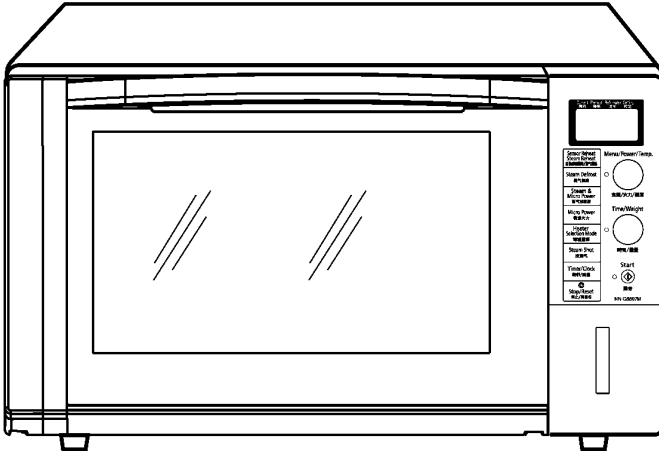


Service Manual

Microwave Oven



NN-GS597M

HPE(Hong Kong)

YPQ(Singapore)

MPQ(Malaysia)

TPE(Thailand, Indonesia)

YTE(Others)

KTE(UAE)

PTE(Iran)

KPQ(Kuwait, Doha, Qatar, Oman, Bahrein, Pakistan)

ZPE(CIS Countries)


Specification

Models		NN-GS597M
Power Source:		240V AC Single Phase, 50HzFor MPQ, YPQ, KPQ Models 220V AC Single Phase, 50HzFor KTE, ZPE, HPE, TPE, YTE, PTE Models
Power Requirement:	Microwave	950W
	Upper Heater	1000W
	Low Heater	600W
Output:	Microwave	1000W
	Upper Heater	1000W
	Low Heater	600W
Microwave Frequency:		2450MHz
Timer:		90 Min. 00 Sec.
Outside Dimensions:		520mm(W) x 455mm(D) x 320mm(H)
Oven Cavity Dimensions:		354mm(W) x 341mm(D) x 205mm(H)
Weight:		14.5kg
PbF		This product with PbF
Specifications subject to change without notice.		

⚠ WARNING

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

⚠ WARNING

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

This service manual covers products for following markets.

When troubleshooting or replacing parts, please refer to the country/area identifications shown below for your applicable product specification.

- HPE For Hongkong
- YPQ For Singapore
- MPQ For Malaysia
- TPE For Thailand & Indonesia
- YTE For Others
- KTE For UAE
- PTE For Iran
- KPQ For Kuwait, Doha, Qatar, Oman, Bahrein, Pakistan
- ZPE For CIS Countries

⚠ 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)

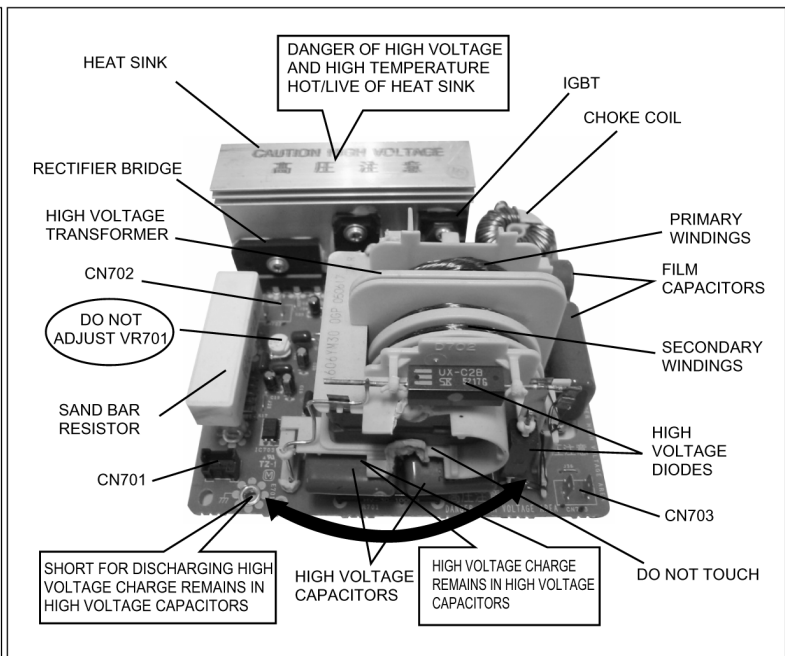
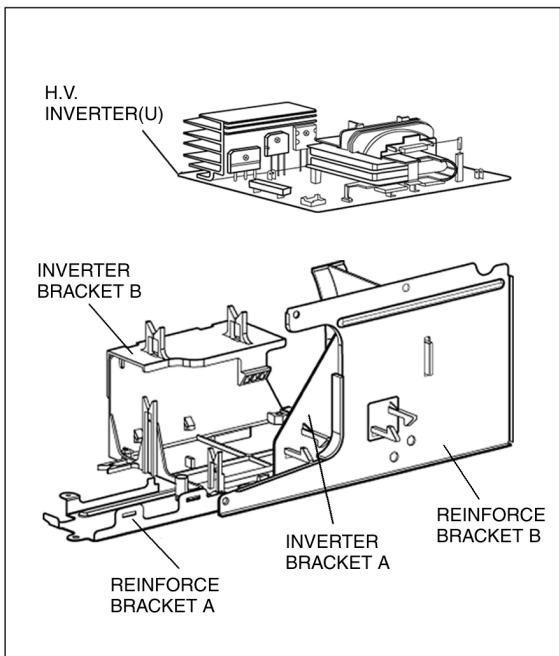
⚠ INVERTER WARNING

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



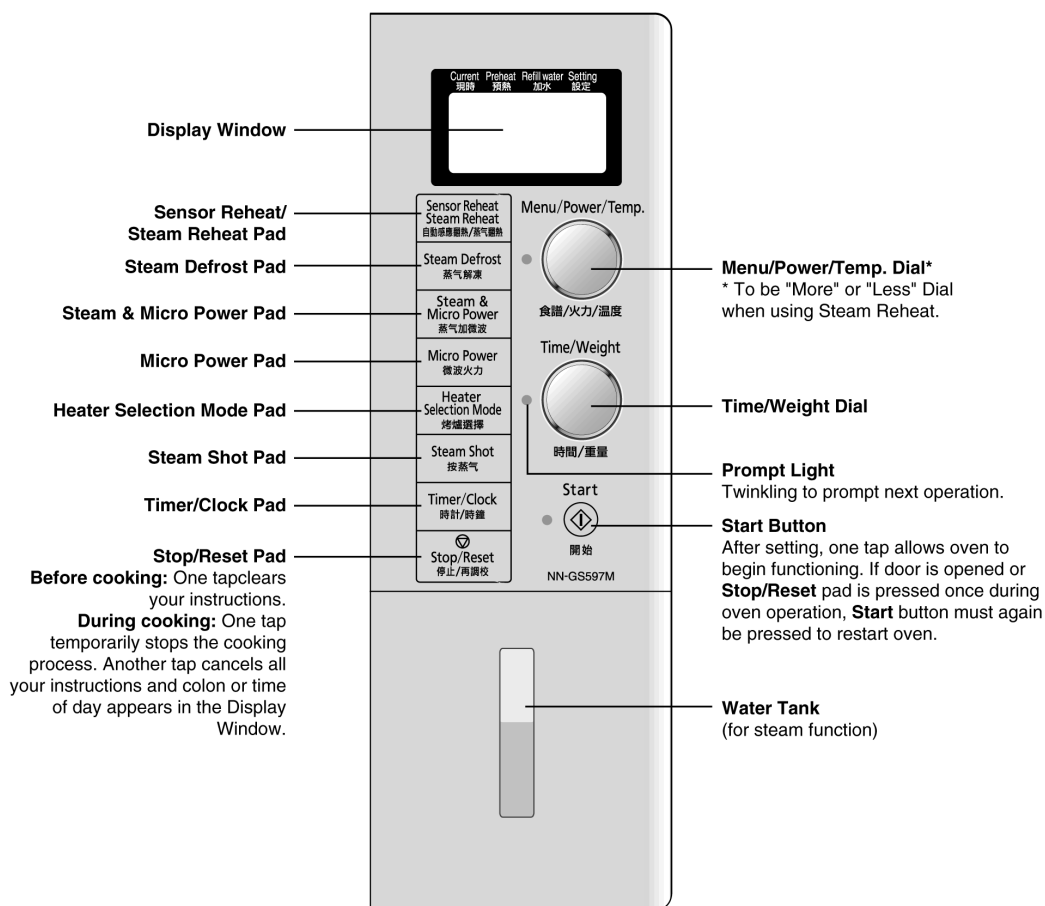
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1 FEATURE CHART

FEATURE	MODEL	GS597M
3 Stage Cooking		○
Microwave		○
Combination		○
Grill		○
Oven		○
Steam & Microwave		○
Steam Defrost		○
Steam Shot		○
Sensor Reheat		○
Steam Reheat		○
Auto Cook		○
Auto Cleaning		○
Prompt Next Operation		○
Timer		○
Clock		○
Child Safety Lock		○
Language Choice		○

2 CONTROL PANEL



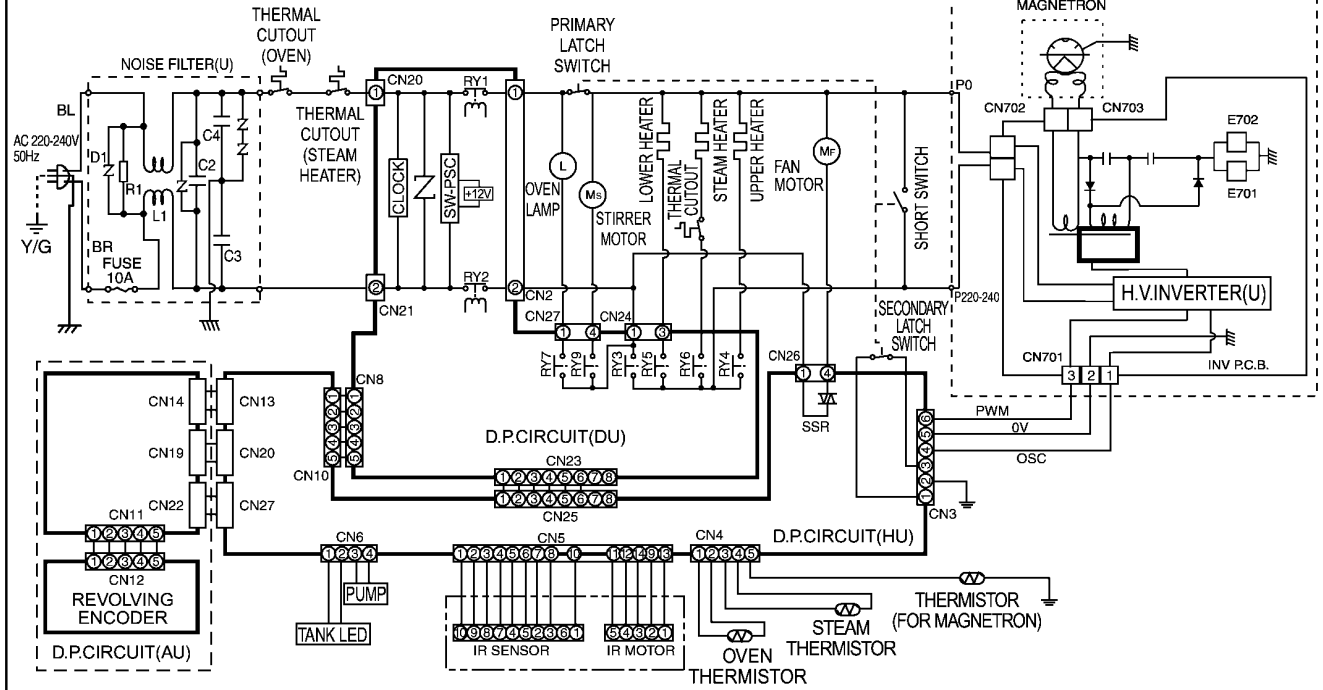
Beep Sound:
When a pad is pressed correctly, a beep sound will be heard. If a pad is pressed and no beep is heard, the unit did not or could not accept the instruction. The oven will beep twice between programmed stages. At the end of any completed program, the oven will beep 5 times.

Note:
If no operation after cooking program setting, 6 minutes later, the oven will automatically cancel the cooking program. The display will return to clock or colon display.

3 SCHEMATIC DIAGRAM

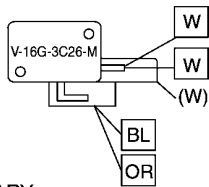
NOTE: Door is closed.
Unit is not operating.
⊥ Ground
▨ Chassis

CAUTION:
HIGH VOLTAGE AREA

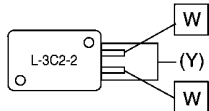


WIRING DIAGRAM

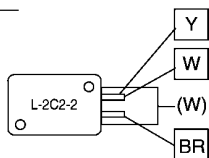
NOTE: * When replacing, check the lead wire color as shown.
*Colors shown by () indicate colors of lead wire connector housing.



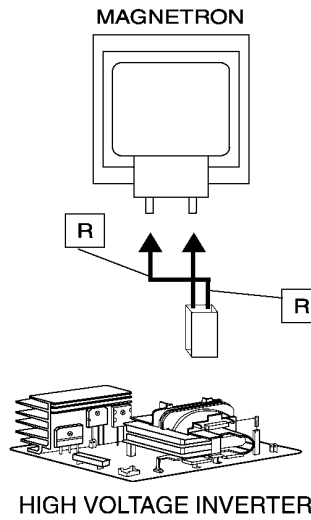
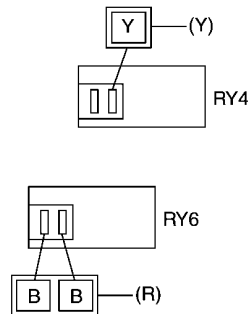
PRIMARY LATCH SWITCH TOP



SECONDARY LATCH SWITCH MIDDLE



SHORT SWITCH BOTTOM



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
G	GREEN
N	NATURAL

(S-8S8)

4 DESCRIPTION OF OPERATING SEQUENCE

4.1. Variable power cooking control

High Voltage Inverter Power Supply (U) controls output power by the signal from Digital Programmer Circuit (DPC). Power relay RY3 always stays 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	70%	22	0
MEDIUM	55%	22	0
MEDIUM-LOW	40%	22	0
LOW	20%	13	9
DEFROST	30%	17	5

4.2. Inverter power supply circuit

The Inverter Power Supply circuit powered from the line voltage, 220V 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.

4.3. Steam defrost, Auto cook & Steam reheat

When the Auto Control feature is selected and the [Start] button is tapped:

1. The digital programmer circuit determines the power level and cooking time to complete cooking and indicates the operating state in the display window. Table shows the corresponding cooking times for respective serving by categories.

Steam Defrost

SELECTED WEIGHT	COOKING TIME
1.0 kg	15 min.20 sec.

Auto Cook (Roast Chicken)

SELECTED WEIGHT	COOKING TIME
600 g	24 min.00 sec.

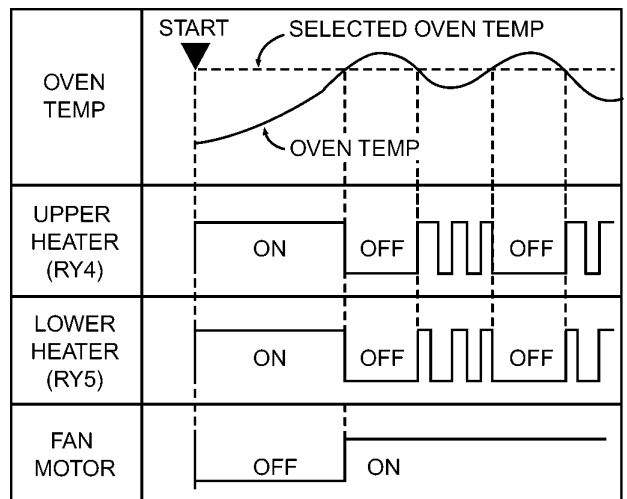
2. When cooking time in the display window has elapsed, the oven turns off automatically by a control signal from the digital programmer circuit.

4.4. Oven

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 and pressing [Start] button, a high level signal comes out microcomputer and applies to power relays, RY4 and RY5.
2. When RY4 & RY5 switch to ON, power source voltage is applied to the upper and lower heaters, 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 and lower heaters 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 power relays again.



4.5. Combination cook control

Combination cooking is accomplished by microwave and grill cooking (upper heater) 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's ON-OFF time. In all three combination cooking categories, power relay RY3 always stay on, but RY4's ON-OFF time as shown in Figure.

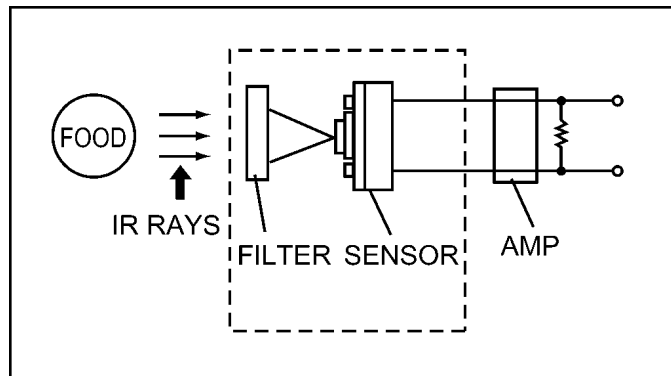
COMBINATION CATEGORY	GRILL(RY4)		MICROWAVE (sec.)
	ON (sec.)	OFF (sec.)	
1	33	0	26 ON / 7 OFF
2	24	9	26 ON / 7 OFF
3	18	15	26 ON / 7 OFF

4.6. IR reheat

The temperature of food being heated is detected by an infrared (IR) sensor and you do not have to set time.

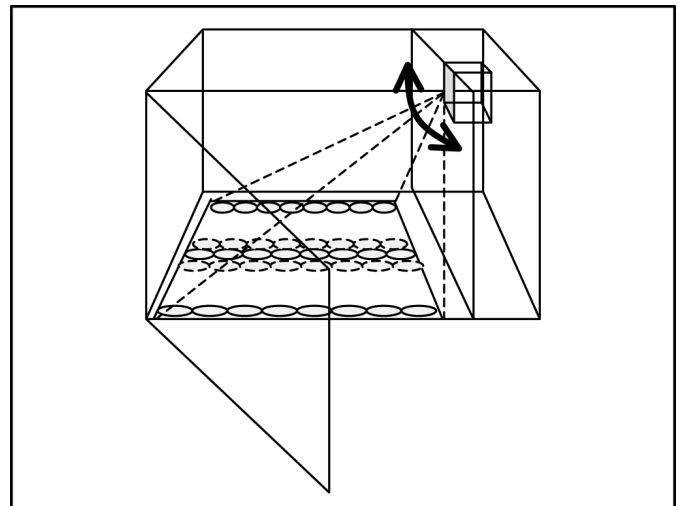
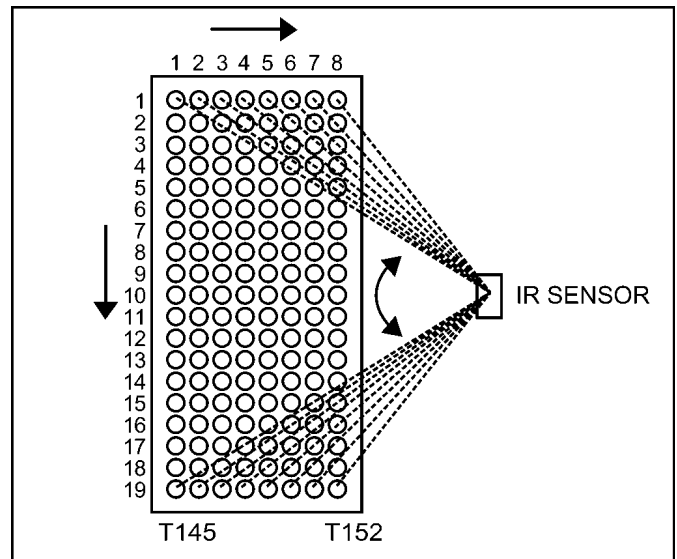
4.6.1. How to read temperature by IR sensor

IR sensor can read food temperature without touching, IR rays are emitted from food. IR sensor is to generate temperature related electric signal output and microcomputer is to convert actual temperature.



4.6.2. Operation

IR sensor is mounted on top right of oven cavity through the hole. It scans all over cooking shelf. IR sensor has 8 eyes and can read oven shelf left to right at the time. Then IR sensor is designed to scan front to back to cover all over shelf. (19 points)



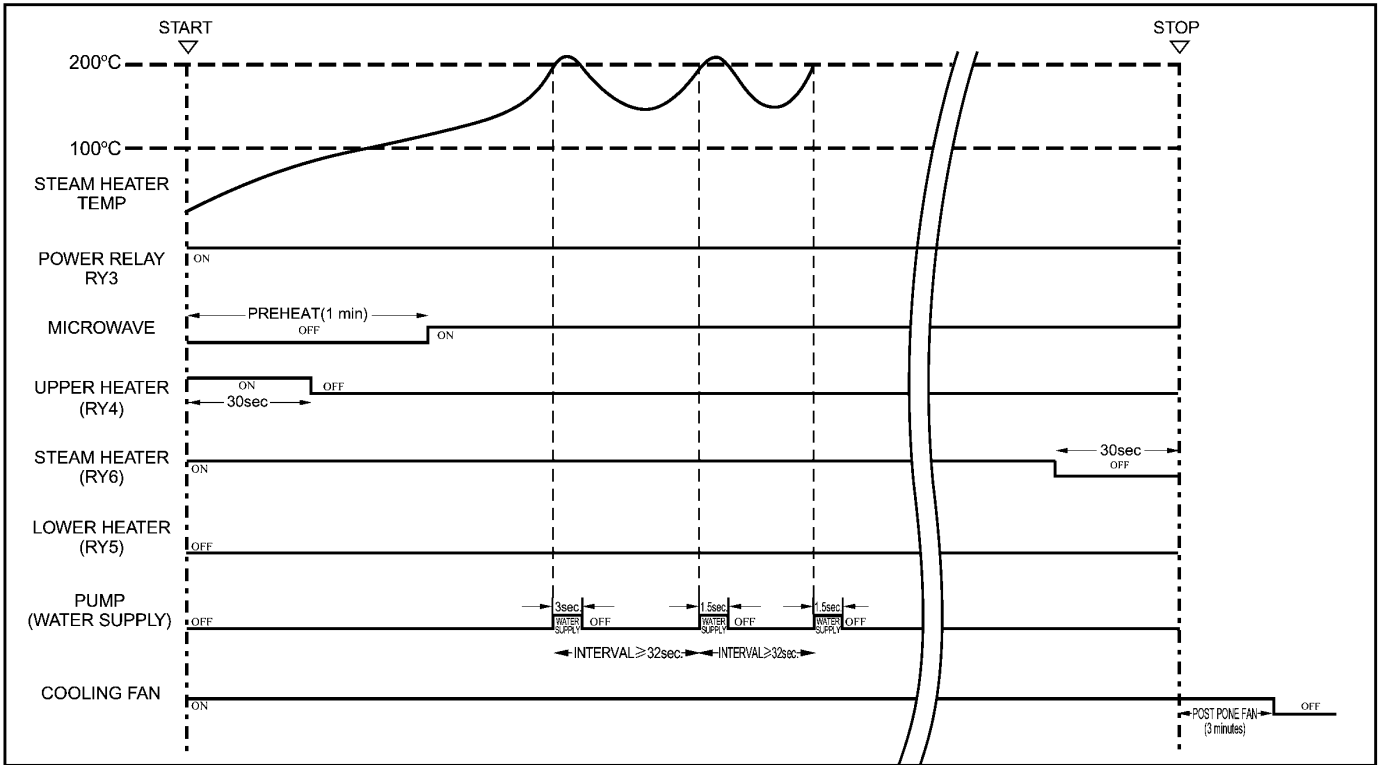
4.7. Steam function (Steam & Micro Power)

4.7.1. Water Supply

Water will be pumped out into the evaporation tray and the heater located underneath will generate the steam in the cavity.

4.7.2. Operation

When pressing [start] button, oven preheat will start and then water supply begins. It will take 1 minute for preheating. When preheat is completed, it will turn into actual cooking process. During heating, the temperature sensor (Thermistor) located on steam heater will monitor steam heater temperature and when it exceeds 200°C, the additional water will be supplied to maintain moisture/steam within oven cavity.



5 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 and rings whenever working close to or replacing the magnetron.

5.1. 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.

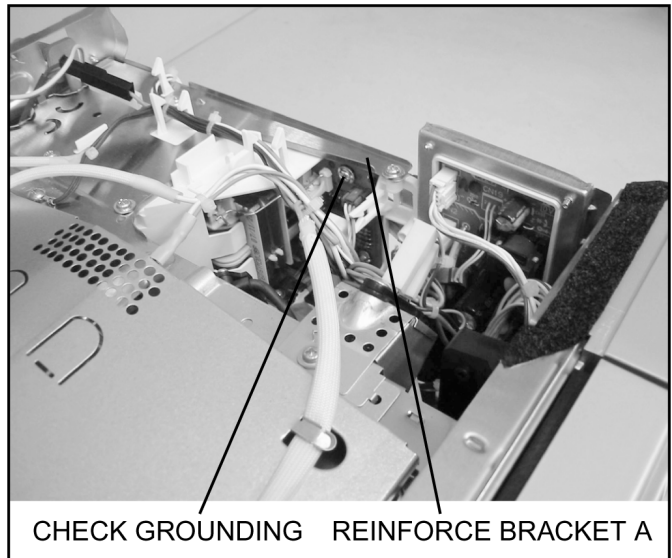
5.2. Inverter warnings

⚠ WARNING HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER 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.

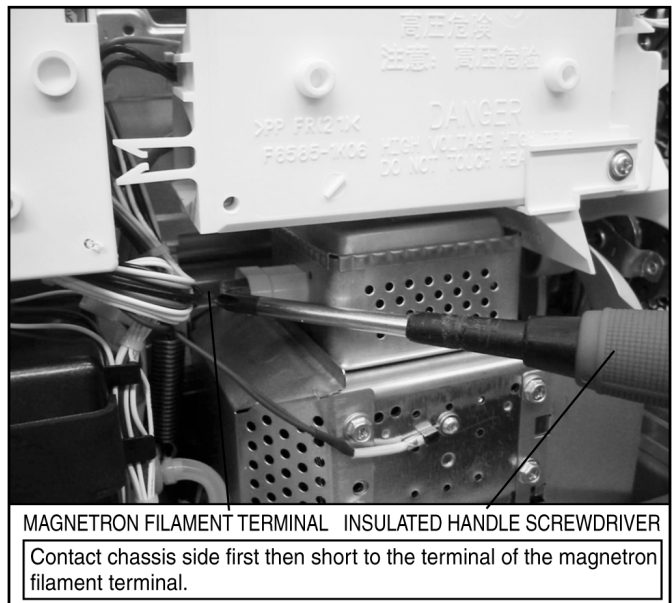


Grounding of the inverter circuit board

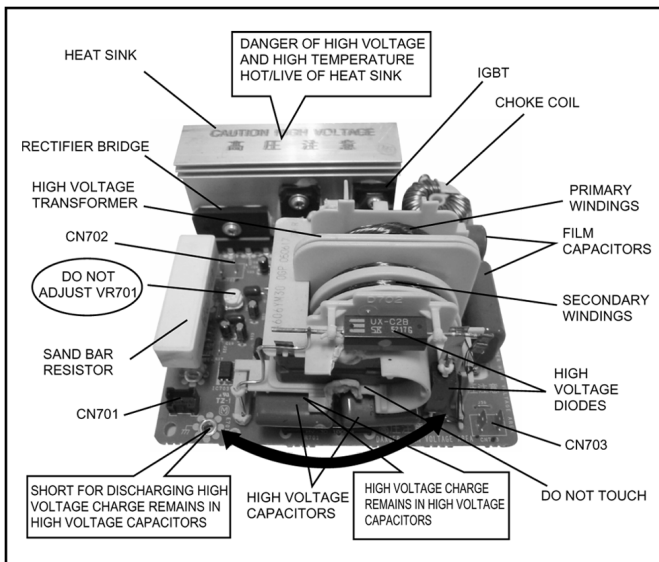
⚠ WARNING DISCHARGE THE HIGH VOLTAGE CAPACITORS

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 terminals.



MAGNETRON FILAMENT TERMINAL INSULATED HANDLE SCREWDRIVER
Contact chassis side first then short to the terminal of the magnetron filament 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 bracket 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 bracket.

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.

5.3. Confirm before repair

⚠ CAUTION

To prevent the water from invading the electric parts that can cause a short circuit or electric shock:

1. Before repair or replacement of parts, ensure to remove the water tank from microwave oven.
2. After removing the water tank, select the "drainage" function to drain the water remaining in the water pipes and tubes into oven cavity forcibly. (Operating method: keep pressing [Steam Defrost] pad for more than 2 seconds). Then wipe up the oven cavity.
3. In case the Microwave Oven has no power, the technician should have a dry cloth available in advance before disassembly. When pulling out the water tube, elevate the front of the Microwave Oven at least 1.5" to minimize the amount of water that leaks out. Wipe up excess water thoroughly with the dry cloth.

⚠ WARNING

Before beginning repair work, make sure that there is no water in microwave oven, otherwise the water might invade the electric parts and that can cause a short circuit or electric shock.

5.4. Part replacement

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

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

⚠ WARNING

When the 10A 220V fuse is blown due to the malfunction of the interlock monitor switch, replace all of the components (primary latch switch, short switch and power relay (RY1, RY2 & RY3)).

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.
3. When replacing faulty switches, be sure the mounting tabs are not bent, broken or 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 holes or gaps, because such objects may work as an antenna and cause microwave leakage.

5.7. Verification after repair

⚠ CAUTION

After repair or replacement of parts, make sure that all the water pipes and tubes are properly connected, otherwise the water might invade the electric parts and will cause a short circuit or electric shock.

1. After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose or missing. Microwave might leak if screws are not properly tightened.
2. Make sure that all electrical connections are tight before inserting the plug into the wall outlet.
3. Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage).

CAUTION 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))

2. Pay special attention to these areas.

When the appliance is operated with the door hinges or magnetron installed incorrectly, the microwave leakage can exceed more than 5mW/cm². After repair or exchange, it is very important to check if the magnetron and the door hinges are correctly installed.

3. After repair or replacement of parts, make sure that all the water pipes and tubes are properly connected, otherwise the water might invade the electric parts and will cause short circuit even result in electric shock.

5.8. 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.

5.9. Hot surface

⚠ CAUTION

1. After using steam function, the oven cavity and steam heater area becomes very hot.
2. After using oven function, the oven cavity and bake heater area becomes very hot.

Therefore, extreme care should be taken during servicing.

6 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

⚠ CAUTION

To prevent the water from invading the electric parts that can cause a short circuit or electric shock:

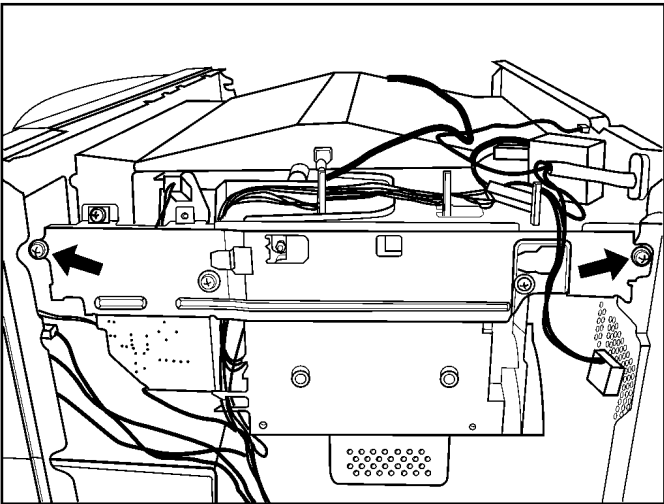
1. Before repair or replacement of parts, ensure to remove the water tank from microwave oven.
2. After removing the water tank, select the "drainage" function to drain the water remaining in the water pipes and tubes into oven cavity forcibly. (Operating method: keep pressing [Steam Defrost] pad for more than 2 seconds). Then wipe up the oven cavity.
3. In case the Microwave Oven has no power, the technician should have a dry cloth available in advance before disassembly. When pulling out the water tube, elevate the front of the Microwave Oven at least 1.5" to minimize the amount of water that leaks out. Wipe up excess water throughly with the dry cloth.

⚠ CAUTION

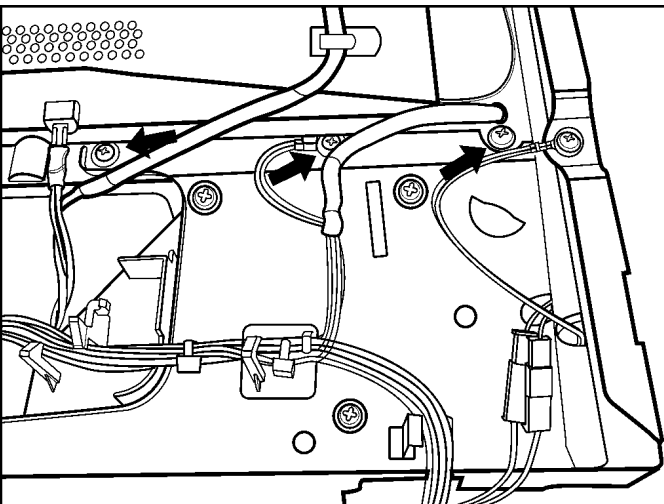
After repair or replacement of parts, make sure that all the water pipes and tubes are properly connected, otherwise the water might invade the electric parts and will cause a short circuit or electric shock.

6.1. Magnetron

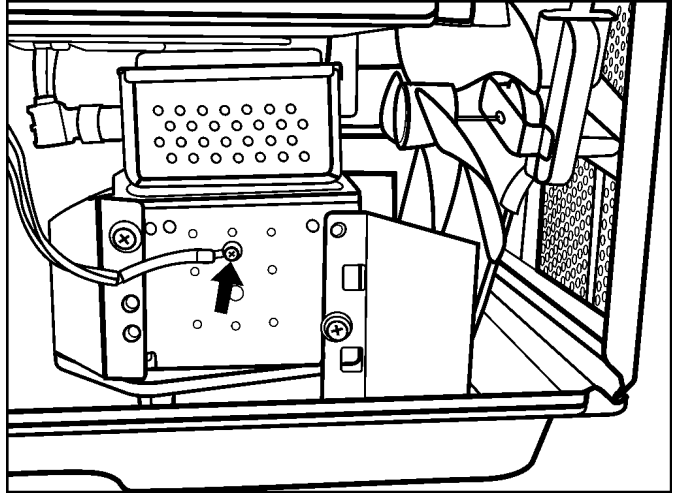
1. Discharge the high voltage capacitor.
2. Remove 2 screws holding reinforce bracket A on oven cavity.



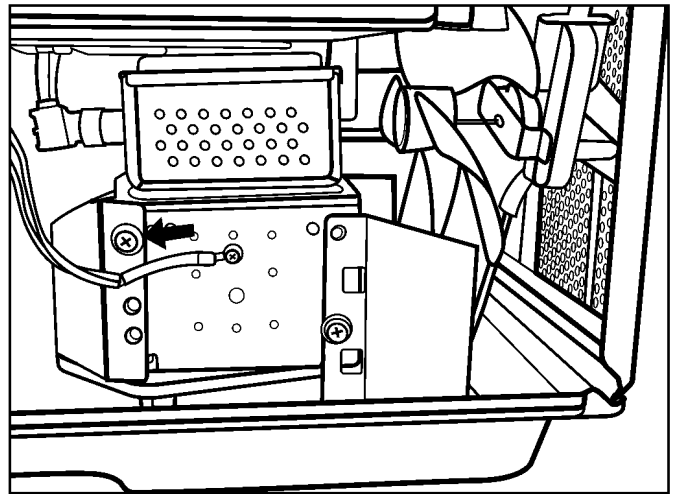
3. Remove 2 screws holding reinforce bracket B on oven cavity.



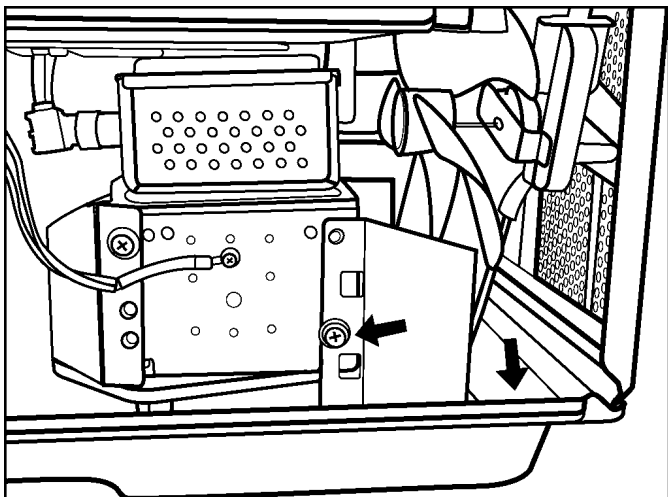
4. Remove 1 screw holding oven thermistor on cavity top plate.
5. Release lead wire harness from locking tabs on inverter bracket A.
6. Disconnect 2 high voltage lead wires from magnetron filament terminals.
7. Remove 1 screw holding thermistor on magnetron.



8. Remove 1 screw holding air guide A on magnetron, then remove air guide A.



- Remove 2 screws holding air guide B on magnetron & on base plate respectively, then remove air guide B.



- Disconnect 2 lead wires from fan motor terminals.
- Disconnect lead wires from noise filter (U) terminals.
- Release locking tabs of reinforce bracket A hanging on both sides of oven cavity, then withdraw the reinforce bracket A outside slightly.

NOTE:

Pay attention to the sharp edges of reinforce bracket A.

- Hold the reinforce bracket A, then remove 4 screws holding magnetron.

NOTE:

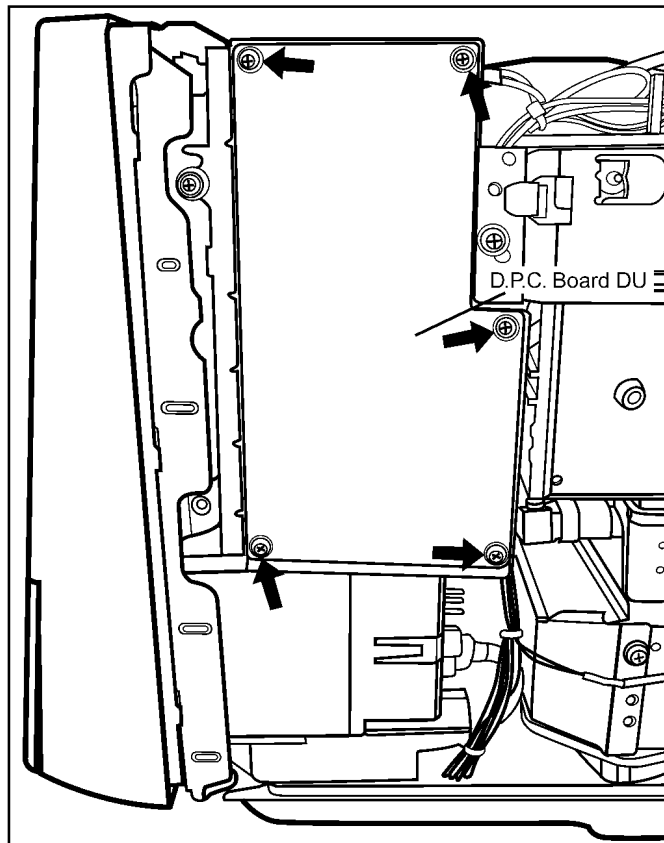
After replacement of the magnetron, tighten mounting screws properly in an x pattern, making sure there is no gap between the waveguide and the magnetron to prevent microwave leakage.

CAUTION

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

6.2. Digital programmer circuit (D.P.C.) DU and low voltage transformer

- Remove 5 screws holding board cover & D.P.C. board DU on the reinforce bracket A.
- Disconnect all connectors on D.P.C. board DU.
- Remove D.P.C. board DU.



- Using solder wick or a desoldering tool and 30W soldering iron carefully to 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.

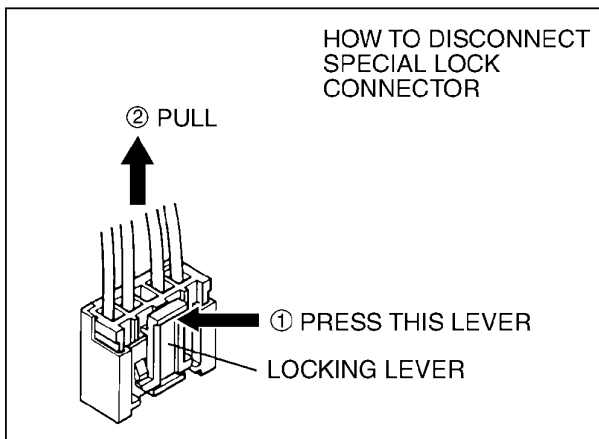
- With all the terminal pins cleaned and separated from D.P.C. contacts, remove the defective transformer/power relays. Replace components making sure all terminal pins are inserted completely, then resolder all terminal contacts carefully.

6.3. Digital programmer circuit (D.P.C) AU, (D.P.C.) HU, membrane key board and power relay

⚠ CAUTION

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

1. Remove water tank from escutcheon base.
2. Keep pressing [Steam Deforst] pad for more than 2 seconds to drain the water remaining in the water pipes and tubes into oven cavity.
3. Pull out tube A connecting to pump from copper pipe.
4. Remove 5 screws holding board cover & D.P.C. board DU on the reinforce bracket A.
5. Disconnect all connectors on D.P.C. board DU.
6. Remove D.P.C. board DU.
7. Disconnect all wiring connectors on D.P.C. board HU.



8. Remove 1 screw holding escutcheon base on cavity front plate.
9. Open the door of oven, slide the escutcheon base upward and out slightly.
10. Remove 2 flat cables connecting between D.P.C. board HU and AU from connectors CN13 & CN20 on D.P.C. board HU by pulling upward slightly.
11. Remove 2 screws holding D.P.C. board HU on escutcheon base, then remove D.P.C. board HU.
12. Remove 5 screws holding backstop on escutcheon base.
13. Remove 2 screws holding D.P.C. board AU (big one) on escutcheon base.
14. Release locking tabs holding D.P.C. board AU (big one) on escutcheon base then remove 5 screws holding D.P.C. board AU (small one) on backstop to remove D.P.C. board AU.
15. Disconnect 1 flat cable connected from the membrane keyboard to connector CN7 on the D.P.C. board AU.

To replace membrane key board

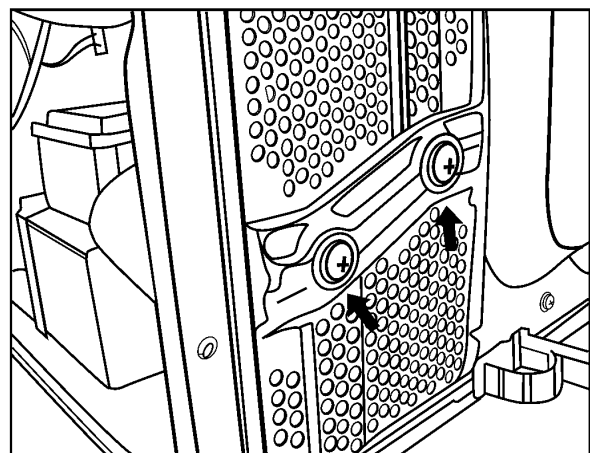
16. Use tools such as knife etc. to lift the edge of escutcheon sheet and peel off escutcheon sheet and membrane key board completely from escutcheon base.

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.

6.4. Fan motor

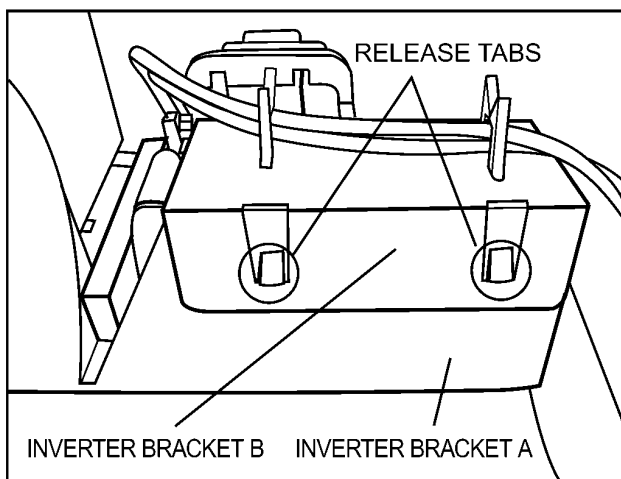
1. Disconnect 2 lead wires from fan motor terminals.
2. Remove 2 screws holding air guide B on magnetron & on base plate respectively, then remove air guide B.
3. Remove 2 screws holding fan motor and detach fan motor from oven assy.



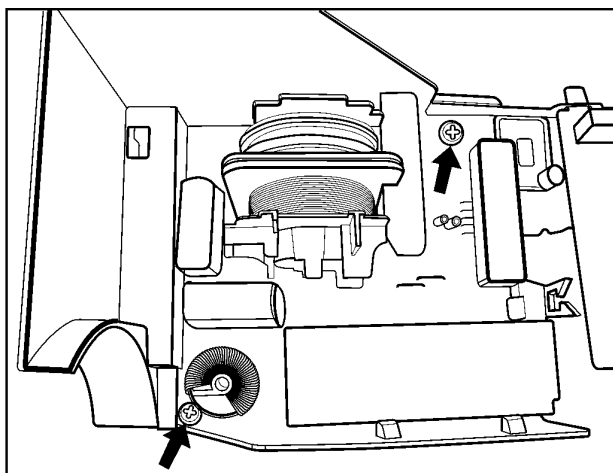
4. Remove fan blade from fan motor shaft by pulling it straight out.

6.5. H.V. Inverter

1. Discharge high voltage remaining in high voltage capacitor.
2. Remove 2 screws holding reinforce bracket A on oven cavity.
3. Remove 2 screws holding reinforce bracket B on cavity top plate.
4. Remove 1 screw holding oven thermistor on cavity top plate.
5. Release lead wire harness from locking tabs on Inverter bracket A.
6. Disconnect 2 lead wires from noise filter (U) terminals.
7. Disconnect 2 lead wires from fan motor terminals.
8. Disconnect 2 high voltage lead wires from magnetron filament terminals.
9. Unplug connector CN701 & CN702 from H.V. Inverter board.
10. Remove 1 screw holding air guide bracket on reinforce bracket B, then release locking tabs, detach air guide bracket.
11. Release locking tabs connecting Inverter bracket A with Inverter bracket B, detach bracket A & B.

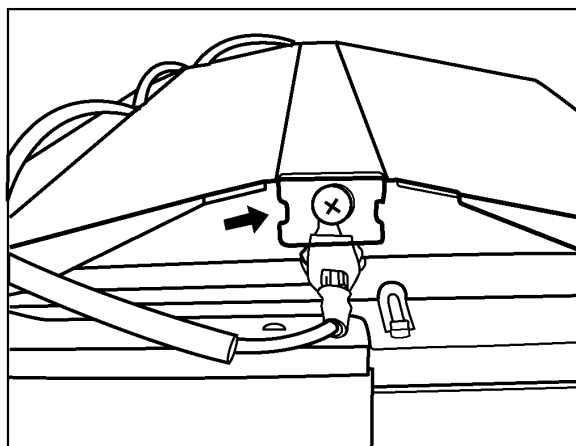


12. Remove 2 screws holding H.V. Inverter on Inverter bracket.

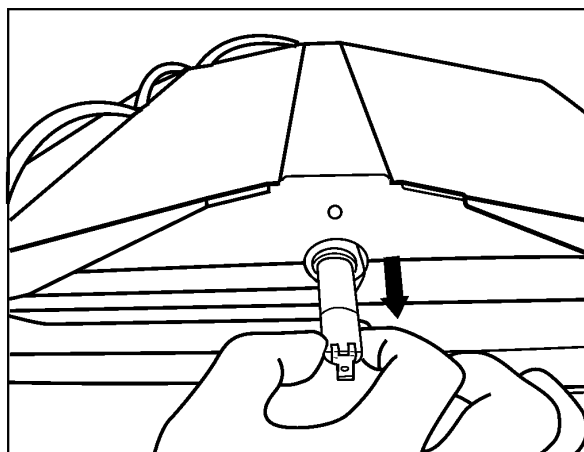


6.6. Upper heater

1. Disconnect lead wires from both sides of upper heater terminals.
2. Remove 1 screw holding heater support from the left side of microwave oven.

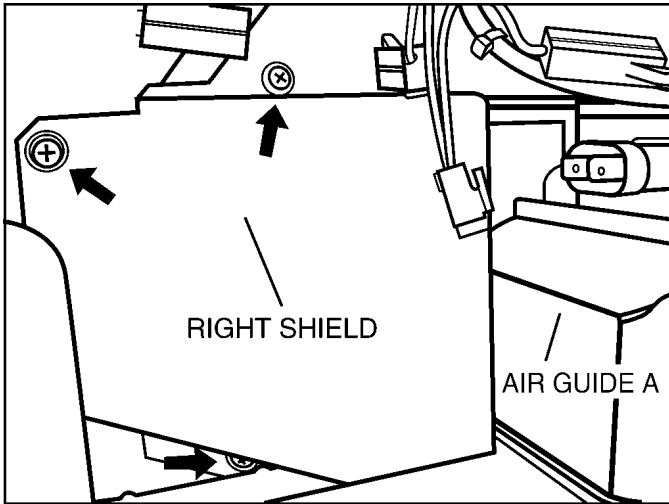


3. Remove the upper heater by pulling it out.



6.7. Door assembly

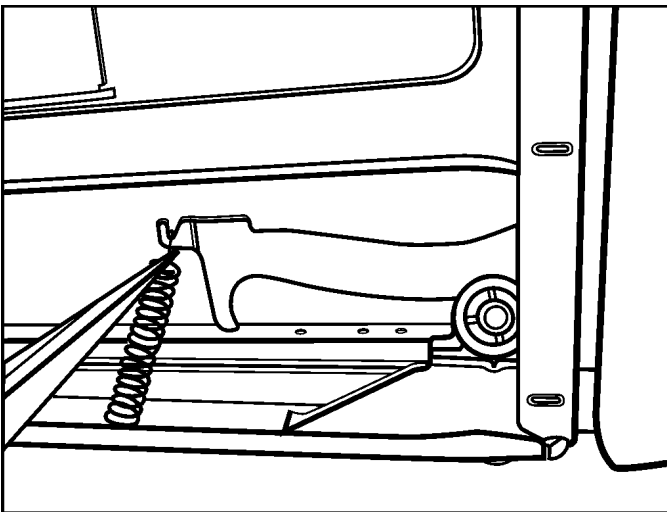
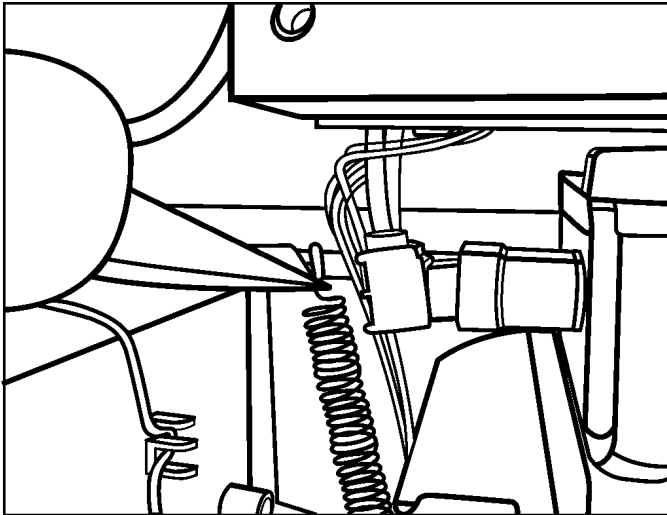
1. Remove 3 screws holding right shield on the oven cavity.



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

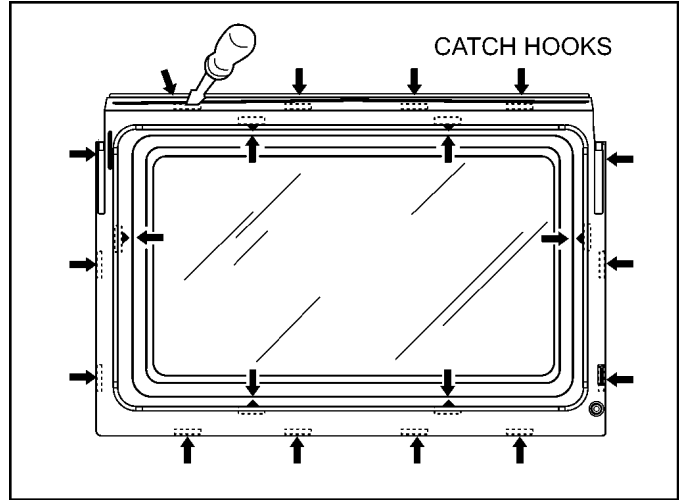
NOTE:

Support door before removing door springs.



To remove door C and door A (U)

- 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.

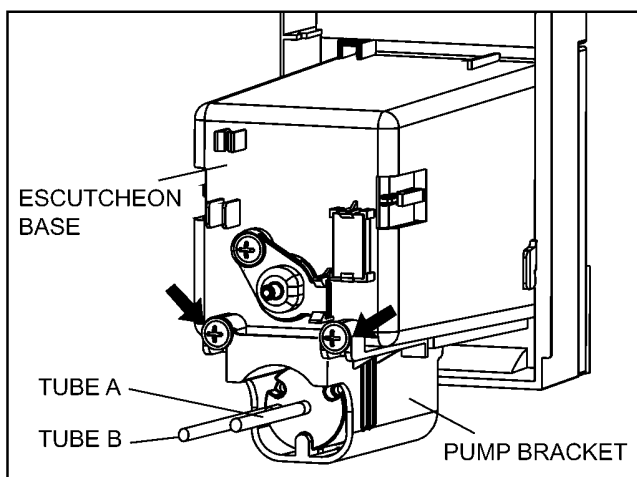
NOTE:

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 22).

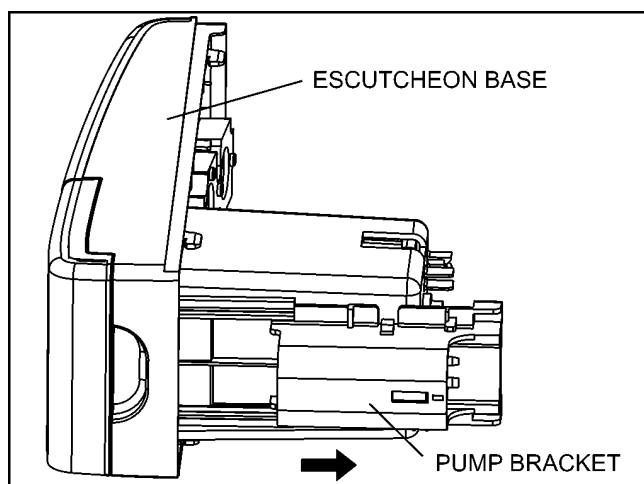
3. When mounting the door to the oven, be sure to adjust the door parallel to the cavity front plate by moving hinges back or forward.
4. Adjust so that the upper portion of the door will touch firmly to the oven cavity front plate, without pushing the door.
If the door assembly is not mounted properly, 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 $0.6\pm 0.3\text{mm}$.

6.8. Pump

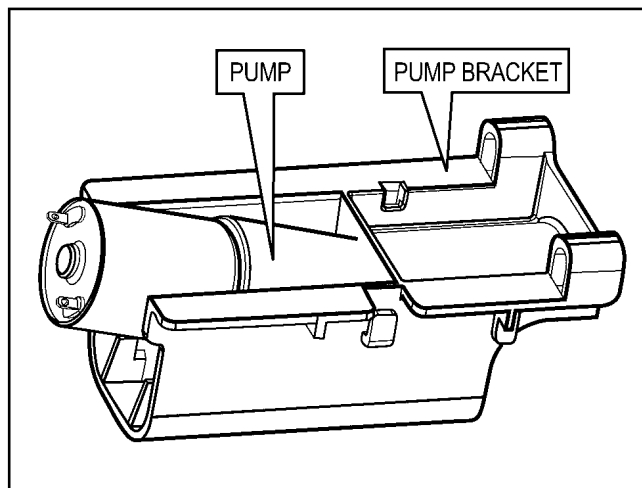
1. Remove water tank from escutcheon base.
2. Keep pressing [Steam Deforst] pad for more than 2 seconds to drain the water remaining in the water pipes and tubes into oven cavity.
3. Pull out tube A connecting to pump from copper pipe.
4. Disconnect all wiring connectors from D.P.C board AU.
5. Remove 1 grounding screw holding on cavity front plate.
6. Open the door of oven, slide the escutcheon base upward and out slightly.
7. Pull out tube B from inlet of pump.
8. Remove 2 screws holding pump bracket on escutcheon base.



9. Slide out pump bracket from bottom rail of escutcheon base.



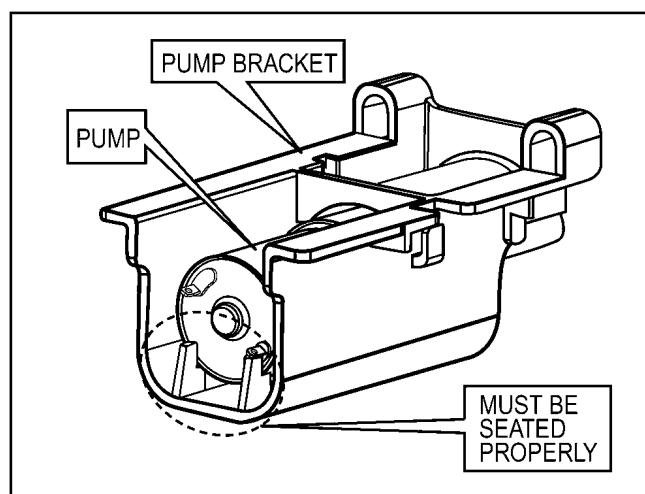
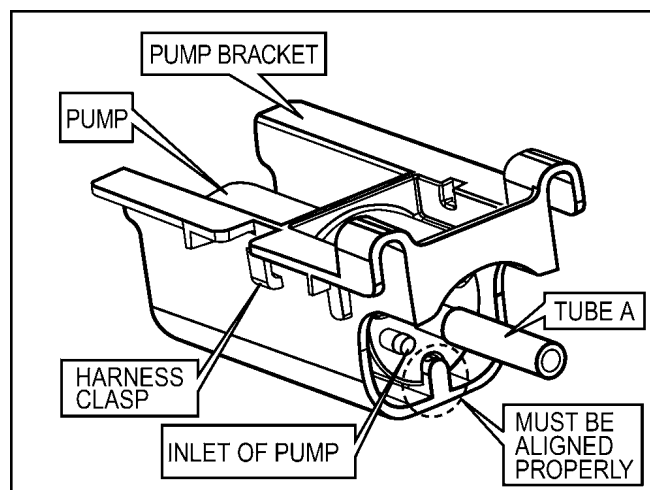
10. Slightly uplift the pump over the locking tabs on the pump bracket, then slide the pump out.



11. Pull out tube A from outlet of pump.

To install pump

1. Insert pump into pump bracket (Inlet of pump must be aligned toward the harness clasp of pump bracket).
2. After installation confirm that the pump is properly aligned.

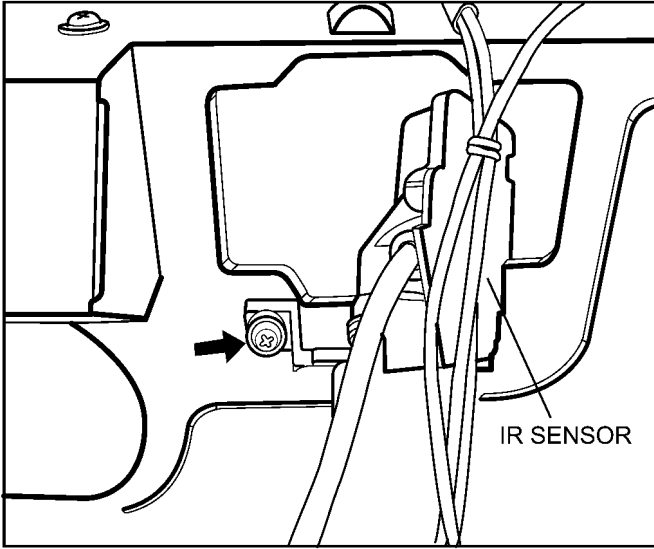


⚠ NOTE:

To prevent tube A from slipping out after repairing, make sure that when inserting tube A into copper pipe, the inserted depth is not less than 9mm.

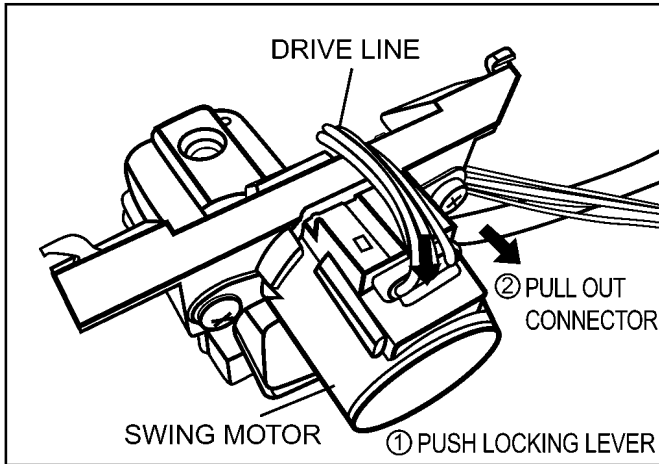
6.9. IR sensor

1. Disconnect connector CN5 from D.P.C. board HU.
2. Remove 1 screw holding IR sensor (U) on right heater panel.



To replace swing motor of IR sensor

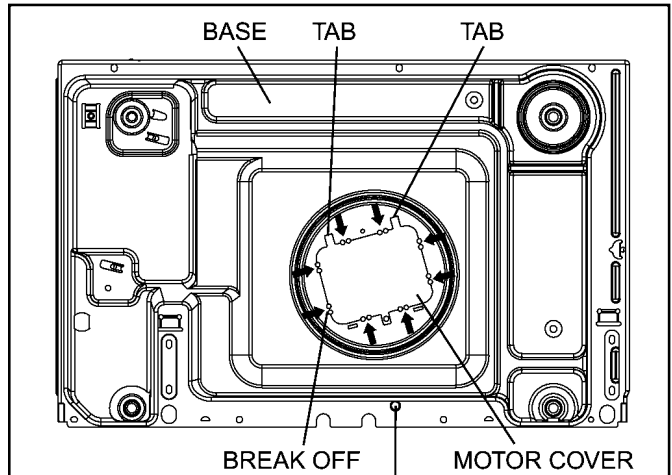
1. Release the locking lever of connector on swing motor, then remove drive line.



2. Remove 2 screws holding swing motor on motor mounting plate.
3. Remove swing motor from IR sensor assy.

6.10. Stirrer motor

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



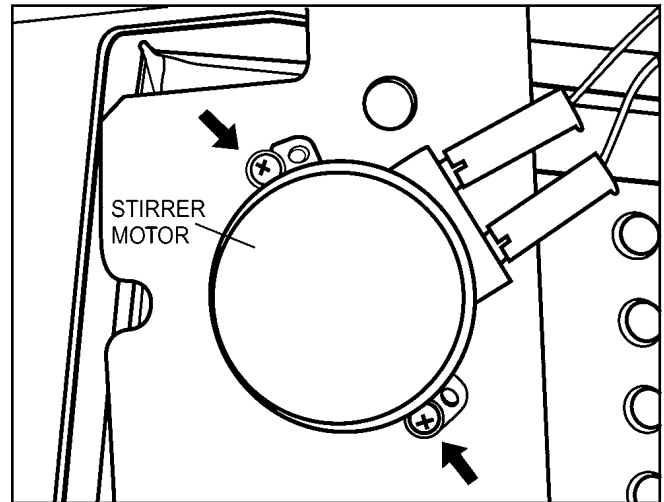
Access hole for ceramic plate (U). (To remove the ceramic plate (U) from the inside of the oven cavity by using a screw driver to push out the ceramic plate (U) thru the bottom access hole).

Note: Insert the screwdriver into the access hole at a 90 degree angle.

⚠ 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.

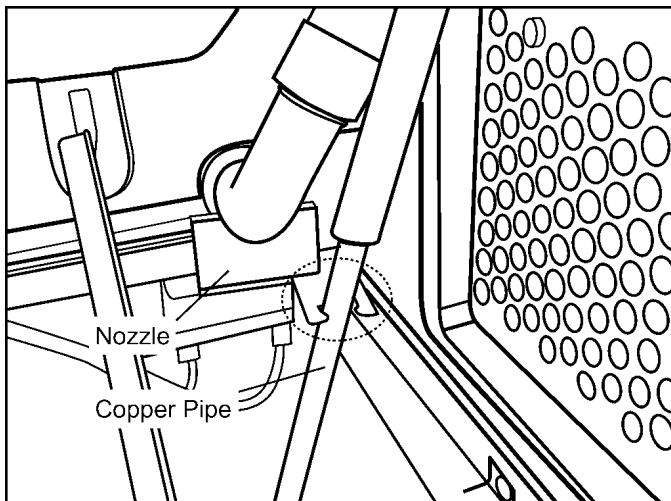


NOTE:

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.

6.11. Heater DU (steam heater)

1. Remove water tank from escutcheon base.
2. Keep pressing [Steam Deforst] pad for more than 2 seconds to drain the water remaining in the water pipes and tubes into oven cavity.
3. Remove tubes from both ends of copper pipe.
4. Remove 1 screw holding air guide B on the base.
5. Release catch of nozzle holding copper pipe.



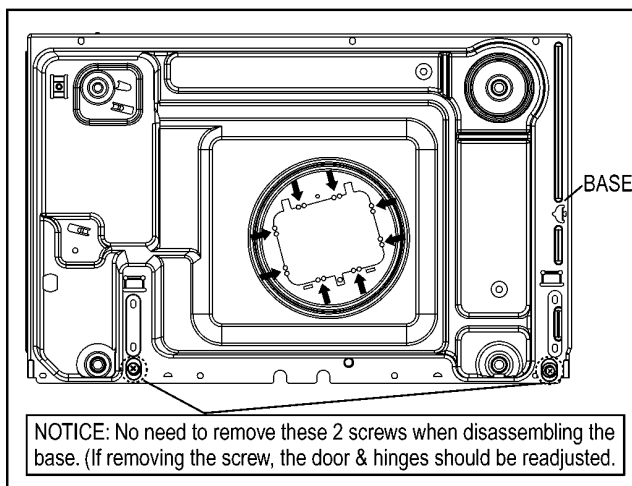
6. Remove left and right door key springs from door arm.
7. Turn over the microwave oven and remove all screws holding base on oven assy & two hinges.

NOTE:

Support door before removing door springs.

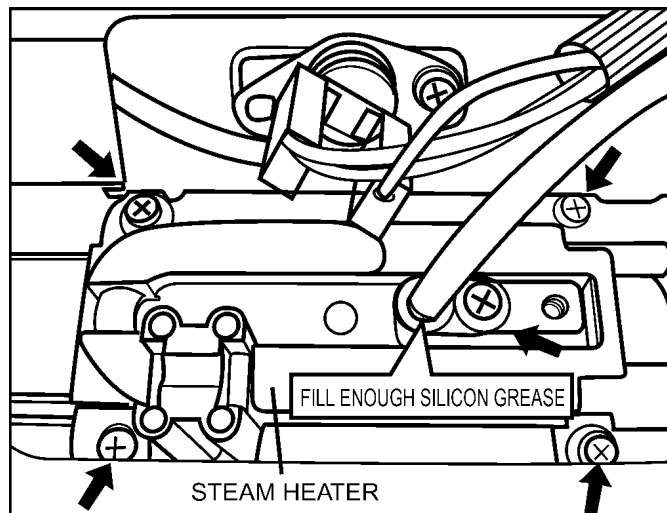
NOTE:

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



NOTICE: No need to remove these 2 screws when disassembling the base. (If removing the screw, the door & hinges should be readjusted.)

8. Remove base from oven assy.
9. Disconnect 2 lead wires from heater DU terminals.
10. Remove 1 screw holding thermistor on heater DU.



11. Remove 6 screws holding heater DU & thermal cutout bracket on the bottom of oven assy.

To install heater DU

NOTE:

1. Spread silicon grease evenly between the interface of heater DU and bottom of oven cavity. (about 0.3mm thickness), this is for good conductivity.
2. Tighten 6 screws and make sure there is no gap between heater DU and bottom of oven cavity.
3. Do not forget to screw the thermal cutout bracket along with heater Du.

To install thermistor

NOTE:

Before installing thermistor, please fill enough silicon grease into the installation hole of heater DU for good conductivity.

7 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.

7.1. Primary latch switch Secondary Latch switch and power relay RY3

1. Unplug lead connectors to Power Relay RY3 and verify open circuit of the Power Relay RY3 (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 RY3	∞Ω (Open)	∞Ω(Open)

7.2. Short switch & monitor

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.

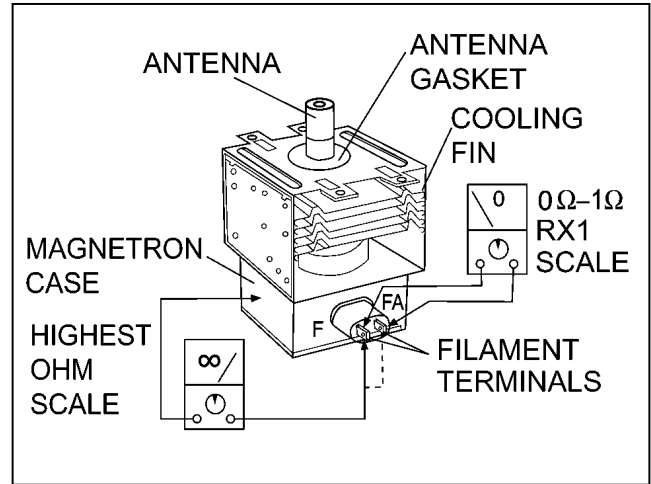
Normal continuity readings should be as follows.

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

7.3. 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.

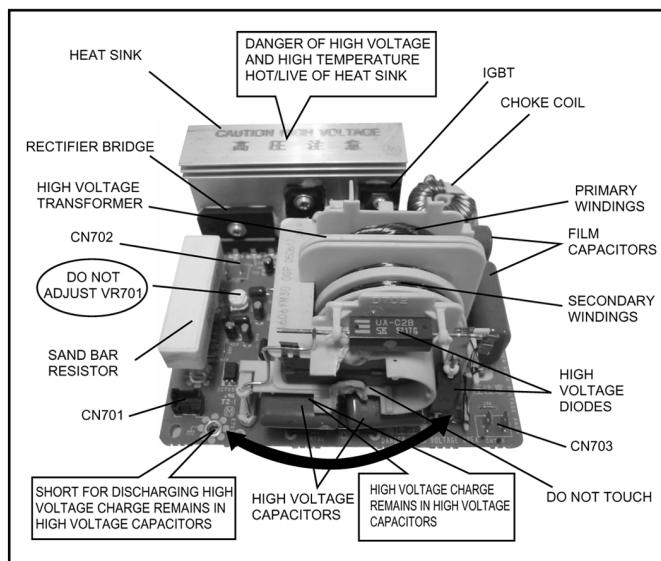


7.4. Membrane key board (Membrane switch assembly)

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

7.5. 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** button once.
 - c. Press **Micro Power** pad once.
5. Program oven at High power for 1 minute and press [Start] button.
 - a. After approximately 37 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 37 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** button once.
 - c. Press **Micro Power** pad once.

5. Program oven at High power for 1 minute and press [Start] button.

- 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.

7.6. Temperature thermistor

These sensor monitors the heat produced by the heater circuit and maintains the magnetron temperature which user had selected. Normal room temperature 10°C to 30°C, the reading across the temperature thermistor should be as follows.

TEMP	MAGNETRON THERMISTOR	STEAM HEATER THERMISTOR	OVEN THERMISTOR
100°C	30-60KΩ	10-20KΩ	10-20KΩ
25°C	700K-1.5MΩ	100K-300KΩ	100K-300KΩ

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

7.7. IR Sensor

To test if IR sensor is ok by doing the following procedures.

Test

1. Program DPC.
 - a. Press **Timer/Clock** pad twice.
 - b. Press **Start** button once.
 - c. Press **Micro Power** pad once.
2. Open the door, then keep pressing **Start** button for more than 2 seconds until buzzer beeps.
3. Remain door opening and press **Start** button twice, then "°C" will be shown on the display.
4. Close the door.
5. Press **Start** button, IR sensor will swing. After 4 seconds, it will stop and show max and minimum temperature readings of 8 eyes IR sensor on display.
6. If the reading is within the limited range of oven temperature, and all above is ok, you may decide IR sensor functions properly.
7. Press **Stop/Reset** pad to finish the test.

8 MEASUREMENTS AND ADJUSTMENTS

8.1. 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.

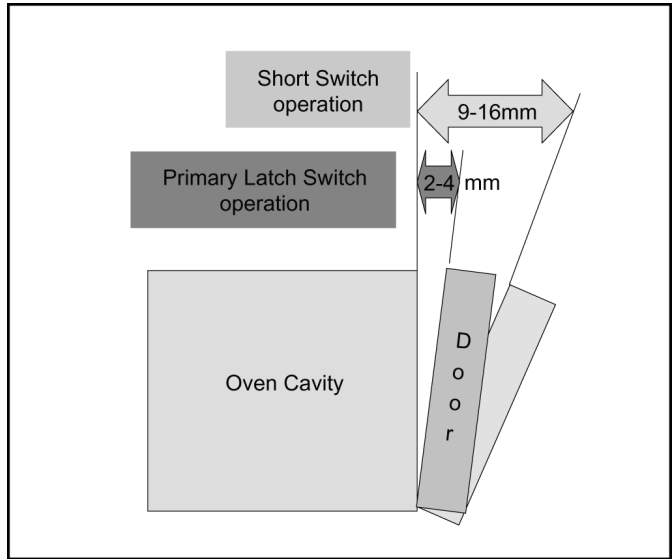
NOTE:

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. Make sure that all latch switches work properly 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 oven/grill use.

8.2. Measurement of microwave output

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

Necessary Equipment:

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

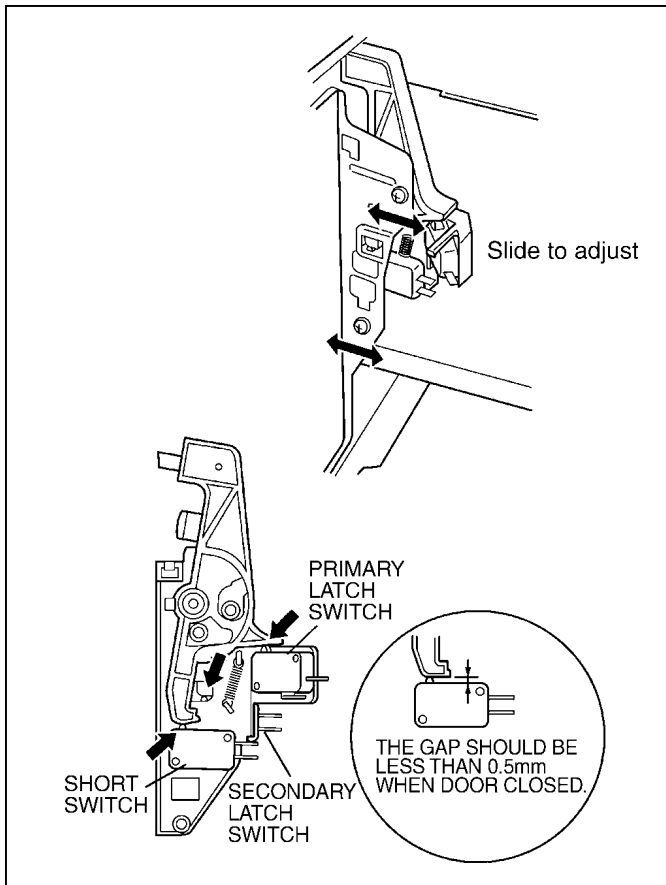
NOTE:

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

1. Fill the beaker with exactly one litre of tap water. Stir the water using the thermometer and record the water's temperature. (recorded as T1).
2. Place the beaker on the center of ceramic plate. Set the oven for High power and heat it for exactly one minute.
3. Stir the water again and read the temperature of the 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

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** button once → press **Micro Power** pad once.)
2. Keep pressing **Timer/Clock** pad for more than 2 seconds until buzzer beeps.
3. Press **Start** button twice, oven will show error code.

NOTE:

1. If any error was observed, it will be kept in memory up to 3 errors in the past. If there are more than 4 cases, the memory will renew the latest 3 errors codes.
2. Press **Start** button again, one more older error code will be displayed.
3. If the oven is ok, it will show "000" and blinking.

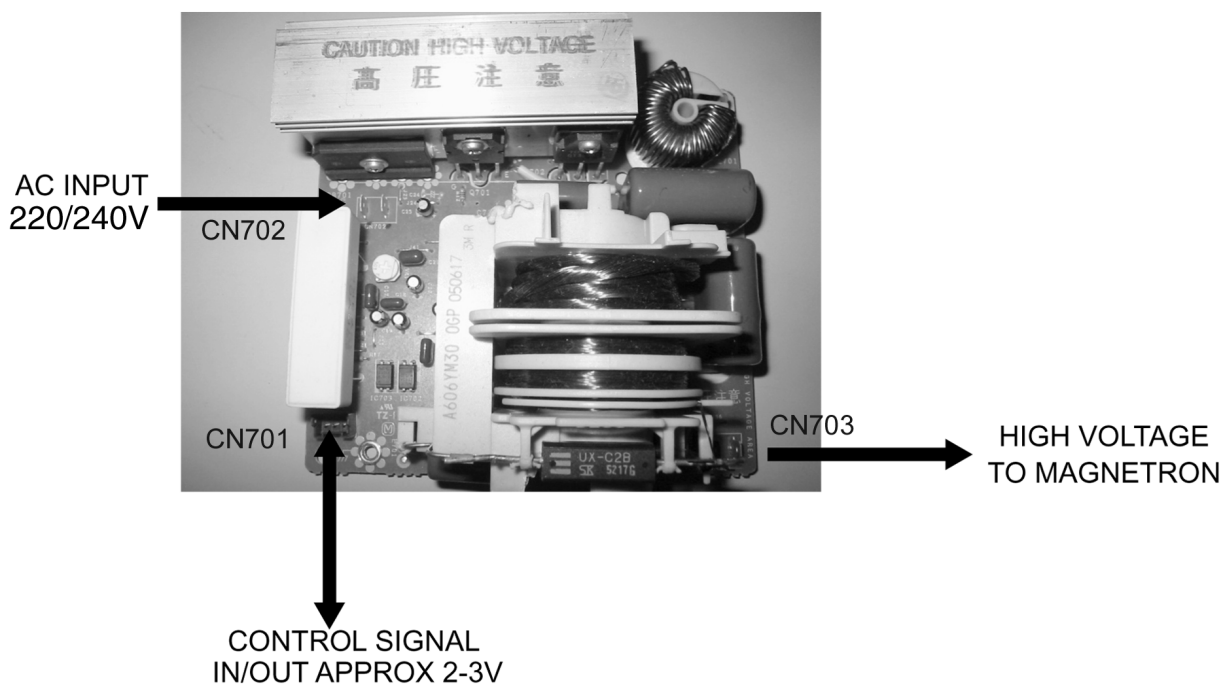
4. Error code list

- 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
H68	IR sensor failure
H61	IR thermistor open/short
H60	IR sensor error
H39	Steam heater thermistor failure
H32	Magnetron thermistor failure
H30	Oven thermistor failure
H02	Memory IC error (It is able to show up both in test mode and cooking mode)
H00	RAM failure (It is able to show up both in test mode and cooking mode)
H20	Steam heater open error
	Usage problem
U14	No water during steam cooking (It is able to show up both in test mode and cooking mode)
U40	No load operation, controlled by magnetron thermistor
U65	Power down controlled by Inverter thermistor
HOT	Oven is hot (It is able to show up both in test mode and cooking mode)

9.1. (Troubleshooting) Oven stops operation during cooking

	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven stops in 3 seconds after pressing [Start] button.	No input AC is supplied to H.V.Inverter (U) CN702 terminals	1. Latch Switch 2. Power relay RY1 and/or RY2, RY3 3. Loose lead wire connector CN701, CN702 4. H.V. Inverter (U)
	Oven stops in 37 seconds after pressing [Start] button.	H.V.Inverter (U) operates by the control signals from DPC but magnetron is not oscillating	1. Magnetron 2. Loose lead wire connector CN703 3. H.V. Inverter (U)
	Oven stops in 1 minute after pressing [Start] button. (Oven function)	Oven thermistor circuit is not functioning.	1. Oven thermistor 2. Loose wiring
	Oven stops in 30 seconds after pressing [Start] button. (Steam function)	Steam heater thermistor circuit is not functioning.	1. Steam heater thermistor 2. Loose wiring 3. bad conductivity between thermistor and steam heater
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

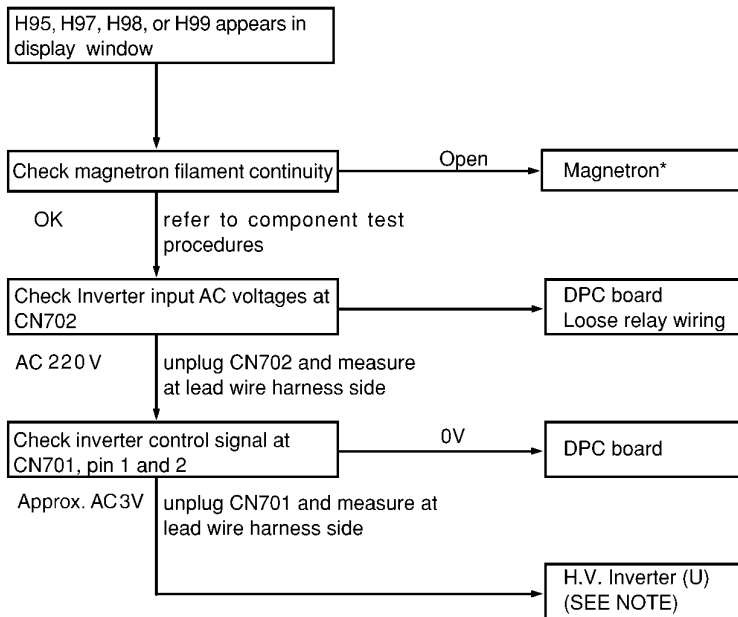


9.2. (Troubleshooting) Other problems

	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 fan motor if 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, RY2, & RY3's contacts (between 1 and 2) and if it has continuity, replace power relay RY1, RY2, & RY3's 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 pad 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. Door switch CN3	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 latch switches 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 RY3 5. Defective primary latch switch 6. Defective DPC or power relay RY1 and/or RY2, RY3	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. Shorted primary latch switch	
9.	Oven does not operate and return to plugged in mode as soon as [Start] button 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.

9.3. 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** button once → press **Micro Power** pad once. Program unit for operation. H95, H97, H98, H99 appears in display window a short time after **Start** button is pressed and there is no microwave oscillation.



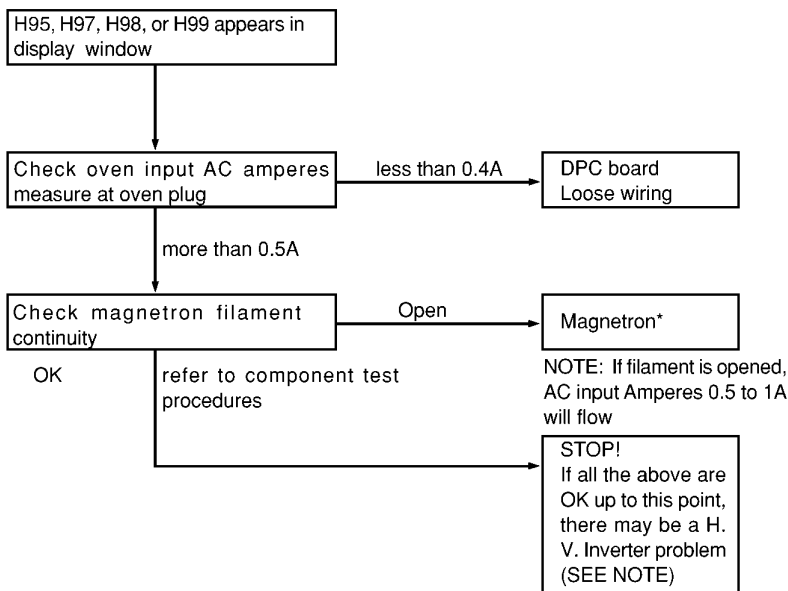
⚠ WARNING: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT RE-ADJUST PRESET CONTROL on the board. It is very dangerous to repair or adjust without proper test equipment because this circuit generates very high voltage and very large current. Off alignment of inverter board operation 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] button is pressed and no microwave oscillation with AC Ampere meter used for troubleshooting.



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

9.4. 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	Low voltage transformor (L.V.T.) secondary voltage	Abnormal 0V	L.V.T.
			Normal	→Step3
3	IC10 pin5 voltage	Abnormal	IC10	
		Normal=5V	IC1, CX320, Display	
No key input	1	Membrane switch continuity	Abnormal	Membrane switch
No beep sound	1	IC1 pin 38 voltage	Normal	IC1
			Abnormal	IC1
Power relay (RY7) does not turn on even though the program had been set and the [Start] button is tapped	1	IC1 pin 37 voltage while operation	Normal=5V	→Step2
			Abnormal	IC1
No microwave oscillation at any power	2	Short circuit IC220 pin10 to "0V"	Still not turn on	RY7
			RY7 turns on	IC220
Dark or unclear display	1	IC1 pin 34 voltages while operation at high power	Abnormal	IC1
			Normal=5V	→Step2
Missing or lighting of unnecessary segment	2	Short circuit IC220 pin13 to "0V"	Still not turn on	RY3
			RY3 turns on	IC220
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
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	2	Unplug CN701 (3 pin) connector and measure pin3 voltage	Abnormal=0V	D.P.C.
			Approx. AC 3V	Magnetron

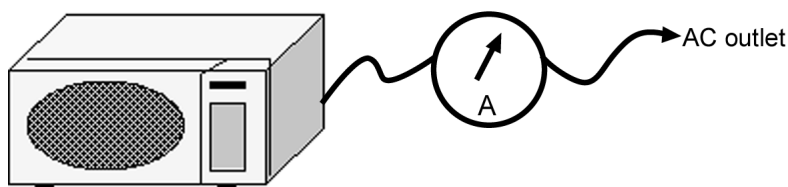
9.5. Simple way of H.V. Inverter/magnetron troubleshooting

Purpose:

Simple way (3/37 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.

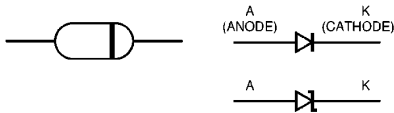
Note:

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 37 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 (F606YM300BP)	
	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.	

9.6. How to check the semiconductors using an OHM meter

Diode



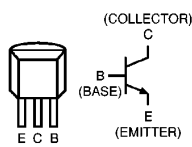
	FORWARD	REVERSE
A-K	SMALL	∞

Transistor

NPN Transistor

2SC.....

2SD.....

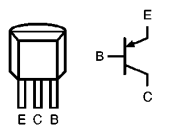


	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

PNP Transistor

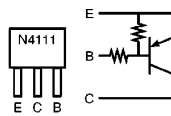
2SA.....

2SB.....



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

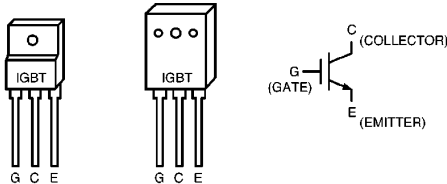
Digital Transistor PNP Transistor



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

IGBT

(INSULATED GATE BIPOLAR TRANSISTOR)



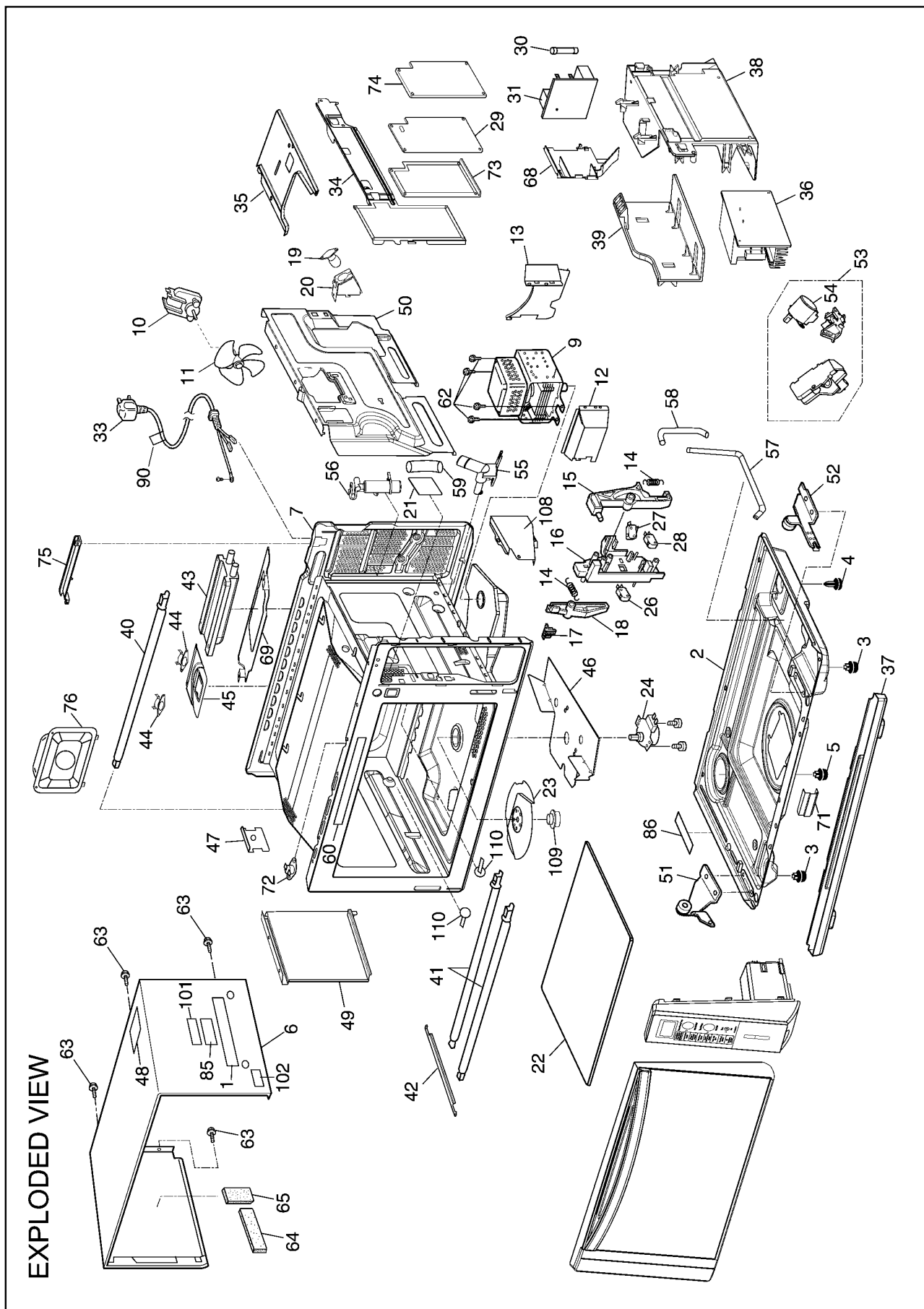
	FORWARD	REVERSE
E-C	SMALL	∞
E-G	∞	∞
C-G	∞	∞

9.7. H.V. Inverter main parts list

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
Q701	\triangle	A691EM300BP	IGBT	1	
Q702	\triangle		IGBT	1	
C701		ECWF5184N300	FILM CAPACITOR	1	
C702		ECQE2505T869	FILM CAPACITOR	1	
C703		ECWF2395N632	FILM CAPACITOR	1	
DB701	\triangle	B0FBBS000001	RECTIFIER BRIDGE	1	
L701	\triangle	F5020M300GP	CHOKE COIL	1	
R702		D0CM352JA002	SAND BAR RESISTOR	1	
T701	\triangle	A609AM300GP	TRANSFORMER	1	(INCLUDING D701, D702, C706, C707)
D701, D702	\triangle	B0FBAZ000001	DIODE	2	
C706		ECWH30562U03	FILM CAPACITOR	1	
C707		ECWH30432U04	FILM CAPACITOR	1	

10 EXPLODED VIEW AND PARTS LIST

10.1. EXPLODED VIEW



10.2. PARTS LIST

NOTE:

1. When ordering replacement part(s), please use part number(s) shown in this part list.

Do not use description of the part.

2. Important safety notice:

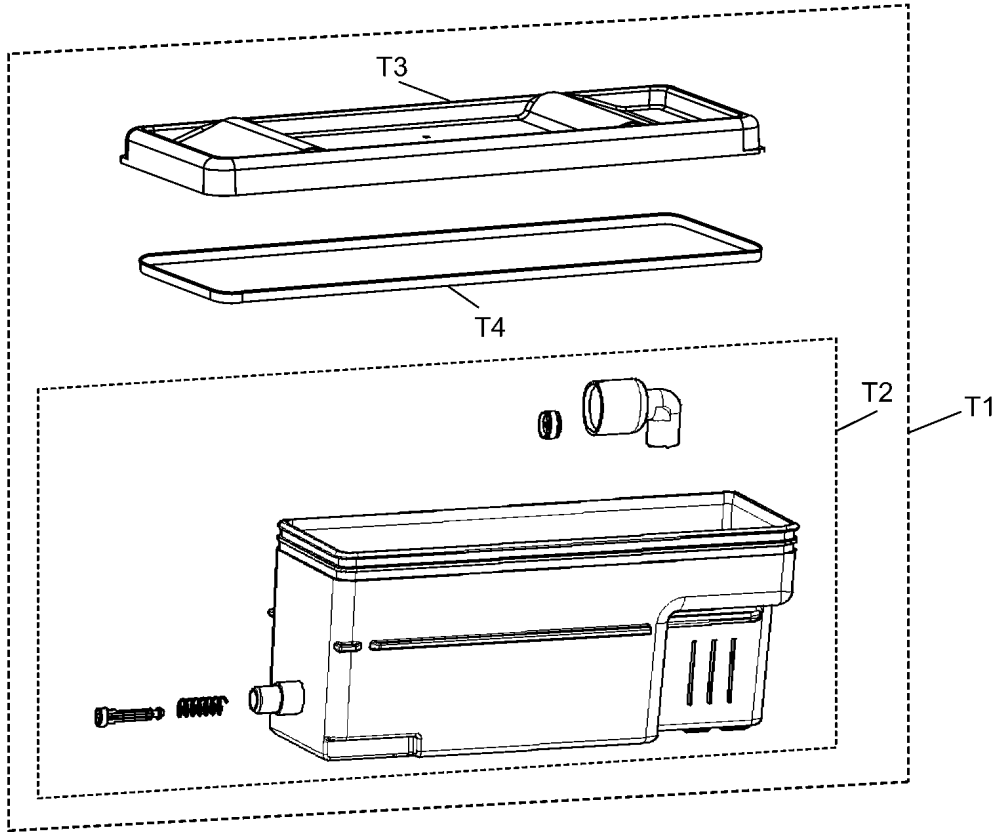
Components identified by \triangle mark have special characteristics important for safety.

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

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
1	F01578S80HP	NAME PLATE	1	HPE
1	F01578S80YP	NAME PLATE	1	YPQ
1	F01578S80MP	NAME PLATE	1	MPQ
1	F01578S80YT	NAME PLATE	1	YTE
1	F01578S80TP	NAME PLATE	1	TPE
1	F01578S80KT	NAME PLATE	1	KTE
1	F01578S80PT	NAME PLATE	1	PTE
1	F01578S80KP	NAME PLATE	1	KPQ
1	F01578S80ZP	NAME PLATE	1	ZPE
2	F10018S80XPG	BASE	1	EXCEPT TPE
2	F10018S80TPG	BASE	1	TPE
3	F10087J60XP	RUBBER FOOT	2	
4	F10084T00AP	RUBBER FOOT	1	
5	F1008-1F90	RUBBER FOOT	1	
6	F110D7J70SHN	CABINET BODY	1	HPE
6	F110D7J70SMN	CABINET BODY	1	MPQ
6	F110D7J70SXN	CABINET BODY	1	EXCEPT HPE & MPQ
7	\triangle F200A8S80HP	OVEN	1	
9	\triangle 2M261-M32JYP	MAGNETRON	1	
10	\triangle F400A6E70XP	FAN MOTOR	1	EXCEPT YPQ,MPQ & KPQ
10	\triangle F400A7J70MP	FAN MOTOR	1	YPQ,MPQ,KPQ
11	F4008-1L40	FAN BLADE	1	
12	F40257J70XPG	AIR GUIDE A	1	
13	F40267J70XPG	AIR GUIDE B	1	
14	F30977J70XP	SPRING	2	
15	F31027J70XP	LATCH SWITCH LEVER	1	
16	\triangle F31037J70XP	DOOR HOOK	1	
17	F31057J70XP	LATCH BRACKET	1	
18	F32497J70XP	LATCH SWITCH LEVER	1	
19	F612E5G50XN	INCANDESCENT LAMP (U)	1	
20	F60747J70XPG	INCANDESCENT LAMP BRACKET	1	
21	F64377J70XP	GLASS	1	
22	A010T6Y40HP	MICROLITE GLASS (U)	1	HPE, YPQ, MPQ, YTE, TPE
22	A010T6Y40KT	MICROLITE GLASS (U)	1	KTE, PTE, KPQ
22	A010T6Y40ZP	MICROLITE GLASS (U)	1	ZPE
23	F202K7J70XPG	ANTENNA STIRRER (U)	1	
24	\triangle F61447J70XP	STIRRER MOTOR	1	
26	\triangle F61425U30XN	MICRO SWITCH	1	(V-15G-3C25) (PRIMARY LATCH SWITCH)
27	\triangle A61425180AP	MICRO SWITCH	1	(D3V-16G-3C25) (SECONDARY LATCH SWITCH)
28	\triangle A61785180AP	MICRO SWITCH	1	(D3V-1G-2C25) (SHORT SWITCH)
29	F603Y8S80ZP	D.P.CIRCUIT (DU)	1	
30	\triangle F62306V60BP	FUSE	1	10A/250V
31	\triangle F692Y6Y40XP	NOISE FILTER (U)	1	EXCEPT ZPE
31	\triangle F692Y6Y40ZP	NOISE FILTER (U)	1	ZPE
33	\triangle F900C6Y40YK	AC CORD W/PLUG	1	HPE, MPQ, YTE, KTE, KPQ
33	\triangle F900C6Y40YP	AC CORD W/PLUG	1	YPQ
33	\triangle F900C8S80TP	AC CORD W/PLUG	1	TPE
33	\triangle F900C6Y40PT	AC CORD W/PLUG	1	PTE
33	\triangle F900C6Y40ZP	AC CORD W/PLUG	1	ZPE
34	F20348S80XP	REINFORCE BRACKET A	1	
35	F2036-1K00	REINFORCE BRACKET B	1	
36	\triangle F606YM300BP	H.V.INVERTER (U)	1	
37	F80236Y40BP	DECORATING PLATE (COLLECTOR PAN)	1	
38	F65858S80XP	INVERTER BRACKET A	1	
39	F67637J70XP	INVERTER BRACKET B	1	
40	\triangle F630H7J70XP	UPPER HEATER (AU)	1	EXCEPT YPQ,MPQ & KPQ
40	\triangle F630H7J70MP	UPPER HEATER (AU)	1	YPQ,MPQ,KPQ
41	\triangle F630G7J70XP	LOWER HEATER (AU)	2	EXCEPT YPQ,MPQ & KPQ
41	\triangle F630G7J70MP	LOWER HEATER (AU)	2	YPQ,MPQ,KPQ
42	F91487J70XP	CONNECTIVE SHAFT	1	

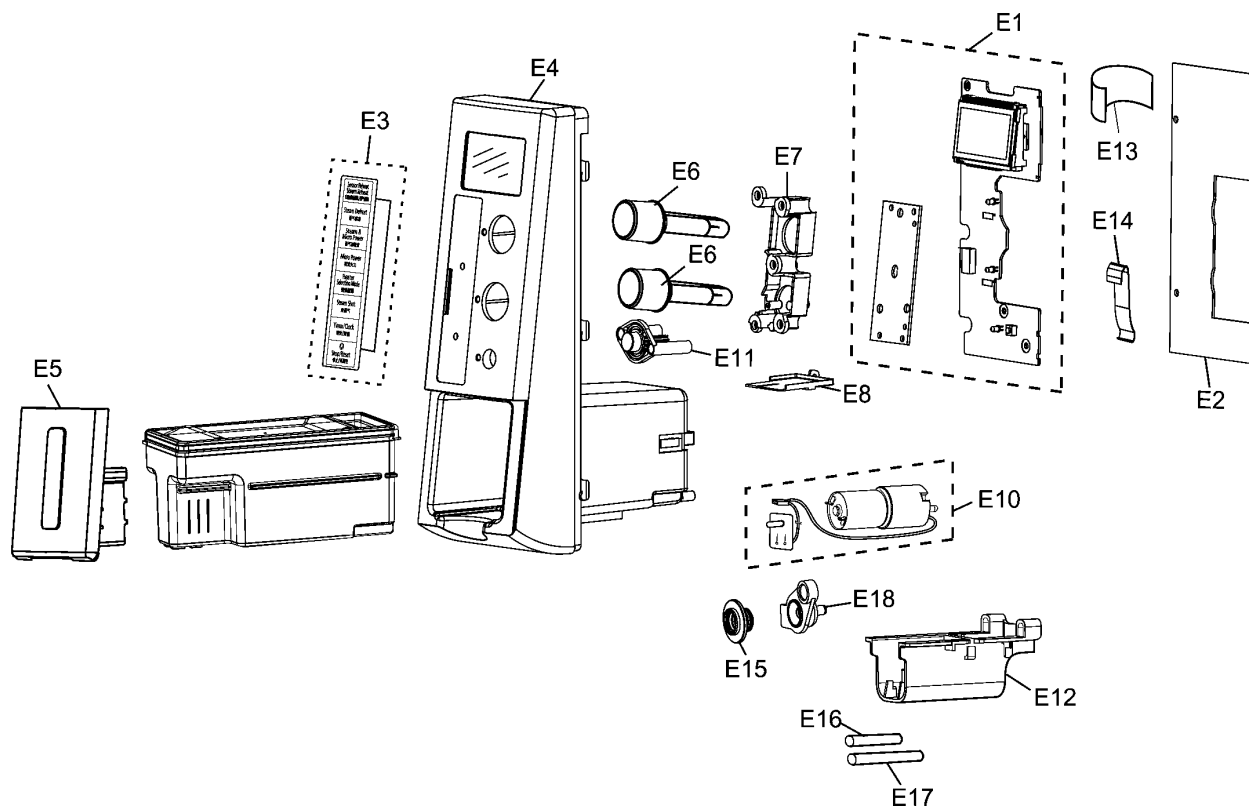
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
43	△	J611E6E10HP	HEATER (DU)	1	EXCEPT YPQ,MPQ & KPQ
43	△	J611E6E10MP	HEATER (DU)	1	YPQ,MPQ,KPQ
44		F61457J70XP	THERMAL CUTOUT	2	
45	△	F66268S80HPG	THERMAL CUTOOUT BRACKET	1	
46		F62447J70XPG	LOWER COOLING PLATE	1	
47		F64607J70XP	HEATER MOUNTING PLATE	1	
48		F01508G60HP	NO TOUCHING LABEL	1	HPE
48		F01506W50XP	NO TOUCHING LABEL	1	EXCEPT HPE
49		F22377J70XPG	LEFT HEATER PANEL	1	
50		F22367J70XPG	RIGHT HEATER PANEL	1	
51	△	F300B-1L40	LEFT HINGE (U)	1	
52	△	F300U-1L40	RIGHT HINGE (U)	1	
53		F601L8S80XP	IR SENSOR (U)	1	
54		A6760-1E20	SWING MOTOR	1	
55		F44967J70XP	NOZZLE A	1	
56		F45137J70XP	TIE-IN C	1	
57		F92017J70XP	COPPER PIPE	1	
58		F46507J70XP	TUBE C	1	
59		F92047J70XP	TUBE D	1	
60		F03348S80HP	MENU LABEL	1	HPE, YPQ, MPQ, YTE, TPE
60		F03348S80KP	MENU LABEL	1	KTE, PTE, KPQ
60		F03348S80ZP	MENU LABEL	1	ZPE
62		XTWFA4+12T	SCREW	4	MAGNETRON
63		XTWAFE4+12D	SCREW	4	CABINET BODY
64		F22587J70XP	ADIABATIC MATERIAL C	1	
65		F22597J70XP	ADIABATIC MATERIAL D	1	
68		F40277Q30XP	AIR GUIDE BRACKET	1	
69		F15676Y40XP	DRIP PLATE	1	
71		F11657J50XP	REINFORCE BRACKET C	1	
72	△	F61458S80XP	THERMAL CUTOOUT	1	
73		F60318S80XP	BRACKET	1	
74		F60398S80XP	BOARD COVER	1	
75		F81247Q30XP	BARRIER	1	
76		F1183-1L40	BACK PLATE B	1	
85		F00066V00HP	CAUTION LABEL	1	EXCEPT ZPE
85		F00066W10ZP	CAUTION LABEL	1	ZPE
86		F00067J70HP	CAUTION LABEL	1	
90		F02395E20KN	CORD CAUTION LABEL	1	KTE, PTE, KPQ
101		F00066W10MP	CAUTION LABEL	1	YPE
101		F00068H00YT	CAUTION LABEL	1	YTE
102		F02848S80YP	NO. LABEL	1	YPQ
108		F1622-1L40	RIGHT PANEL	1	
109		F22648S80HP	COLLAR	1	
110		F10526Y40XP	STOPPER	2	

10.3. WATER TANK ASSEMBLY



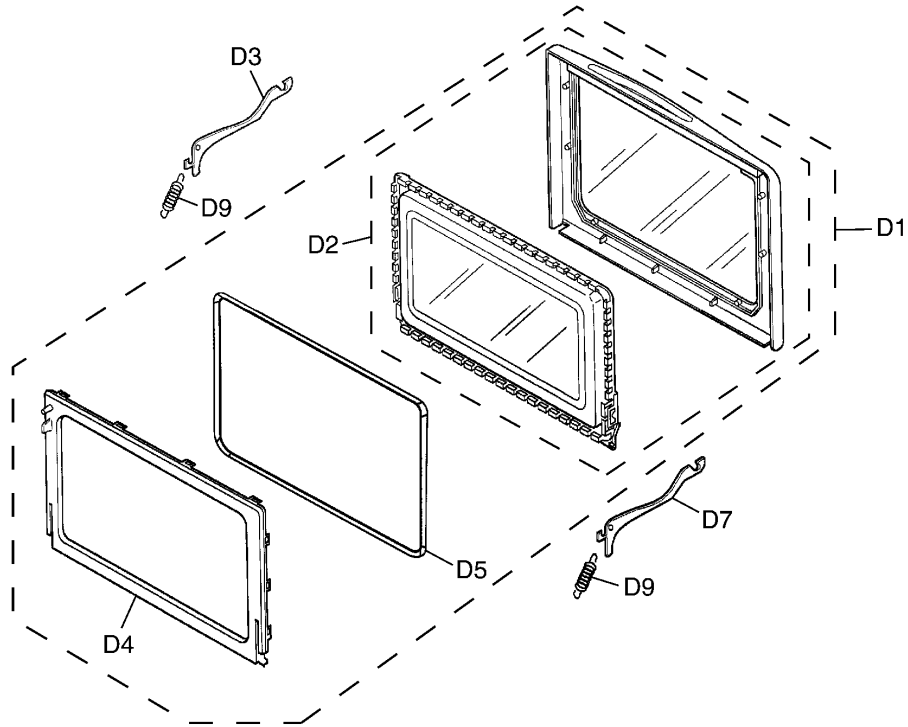
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
T1	F060Q7J70HN	WATER TANK (U)	1	(WITHOUT TANK COVER)
T2	F061A7J70HN	WATER TANK (BU)	1	
T3	F06117J70XP	TANK COVER	1	
T4	F44247J70XP	SEAL	1	

10.4. ESCUTCHEON BASE ASSEMBLY



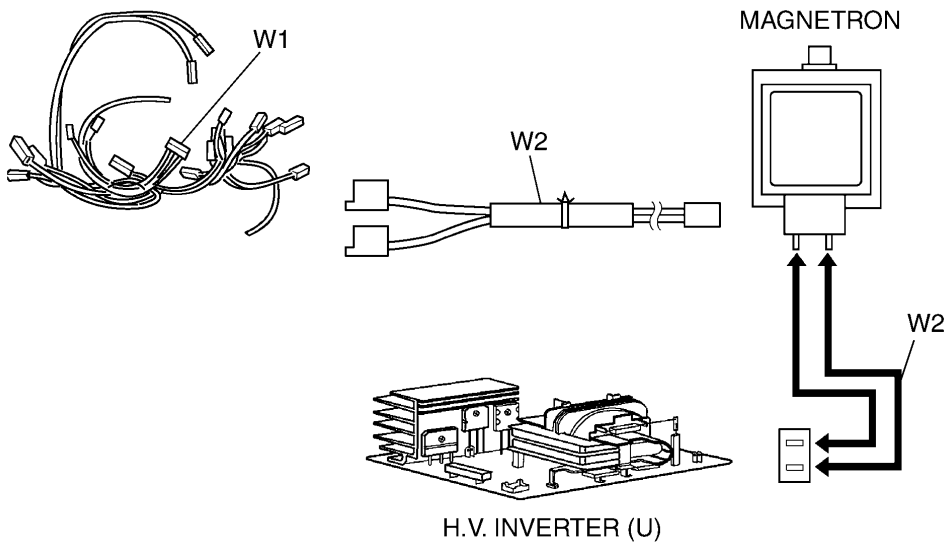
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E1	▲	F603L8S80HP	D.P.CIRCUIT (AU)	1	HPE
E1	▲	F603L8S80YP	D.P.CIRCUIT (AU)	1	YPQ
E1	▲	F603L8S80MP	D.P.CIRCUIT (AU)	1	MPQ
E1	▲	F603L8S80YT	D.P.CIRCUIT (AU)	1	YTE
E1	▲	F603L8S80TP	D.P.CIRCUIT (AU)	1	TPE
E1	▲	F603L8S80PT	D.P.CIRCUIT (AU)	1	KTE, PTE
E1	▲	F603L8S80KP	D.P.CIRCUIT (AU)	1	KPQ
E1	▲	F603L8S80ZP	D.P.CIRCUIT (AU)	1	ZPE
E2	▲	F605S8S80XP	D.P.CIRCUIT (HU)	1	
E3		F630Y8S80SHP	MEMBRANE SWITCH(U)	1	HPE, YPQ, MPQ, YTE, TPE
E3		F630Y8S80SKP	MEMBRANE SWITCH(U)	1	KTE, PTE, KPQ
E3		F630Y8S80SZP	MEMBRANE SWITCH(U)	1	ZPE
E4		F800A8S80SHP	ESCUTCHEON BASE (AU)	1	HPE, YPQ, MPQ, YTE, TPE
E4		F800A8S80SKP	ESCUTCHEON BASE (AU)	1	KTE, PTE, KPQ
E4		F800A8S80SZP	ESCUTCHEON BASE (AU)	1	ZPE
E5		F800B7J60SXP	ESCUTCHEON BASE (BU)	1	
E6		F803G8G00SBP	POP-UP DIAL (U)	2	
E7		F80188S80XP	BRACKET	1	
E8		F81388S80XP	BREAKWATER	1	
E10		F400L6Y40XP	PUMP-LED (U)	1	(INCLUDING PUMP & LED PCB)
E11		F83878S80SXP	BUTTON	1	
E12		F06397J70XP	PUMP BRACKET	1	
E13		F66166Y40BP	FLAT CABLE	1	
E14		F66166Y40XP	FLAT CABLE	1	
E15		F44266Y40BP	SEAL B	1	
E16		F46487J70XP	TUBE A	1	
E17		F46497J70XP	TUBE B	1	
E18		F45126Y40BP	TIE-IN B	1	

10.5. DOOR ASSEMBLY



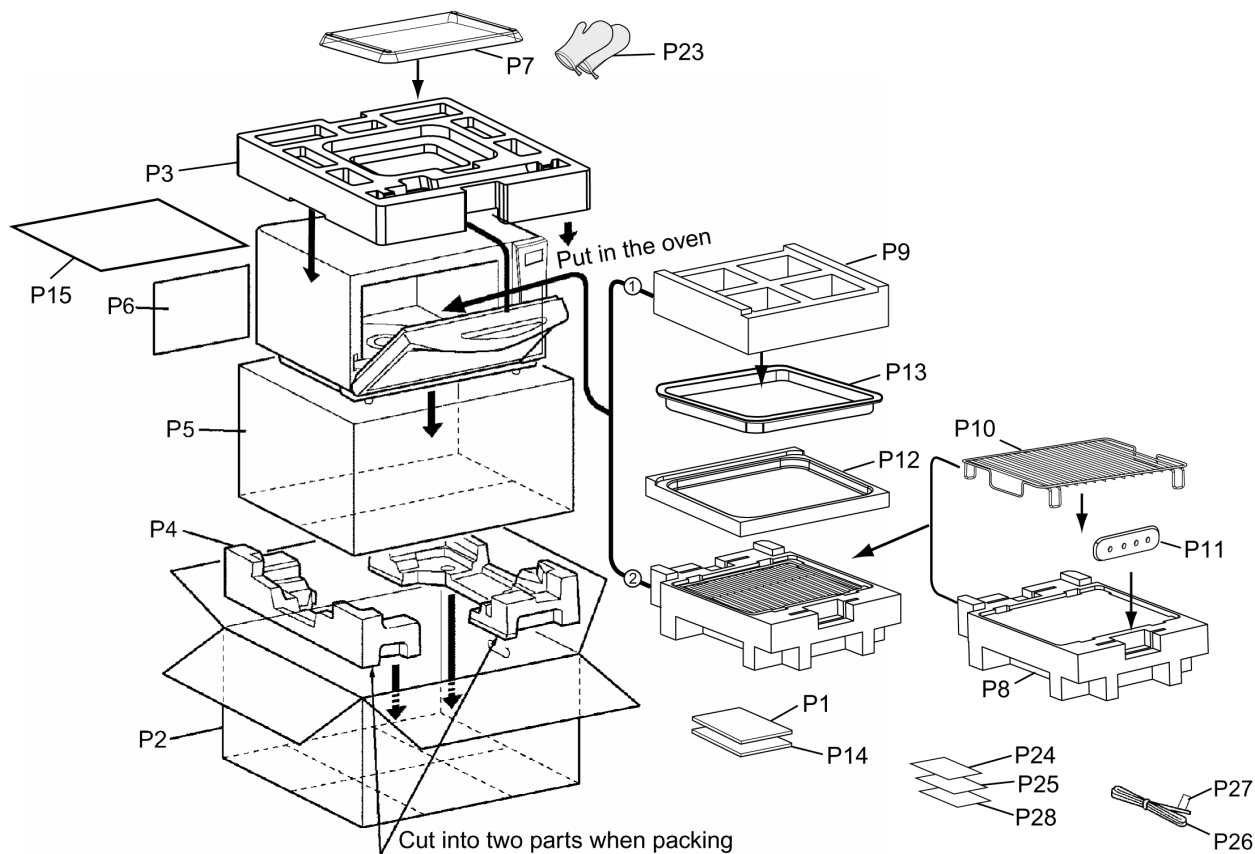
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
D1	⚠	F390L8S80SXP	DOOR (U)	1	WHOLE DOOR (INCLUDING DOOR C & SEAL)
D2	⚠	F302A8S80SXP	DOOR B (U)	1	
D3		F3044-1L40	DOOR ARM (RIGHT)	1	
D4	⚠	F3085-1L40	DOOR C	1	
D5		A3334-1L40	SEAL	1	
D7		F3054-1L40	DOOR ARM (LEFT)	1	
D9		A3230--1K20	DOOR KEY SPRING B	2	

10.6. WIRING MATERIALS



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
W1	⚠	F030A8S80HP	LEAD WIRE HARNESS	1	(INCLUDING THERMISTOR)
W2	⚠	F030E-1L40	H.V. LEAD WIRE	1	

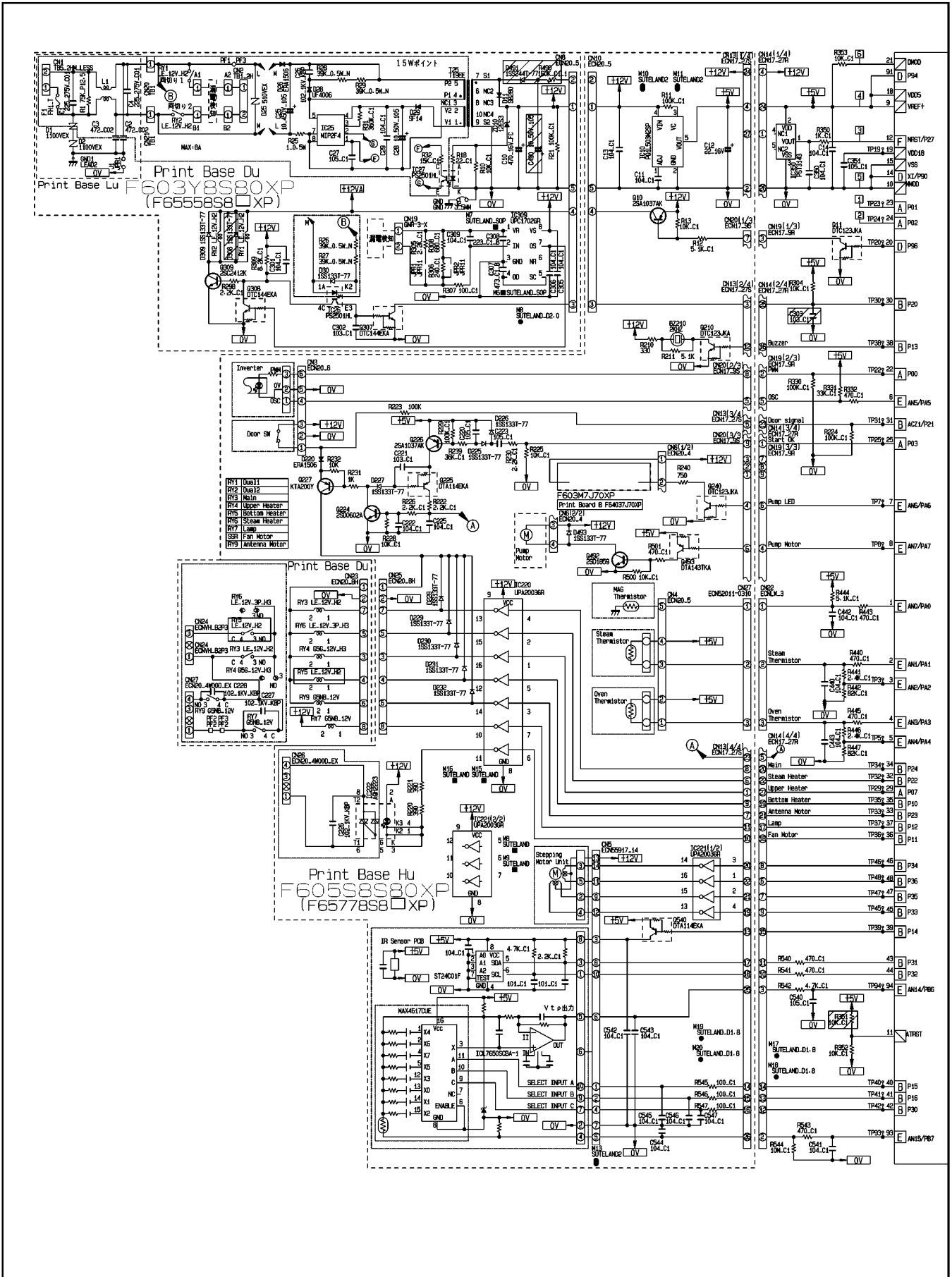
10.7. PACKING AND ACCESSORIES

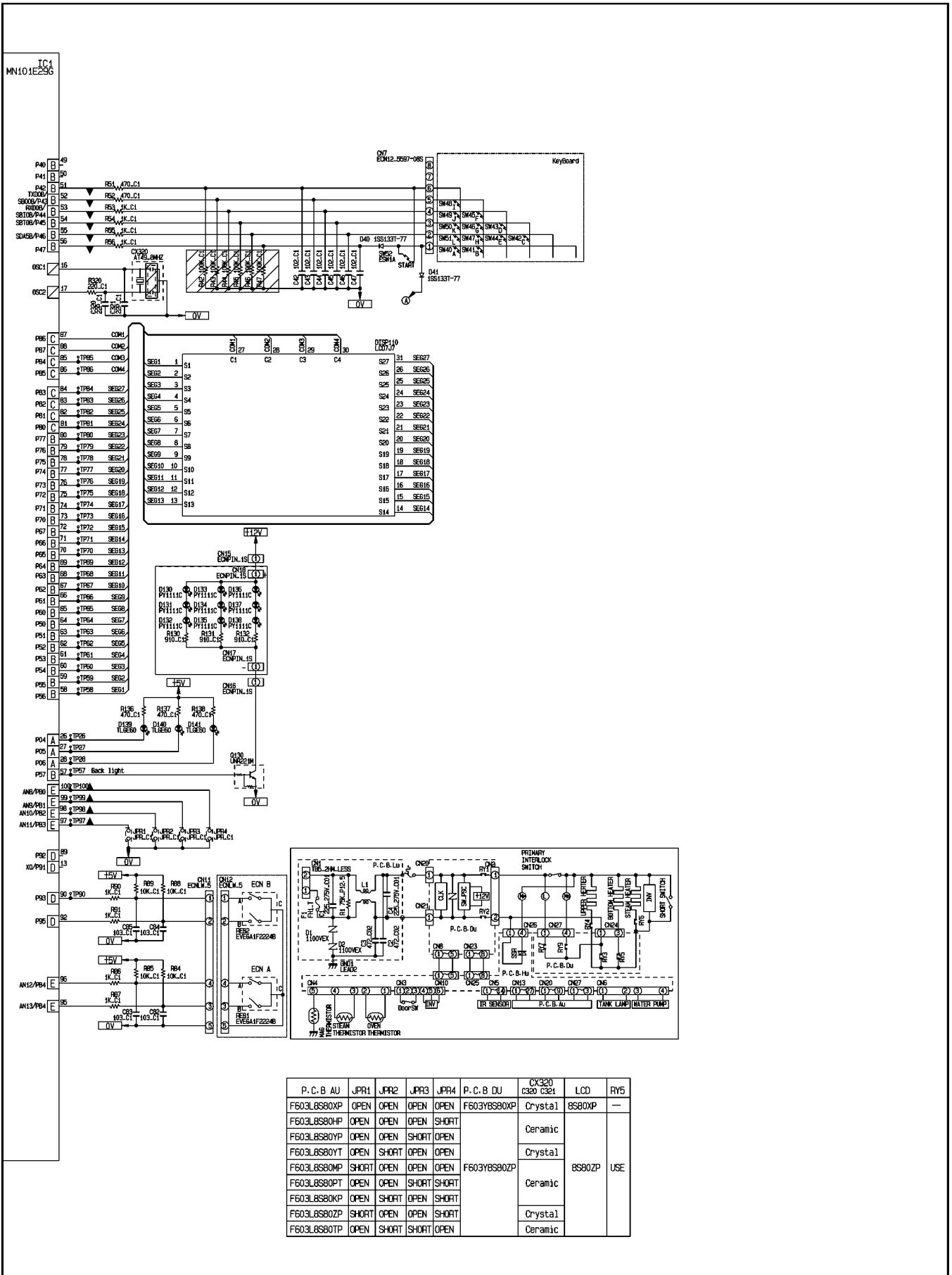


Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
P1	F00038S80HP	INSTRUCTION MANUAL	1	HPE, YPQ, MPQ, YTE, TPE
P1	F00038S80KP	INSTRUCTION MANUAL	1	KTE, PTE, KPQ
P1	F00038S80ZP	INSTRUCTION MANUAL	1	ZPE
P2	F01028S80HP	PACKING CASE, PAPER	1	HPE, YPQ, MPQ, YTE
P2	F01028S80TP	PACKING CASE, PAPER	1	TPE
P2	F01028S80KT	PACKING CASE, PAPER	1	KTE, PTE
P2	F01028S80KP	PACKING CASE, PAPER	1	KPQ
P2	F01028S80ZP	PACKING CASE, PAPER	1	ZPE
P3	F01048S80HP	UPPER FILLER	1	
P4	F01057J70XP	LOWER FILLER	1	
P5	F01064W00AP	P.E BAG	1	
P6	F01078100XN	DOOR SHEET	1	
P7	F06217J70XP	QUADRATE COOKING TRAY	1	
P8	F01126Y40XP	FOAM	1	
P9	F01136Y40XP	FOAM	1	
P10	F06027J70XP	OVEN RACK	1	
P11	F60037J70XP	CERAMIC COVER	1	
P12	F01126Y40BP	FOAM	1	
P13	F06038S80HP	CRISPY PAN	1	HPE, YPQ
P13	F06037J70XP	CRISPY PAN	1	EXCEPT HPE & YPQ
P14	F000B8S80MP	COOKING GUIDE	1	HPE, YPQ, MPQ, YTE, TPE
P14	F000B7J70KP	COOKING GUIDE	1	KTE, PTE, KPQ
P14	F000B6V50ZP	COOKING GUIDE	1	ZPE
P15	F01924T00AP	SHEET	1	
P23	F0731-1450	MITTEN	1	
P24	F01567J70HP	NOTICE	1	HPE, YPQ, MPQ, YTE, TPE
P25	F04458S80MP	OVERLAY	1	YPQ, MPQ
P25	F04458S80TP	OVERLAY	1	TPE
P25	F04458S80KP	OVERLAY	1	KTE, PTE, KPQ
P26	F91644000XN	EARTH LEAD	1	TPE
P27	F00324040XN	EARTH CAUTION LABEL	1	TPE
P28	F00166Y40HP	NOTICE	1	HPE, YPQ, MPQ, YTE, TPE

11 DIGITAL PROGRAMMER CIRCUIT

11.1. SCHEMATIC DIAGRAM





11.2. PARTS LIST

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
BZ210	L0DDEA000014	BUZZER	1	2.0KHz
C10	AECWEG1C471B	AL CHEM CAPACITOR	1	470µF/16V
C28	AECETK1H100B	AL CHEM CAPACITOR	1	10µF/50V
C12	AECETS1C220B	AL CHEM CAPACITOR	1	22µF/16V
C25	AECETK2W220B	AL CHEM CAPACITOR	1	22µF/200V
C26	ECKN3A102KBP	CERAMIC CAPACITOR	1	102PF/1000V
CN19	G4E1C0000006	CIRCUIT LEAKAGE SENSOR	1	
CX320	H2A8004A0038	CERAMIC RESONATOR	1	EXCEPT YTE & ZPE
CX320	H1A8004A0014	CRYSTAL RESONATOR	1	YTE,ZPE
D139-D141	AEL314VG3CT	LED	3	
D30,D40,D41,D225-D232,D309,D493	MA2C19600E	DIODE	13	
D220	B0EAKT000025	DIODE	1	
D11	AESB2100TLRC	DIODE	1	
D25	D4EAY511A036	VARISTOR	1	510V
D26	B0EAKT000025	DIODE	1	
D28	AEU4006TLRC	DIODE	1	
D29	AESFT4TLRC	DIODE	1	
DISP1	L5AAABE00016	LCD	1	
DISPL1 HOLD	F66178S80XP	LCD HOLDER	1	
	F67527J70XP	DIFFUSION SHEET	1	
IC1	MN101E29GAK	L.S.I.	1	
IC10	C0DBAHD00013	IC	1	
IC220, IC221	B1HBGFF00007	IC	2	
IC350	C0ZBZ0001494	IC	1	
IC25	MIP2F40MSSCF	IC	1	
IC26, IC27	B3PAA0000387	IC	2	
IC309	C0ZBZ0001494	IC	1	
IC222	B3PAC0000060	IC (SSR)	1	
Q492	B1BAAJ000003	TRANSISTOR	1	
Q493	UNR211600L	TRANSISTOR	1	
Q227	B1ACGF000004	AUDION	1	
R231	D0AE102JA155	CARBON FILM RESISTOR	1	1K, 1/4W, 5%
R211, R232	D0AE103JA155	CARBON FILM RESISTOR	2	10K, 1/4W, 5%
R223	D0AE104JA155	CARBON FILM RESISTOR	1	100K, 1/4W, 5%
R210	D0AE331JA155	CARBON FILM RESISTOR	1	330Ω, 1/4W, 5%
R220, R221	D0AE391JA155	CARBON FILM RESISTOR	2	390Ω, 1/4W, 5%
R240	D0AE751JA155	CARBON FILM RESISTOR	1	750Ω, 1/4W, 5%
R26-R29	D0AF393JA061	CARBON FILM RESISTOR	4	39K, 1/2W, 5%
R25	AERY15J1RQbB	RESISTOR	1	1Ω, 1/2W, 5%
RY1-RY3, RY5	K6BLAGA00142	POWER RELAY	4	
RY4	K6BLAGA00140	POWER RELAY	1	
RY6	K6BLAGA00212	POWER RELAY	1	
RY7, RY9	K6BLAGA00180	POWER RELAY	2	
T25	G4D1A0000130	SWITCH TRANSFORMER	1	
ZD10	B0BA01100053	ZENER DIODE	1	
SW52	EVQ11L05R	SWITCH	1	
RE81, RE82	EVEJ1HF2224B	REVOLVING ENCODER	2	