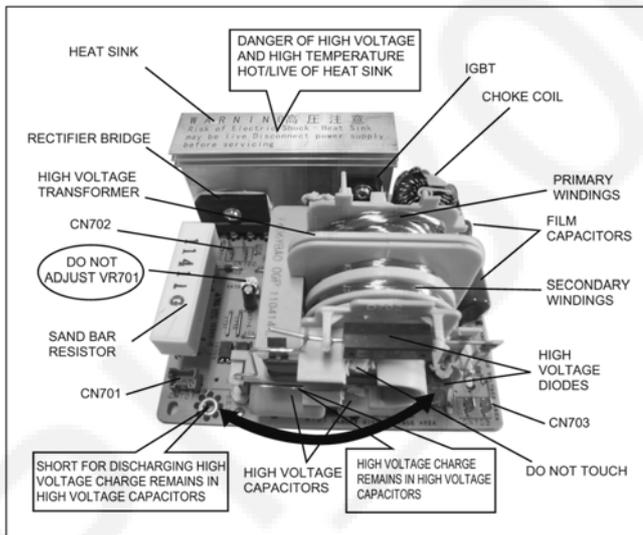
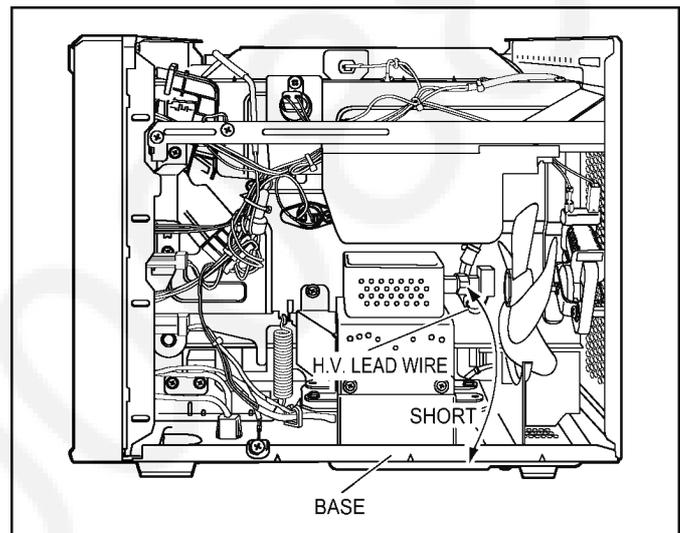
The aluminum heat sink is also energized with high voltage (HOT), do not touch when the AC input terminals are energized. The power device Collector is directly connected to the aluminum heat sink.

The aluminum heat sink may be HOT due to heat energy, therefore, extreme care should be taken during servicing.

⚠ WARNING DISCHARGE THE HIGH VOLATGE CAPACITORS

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitors of the Inverter Power Supply circuit board.

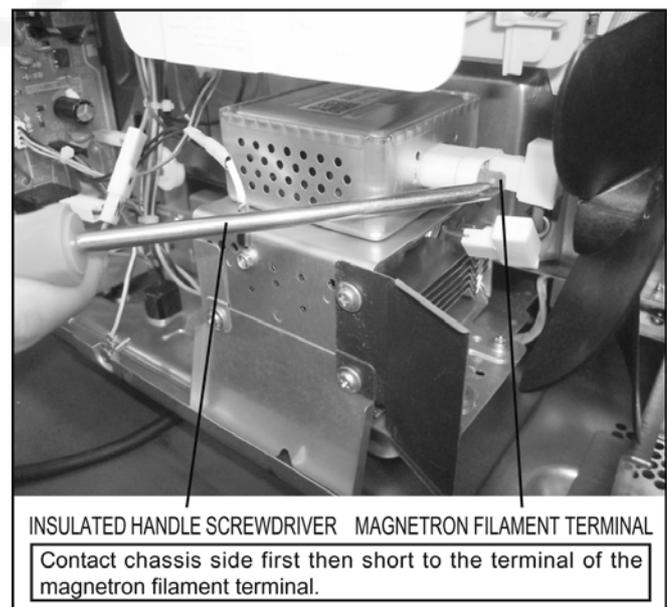
When replacing or checking parts, remove the power plug from the outlet and short the inverter output terminal of the magnetron filament terminals to the chassis ground with an insulated handle screwdriver to discharge. Please be sure to contact the chassis ground side first and then short to the output terminal.



H.V. Inverter warning

⚠ WARNING FOR INVERTER POWER SUPPLY (U) GROUNDING

Check the High Voltage Inverter Power Supply circuit grounding. The high voltage inverter power supply circuit board must have a proper chassis ground. The inverter grounding plate must be connected to the chassis. If the inverter board is not grounded it will expose the user to very high voltages and cause extreme DANGER! Be sure that the inverter circuit is properly grounded via the inverter grounding plate.



Discharging the high voltage capacitors

⚠ WARNING

There is high voltage present with high current capabilities in the circuits of the primary and secondary windings, choke coil and heat sink of the inverter. It is extremely dangerous to work on or near these circuits with the oven energized. DO NOT measure the voltage in the high voltage circuit including the filament voltage of the magnetron.

⚠ WARNING

Never touch any circuit wiring with your hand or with an insulated tool during operation.

3.3. Part replacement.

When troubleshooting any part or component is to be replaced, always ensure that the power cord is unplugged from the wall outlet.

3.4. When the 10A fuse is blown due to the malfunction of the short switch:

WARNING

When the 10A 250V fuse is blown due to the malfunction of the short switch, replace all of the components (primary latch switch, short switch and power relay RY1).

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

3.5. Avoid inserting nails, wire etc. through any holes in the unit during operation.

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

3.6. Verification after repair

1. After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loosen or missing. Microwave energy 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.

CAUTION OF MICROWAVE RADIATION LEAKAGE

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 (Located on inverter (U))
 - High voltage diodes (Located on inverter (U))
 - High voltage capacitors (Located on inverter (U))
 Pay special attention to these areas.
2. When the appliance is operated with the door hinges or magnetron installed incorrectly, the microwave leakage can exceed more than $5\text{mW}/\text{cm}^2$. After repair or exchange, it is very important to check if the magnetron and the door hinges are correctly installed.

3.7. Sharp edges

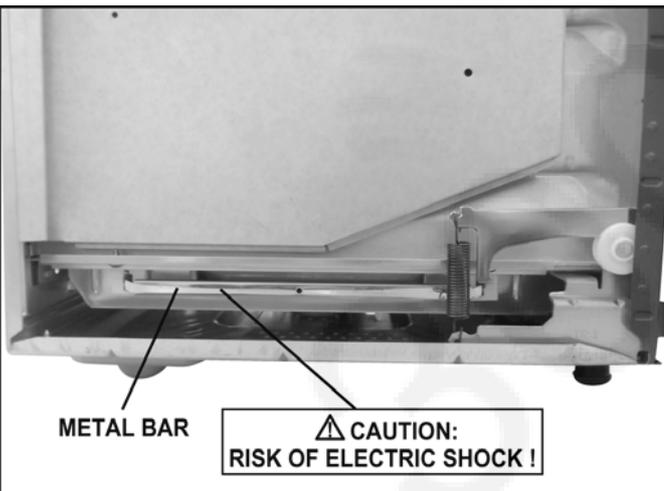
⚠ CAUTION

Please use caution when disassembling or reassembling internal parts. Some exposed edges may be sharp to the touch and can cause injury if not handled with care.

4 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

⚠ CAUTION

To prevent electric shock, do not touch the metal bar connected to the heaters.

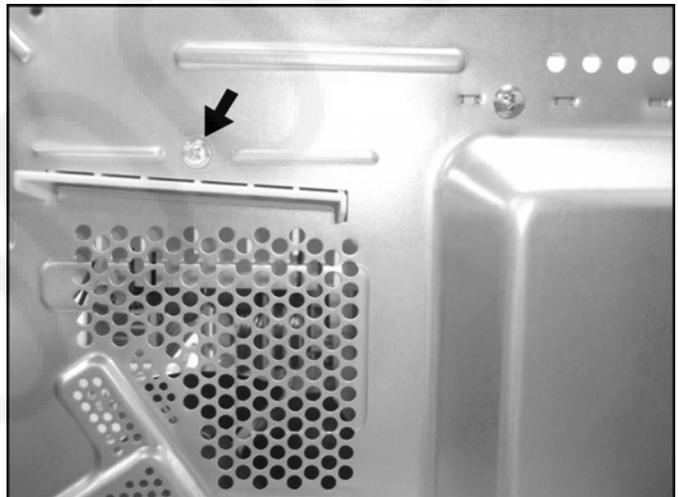


4.1. H.V. Inverter

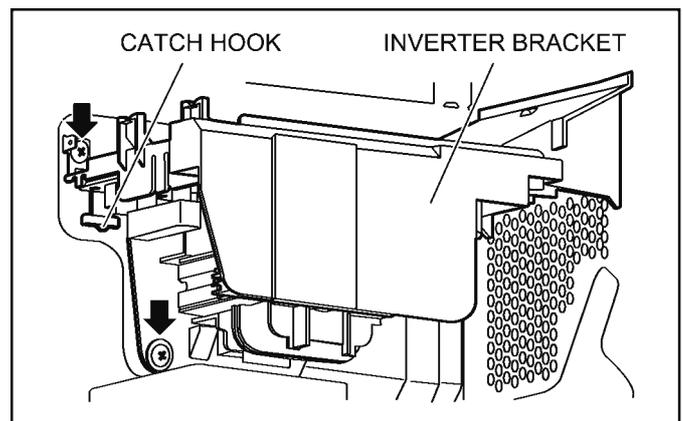
⚠ CAUTION

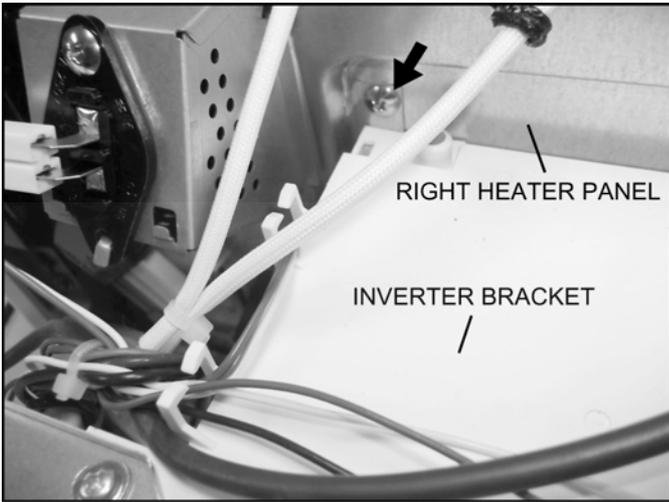
1. Always leave the grounding plate in place.
2. Always securely tighten the ground screw through the bottom of the chassis (base).
3. Securely connect 3 lead wire connectors.
4. Make sure the heat sink has enough space (gap) from the oven. Take special care not to dress any lead wire over the aluminum heat sink because it is hot.

1. Discharge high voltage remaining in high voltage capacitor.
2. Disconnect 2 high voltage lead wires from magnetron filament terminals.
3. Disconnect connector CN701 & CN702 from H.V. Inverter board.
4. Remove 1 screw holding inverter bracket on oven back plate.

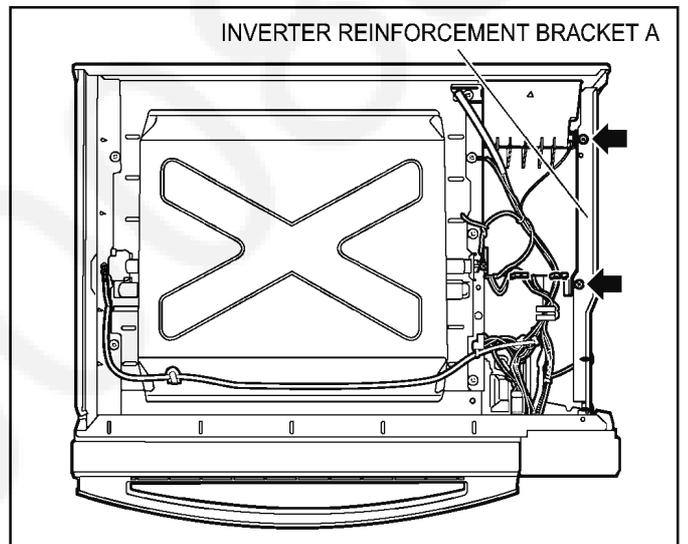
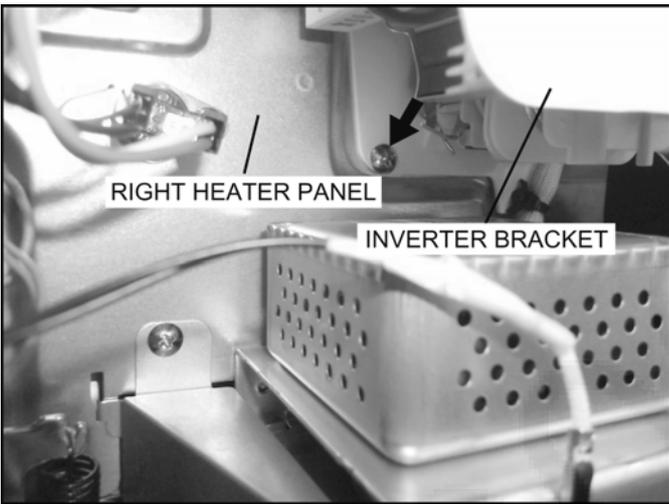
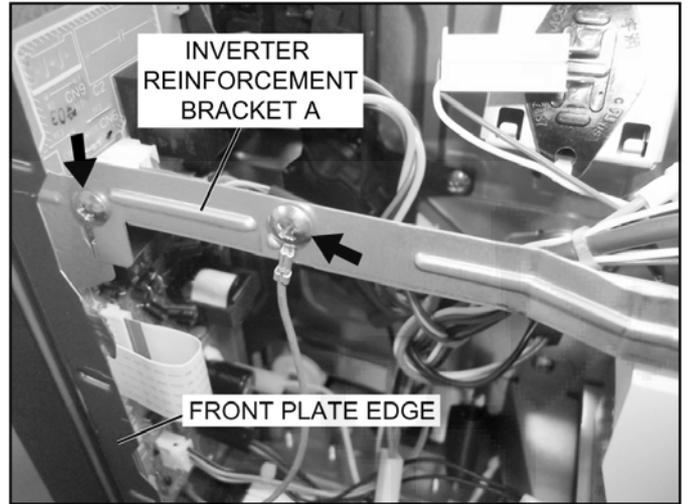


5. Remove 2 screws holding inverter bracket on right heater panel.

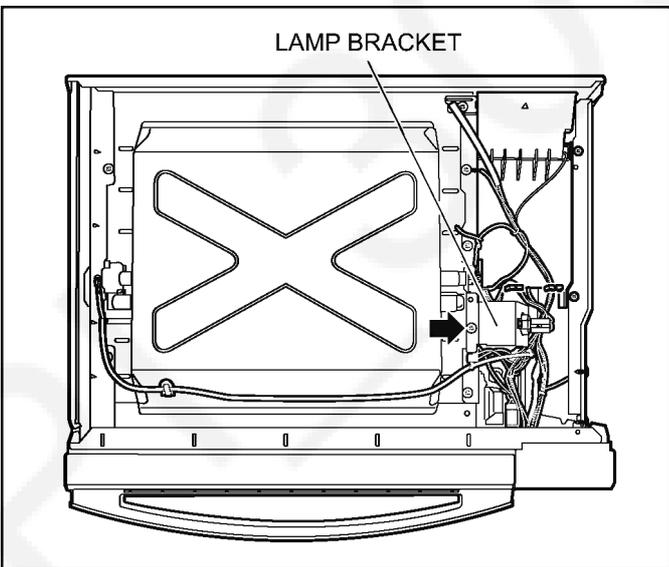




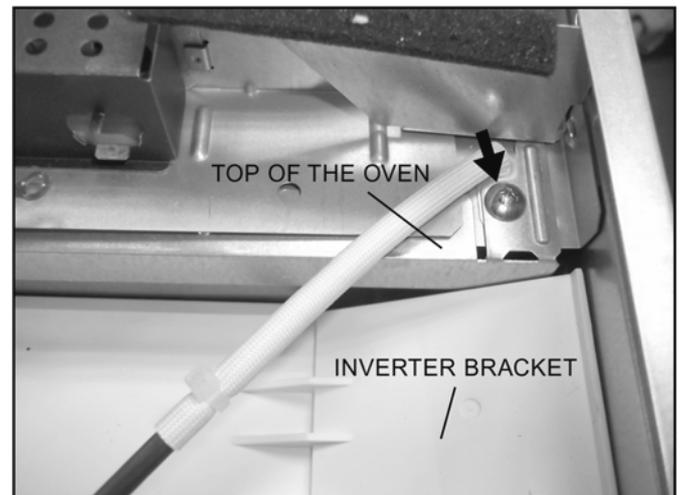
7. Remove 4 screws on inverter reinforcement bracket.



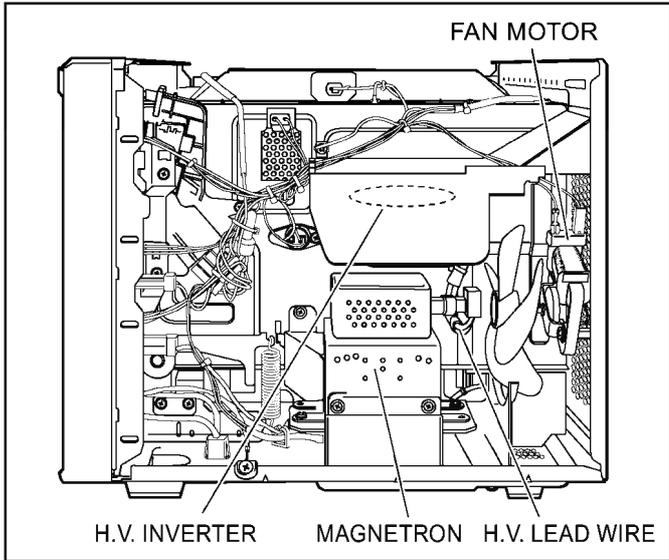
6. Remove 1 screw holding lamp bracket.



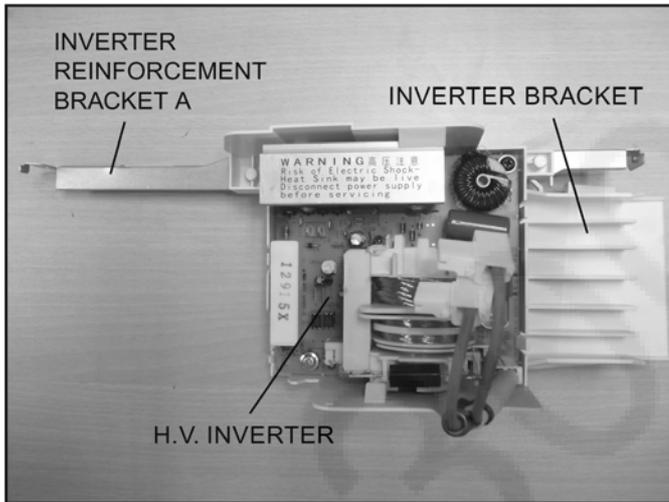
8. Remove 1 screw holding oven thermistor on the oven cavity.



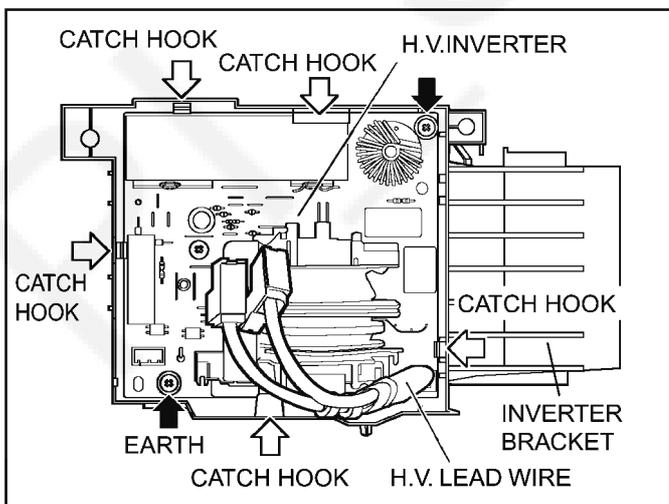
9. Disconnect connector from oven lamp and fan motor terminals.



10. Take out the inverter reinforcement bracket A, inverter bracket and H.V. Inverter as a whole unit from the oven cavity.



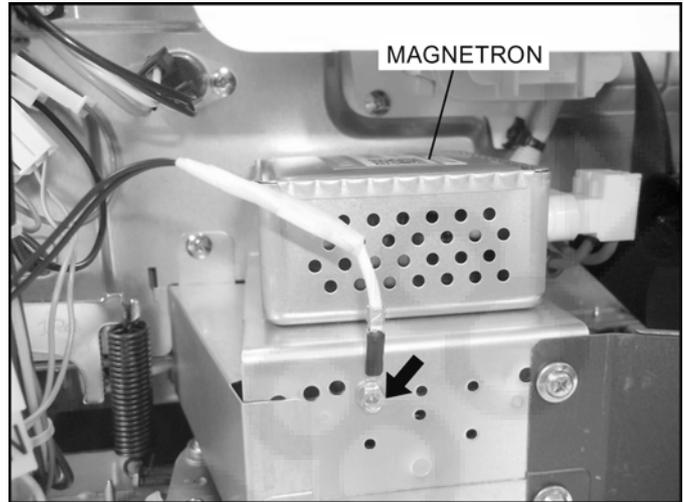
11. Remove 2 screws holding H.V. Inverter on inverter bracket.



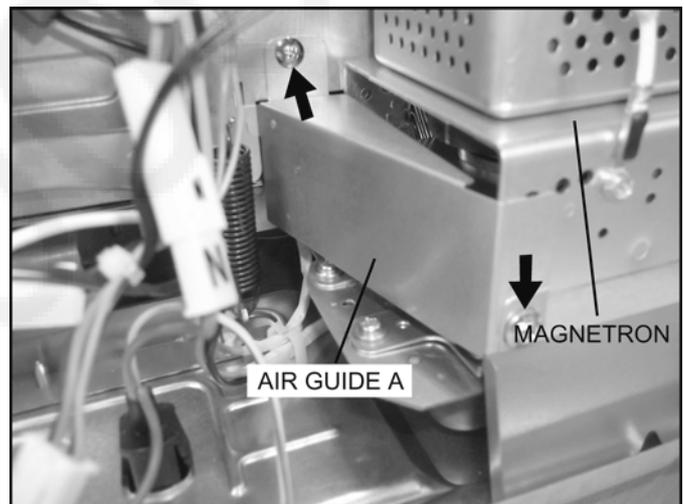
4.2. Magnetron

1. Steps same as disassembly of H.V. Inverter step 1 to step 10.

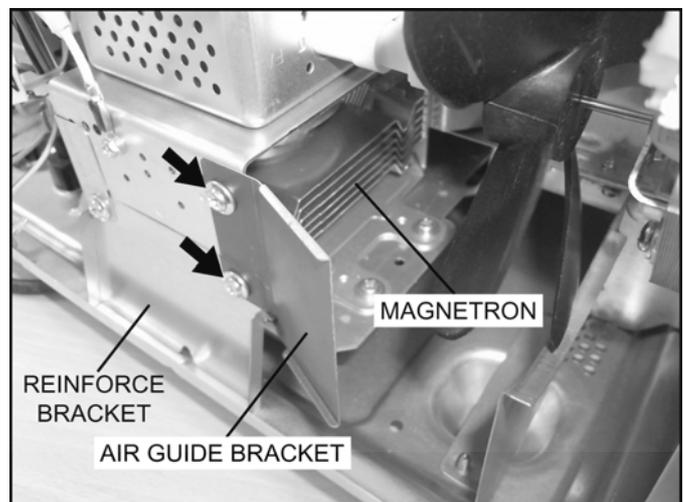
2. Remove 1 screw holding thermistor on magnetron.



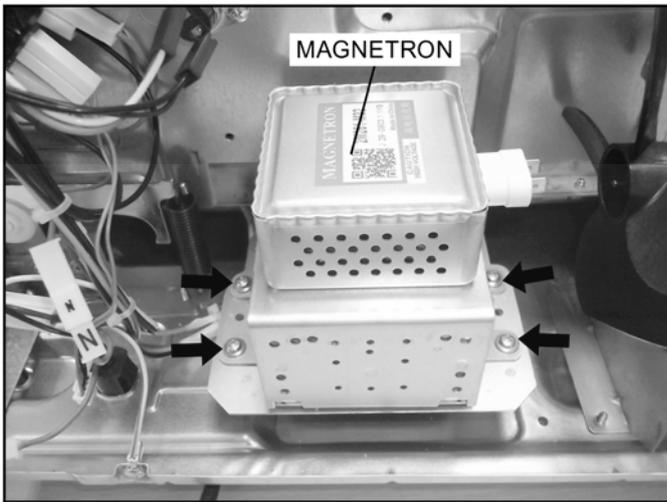
3. Remove 2 screws holding air guide A on oven cavity and magnetron respectively.



4. Remove 2 screws holding air guide bracket on magnetron.



5. Remove 4 screws holding the magnetron.



NOTE:

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

CAUTION

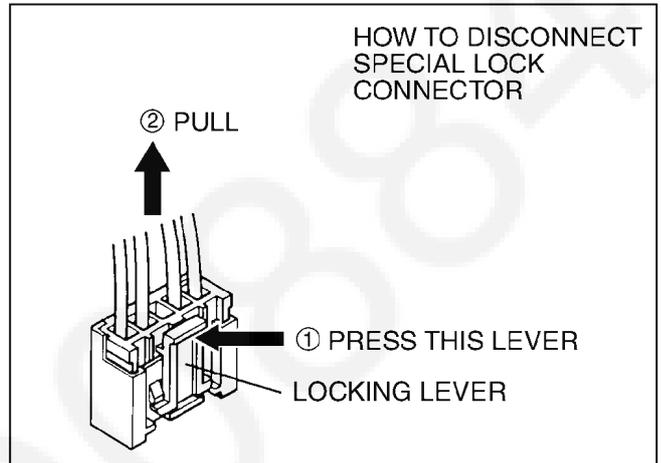
When replacing the magnetron, be sure the antenna gasket is in place.

4.3. Digital programmer circuit (D.P.C) & Membrane Sheet

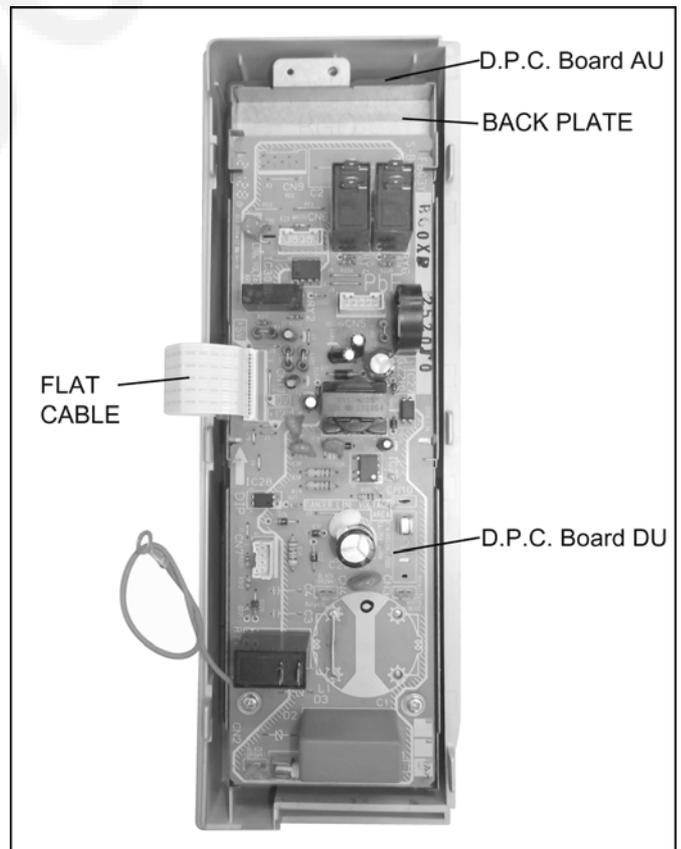
NOTE:

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

1. Remove 1 screw holding escutcheon base on oven cavity front plate.
2. Disconnect all connectors from D.P.C. board.



3. Disconnect connector CN701 from H.V. Inverter board.
4. Remove 1 screw holding D.P.C. board DU (relay board) on back plate.



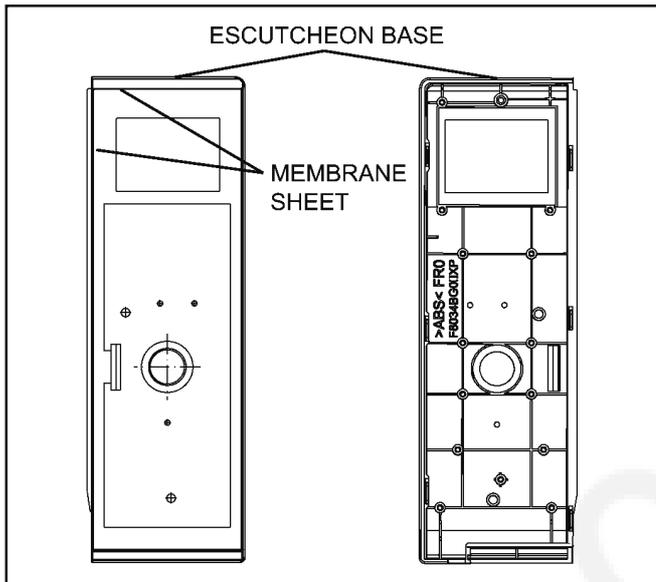
5. Remove 3 screws holding back plate.
6. Remove 12 screws holding D.P.C. board AU (display board) on escutcheon base.
7. Remove dial by pulling it straight out.

To replace membrane sheet

8. Use tools such as knife etc. to lift the edge of membrane sheet and peel off membrane sheet completely from escutcheon base.

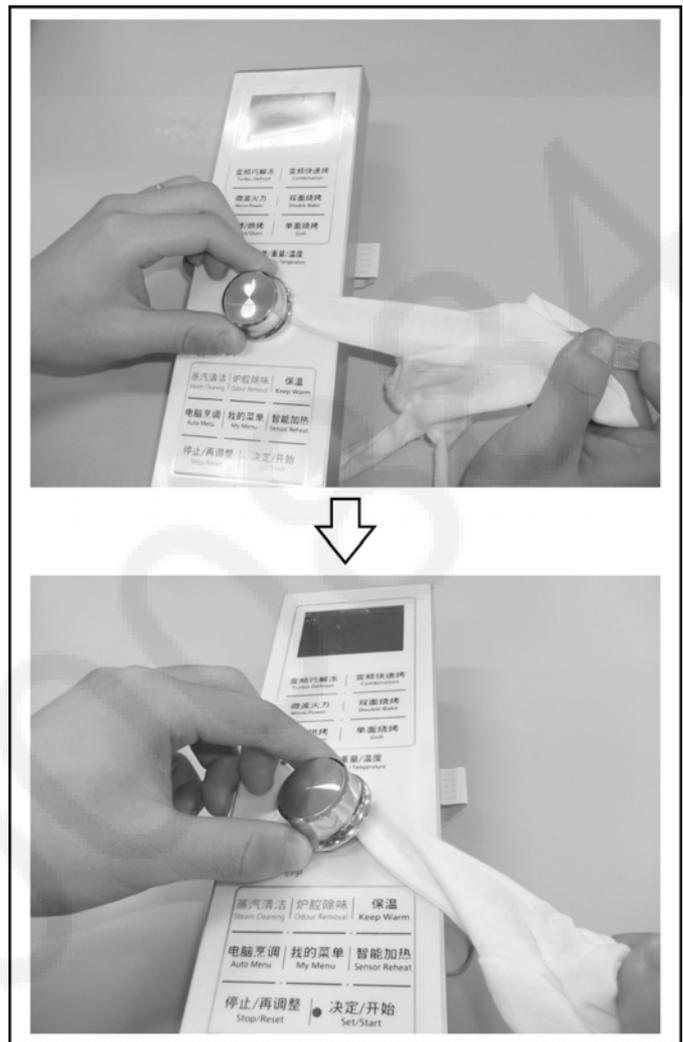
NOTE:

1. The membrane sheet 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 the new membrane sheet, make sure that the surface of escutcheon base is clean to prevent a malfunction or shorted contacts.



To remove dial

Insert the ruler (wrapped with a glove) as a lever to release the dial.



4.4. Low voltage transformer and/or power relays

⚠ CAUTION:

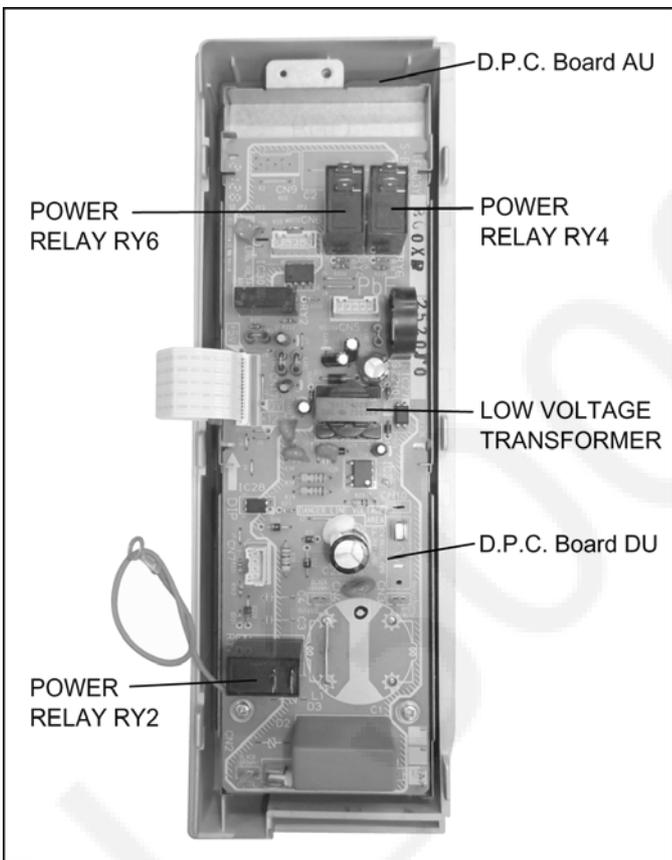
Be sure to ground any static electric charge built up in your body before handling the DPC.

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:

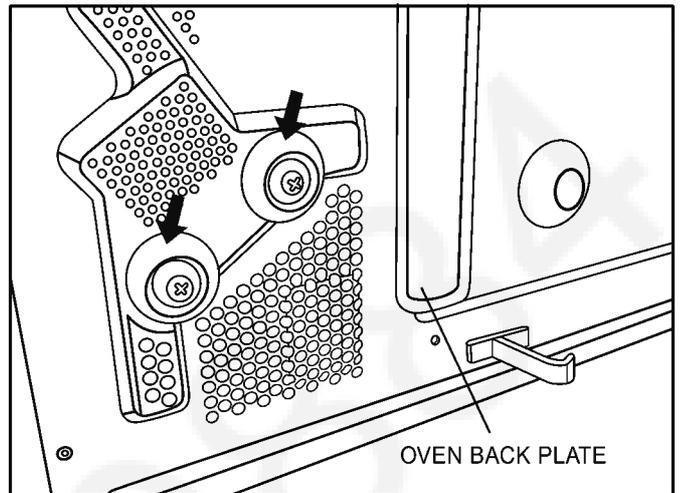
Do not use a soldering iron or desoldering tool of more than 30 watts on D.P.C. contacts.

2. With all the terminal pins cleaned and separated from D.P.C. contacts, remove the defective transformer/power relays, Replace components making sure all terminal pins are inserted completely resolder all terminal contacts carefully.



4.5. Fan motor

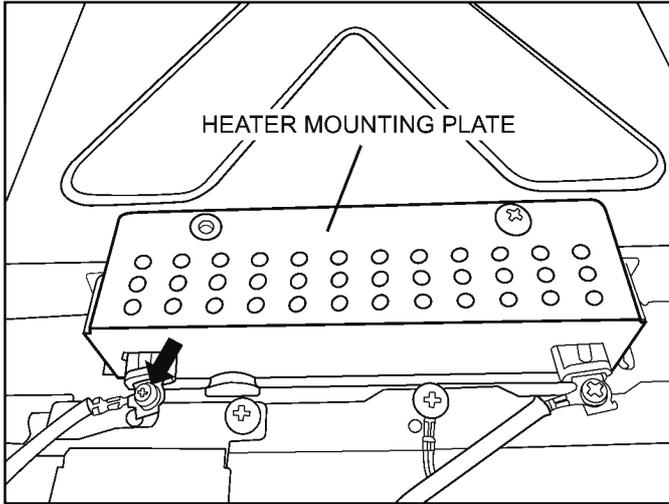
1. Disconnect 2 lead wires from fan motor terminals.
2. Remove 2 screws holding fan motor and detach fan motor from oven assy.



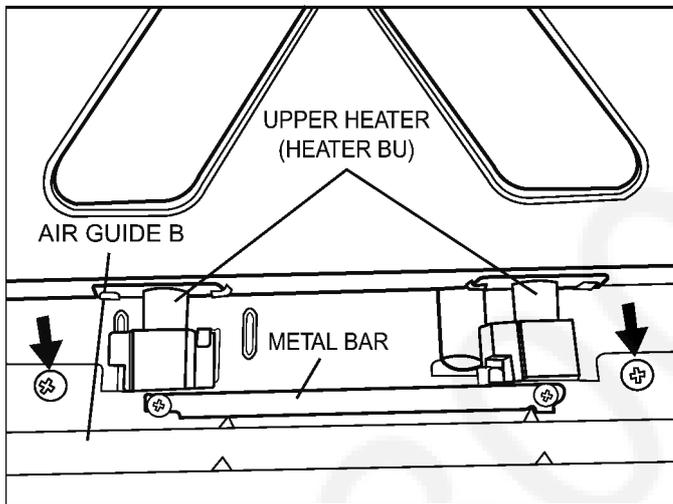
3. Remove fan blade from fan motor shaft by pulling it straight out.

4.6. Upper Heater (Heater BU)

1. Disconnect lead wires from right side of upper heater.

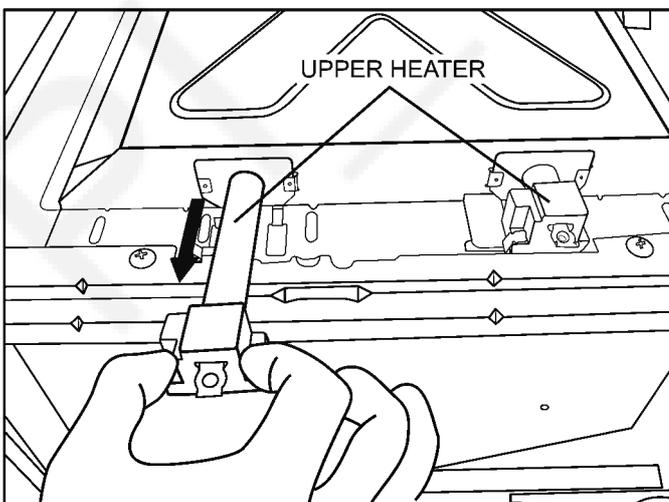


2. Remove 2 screws holding air guide B on oven cavity left side.



3. Remove 2 screws holding metal bar on upper heaters from the cavity left side. Then bend back locking tabs which holding heater to the right angle.

4. Remove the heater by pulling it out from the cavity left side.

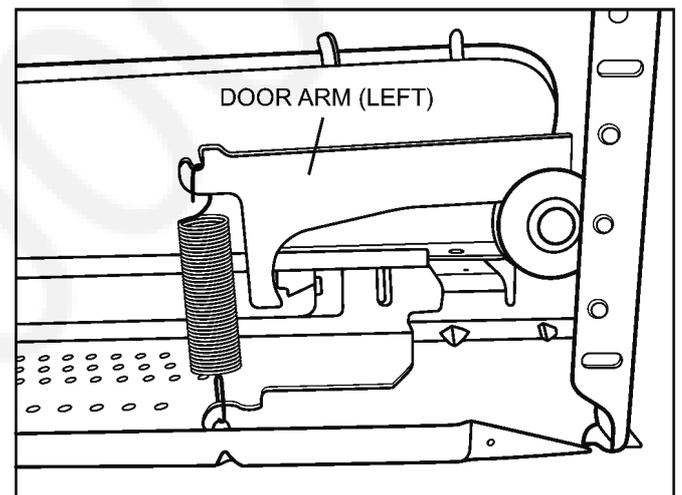
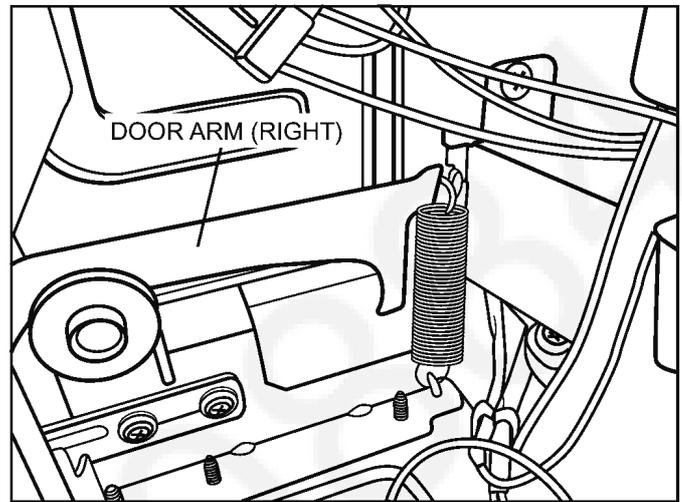


4.7. Door assembly

1. Remove left and right door key springs from door arm with plier.

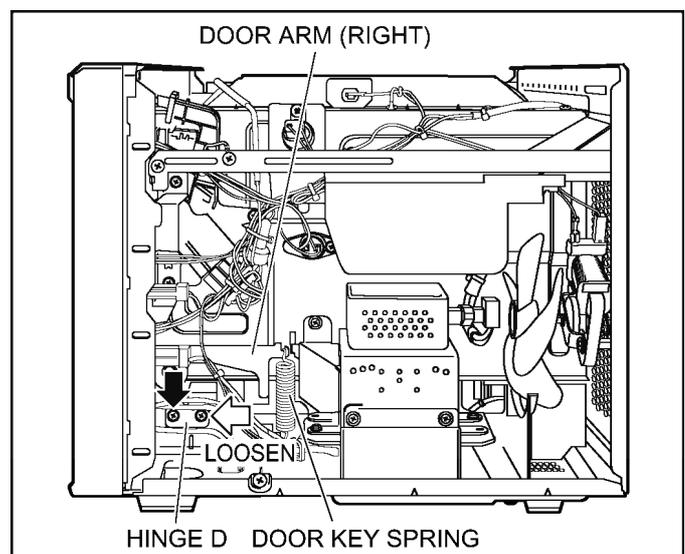
NOTE:

Support door before removing door springs.

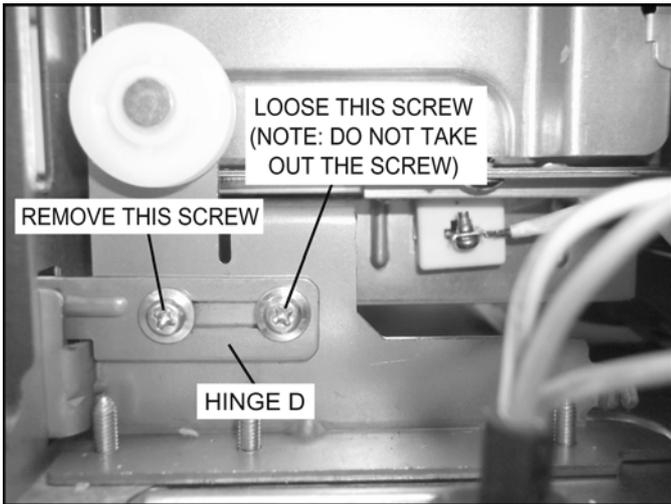


To remove door C and door A

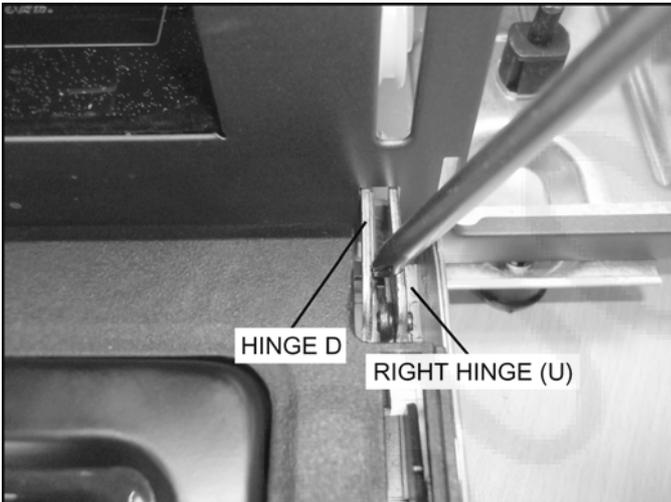
2. From the position of right hinge (U).



- Remove the left side screw.
- Loosen the right side screw.
(NOTE: Do not take out the screw)

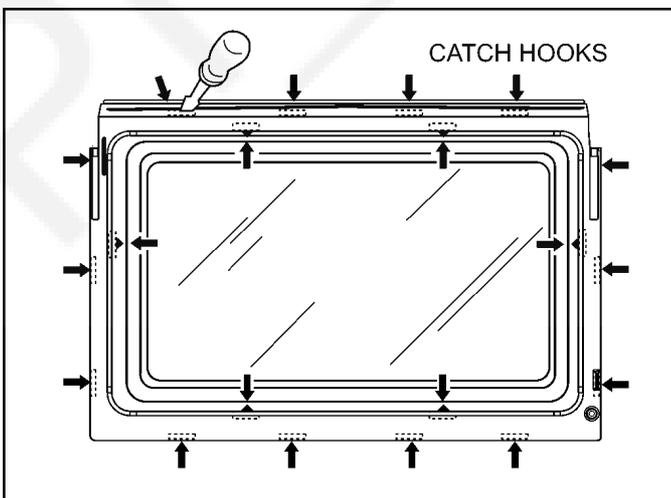


- Insert screwdriver into the gap (between hinge D and right hinge U) to widen the space to release the Door E hinge from right hinge U.



To remove door C and door A

- Insert flat blade screwdriver to release hinge pin from left hinge.
- Release catch hooks between door C and door A, to detach the door C.



Release catch hooks.

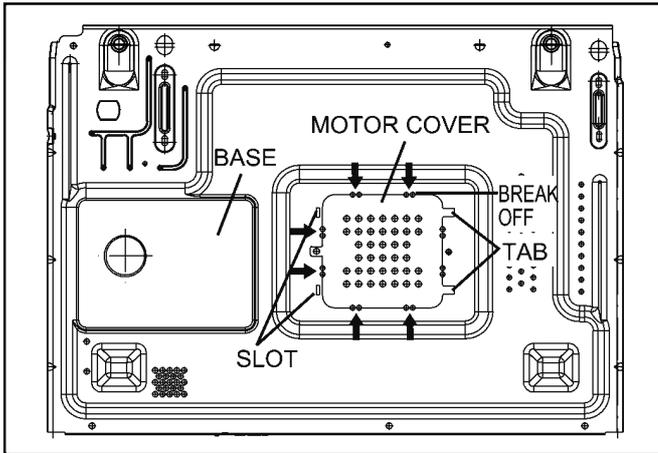
NOTE:

After replacement of the defective component parts of the door, reassemble it properly and adjustment so as to prevent an excessive microwave leakage. Adjustment of the door assembly(Refer page 23).

3. When mounting the door to the oven, be sure to adjust the door parallel to the cavity front plate by moving hinges back or forward.
4. Adjust so that the upper portion of the door will touch firmly to the oven cavity front plate, without pushing the door.
If the door assembly is not mounted properly, microwave power may leak from the clearance between the door and oven.
5. Be sure the gap between left or right portion of door assembly and cavity front plate will be 0.6 ± 0.3 mm.
6. Always perform the microwave leakage measurement test after installation and adjustment of door assembly.

4.8. Stirrer motor

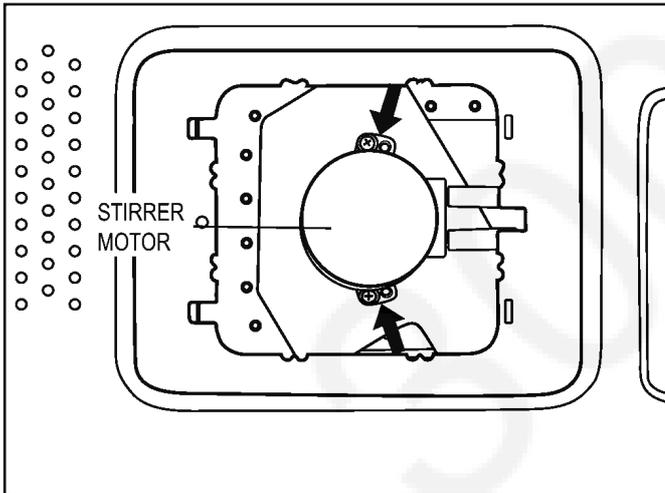
1. Remove the motor cover by breaking off at the 8 spots indicated by arrows with a cutter or the like.



NOTE:

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

2. Disconnect 2 lead wires from stirrer motor terminals.
3. Remove 2 screws holding stirrer motor.



NOTE:

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

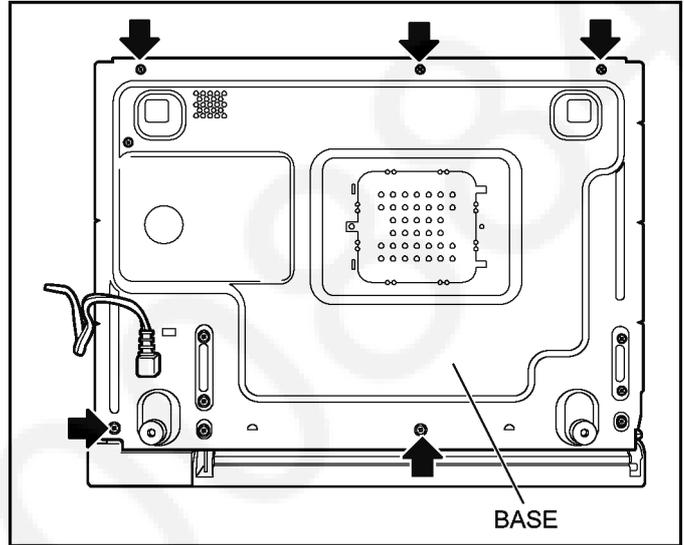
4.9. Lower Heater (Heater AU)

1. Remove left and right door key springs from door arm.

NOTE:

Support door before removing door springs.

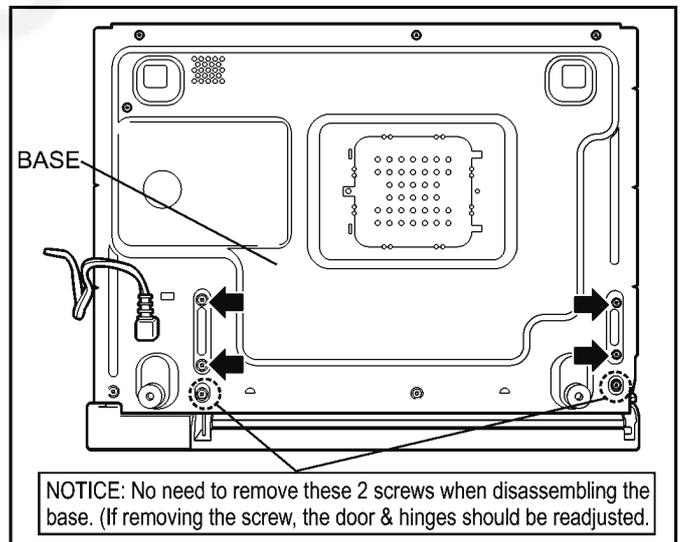
2. Disconnect connector of power supply cord.
3. Turn over the microwave oven.
4. Remove 5 screws holding base plate on the bottom of oven cavity.



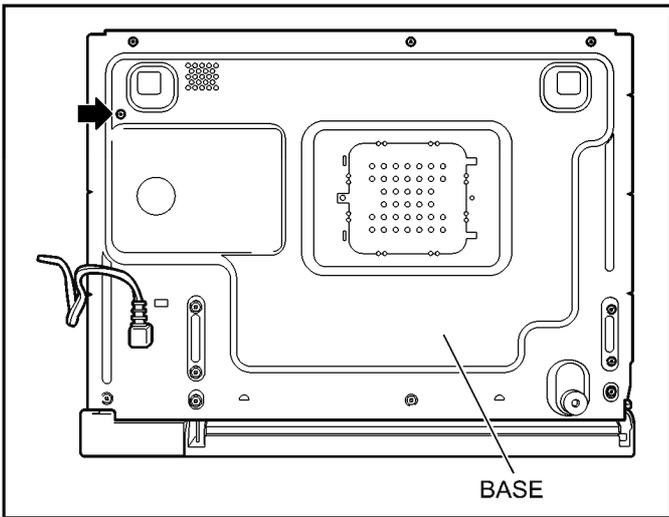
5. Remove 4 screws holding left and right hinges.

NOTE:

Do not remove the two screws holding the left and right hinges on the bottom of cavity front plate.

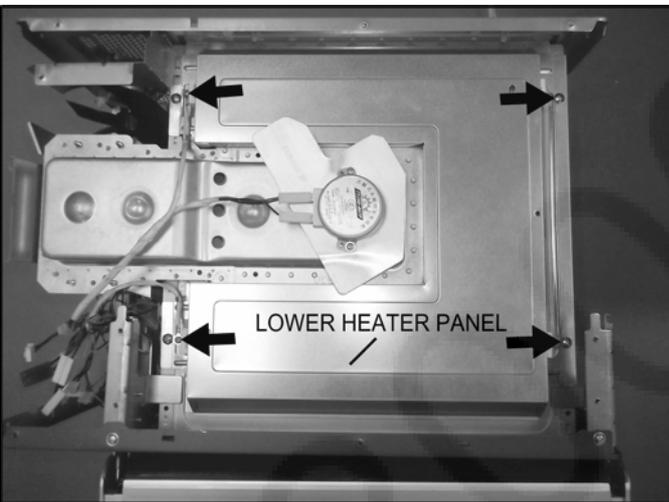


6. Remove 1 screw holding orifice on base plate.

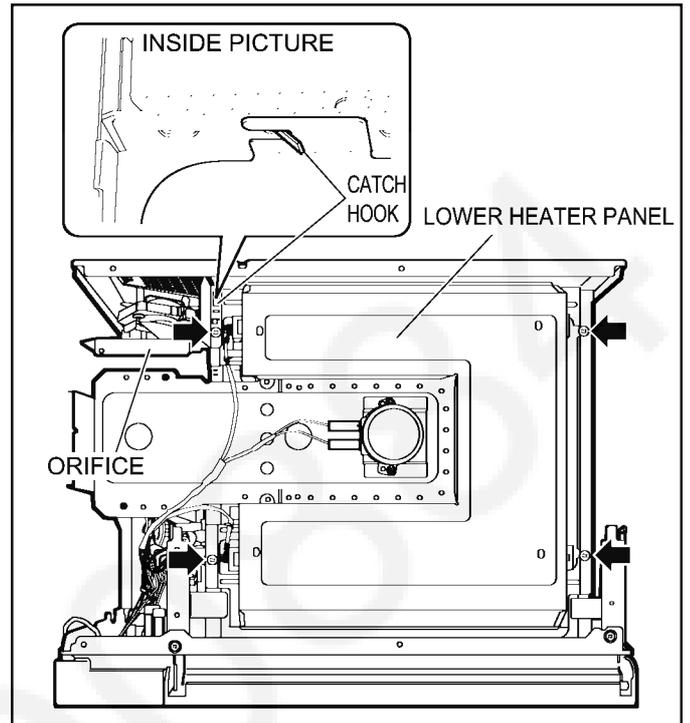


7. Remove base plate from oven assy.

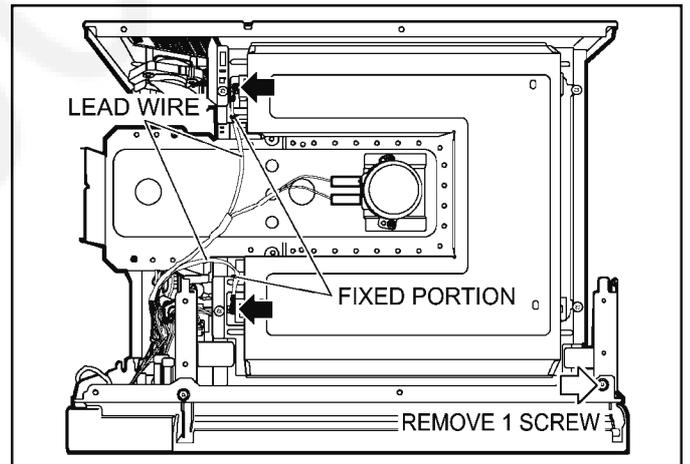
8. Remove 4 screws holding lower heater panel on the bottom of oven cavity.



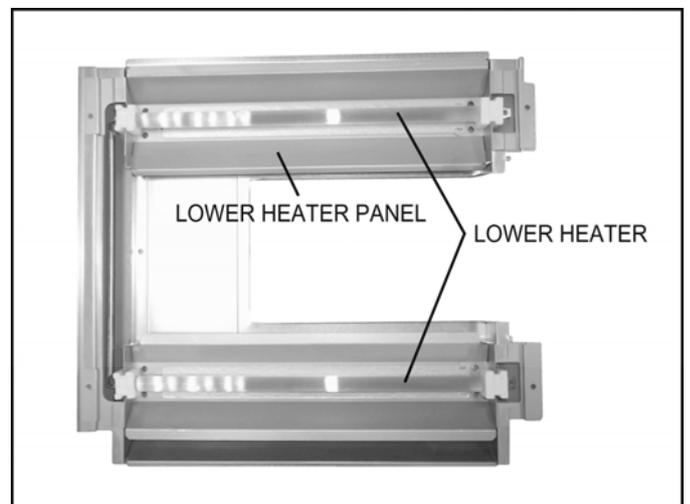
9. Release the catch hook holding orifice and then remove the orifice.



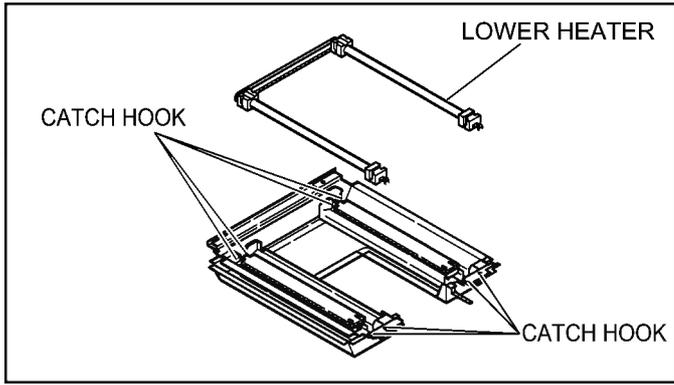
10. Remove 2 screws holding lead wire terminals on lower heaters.



11. Take away the whole lower heater assembly.



12. Remove the lower heater.



5 COMPONENT TEST PROCEDURE

⚠ WARNING

1. High voltage is present at the output terminals of the High Voltage Inverter (U) including aluminum heat sink 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 power cord and discharge the high voltage capacitors (see page 8).

5.1. Primary, Secondary Latch Switch interlocks & Power Relay RY1

1. Unplug lead connectors to Power Relay RY1 and verify open circuit of the Power Relay RY1 1-2 terminals.
2. Unplug lead connectors to Primary Latch Switch and Secondary Latch Switch.
3. Test the continuity of switches at door opened and closed positions with ohm meter (low scale).

Normal continuity readings should be as follows.

	Door Closed	Door Opened
Primary Latch Switch	0Ω (Close)	∞Ω (Open)
Secondary Latch Switch	0Ω (Close)	∞Ω (Open)
Power Relay RY1	∞Ω (Open)	∞Ω (Open)

5.2. Short Switch

1. Unplug lead wires from Inverter Power Supply (U) primary terminals.
2. Connect test probes of ohm meter to the disconnected leads that were connected to Inverter Power Supply (U).
3. Test the continuity of short switch with door opened and closed positions using lowest scale of the ohm meter.

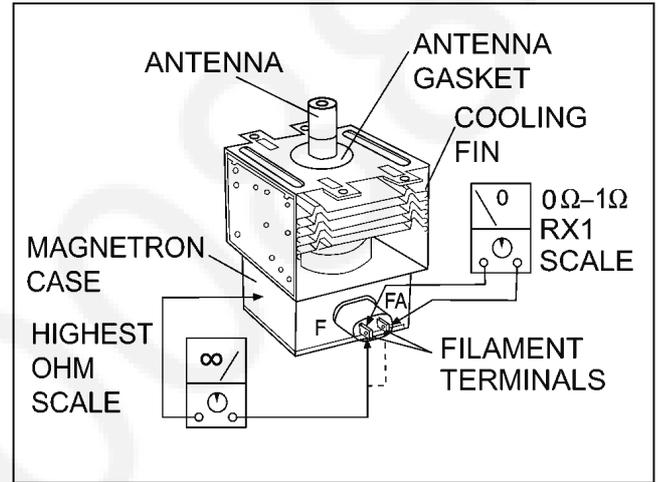
Normal continuity readings should be as follows.

Door Opened	Door Closed
0Ω (Close)	∞Ω (Open)

5.3. 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.

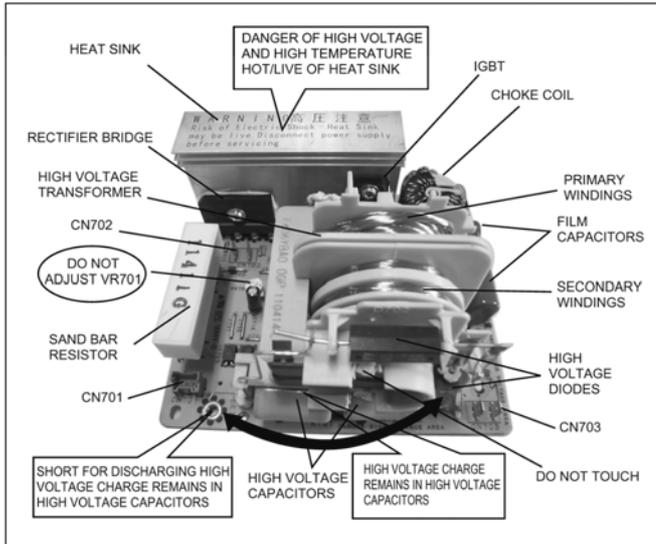


5.4. key board membrane (Membrane switch assembly)

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

5.5. Inverter power supply (U)

DO NOT try to REPAIR H.V. Inverter power supply (U). Replace complete H.V. Inverter(U) Unit.



WARNING: HIGH VOLTAGE

Test if failure codes H95, H97 or H98 appear when performing the following procedure. It is recommended to use an AC line input current ammeter for testing.

Test 1

1. With the oven unit's AC power supply cord is unplugged from the wall outlet, unplug the 2 pin H.V. connector CN703 from the magnetron tube.
2. Place 1 liter of water load into oven cavity.
3. Plug in the oven's AC power supply cord into outlet.
4. Program DPC.
 - a. Press **Timer/Clock** pad twice.
 - b. Press **Start** pad once.
 - c. Press **Micro Power** pad once.
5. Program oven at High power for 1 minute and press [Start] pad.
 - a. After approximately 23 seconds, oven stops operating.
 - b. During oven operation, the input current is approximately 0.5 to 1A. If both a and b are OK, proceed to test 2.

	INPUT CURRENT	FAILURE CODE
Unplug CN703	0.5 to 1A	Oven stops in 23 seconds after started.

Test 2

Continued from Test 1

1. Unplug the oven's AC power supply cord from outlet.
2. Unplug 3 pin connector CN701. CN703 remains unplugged.
3. Plug in the oven's AC power supply cord into outlet.
4. Program DPC.
 - a. Press **Timer/Clock** pad twice.
 - b. Press **Start** pad once.
 - c. Press **Micro Power** pad once.
5. Program oven at High power for 1 minute and press [Start] pad.

- a. After approximately 3 seconds, oven stops operating.
- b. During oven operation, the input current is approximately 0.4A.

	INPUT CURRENT	FAILURE CODE
Unplug CN701	≈ 0.4A	Oven stops in 3 seconds after started.

If both a and b check OK, the Inverter Power Supply (U) can be determined to be OK.

5.6. Temperature thermistor

The thermistor that is attached to the magnetron detects the temperature of the magnetron and will stop magnetron operation when overheating is detected. A normal thermistor's resistance is 35KΩ to 110KΩ for an ambient temperature range of 10-30 degree C.

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

It is also possible to display thermistor level by taking the following steps.

1. Program the DPC into TEST MODE (Plug-in oven → press **Timer/Clock** pad twice → press **Start** pad once → press **Micro Power** pad once).
2. Program oven at Standing Time for 1 minute and press [Start] pad.
3. Press **Reheat** twice, the thermistor level reading will shown on the display.

The normal reading should be in the range of 16-230.

6 MEASUREMENTS AND ADJUSTMENTS

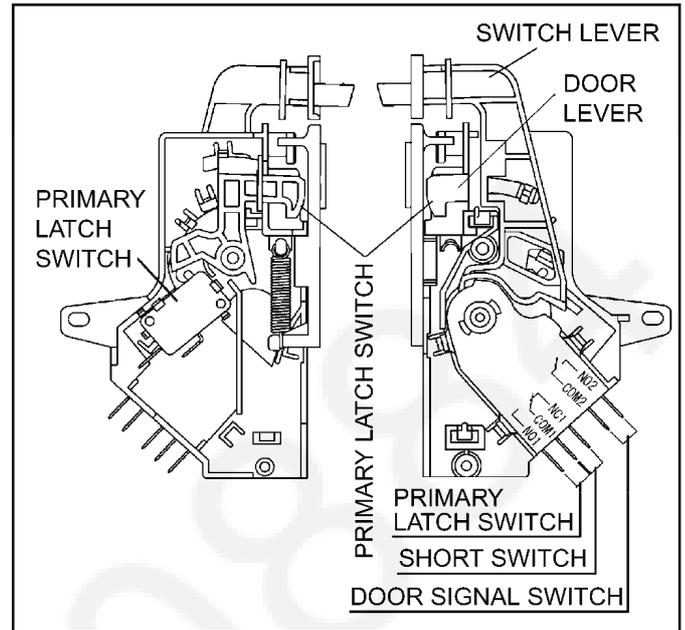
6.1. Adjustment of Primary latch switch, Secondary latch switch and Short switch.

1. Mount the Primary latch switch, the Secondary latch switch and the Short switch to the door hook assembly as shown in illustration.

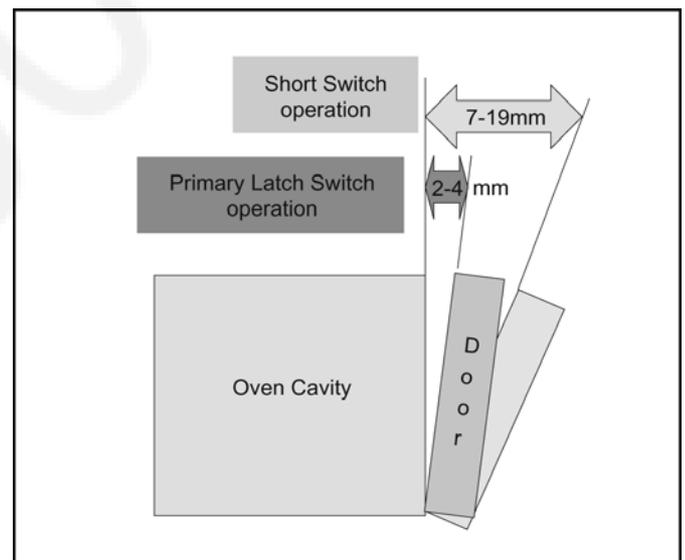
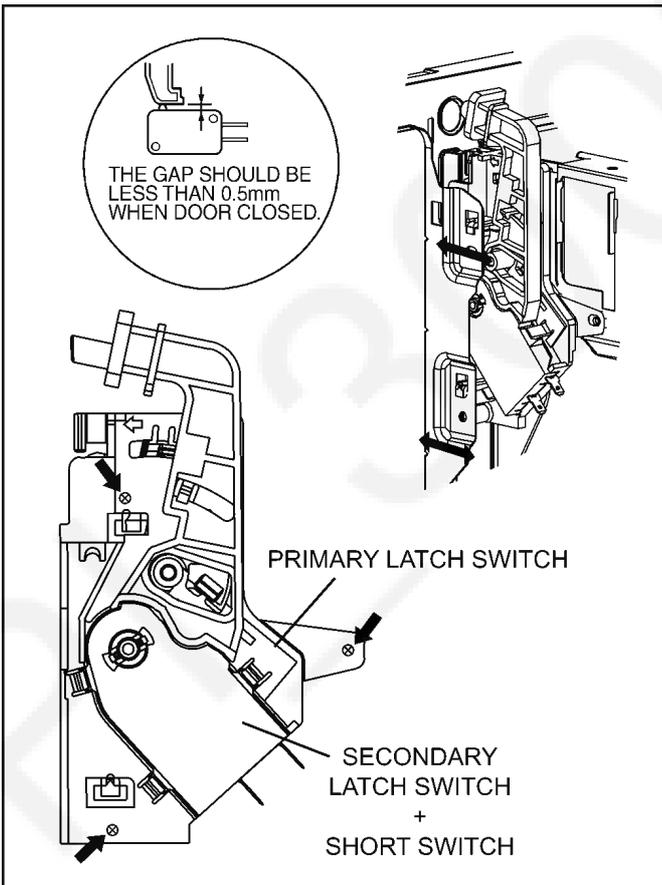
NOTE:

No specific individual adjustments during installation of the Primary latch switch, Secondary latch switch or Short 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 short switch and check the continuity of the monitor circuit and all latch switches again by following the component test procedures.



4. The Primary latch switch must be ON when the space between upper portion of door A and cavity front plate is 2-4mm, if the door gap is greater than 4mm, the Primary latch switch must be OFF.



If alignment is poor, oven may not operate after convection/grill use.

6.2. 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

7 TROUBLESHOOTING GUIDE

DANGER: HIGH VOLTAGES ⚠

1. **DO NOT RE-ADJUST PRESET CONTROL on the H.V.Inverter (U).** It is very dangerous to repair or adjust without proper test equipment because this circuit generates very large current and high voltage. Operating a misaligned inverter circuit is dangerous.
2. Ensure proper grounding before troubleshooting.
3. Be careful of the high voltage circuitry, taking necessary precautions when troubleshooting.
4. Discharge high voltage remaining in the H.V.Inverter (U).
5. When checking the continuity of the switches or the H.V.Inverter, disconnect one lead wire from these parts and then check continuity with the AC plug removed. Doing 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.
6. Do not touch any parts of the circuitry on the digital programmer circuit, since static electric discharge may damage this control panel. Always touch ground while working on this panel to discharge any static charge in your body.
7. 220-240V AC is present on the digital programmer circuit (Terminals of power relay's and primary circuit of Digital Programmer Circuit). 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.

Self diagnostic display

Oven has self diagnostic function but it will not be activated in normal operation mode.

To show self diagnostic result, please take the following steps.

1. Firstly, you must program the DPC into TEST MODE (Plug-in oven → press **Timer/Clock** pad twice → press **Start** pad once → press **Micro Power** pad once.)

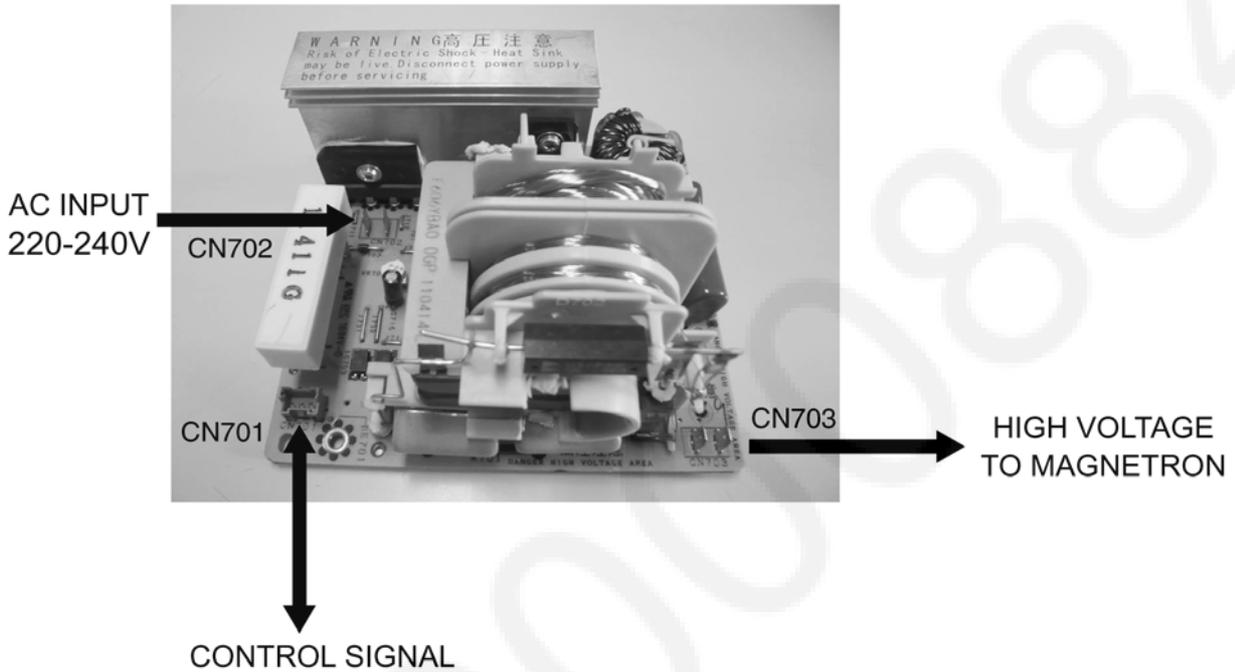
2. Error cod list

- H** Hardware problem, oven itself has problem.
- U** Usage problem such as run out of water and oven itself works well.

Error code	Cause for error
H99	Inverter on/off control error
H98	Magnetron no oscillation error
H97	Inverter input error
H96	Inverter custom IC error
H95	Inverter input failure
H90	Power down controlled by Inverter thermistor
	Usage problem
U65	Power down controlled by Inverter thermistor
HOT	Oven is hot (It is able to show up both in test mode and cooking mode)

7.1. (Troubleshooting) Oven stops operation during cooking

	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven stops in 3 seconds after pressing [start] pad.	No input AC is supplied to H.V.Inverter (U) CN702 terminals	1. Latch Switch 2. Power relay RY1 3. Loose lead wire connector CN701, CN702
	Oven stops in 23 seconds after pressing [start] pad.	H.V.Inverter (U) operates by the control signals from DPC but magnetron is not oscillating	1. Magnetron 2. Loose lead wire connector CN703
	Oven stops in 1 minute after pressing [start] pad.	Oven thermistor circuit is not functioning	1. Oven thermistor 2. Loose wiring
2.	No display and no operation at all. Fuse is blown.	Most probably loose connection of connectors, or door latch mechanism is not adjusted properly	1. Align door, Door Latch Switches 2. Loose wiring connectors

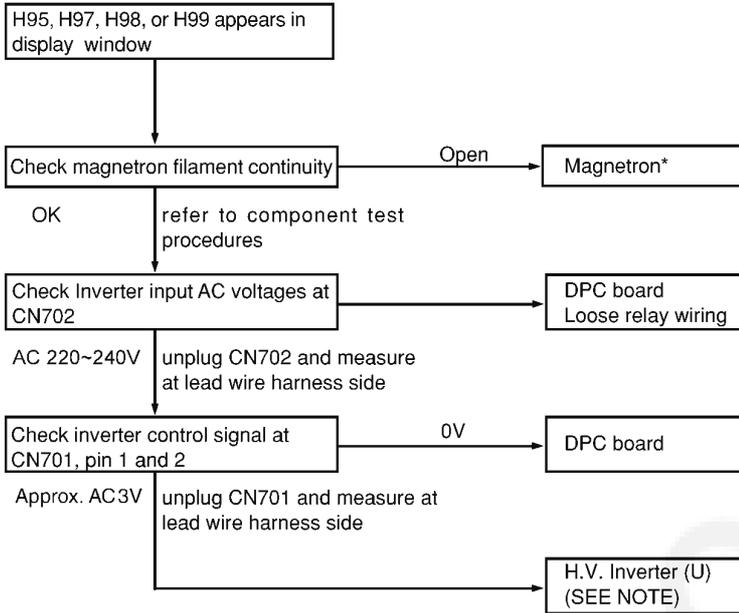


7.2. (Troubleshooting) Other problems

	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven is dead. Fuse is OK. No display and no operation at all.	1. Open or loose lead wire harness 2. Open thermal cutout / thermistor 3. Open low voltage transformer 4. Defective DPC	Check thermal cutout is defective.
2.	No display and no operation at all. Fuse is blown.	1. Shorted lead wire harness 2. Defective primary latch switch (NOTE 1) 3. Defective short switch (NOTE 1) 4. Defective Inverter Power Supply (U) NOTE 1: All of these switches must be replaced at the same time. Check continuity of power relay RY1 contacts (between 1 and 2) and if it has continuity, replace power relay RY1 also.	Check adjustment of primary, secondary latch switch and short switch including door.
3.	Oven does not accept key input (Program)	1. Key input is not in proper sequence 2. Open or loose connection of membrane key button to DPC (Flat cable) 3. Shorted or open membrane key board 4. Defective DPC	Refer to operation procedure. Refer to DPC troubleshooting.
4.	Fan motor turns on when oven is plugged in with door closed.	1. Misadjustment or loose wiring of secondary latch switch 2. Defective secondary latch switch 3. Secondary latch switch CN7	Adjust door and latch switches.
5.	Timer starts count down but no microwave oscillation. (No heat while oven lamp and fan motor turn on)	1. Off-alignment of primary latch switch 2. Open or loose connection of high voltage circuit especially magnetron filament circuit NOTE: Large contact resistance will cause lower magnetron filament voltage and cause magnetron to have lower output and/or be intermittent. 3. Defective high voltage component H.V. Inverter Power Supply (U) Magnetron 4. Open or loose wiring of power relay RY1 5. Defective primary latch switch 6. Defective DPC or power relay RY1	Adjust door and latch switches. Check high voltage component according to component test procedure and replace if it is defective. Refer to DPC troubleshooting
6.	Oven can program but timer does not start countdown.	1. Open or loose wiring of secondary latch switch 2. Off-alignment of secondary latch switch 3. Defective secondary latch switch	
7.	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
8.	Fan motor turns on and stirrer motor rotates when door is opened.	1. Low voltage transformer on DPC.	
9.	Oven does not operate and return to plugged in mode as soon as [Start] pad is pressed.	1. Defective DPC	Check grounding connector on escutcheon base.
10.	Loud buzzing noise can be heard.	1. Loose fan and fan motor	
11.	Heater does not turn on.	1. Open or loose wiring of heater 2. Defective heater 3. Defective power relay 4. Defective DPC	
12.	Oven stops operation during cooking.	1. Open or loose wiring of primary and secondary latch switch 2. Operation of thermal cutout	Adjust door and latch switches.

7.3. Troubleshooting of inverter circuit (U) and magnetron

This oven is programmed with a self diagnostics failure code system which will help for troubleshooting. H95, H97, H98 and H99 are the provided failure codes to indicate magnetron and inverter circuit problem areas. This section explains failure codes of H95, H97, H98 and H99. First, you must program the DPC into TEST MODE, press **Timer/Clock** pad twice → press **Start** pad once → press **Micro Power** pad once. Program unit for operation. H95, H97, H98, H99 appears in display window a short time after [Start] pad is pressed and there is no microwave oscillation.



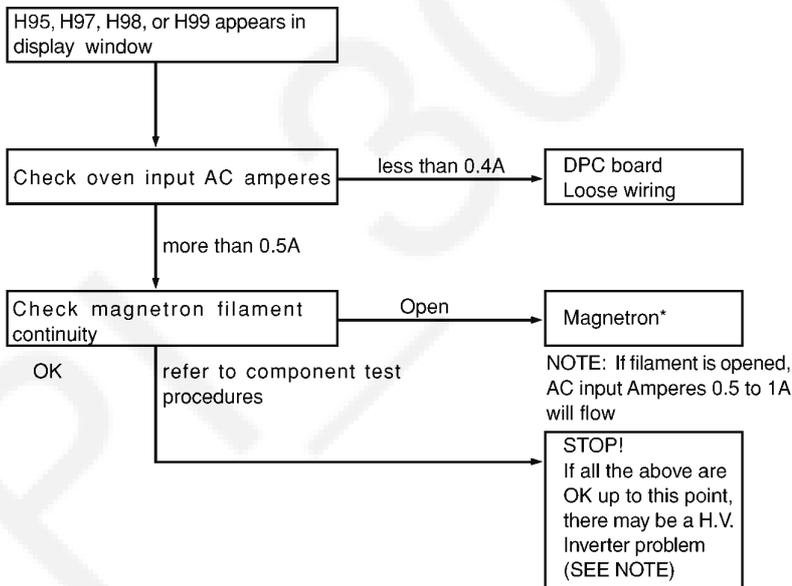
⚠ WARNING: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT RE-ADJUST PRESET CONTROL on the board. It is very dangerous to repair or adjust without proper test equipment because this circuit generates very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to case before proceeding to determine a good magnetron.

NOTE: After check, unplug unit to reset to normal operation mode.

Alternate way to troubleshoot oven with AC Ampere meter used

H95, H97, H98, H99 appears in display window a short time after [Start] pad is pressed and no microwave oscillation with AC Ampere meter used for troubleshooting.



NOTE: After check, unplug unit to reset to normal operation mode.

7.4. Trouble related to Digital Programmer Circuit

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS
No display when oven is first plugged in	1	Fuse pattern of D.P.C.	Normal	→Step2
			Open	Replace D.P.C. or Fuse Pattern
	2	IC10 pin4 voltage	Abnormal 0V	IC26
			Normal=12V	→Step3
	3	IC10 pin5 voltage	Abnormal	IC10
			Normal=5V	IC1, CX320, Display
No key input	1	Touch switch continuity	Abnormal	Touch switch
			Normal	IC1
No beep sound	1	IC1 pin 5 voltage	Abnormal	IC1
			Normal=5V	BZ210, Q210
Power relay A(RY2) does not turn on even though the program had been set and the start pad is tapped	1	IC1 pin 78 voltage while operation	Abnormal	IC1
			Normal=5V	RY2, Q222
No microwave oscillation at any power	1	IC1 pin 77 voltages while operation at high power	Abnormal	IC1
			Normal=5V	→Step2
	2	Collector of Q223	Abnormal	Q223 and/or Q225, Q226, Q227
			Normal≈0.7V	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
H95/H97/H98 appears in window and oven stops operation. Program High power for 1 minute and conduct following test quickly, unless H95/H97/H98 appears and oven stops	1	Unplug CN702 (2 pin) connector and measure voltage between terminals	Abnormal=0V	1. Latch Switch 2. D.P.C. /Power Relay
			Normal=220-240V	→Step2
	2	Unplug CN701 (3 pin) connector and measure pin1 voltage of D.P.C. CN3	Abnormal=0V	D.P.C.
			Approx. AC 3V	Magnetron

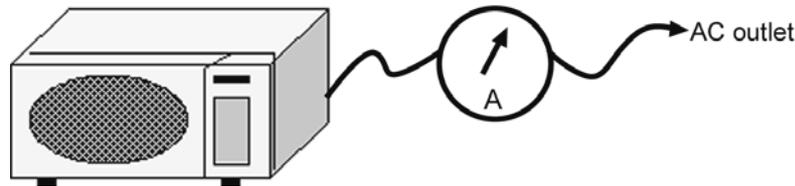
7.5. Simple way of H.V. Inverter/magnetron troubleshooting

Purpose:

Simple way (3/23 seconds rule) of identifying whether it's Magnetron, Inverter, or others.

Set-up:

The unit under question is connected through the Ammeter as shown below.



Procedure:

Follow the matrix table below to identify the problem source.

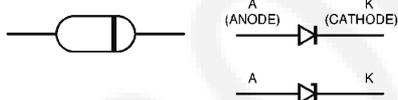
Note:

Do not replace both Inverter board and Magnetron simultaneously and automatically without going through this procedure.

Power will:	Ammeter reading is:	To do:	Remedy:	
Shut off in 23 seconds after "Start".	1. Between 0.5A and 1.0A.	Check and repair open magnetron circuit	Open magnetron wiring between Inverter and magnetron terminal.	
	2. Between 1.0A and 2.0A.	Check continuity of D702 in Inverter PCB.		
		↓		
		1. D702 shorted	Replace H.V.Inverter (F606YBA00QP/F606YBA00HP)	
	2. D702 is OK	Replace magnetron		
Shut off in 3 seconds after "Start"	1. Less than 0.5A	Check open circuit: Latch Switch, DPC, Power Relay and CN701	Replace defective component(s), or correct switch, cables and connectors.	

7.6. How to check the semiconductors using an OHM meter

Diode



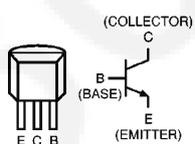
	FORWARD	REVERSE
A-K	SMALL	∞

Transistor

NPN Transistor

2SC.....

2SD.....

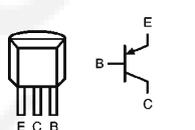


	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

PNP Transistor

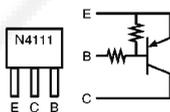
2SA.....

2SB.....



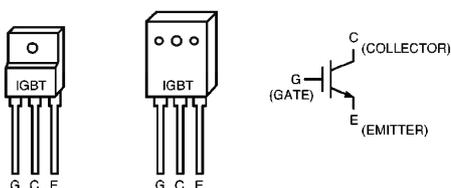
	FORWARD	REVERSE
B-E	SMALL	∞
C-B	SMALL	∞
C-E	∞	∞

Digital Transistor PNP Transistor



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

IGBT (INSULATED GATE BIPOLAR TRANSISTOR)



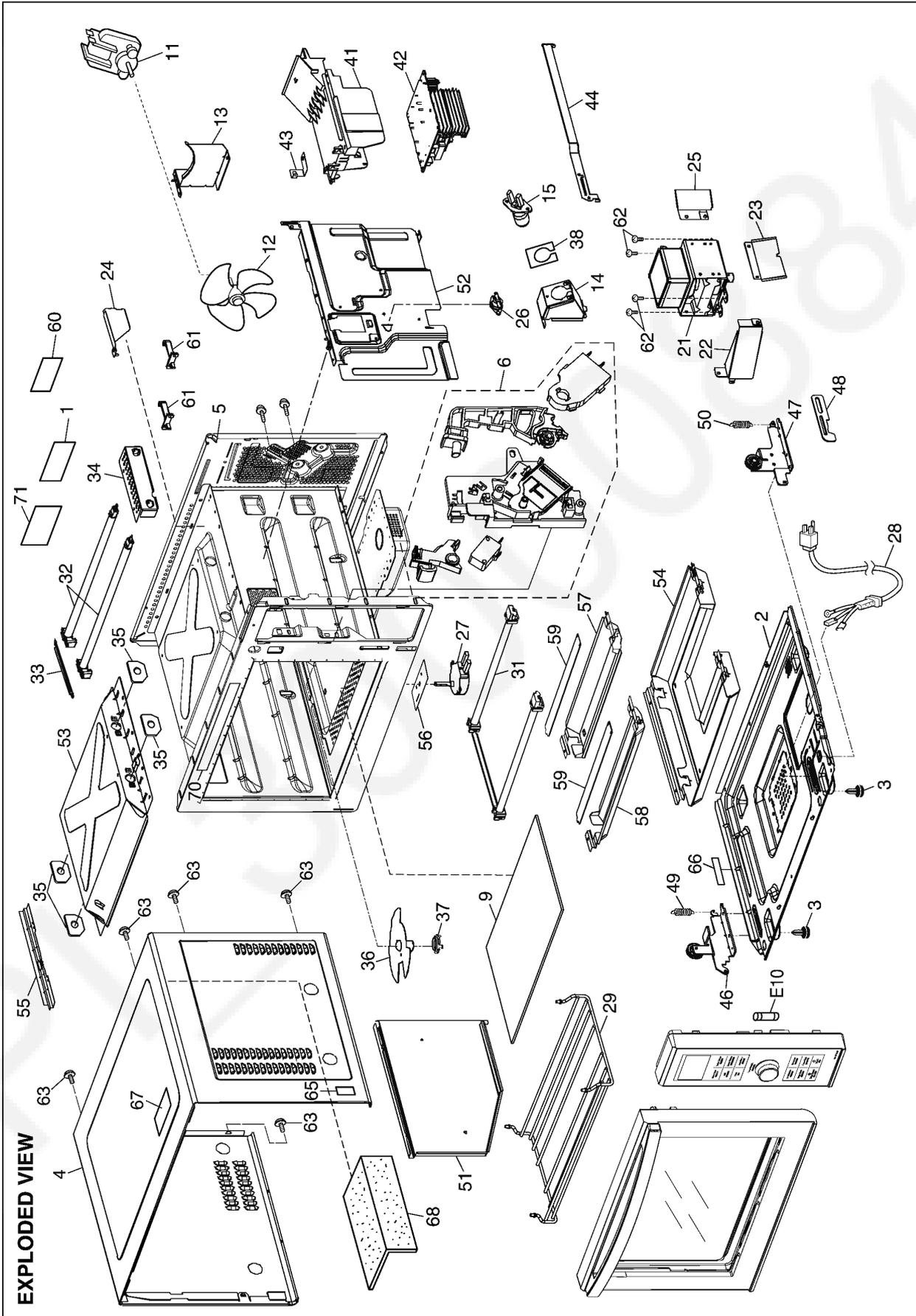
	FORWARD	REVERSE
E-C	SMALL	∞
E-G	∞	∞
C-G	∞	∞

7.7. H.V. INVERTER MAIN PARTS LIST (F606YBA00QP/F606YBA00HP)

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
Q701	B1JAEV000003	IGBT	1	
C701	ECWHC3B104JA	FILM CAPACITOR	1	0.1 μ F,1000VDC
C702	ECWF4305N851	FILM CAPACITOR	1	3 μ F, 250VDC
DB701	B0FBBQ000006	RECTIFIER BRIDGE	1	
L701	F5020W100AP	CHOKE COIL	1	
R702	D0CM562JA002	SAND BAR RESISTOR	1	
T701	F609ABA00GP	TRANSFORMER	1	(INCLUDING D701,D702,C706,C707)
D701,D702	B0FBAZ000003	DIODE	2	
C706	F0C3F562A002	FILM CAPACITOR	1	5600PF/3KV
C707	F0C3F822A002	FILM CAPACITOR	1	8200PF/3KV

8 EXPLODED VIEW AND PARTS LIST

8.1. EXPLODED VIEW



8.2. 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:

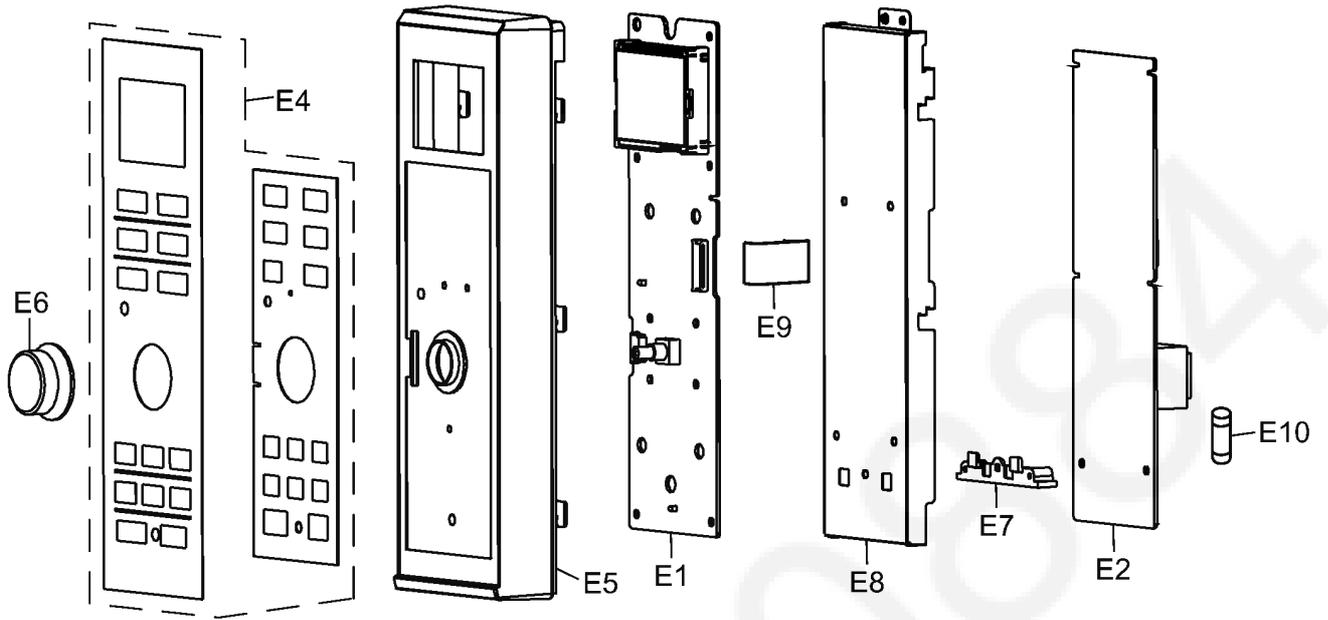
Components identified by \triangle mark have special characteristics important for safety.

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

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
1		F00066V00HP	CAUTION LABEL	1	
2		F1001BG00XP	BASE	1	
3		F10087J60XPS	RUBBER FOOT	2	
4	\triangle	F1009BG10BXP	CABINET BODY	1	
5	\triangle	F200ABG00XP	OVEN	1	
6	\triangle	F300W9L00XP	DOOR HOOK (U)	1	
9		F010TBG40HP	FLAT TABLE (U)	1	
11		F400A9K80XP	FAN MOTOR	1	
12		F4008-1E60	FAN BLADE	1	
13		F4144BG00XP	ORIFICE	1	
14		F6074BG00XP	INCANDESCENT LAMP BRACKET	1	
15		F612E9K10HP	INCANDESCENT LAMP (U)	1	
21	\triangle	ZM261-M32J1YB	MAGNETRON	1	
22		F4025-1R40	AIR GUIDE A	1	
23		F1161-1R40	REINFORCE BRACKET A	1	
24		F4047-1P00	AIR GUIDE E	1	
25		F4026BG00XP	AIR GUIDE BRACKET	1	
26	\triangle	F6145-1R40	THERMAL CUTOUT	1	130°C OPEN, -20°C CLOSE
27		F6144BG00XP	STIRRER MOTOR	1	
28	\triangle	F900CBG40HP	AC CORD W/PLUG	1	HPE, YPQ, MPQ, YTE
28	\triangle	F900CBG40TP	AC CORD W/PLUG	1	TPE
28	\triangle	F900CBG30EP	AC CORD W/PLUG	1	TTE
28	\triangle	F900CBG40FC	AC CORD W/PLUG	1	FCE
29		F6735BG00XP	HEATER PROTECTOR	1	
31		F630GBG00XP	HEATER AU	1	HPE, TPE, TTE, FCE, YTE
31		F630GBG40YP	HEATER AU	1	YPQ, MPQ
32		F630HBG00XP	HEATER BU	2	HPE, TPE, TTE, FCE, YTE
32		F630HBG40YP	HEATER BU	2	YPQ, MPQ
33		F6421BG00XP	METAL BAR	1	
34		F6460BG00XP	HEATER BRACKET	1	
35		F6180-1R40	MICA SHEET B	4	
36		F202KBG00XP	ANTENNA STIRRER (U)	1	
37		F2264-1R40	STIRRER BRACKET	1	
38		F6181-1R40	MICA SHEET A	1	
41		F6585-1R40	INVERTER BRACKET	1	
42		F606YBA00HP	H.V.INVERTER (U)	1	HPE
42		F606YBA00QP	H.V.INVERTER (U)	1	YPQ, MPQ, TPE, TTE, FCE, YTE
43		F6662-1R40	GROUNDING PLATE	1	
44		F2034-1R40	INVERTER REINFORCEMENT BRACKET A	1	
46		F300BBG00XP	LEFT HINGE (U)	1	
47		F300U-1R40	RIGHT HINGE (U)	1	
48		F3093-1R40	HINGE D	1	
49		F3231BG00XP	DOOR KEY SPRING A	1	(THIN ONE)
50		F3230-1H50	DOOR KEY SPRING B	1	(THICK ONE)
51		F2237BG00XP	LEFT HEATER PANEL	1	
52		F2236-1R40	RIGHT HEATER PANEL	1	
53		F2278BG00XP	UPPER HEATER PANEL	1	
54		F2277-1R40	LOWER HEATER PANEL	1	
55		F4026-1R40	AIR GUIDE B	1	
56		F6244BG00XP	LOWER COOLING PLATE	1	
57		F6679-1R40	HEATER COVER A	1	
58		F6680-1R40	HEATER COVER B	1	
59		F6515-1R40	MICA SHEET	2	

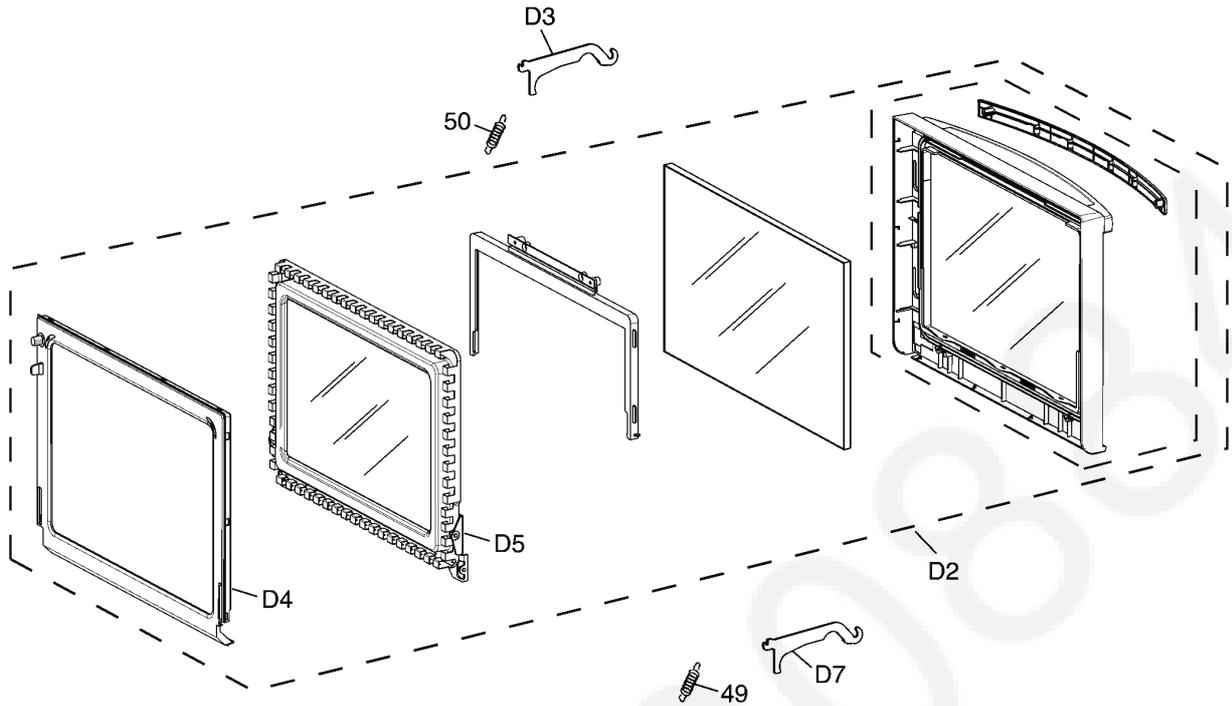
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
60	F00066W1OMP	CAUTION LABEL	1	YPQ
60	F00068H00YT	CAUTION LABEL	1	YTE
61	F1140BG00XP	STOPPER	2	
62	XTWFL4+12T	SCREW	4	FOR MAGNETRON
63	XTT4+8RDN	SCREW	5	FOR CABINET BODY
65	F0284BG40YP	NO. LABEL	1	YPQ
66	F00069K90HP	CAUTION LABEL	1	HPE
67	F01509K90HP	NO TOUCHING LABEL	1	
68	F1221-1R40	CUSHION RUBBER	1	FOR CABINET BODY
70	F0334BG40HP	MENU LABEL	1	HPE, YPQ, MPQ, TPE, YTE
70	F0334BG40TT	MENU LABEL	1	TTE
70	F0334BG40FC	MENU LABEL	1	FCE
71	F0157BG40BHP	NAME PLATE	1	HPE
71	F0157BG40BYP	NAME PLATE	1	YPQ
71	F0157BG40BMP	NAME PLATE	1	MPQ
71	F0157BG40BTP	NAME PLATE	1	TPE
71	F0007BG40BTT	NAME PLATE	1	TTE
71	F0157BG40BFC	NAME PLATE	1	FCE
71	F0157BG40BYT	NAME PLATE	1	YTE
E10	⚠ F62309W40HP	FUSE	1	10A

8.3. ESCUTCHEON BASE ASSEMBLY



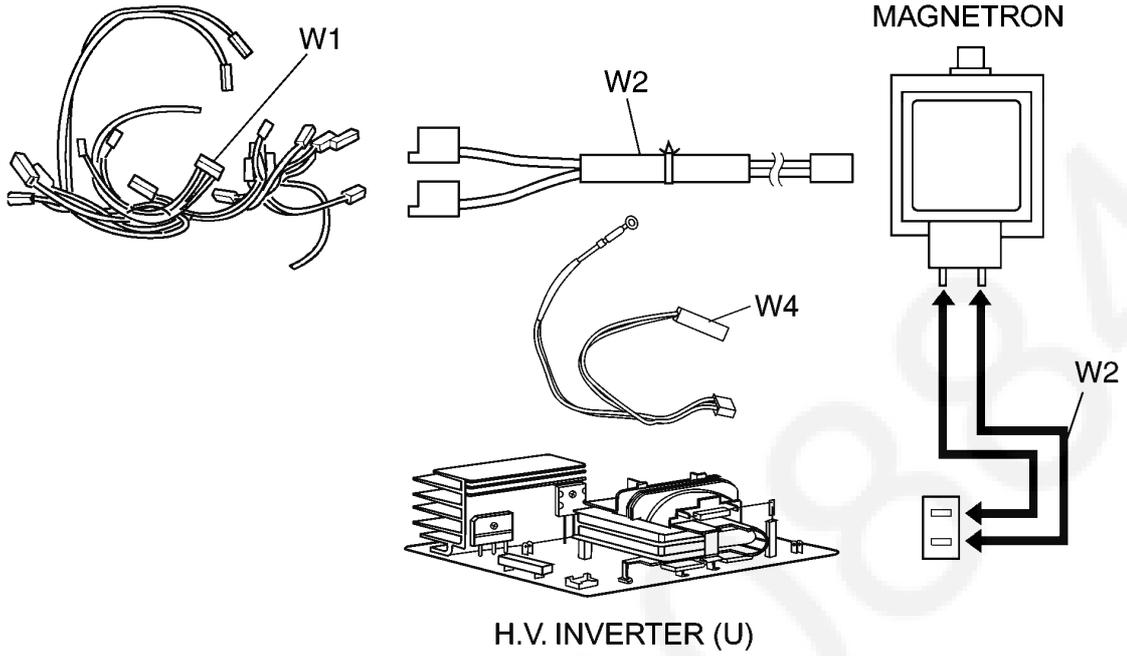
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
E1	F603LBG40HP	D.P.CIRCUIT (AU)	1	HPE,TPE
E1	F603LBG40YP	D.P.CIRCUIT (AU)	1	YPQ
E1	F603LBG40MP	D.P.CIRCUIT (AU)	1	MPQ
E1	F603LBG40TT	D.P.CIRCUIT (AU)	1	TTE,YTE
E1	F603LBG40FC	D.P.CIRCUIT (AU)	1	FCE
E2	F603YBG40HP	D.P.CIRCUIT (DU)	1	
E4	F630YBG40KHP	MEMBRANE SWITCH (U)	1	HPE,YPQ,MPQ,TPE,TTE,YTE
E4	F630YBG40KFC	MEMBRANE SWITCH (U)	1	FCE
E5	F8034BG30BEP	ESCUTCHEON BASE A	1	
E6	F8039BG30SEP	DIAL	1	
E7	F6613BG00XP	BACKSTOP	1	
E8	F8127BG00XP	BACK PANEL	1	
E9	F66167D00AP	FLAT CABLE	1	
E10	△ F62309W40HP	FUSE	1	10A

8.4. DOOR ASSEMBLY



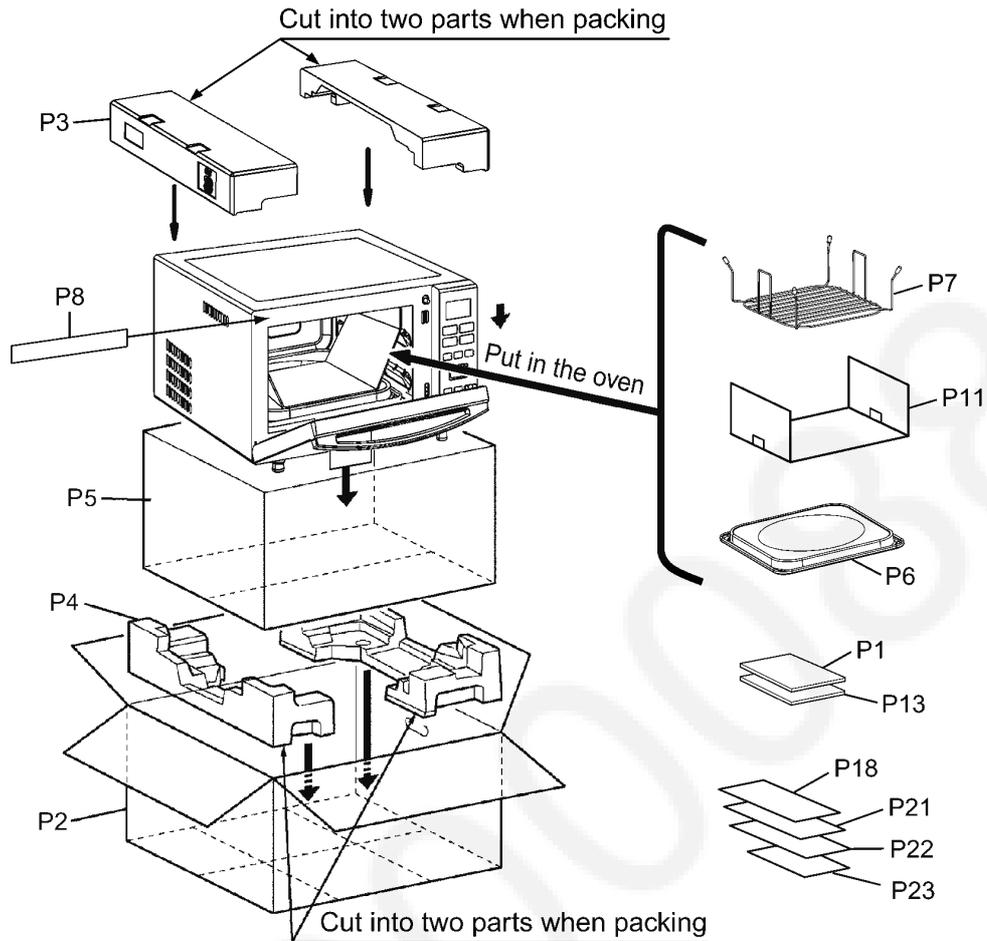
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
D2	⚠	F302ABG30BEP	DOOR A (U)	1	
D3		F3044-1R40	DOOR ARM (RIGHT)	1	
D4	⚠	F3085BG00XP	DOOR C	1	
D5	⚠	J301PBG00XP	DOOR E (U)	1	
D7		F3044-1R40	DOOR ARM (LEFT)	1	
49		F3231BG00XP	DOOR KEY SPRING A	1	(THIN ONE)
50		F3230-1H50	DOOR KEY SPRING B	1	(THICK ONE)

8.5. WIRING MATERIALS



Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
W1	F030ABG00XP	LEAD WIRE HARNESS	1	(INCLUDING OVEN THERMISTOR)
W2	F030E-1R40	H.V.LEAD WIRE	1	
W4	F0353BG00XP	LEAD WIRE HARNESS U	1	(INCLUDING MAGNETRON THERMISTOR)

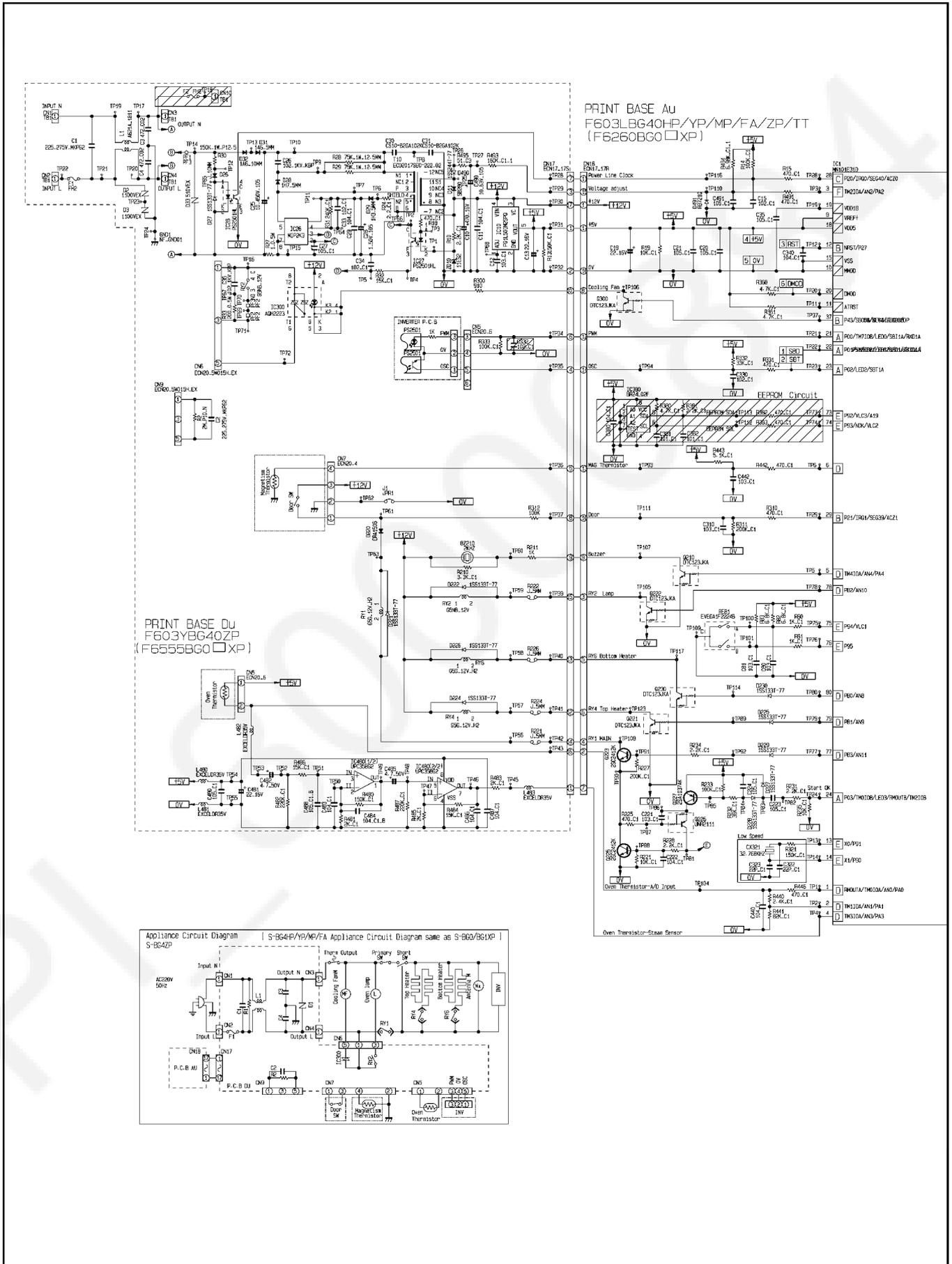
8.6. PACKING AND ACCESSORIES

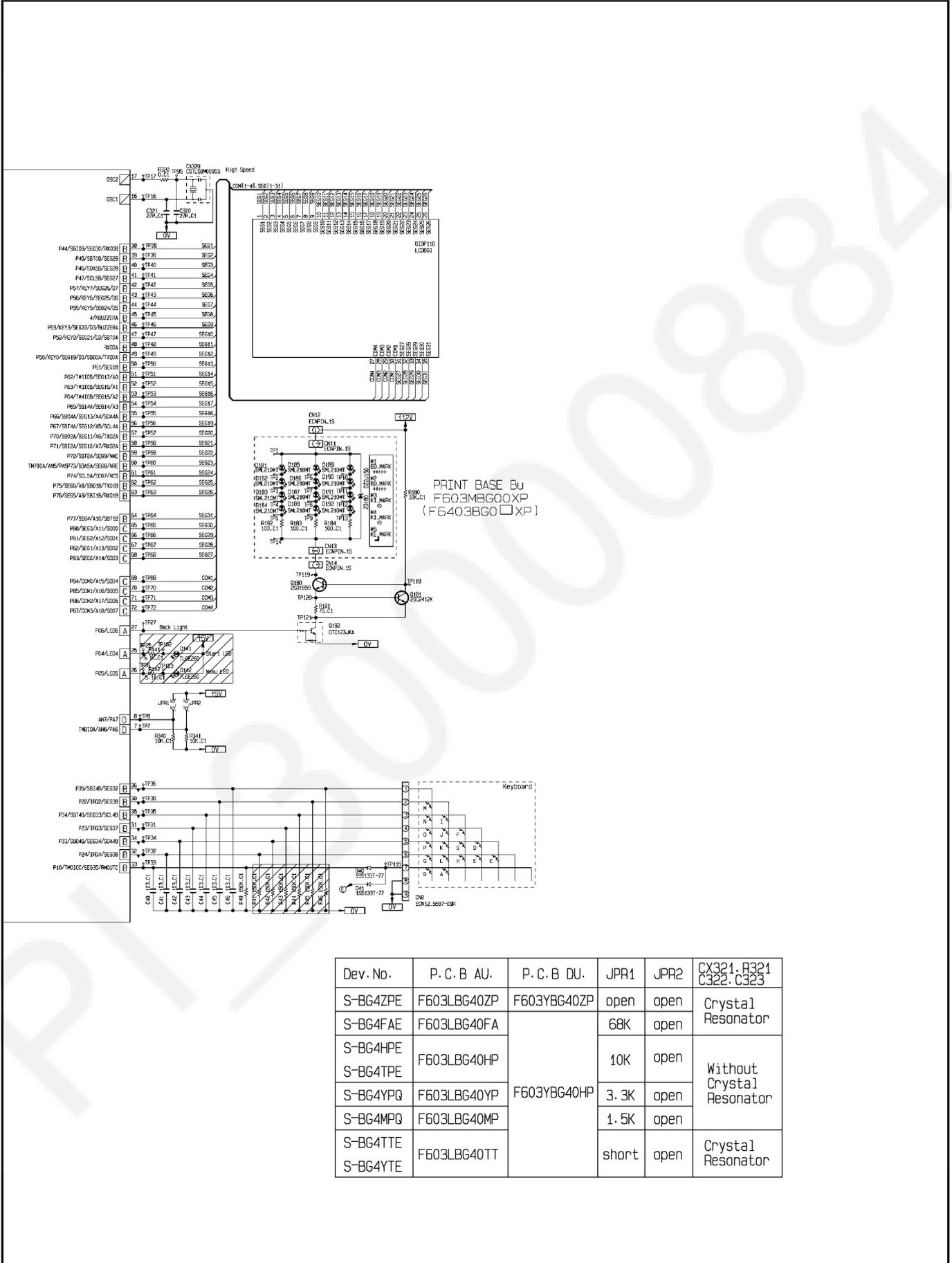


Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
P1	F0003BG40HP	INSTRUCTION MANUAL	1	HPE, YPQ, MPQ, TPE, YTE
P1	F0003BG40TT	INSTRUCTION MANUAL	1	TTE
P1	F0003BG40FC	INSTRUCTION MANUAL	1	FCE
P2	F0102BG40BHP	PACKING CASE, PAPER	1	HPE, YPQ, MPQ, TTE, YTE
P2	F0102BG40BTP	PACKING CASE, PAPER	1	TPE
P2	F0102BG40BFC	PACKING CASE, PAPER	1	FCE
P3	F0104-1R40	UPPER FILLER	1	
P4	F0105-1R40	LOWER FILLER	1	
P5	F01067C50AP	P.E BAG	1	
P6	F0603BG00XP	ENAMEL SHELF	1	
P7	F060VBG00XP	OVEN RACK	1	
P8	F0180-1P00	SHEET	1	
P11	F0108BG00XP	RACK PACKING	1	
P13	F000BBG40HP	COOK BOOK	1	EXCEPT FCE
P18	F0445BG40BMP	OVERLAY	1	YPQ, MPQ
P18	F0445BG40BTP	OVERLAY	1	TPE
P21	F0016BG40HP	PRECAUTION	1	HPE, YPQ, MPQ, TPE, TTE, YTE
P21	F0016BG40FC	PRECAUTION	1	FCE
P22	F0156BG40HP	PRECAUTION	1	HPE
P23	F0156BG40MP	PRECAUTION	1	HPE, YPQ, MPQ, TPE, TTE, YTE

9 DIGITAL PROGRAMMER CIRCUIT

9.1. SCHEMATIC DIAGRAM





Dev. No.	P. C. B AU.	P. C. B DU.	JPR1	JPR2	CX321, R321 C322, C323
S-BG4ZPE	F603LBG40ZP	F603YBG40ZP	open	open	Crystal Resonator
S-BG4FAE	F603LBG40FA		68K	open	
S-BG4HPE	F603LBG40HP	F603YBG40HP	10K	open	Without Crystal Resonator
S-BG4TPE					
S-BG4YPQ	F603LBG40YP		3.3K	open	
S-BG4MPQ	F603LBG40MP		1.5K	open	
S-BG4TTE	F603LBG40TT		short	open	Crystal Resonator
S-BG4YTE					

9.2. PARTS LIST

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
BZ210	L0DDEA000014	BUZZER	1	2.0KHz
DISP110	L5AYAYY00212	LCD	1	
	F6617BG00XP	DISPLAY HOLDER	1	
	F6752BG00XP	DIFFUSION SHEET	1	
CX320	H2A8004A0038	CRYSTAL RESONATOR	1	8.0MHz
D33	D4EAY5110002	VARISTOR	1	510V
D2,D3	D4EAY112A036	VARISTOR	2	1100V
IC1	MNBG4F31AAM	L.S.I.	1	
IC26	MIP2K30MSSCF	IC	1	
IC27,IC28	B3PAA0000302	IC	2	
IC300	B3PAC0000060	IC(SSR)	1	
RY1,RY4,RY6	K6B1AYY00129	POWER RELAY	3	
RY2	K6B1AYY00069	POWER RELAY	1	
T10	G4DYA0000310	LOW VOLTAGE TRANSFORMER	1	
RE81	EVEJ1HF2224M	REVOLVING ENCODER	1	