

ORDER NO.PHAMOS0511035C3

Service Manual

Microwave Oven

NN-GS595A

CHP(Hong Kong)

CYP(Singapore)

CMP(Malaysia)

CTP(Thailand, Indonesia)

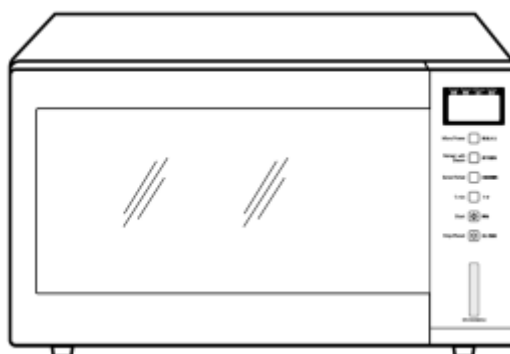
CYT(Others)

CKT(UAE)

CPT(Iran)

CKP(Kuwait, Doha, Qatar, Oman, Bahrain, Pakistan)

CZP(CIS Countries)



Specification

Models		NN-GS595A
Power Source:		240V AC Single Phase, 50HzFor CKP, CMP, CYP Models 220V AC Single Phase, 50HzFor CKT, CZP, CHP, CTP, CYT, CPT Models
Power Requirement:	Microwave	950W
	Upper Heater	1000W
	Lower Heater	600W
Output:	Microwave	1000W
	Upper Heater	1000W
	Lower Heater	600W
Microwave Frequency:		2450MHz
Timer:		99 Min. 90 Sec.
Outside Dimensions:		510mm(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.		


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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

WARNING

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

CHP	For Hongkong
CTP	For Thailand, Indonesia
CYP	For Singapore
CMP	For Malaysia
CYT	For Others
CZP	For CIS Countries
CKT	For UAE
CPT	For Iran
CKP	For Kuwait, Doha, Qatar, Oman, Bahrain, Pakistan

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).

Panasonic®

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.

NEW H.V.

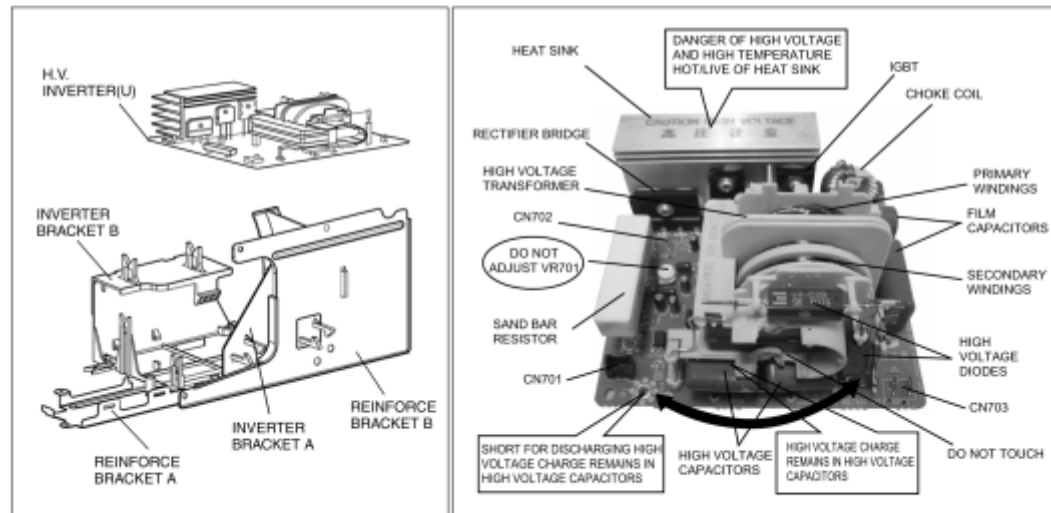
IT HAS: 1. Very high voltage and high current circuits.

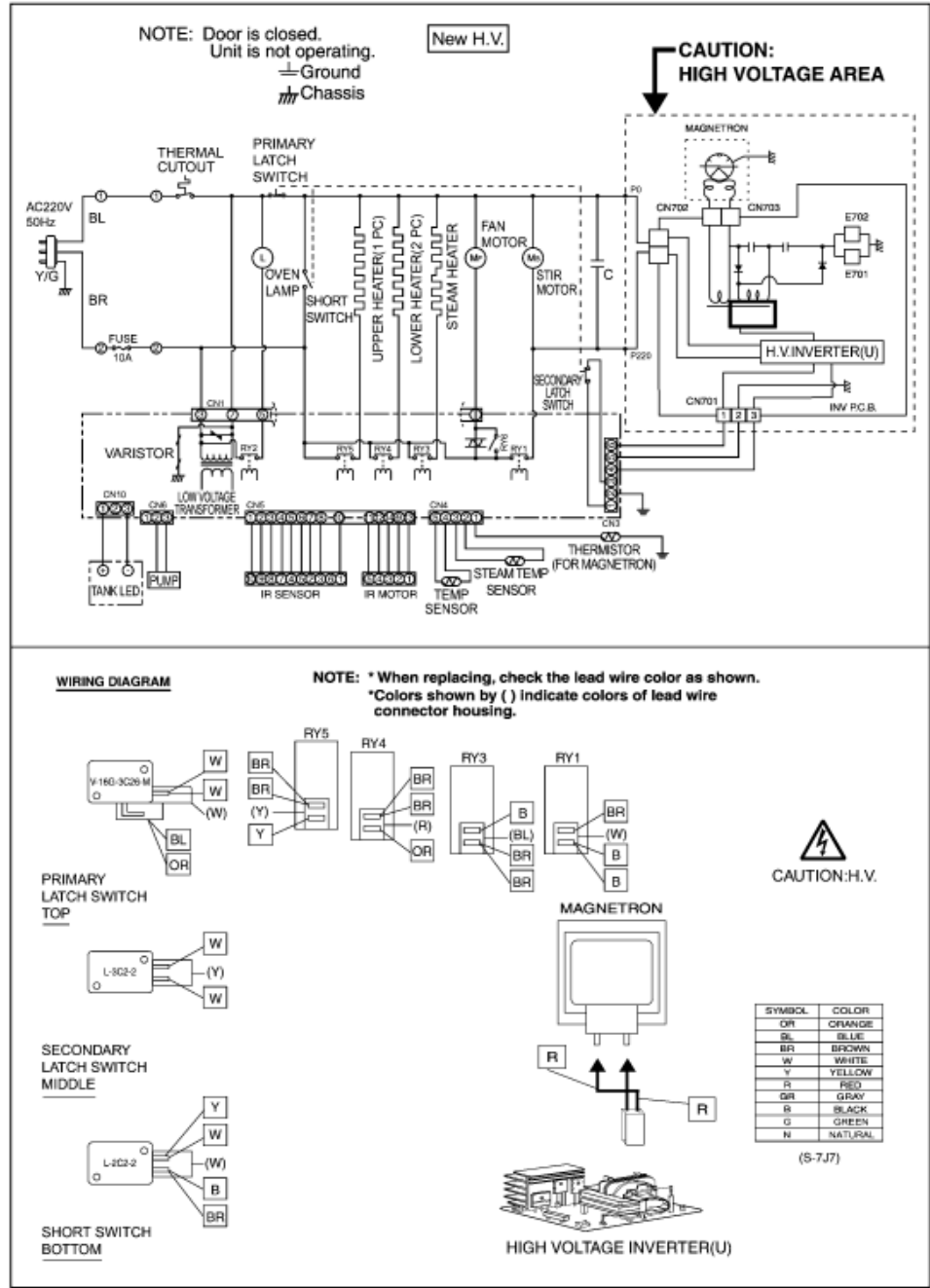
It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.

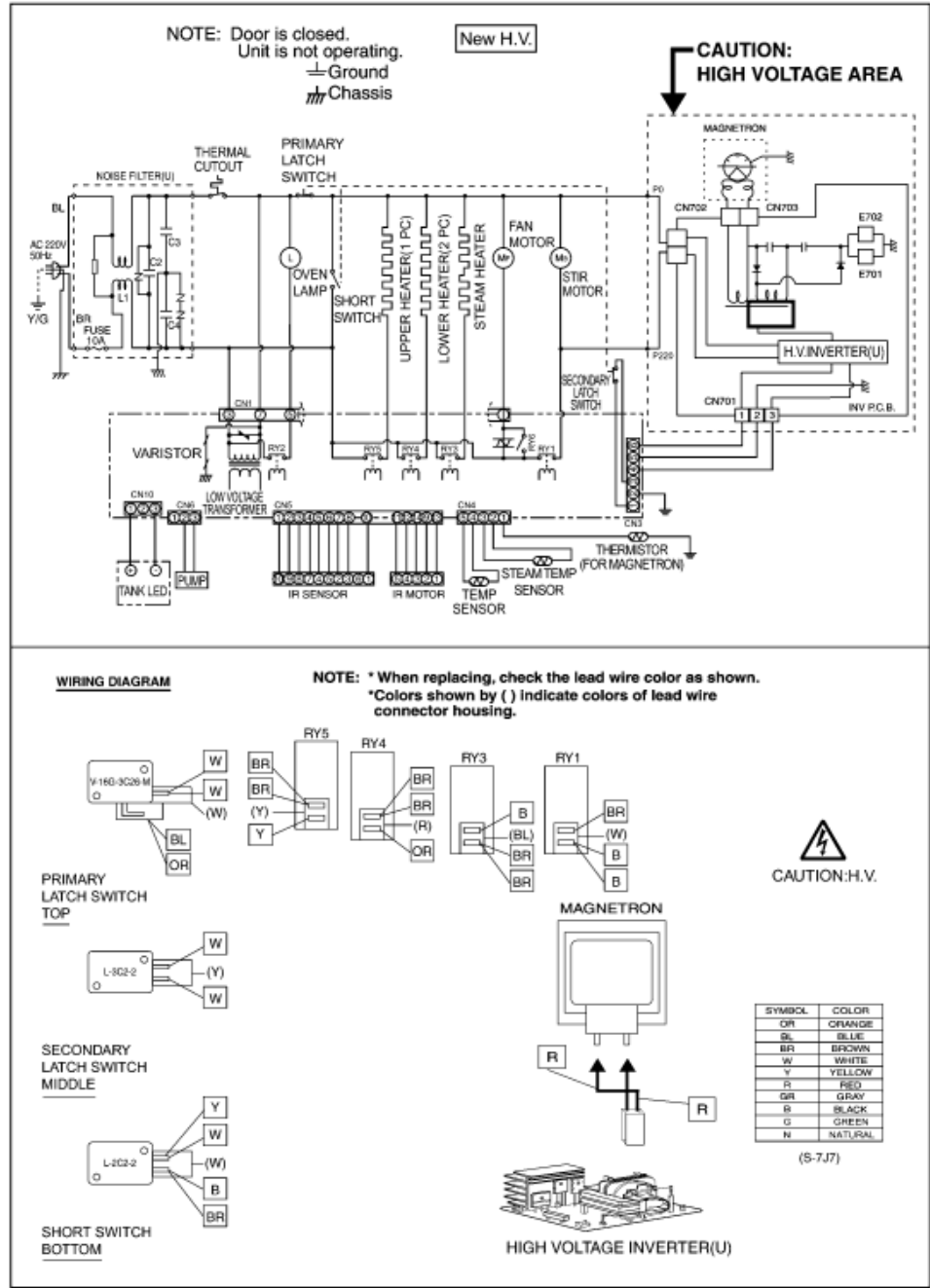
2. Aluminum heat sink that is energized with very high voltage and high heat energy.
3. Very high voltage which may remain in circuitry even when oven is off. High voltage charge may remain in the capacitors on the board.

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





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 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	

2.2 Inverter power supply circuit **NEW H.V.**

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.

2.3 Steam defrost, Auto cook & Steam reheat

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. 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 (Rice)

SELECTED WEIGHT	COOKING TIME
0.2 kg	20 min.00 sec.

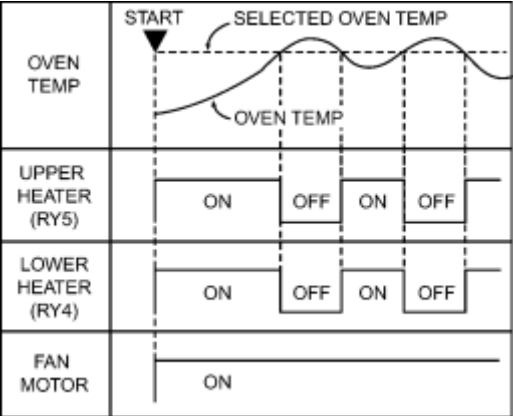
2. When cooking time on display window has elapsed, the oven turns off automatically by a control signal from the digital programmer circuit.
- | COMBINATION | DATE COOK (RY4) | GRILL (RY5) | MICROWAVE (RY1) |
|-------------|-----------------|-------------|-----------------|
| | ON (sec.) | OFF (sec.) | |

2.4 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] pad, 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.



2.5 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 & RY5's ON-OFF time. In all three combination cooking categories, power relay RY1 always stay on, but RY5's ON-OFF time as shown in Figure.

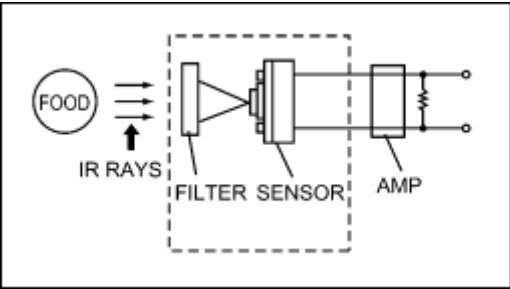
COMBINATION	CATEGORY	GRILL(RY5)		MICROWAVE (RY1)
	ON (sec.)	OFF (sec.)		
1	33	0	ON	
2	24	9	ON	
3	18	15	ON	

2.6 IR reheat

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

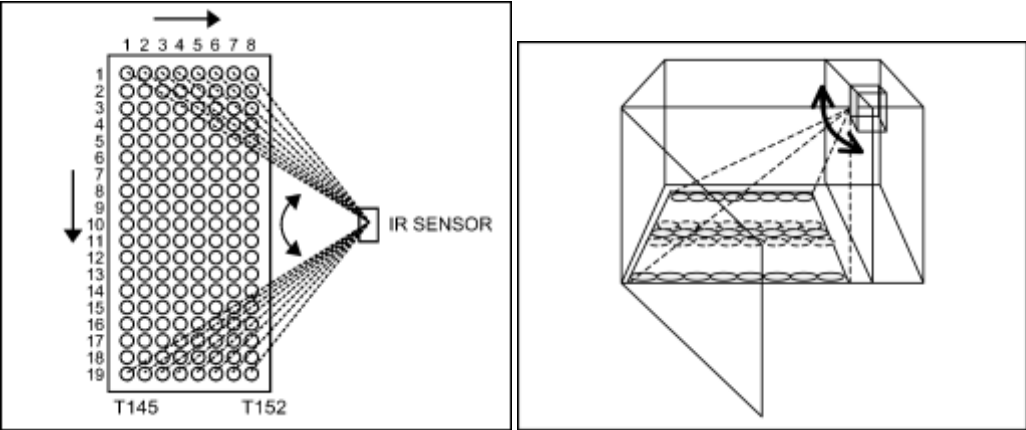
2.6.1 How to read temperature by IR sensor

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.



2.6.2 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)



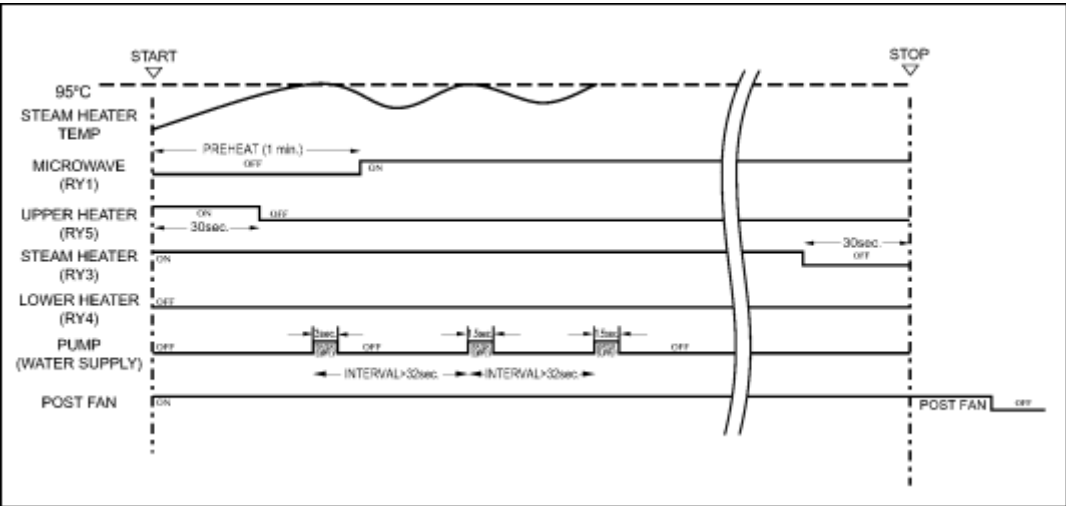
2.7 Steam function (micro steam & steam reheat)

2.7.1 Water Supply

Water in water tank will be pumped out and supply to the steam generation heater located inside back bottom of oven cavity.

2.7.2 Operation

When pressing [start] pad, 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 95°C, the additional water will be supplied to maintain moisture/steam within oven cavity.



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 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.

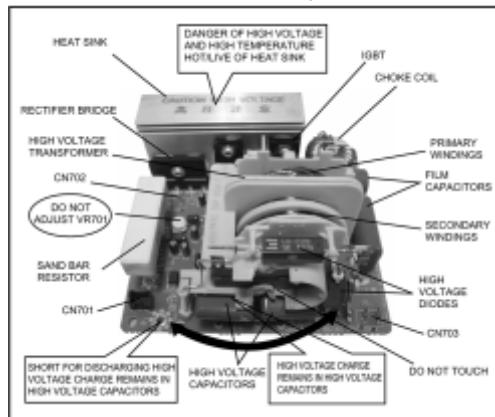
3.2 Inverter warnings

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

The High Voltage Inverter Power Supply handles 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.

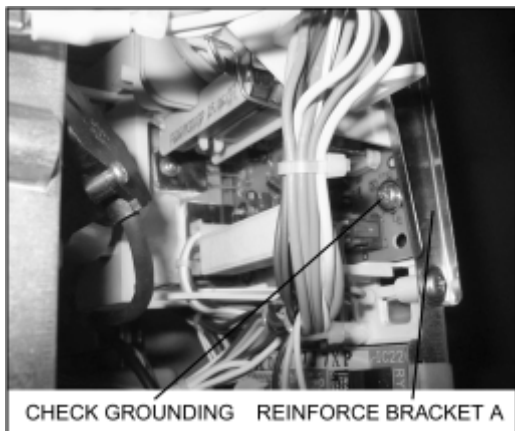
The aluminum heat sink may be HOT due to heat energy, therefore, extreme care should be taken during servicing.



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.

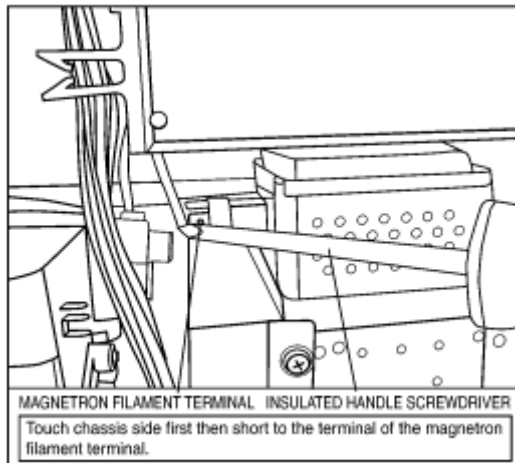


Grounding of the inverter circuit board

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 in 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 touch the chassis ground side first and then short to the output terminals.



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

3.4 When the 10A fuse is blown due to the operation of the short switch

WARNING

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

1. This is mandatory. Refer to "adjustments and measurements" 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 Confirm after repair

1. After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loosen 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 MICROWAVE RADIATION

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

IMPORTANT NOTICE

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.

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.

3.7 Sharp edges

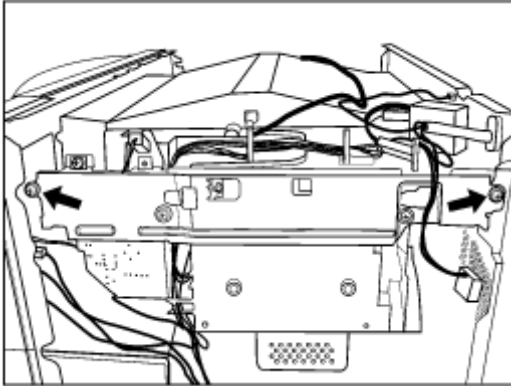
Caution

Please use caution when unpacking, installing or moving the unit, as some exposed edges may be sharp to the touch and cause injury if not handled with care.

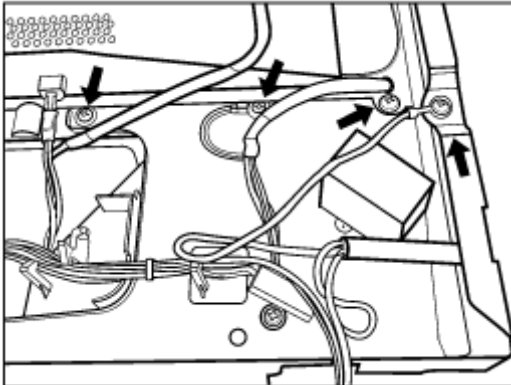
4 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

4.1 Magnetron

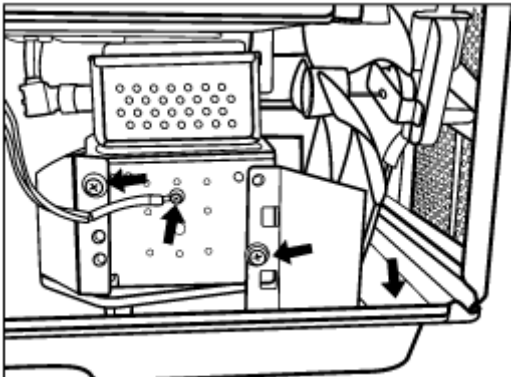
1. Discharge the high voltage capacitor.
2. Remove 2 screws holding reinforce bracket A on oven cavity.



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



4. Remove 1 screw holding oven thermistor on cavity top plate.
5. Remove 1 grounding screw holding AC cord's earth lead.
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.



9. Remove 2 screws holding air guide B on magnetron & on base plate respectively, then remove air guide B.
10. Disconnect 2 lead wires from fan motor terminals.
11. Disconnect lead wires from fuse holder terminals.

12. 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.

13. 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.

CAUTION

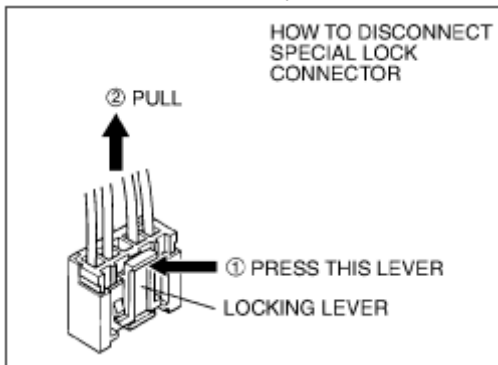
When connecting 2 filament lead wires to the magnetron terminals, be sure to connect the lead wire from high voltage capacitor should be connected to "FA terminal".

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

NOTE:

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

1. Draw out water tank from escutcheon base.
2. Pull out tube A connecting to pump from copper pipe.
3. Remove all wiring connectors from D.P.C. board AU.
4. Remove 1 grounding screw holding on cavity front plate.
5. Open the door of oven, slide the escutcheon base upward and out slightly.
6. Remove 3 screws holding D.P.C. board AU on escutcheon base.
7. Release connector CN7's lock of D.P.C. board AU by pushing both levers inside and pull upward slightly, then remove flat cable of membrane key board.

**To replace membrane key board**

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

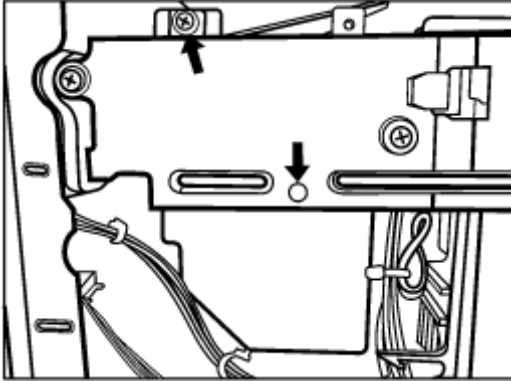
NOTE:

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.

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

1. Remove red connector CN9 from D.P.C. board AU.

2. Remove white connector CN1 from D.P.C. board DU.
3. Remove 1 screw holding D.P.C. board DU on reinforce bracket A.
4. Use tools such as pincers to reject the tab of plastic bracket.
5. Remove D.P.C. board DU.



6. 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.

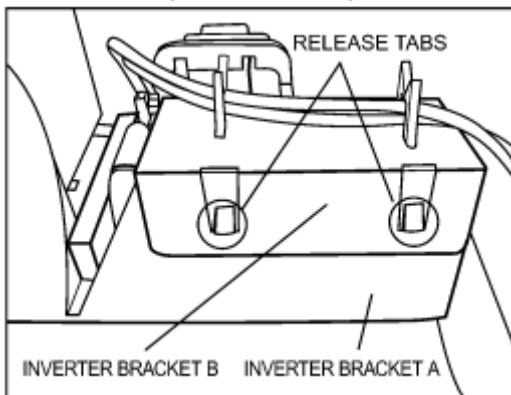
NOTE:

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

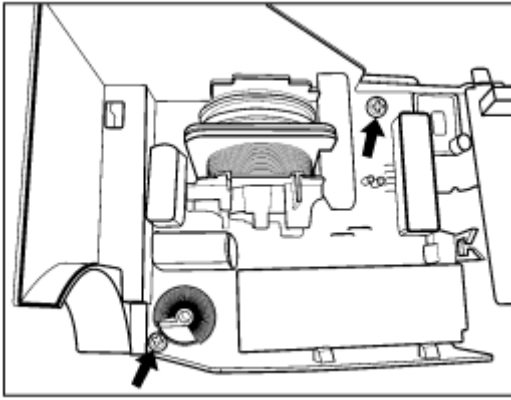
7. With all the terminal pins cleaned and separated from D.P.C. contacts, remove the defective transformer/power relays. Replace components making sure all terminal pins are inserted completely, then resolder all terminal contacts carefully.

4.4 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 oven cavity.
4. Remove 1 screw holding oven thermistor on cavity top plate.
5. Remove 1 grounding screw holding AC cord's earth lead.
6. Disconnect 2 high voltage lead wires from magnetron filament terminals.
7. Unplug connector CN701 & CN702 from H.V. Inverter board.
8. Disconnect lead wires from fuse holder terminals.
9. Disconnect 2 lead wires from capacitor located on reinforce bracket B.
10. Disconnect 2 lead wires from fan motor terminals.
11. Unplug connector of AC cord's Negative lead.
12. Remove white connector CN1 from D.P.C. board DU.
13. Remove red connector CN9 from D.P.C. board AU.
14. Release locking tabs connecting Inverter bracket A with Inverter bracket B, detach bracket A & B.

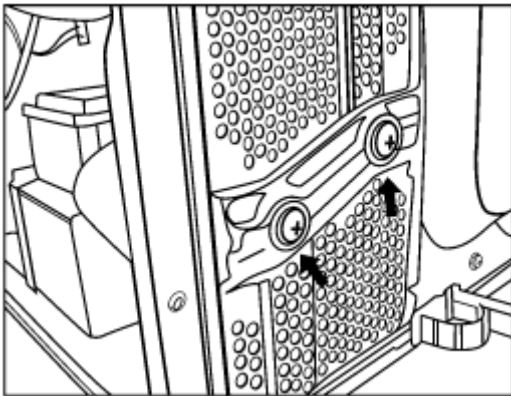


15. Remove 2 screws holding H.V. Inverter on Inverter bracket.



4.5 Fan motor

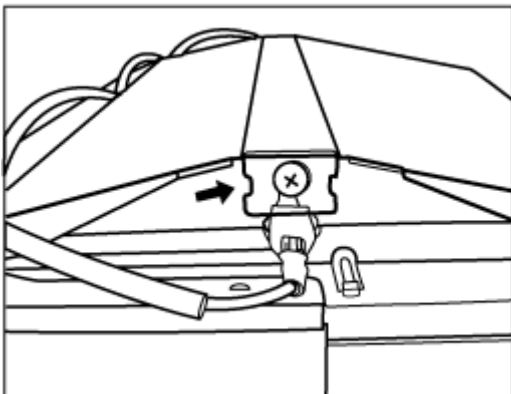
1. Disconnect 2 lead wires from fan motor terminals.
2. Remove 2 screws holding air guide B on magnetron & on base plate respectively, then remove air guide B.
3. Remove 2 screws holding fan motor and detach fan motor from oven assy.



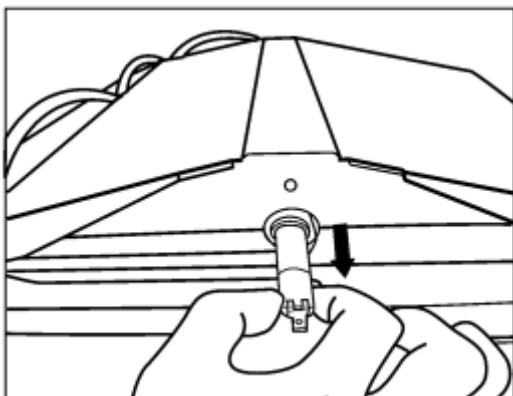
4. Remove fan blade from fan motor shaft by pulling it straight out.

4.6 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.

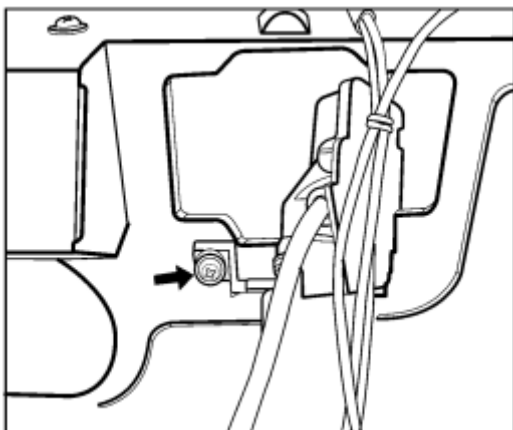


3. Remove the upper heater by pulling it out.



4.7 IR SENSOR

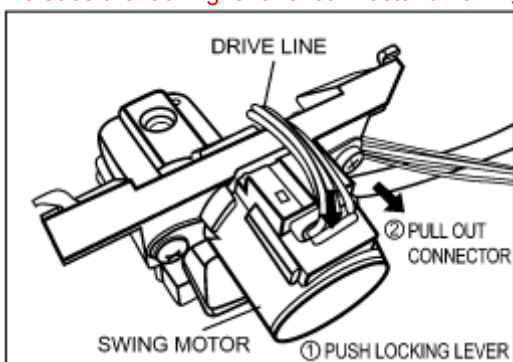
1. Disconnect connector CN5 from D.P.C. board AU.



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.



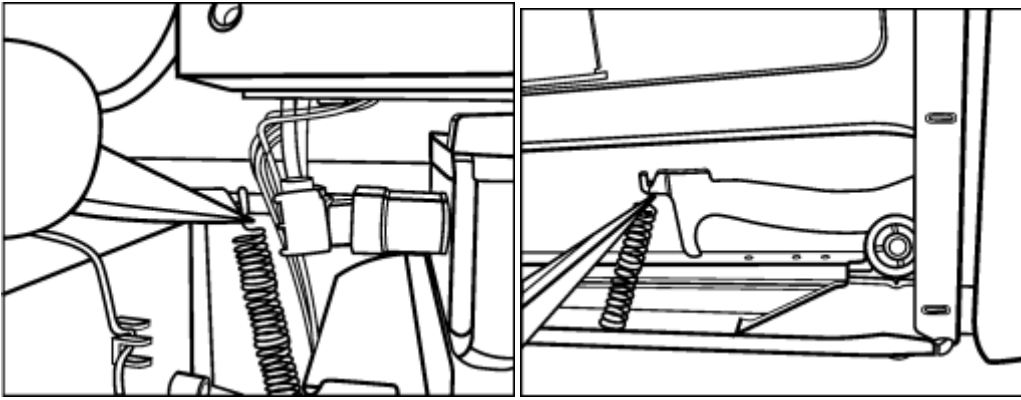
2. Remove 2 screws holding swing motor on motor mounting plate.
3. Remove swing motor from IR sensor assy.

4.8 Door assembly

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

NOTE:

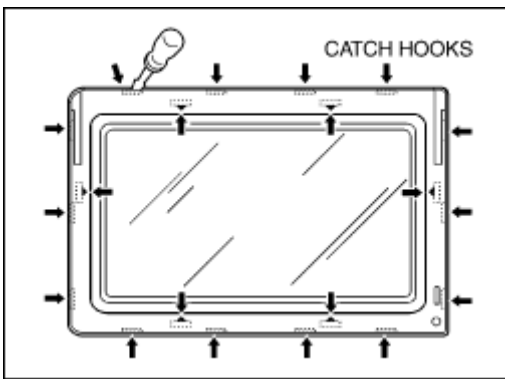
Please support door before operation.



2. Insert flat blade screwdriver to release hinge pin from left hinge.
3. Slide out left hinge pin to release the door.
4. Slide out door arms from the oven to disconnect door assembly.
5. Remove door arms from the door assembly.

To remove door C

6. Release catch hooks.



NOTE:

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

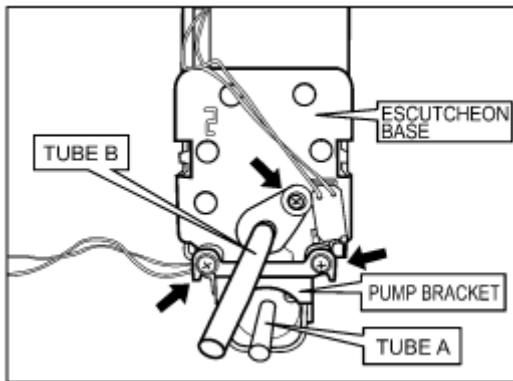
7. When mounting the door to the oven, be sure to adjust the door parallel to the cavity front plate by moving hinges back or front.

NOTE:

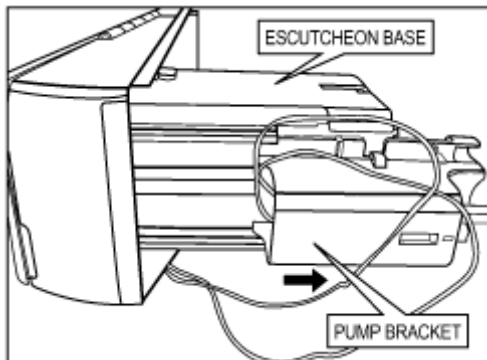
Upper portion of door A should firmly touch the cavity front plate without pushing.

4.9 Pump

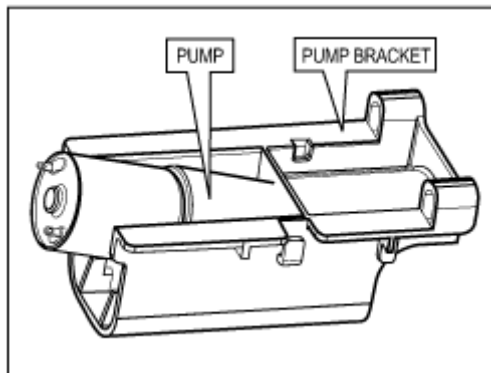
1. Draw out water tank from escutcheon base.
2. Pull out tube A connecting to pump from copper pipe.
3. Remove all wiring connectors from D.P.C board AU.
4. Remove 1 grounding screw holding on cavity front plate.
5. Open the door of oven, slide the escutcheon base upward and out slightly.
6. Pull out tube B from inlet of pump.
7. Remove 2 screws holding pump bracket on escutcheon base.



8. Draw out pump bracket from bottom rail of escutcheon base.



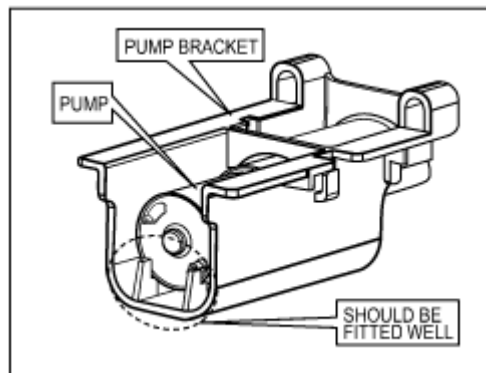
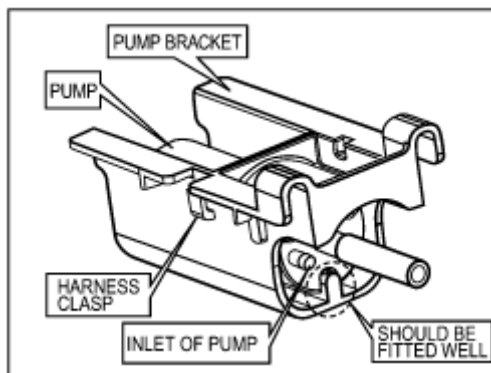
9. Uplift the afterbody of pump slightly to release the tabs of pump bracket, then draw out pump.



10. Pull out tube A from outlet of pump.

To install pump

1. Insert pump into pump bracket (Inlet of pump should be close to harness clasp of pump bracket).
2. Please confirm if it is fitted well after installing.



NOTE:

After repairing, when insert copper pipe into tube A, make sure the inserted depth should be no less than 9 mm to prevent tube A from slipping.

4.10 Stir motor

1. Remove tubes from both ends of copper pipe.
2. Remove 1 screw holding air guide B on the base.
3. Remove left and right door key springs from door arm.

NOTE:

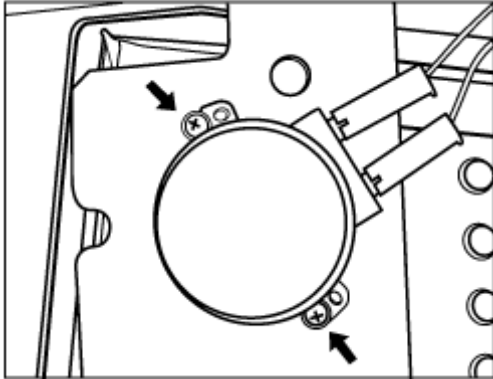
Please support door before operation.

4. Turn over the microwave oven and remove all screws holding base on oven assy & two hinges.

NOTE:

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

5. Remove base from oven assy.
6. Disconnect 2 lead wires from stir motor terminals.
7. Remove 2 screws holding stir motor.



4.11 Heater DU (steam heater)

1. Remove tubes from both ends of copper pipe.
2. Remove 1 screw holding air guide B on the base.
3. Remove left and right door key springs from door arm.

NOTE:

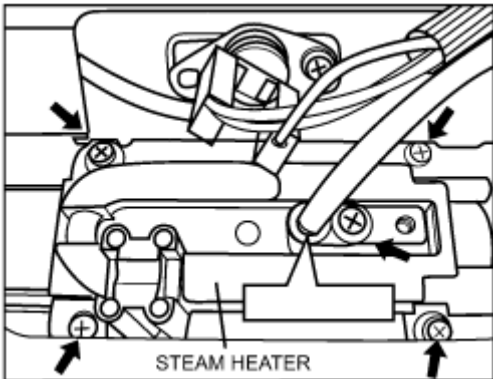
Please support door before operation.

4. Turn over the microwave oven and remove all screws holding base on oven assy & two hinges.

NOTE:

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

5. Remove base from oven assy.
6. Disconnect 2 lead wires from heater DU terminals.
7. Remove 1 screw holding thermistor on heater DU.



8. Remove 4 screws holding heater DU & thermal cutout bracket on the bottom of oven assy.

To install heater DU**NOTE:**

1. Please grease enough silicon evenly between the interface of heater DU and bottom of oven cavity. (about 0.3mm thickness), this is for good conductivity.

2. Tighten 4 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.

4.12 Lower heater

1. Remove tubes from both ends of copper pipe.
2. Remove 1 screw holding air guide B on the base.
3. Remove left and right door key springs from door arm.

NOTE:

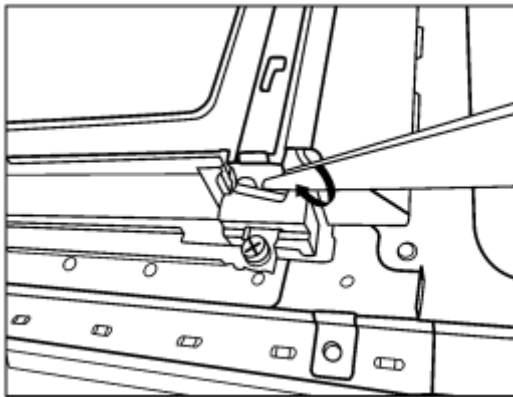
Please support door before operation.

4. Turn over the microwave oven and remove all screws holding base on oven assy & two hinges.

NOTE:

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

5. Remove base from oven assy.
6. Disconnect 2 lead wires from the right side of lower heater.
7. Remove 2 screws linking the terminals of lower heater.
8. Use tools such as pliers to turn out the tab located on the left side of lower heater.



5 COMPONENT TEST PROCEDURE

CAUTION NEW, H.V.

1. High voltage is present at the high voltage terminal 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 oven from its power source and discharge the high voltage capacitors.

5.1 Primary latch switch (door switch and power relay B) interlocks

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

	Door Closed	Door Opened
Primary Latch switch	0Ω (Close)	∞ Ω(Open)
Door Switch	0Ω (Close)	∞ Ω(Open)
Power Relay B	∞ Ω (Close)	∞ Ω(Open)

5.2 Short switch & monitor

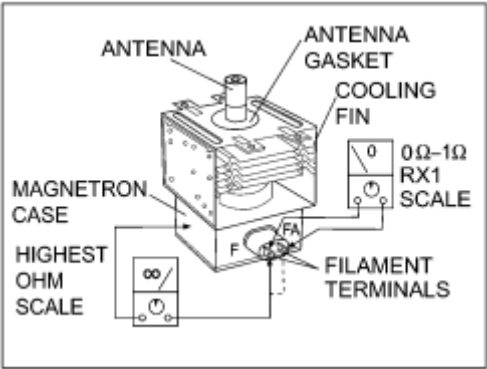
1. Unplug lead wires from Inverter Power Supply (U) primary terminals.
2. Connect test probes of ohm meter to the disconnected leads that were connected to Inverter Power Supply (U).
3. Test the continuity of short switch with door opened and closed positions using lowest scale of the ohm meter.
Normal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

Door Opened	Door Closed
0Ω	∞ Ω

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.

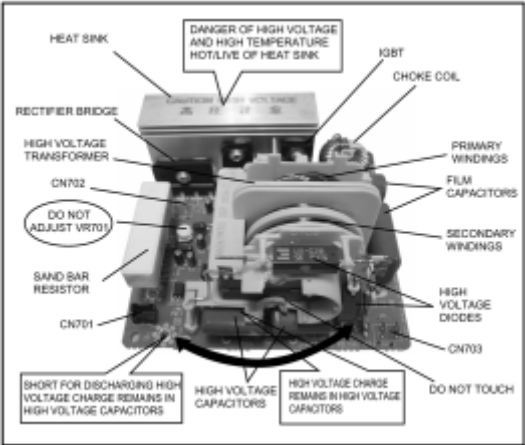


5.4 Membrane key board (Membrane switch assembly)

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. (Refer to Mini Manual)

5.5 Inverter power supply (U)

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



DANGER HIGH VOLTAGE
Test if failure codes of H95, H97 or H98 appear by doing the following procedure. It is recommended to use an AC line input current Ampere meter for testing.

Test1

- 1. Program DPC.
 - 1. Press **Timer/Clock** pad twice.
 - 2. Press **Start** pad once.
 - 3. Press **Micro Power** pad once.
- 2. Place 1 liter of water load into oven cavity.
- 3. Unplug 2 pin H.V. lead wire connector CN703 from magnetron tube.
- 4. Program oven at High power for 1 minute and press start.
 - 1. After approximately 23 seconds, oven stops.
 - 2. During oven operation, input current is approximately 0.5 to 1A. If both a and b are OK, proceed to test 2.

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

Test2

Continued from Test 1

- 1. Unplug 3 pin connector CN701. CN703 remains unplugged.
- 2. Program oven at High power for 1 minute and press start.
 - 1. After approximately 3 seconds, oven stops.

TEMP	MAGNETRON THERMISTOR	STEAM HEATER THERMISTOR	OVEN THERMISTOR
	INPUT AMPERE	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

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.

5.7 IR Sensor

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

Test

1. Program DPC.
 1. Press **Timer/Clock** pad twice.
 2. Press **Start** pad once.
 3. Press **Micro Power** pad once.
2. Open the door, then keep pressing **Start** pad for more than 2 seconds until buzzer beeps.
3. Remain door opening and press **Start** pad twice, then "°C" will be shown on the display.
4. Close the door.
5. Press **Start** pad, 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/Resent** pad to finish the test.

6 MEASUREMENTS AND ADJUSTMENTS

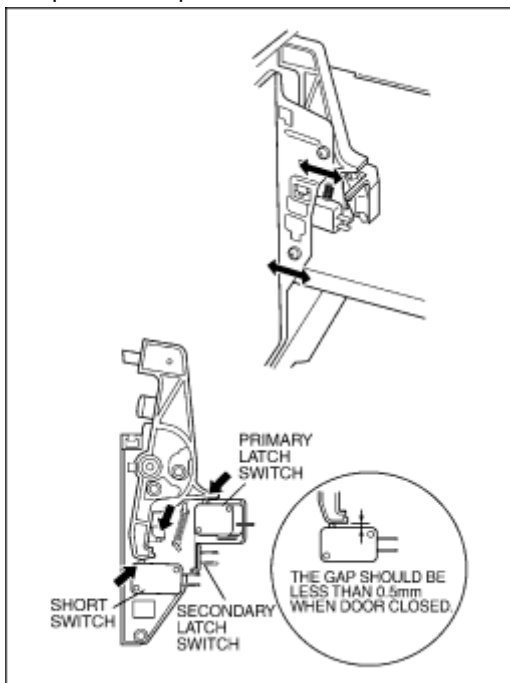
6.1 Adjustment of Primary latch switch, Secondary latch switch and Short switch.

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

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.



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 liter beaker
- Glass thermometer
- Wrist watch or stopwatch

NOTE:

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

1. Fill the beaker with exactly one liter of tap water. Stir the water using the thermometer and record the 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 handles very large current and high voltage. Operating a misaligned inverter circuit is dangerous.
2.	Ensure proper grounding before checking for trouble.
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. To do otherwise may result in a false reading or damage to your meter. When disconnecting a plastic connector from a terminal, you must hold the plastic connector instead of the lead wire and then disconnect it, otherwise lead wire may be damaged or the connector cannot be removed.
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 yourself to 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. Keep pressing **Steam Shot** pad for more than 2 seconds until buzzer beeps.
3. Press **Start** pad 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** pad again, one more older error code will be displayed.
3. If the oven is ok, it will show "000" and blinking.
4. Error cod list

H** Hardware problem, oven itself has problem.

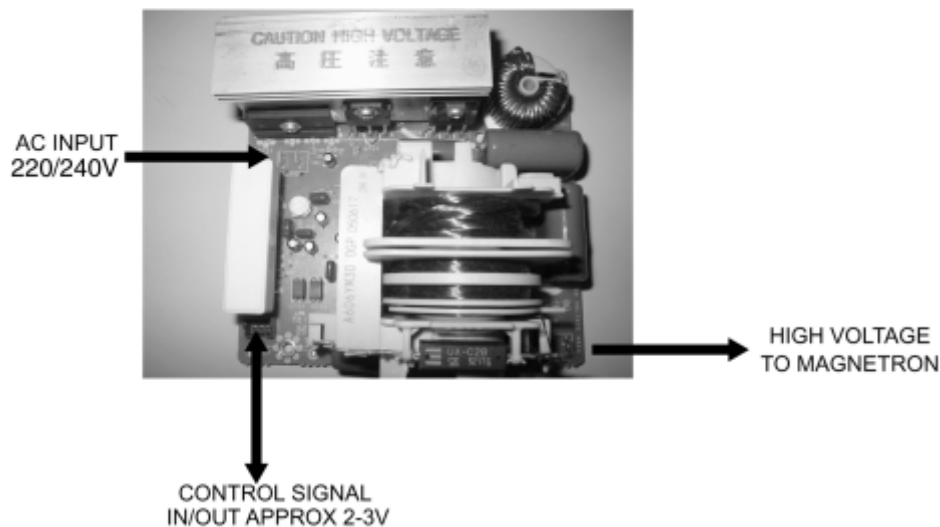
U** Usage problem such as run out of water and oven itself works well.

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
H68	IR sensor failure
H61	IR thermistor open/short
H60	IR sensor error
H44	Key board switch failure
H39	Steam heater thermistor failure
H32	Magnetron thermistor failure
H30	Oven thermistor failure

	SYMPTOM	CAUSE	CORRECTIONS
H02	Mercury (It is able to show up both in test mode and cooking mode)	Usage problem	
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		
U65	Power down controlled by magnetron thermistor		
HOT	Oven is hot (It is able to show up both in test mode and cooking mode)		

7.1 (Trouble) 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 RY-1 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 cooking)	Oven thermistor circuit is not functions.	1. Oven thermistor 2. Loose wiring
	Oven stops in 30 seconds after pressing start pad. (Steam cooking)	Steam heater thermistor circuit is not functions.	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



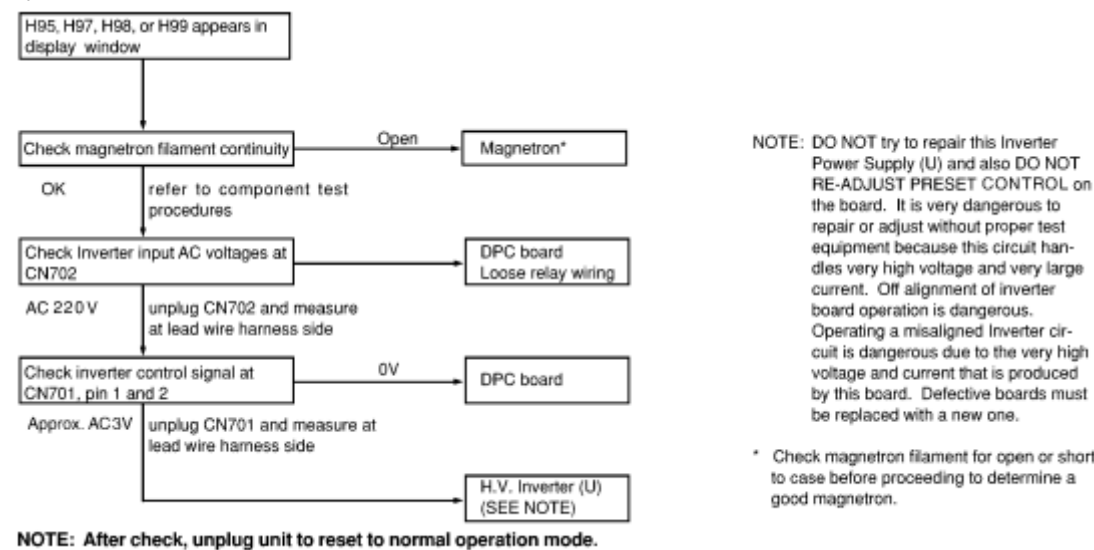
7.2 (Trouble) Other troubles

	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 3. Open low voltage transformer 4. Defective DPC	Check fan motor if thermal cutout is defective.
		1. Shorted lead wire harness	

SYMPTOM	CAUSE	CORRECTIONS
2. No display operation at all. Fuse is blown.	2. Defective primary latch switch (NOTE 1) 3. Defective short switch (NOTE 1) 4. Defective Inverter Power Supply (U)	Check adjustment of primary, secondary latch switch and short switch including door.
	NOTE 1: All of these switches must be replaced at the same time. Check continuity of power relay B (RY-1)'s contacts (between 1 and 2) and if it has continuity, replace power relay B (RY-1) also.	
3. Oven does not accept key input (Program)	1. Key input is not in proper sequence	Refer to operation procedure.
	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 DPC troubleshooting.
4. Fan motor turns on when oven is plugged in with door closed.	1. Misadjustment or loose wiring of secondary latch switch	Adjust door and latch switches.
	2. Defective secondary latch switch	
5.	1. Off-alignment of latch switches	Adjust door and latch switches.
Timer starts count down but no microwave oscillation. (No heat while oven lamp and fan motor turn on)	1. Open or loose connection of high voltage circuit especially magnetron filament circuit NOTE:	Check high voltage component according to component test procedure and replace if it is defective.
	2. 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	Check high voltage component according to component test procedure and replace if it is defective.
	4. Open or loose wiring of power relay B (RY-1)	
	5. Defective primary latch switch	
	6. Defective DPC or power relay B (RY-1)	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	Consult electrician
	2. Open or loose wiring of magnetron filament circuit. (Intermittent oscillation)	
	3. Aging change of magnetron	
8. Fan motor turns on and turntable 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 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	Adjust door and latch switches.
	2. Operation of thermal cutout	

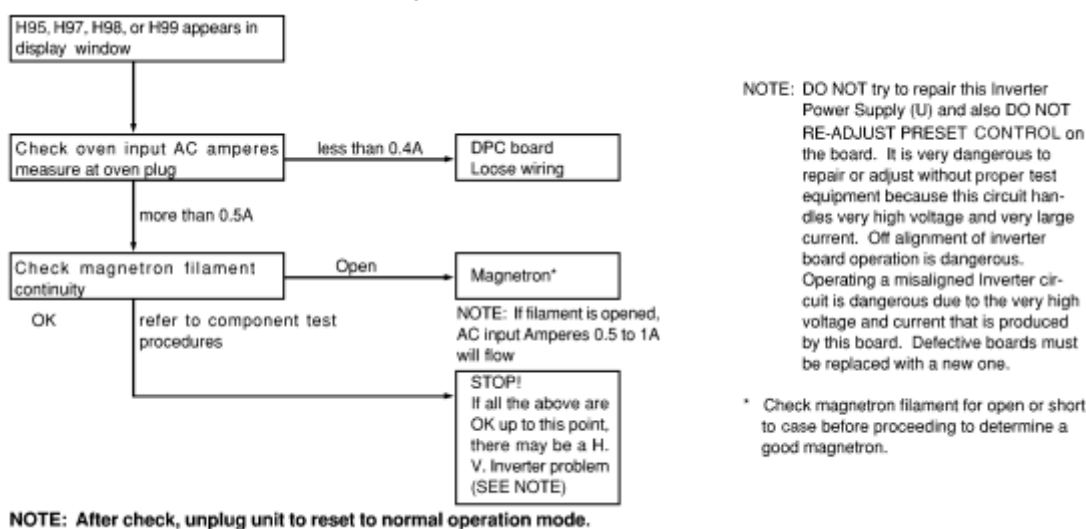
7.3 Troubleshooting of inverter circuit (U) and magnetron NEW H.V.

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 key is pressed and there is no microwave oscillation.



Alternate way to troubleshoot oven with AC Ampere meter used

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



7.4 Trouble related to Digital Programmer Circuit

SYMPTOM	Power will:	Ammeter reading is:	CHECK	To do:	RESULT	CAUSE/CORRECTIONS
No display when oven is first plugged in			Fuse pattern of DPC		Normal	→ Step2
					Open	Replace DPC or Fuse Pattern
			2 Low voltage transformer (L.V.T.) secondary voltage		Abnormal 0V	L.V.T.
No key input			3 IC10 pin5 voltage		Normal	→ Step3
					Abnormal	IC10
					Normal=5V	IC1, CX320, Display
No beep sound			1 Membrane switch continuity		Abnormal	Membrane switch
					Normal	IC-1
			1 IC-1 pin 8 voltage		Abnormal	IC-1
Power relay A(RY-2) does not turn on even though the program had been set and the start pad is tapped					Normal=5V	BZ210, Q210
			1 IC-1 pin 26 voltage while operation		Abnormal	IC-1
					Normal=5V	→ Step 2
No microwave oscillation at any power			2 Short circuit between IC221 pin 11 and '0' V.		Still not turn on	RY-2
					RY-2 turns on	IC221
			1 IC-1 pin 24 voltages while operation at high power		Abnormal	IC-1
Dark or unclear display					Normal=5V	→ Step 2
			2 Transistor Q221		Abnormal	Q221
					Normal	RY-1
Missing or lighting of unnecessary segment			1 Replace display and check operation		Normal	Display
					Abnormal	IC-1
			1 Re-adjust rubber connector, check operation and replace IC1		Normal	IC-1
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= 220V	→ Step 2
			2 Unplug CN701 (3 pin) connector and measure pin 3 voltage		Abnormal= 0V	D.P.C.
					Approx. AC 3V	Magnetron

Remedy:

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:

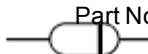
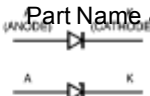
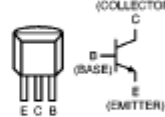
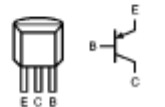
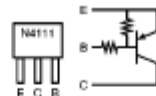

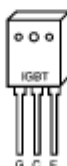
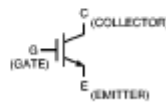
Follow the matrix table below to identify the problem source.

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 (F606YM300GP)
		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.

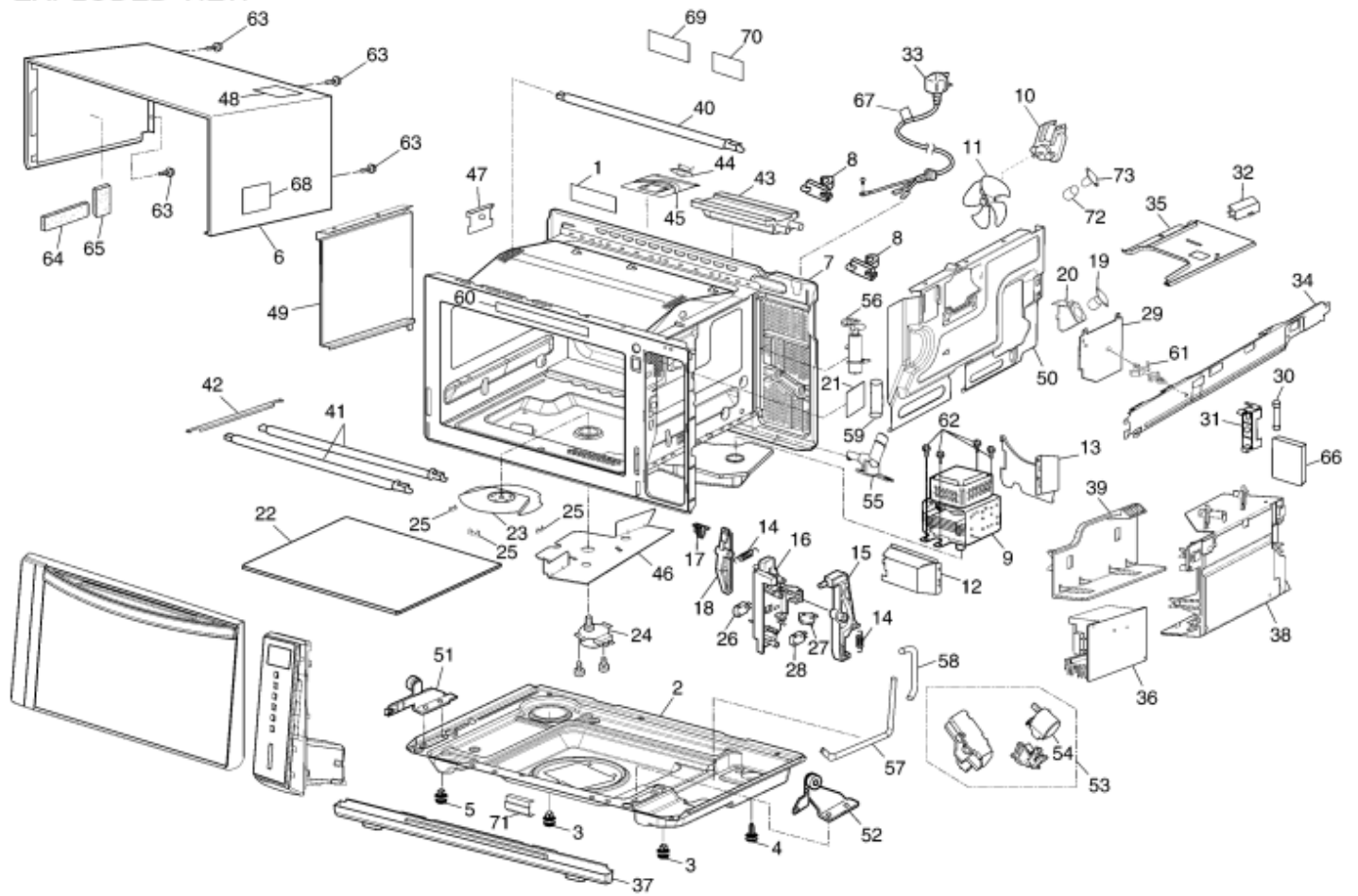
7.6 How to check the semiconductors using an OHM meter

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks												
Diode			<table> <tr> <th></th><th>FORWARD</th><th>REVERSE</th></tr> <tr> <td>A-K</td><td>SMALL</td><td>∞</td></tr> </table>		FORWARD	REVERSE	A-K	SMALL	∞							
	FORWARD	REVERSE														
A-K	SMALL	∞														
Transistor	NPN Transistor		<table> <tr> <th></th><th>FORWARD</th><th>REVERSE</th></tr> <tr> <td>B-E</td><td>SMALL</td><td>∞</td></tr> <tr> <td>B-C</td><td>SMALL</td><td>∞</td></tr> <tr> <td>C-E</td><td>∞</td><td>∞</td></tr> </table>		FORWARD	REVERSE	B-E	SMALL	∞	B-C	SMALL	∞	C-E	∞	∞	
	FORWARD	REVERSE														
B-E	SMALL	∞														
B-C	SMALL	∞														
C-E	∞	∞														
	PNP Transistor		<table> <tr> <th></th><th>FORWARD</th><th>REVERSE</th></tr> <tr> <td>B-E</td><td>SMALL</td><td>∞</td></tr> <tr> <td>C-B</td><td>SMALL</td><td>∞</td></tr> <tr> <td>C-E</td><td>∞</td><td>∞</td></tr> </table>		FORWARD	REVERSE	B-E	SMALL	∞	C-B	SMALL	∞	C-E	∞	∞	
	FORWARD	REVERSE														
B-E	SMALL	∞														
C-B	SMALL	∞														
C-E	∞	∞														
Digital Transistor	PNP Transistor		<table> <tr> <th></th><th>FORWARD</th><th>REVERSE</th></tr> <tr> <td>E-B</td><td>10k Ω ~ 30k Ω</td><td>10k Ω ~ 30k Ω</td></tr> <tr> <td>C-B</td><td>50k Ω ~ 90k Ω</td><td>∞</td></tr> <tr> <td>C-E</td><td>40k Ω ~ 80k Ω</td><td>∞</td></tr> </table>		FORWARD	REVERSE	E-B	10k Ω ~ 30k Ω	10k Ω ~ 30k Ω	C-B	50k Ω ~ 90k Ω	∞	C-E	40k Ω ~ 80k Ω	∞	
	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)	 		<table> <tr> <th></th><th>FORWARD</th><th>REVERSE</th></tr> <tr> <td>E-C</td><td>SMALL</td><td>∞</td></tr> <tr> <td>E-G</td><td>∞</td><td>∞</td></tr> <tr> <td>C-G</td><td>∞</td><td>∞</td></tr> </table>		FORWARD	REVERSE	E-C	SMALL	∞	E-G	∞	∞	C-G	∞	∞	
	FORWARD	REVERSE														
E-C	SMALL	∞														
E-G	∞	∞														
C-G	∞	∞														

7.7 H.V. Inverter main parts list

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
Q701	A691EM300GP	IGBT	1	
Q702		IGBT	1	
C701	ECWF5184N300	FILM CAPACITOR	1	
C702	ECQE2505T869	FILM CAPACITOR	1	
C703	ECWF2395N632	FILM CAPACITOR	1	
DB701	B0FBBS000001	RECTIFIER BRIDGE	1	
L701	F5020M300GP	CHOKE COIL	1	
R702	D0CM352JA002	SAND BAR RESISTOR	1	
T701	A609AM300GP	TRANSFORMER	1	(INCLUDING D701, D702, C706, C707)
D701, D702	B0FBAZ000001	DIODE	2	
C706	ECWH30562U03	FILM CAPACITOR	1	
C707	ECWH30432U04	FILM CAPACITOR	1	

EXPLODED VIEW




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  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
<u>1</u>	F01577J70HP	NAME PLATE	1	CHP
1	F01577J70KP	NAME PLATE	1	CKP
1	F01577J70KT	NAME PLATE	1	CKT
1	F01577J70MP	NAME PLATE	1	CMP
1	F01577J70PT	NAME PLATE	1	CPT
1	F01577J70TP	NAME PLATE	1	CTP
1	F01577J70YP	NAME PLATE	1	CYP
1	F01577J70YT	NAME PLATE	1	CYT
1	F01577J70ZP	NAME PLATE	1	CZP
<u>2</u>	F10017J70XPG	BASE	1	EXCEPT CTP
2	F1001-1K00	BASE	1	CTP
<u>3</u>	A1008-1180	RUBBER FOOT	2	
<u>4</u>	F10084T00AP	RUBBER FOOT	1	
<u>5</u>	F10087J70XP	RUBBER FOOT	1	
<u>6</u>	F110D7J70SXP	CABINET BODY	1	
<u>7</u>	F200A7J70HP	OVEN	1	CHP
7	F200A7J70XP	OVEN	1	EXCEPT CHP
<u>8</u>	F11404J60XN	STOPPER	2	
<u>9</u>	2M261-M32JY	MAGNETRON	1	
<u>10</u>	F400A6E70XP	FAN MOTOR	1	EXCEPT CKP, CMP & CYP
10	F400A7J70MP	FAN MOTOR	1	CKP, CMP, CYP
<u>11</u>	F40085G10XN	FAN BLADE	1	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
<u>12</u>	F40257J70XP	AIR GUIDE A	1	
<u>13</u>	F40267J70XP	AIR GUIDE B	1	
<u>14</u>	F30977J70XP	SPRING	2	
<u>15</u>	F31027J70XP	LATCH SWITCH LEVER	1	
<u>16</u>	F31037J70XP	DOOR HOOK	1	
<u>17</u>	F31057J70XP	LATCH BRACKET	1	
<u>18</u>	F32497J70XP	LATCH SWITCH LEVER	1	
<u>19</u>	F612E5G50XN	INCANDESCENT LAMP (U)	1	EXCEPT CHP
<u>20</u>	F60747J70XP	INCANDESCENT LAMP BRACKET	1	
<u>21</u>	F64377J70XP	GLASS	1	
<u>22</u>	F010T7J70HP	MICROLITE GLASS (U)	1	
<u>23</u>	F202K7J70XP	ANTENNA STIRRER (U)	1	
<u>24</u>	F61447J70XP	STIR MOTOR	1	
<u>25</u>	F20197J70XP	ANTENNA BRACKET	3	
<u>26</u>	J61424T00AP	MICRO SWITCH	1	(V-15G-3C25) (PRIMARY LATCH SWITCH)
<u>27</u>	A61425180AP	MICRO SWITCH	1	(D3V-16G-3C25) (SECONDARY LATCH SWITCH)
<u>28</u>	A61785180AP	MICRO SWITCH	1	(D3V-1G-2C25) (SHORT SWITCH)
<u>29</u>	F603Y7J70XP	D.P.CIRCUIT (DU)	1	
<u>30</u>	A62304210BP	FUSE	1	10A
<u>31</u>	F62315G10XN	FUSE HOLDER	1	EXCEPT CZP
<u>32</u>	MKPX2335K	FILM CAPACITOR	1	EXCEPT CZP
<u>33</u>	F900C5Q00YK	AC CORD W/PLUG	1	EXCEPT CTP, CPT & CZP
33	F900C5Q00TN	AC CORD W/PLUG	1	CPT, CTP
33	F900C7J70ZP	AC CORD W/PLUG	1	CZP
<u>34</u>	F20347J70XP	REINFORCE BRACKET A	1	
<u>35</u>	F20367J70XP	REINFORCE BRACKET B	1	
<u>36</u>	F606YM300GP	H.V.INVERTER (U)	1	
<u>37</u>	F80237J70XP	ESCUTCHEON SASH	1	
<u>38</u>	F65857J70XP	INVERTER BRACKET A	1	
<u>39</u>	F67637J70XP	INVERTER BRACKET B	1	
<u>40</u>	F630H7J70MP	UPPER HEATER (AU)	1	CKP, CMP, CYP
40	F630H7J70XP	UPPER HEATER (AU)	1	EXCEPT CKP, CMP & CYP

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
<u>41</u>	F630G7J70MP	LOWER HEATER (AU)	2	CKP, CMP, CYP
41	F630G7J70XP	LOWER HEATER (AU)	2	EXCEPT CKP, CMP & CYP
<u>42</u>	F91487J70XP	CONNECTIVE SHAFT	1	
<u>43</u>	J611E6E10MP	HEATER (DU)	1	CKP, CMP, CYP
43	J611E6E10HP	HEATER (DU)	1	EXCEPT CKP, CMP & CYP
<u>44</u>	F61457J70XP	THERMAL CUTOUT	1	
<u>45</u>	F66267J70XP	THERMAL CUTOUT BRACKET	1	
<u>46</u>	F62447J70XP	LOWER COOLING PLATE	1	
<u>47</u>	F64607J70XP	HEATER MOUNTING PLATE	1	
<u>48</u>	F01506W50XP	NO TOUCHING LABEL	1	
<u>49</u>	F22377J70XP	LEFT HEATER PANEL	1	
<u>50</u>	F22367J70XP	RIGHT HEATER PANEL	1	
<u>51</u>	F300B7J70XP	LEFT HINGE (U)	1	
<u>52</u>	F300U7J70XP	RIGHT HINGE (U)	1	
<u>53</u>	F601L7J70XP	IR SENSOR (U)	1	
<u>54</u>	A6760-1E20	SWING MOTOR	1	
<u>55</u>	F44967J70XP	NOZZLE A	1	
<u>56</u>	F45137J70XP	TIE-IN C	1	
<u>57</u>	F92017J70XP	COPPER PIPE	1	
<u>58</u>	F46507J70XP	TUBE C	1	
<u>59</u>	F92047J70XP	TUBE D	1	
<u>60</u>	F04457J70KP	MENU LABEL	1	CKP, CKT, CPT
60	F04457J70MP	MENU LABEL	1	CMP, CYP
60	F04457J70TP	MENU LABEL	1	CTP
<u>61</u>	F90717J70XP	SUPPORTER	1	
<u>62</u>	XTWFA4+12T	SCREW	4	MAGNETRON
<u>63</u>	XTWAFE4+12D	SCREW	4	CABINET BODY
<u>64</u>	F22587J70XP	ADIABATIC MATERIAL C	1	
<u>65</u>	F22597J70XP	ADIABATIC MATERIAL D	1	
<u>66</u>	F692Y7J70ZP	NOISE FILTER (U)	1	CZP
<u>67</u>	F02395E20KN	CORD CAUTION LABEL	1	CKP, CKT, CPT
<u>68</u>	F02847J70YP	NO. LABEL	1	CYP

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks	Remarks
<u>69</u>	F00066W10MP	CAUTION LABEL	1	CYP	
<u>70</u>	F00066V00HP	CAUTION LABEL	1	EXCEPT CZP	
<u>70</u>	F00066W10ZP	CAUTION LABEL	1	CZP	
<u>71</u>	F11657J50XP	REINFORCE BRACKET	1		
<u>72</u>	F60307J70HP	INCANDESCENT LAMP	1	CHP	
<u>73</u>	F61527J70HP	SOCKET	1	CHP	

8.3 WATER TANK ASSEMBLY



Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
<u>E1</u>	F060Q7J70HP	WATER TANK (U)	1	
<u>E2</u>	F06107J70HP	WATER TANK	1	
<u>E3</u>	F06117J70XP	TANK COVER	1	
<u>E4</u>	F44247J70XP	SEAL	1	
<u>E5</u>	F44437J70XP	TANK PLUG A	1	
<u>E6</u>	F46107J70XP	TANK SPRING	1	
<u>E7</u>	F46077J70XP	WASHER	1	

8.4 ESCUTCHEON BASE ASSEMBLY



Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
<u>E11</u>	F603L7J70HP	D.P.CIRCUIT (AU)	1	CHP
E11	F603L7J70KP	D.P.CIRCUIT (AU)	1	CKP
E11	F603L7J70MP	D.P.CIRCUIT (AU)	1	CMP
E11	F603L7J70PT	D.P.CIRCUIT (AU)	1	CKT, CPT
E11	F603L7J70TP	D.P.CIRCUIT (AU)	1	CTP
E11	F603L7J70YP	D.P.CIRCUIT (AU)	1	CYP
E11	F603L7J70YT	D.P.CIRCUIT (AU)	1	CYT
E11	F603L7J70ZP	D.P.CIRCUIT (AU)	1	CZP
<u>E12</u>	F603M7J70XP	LED BOARD (BU)	1	
<u>E13</u>	F630Y7J70SHP	MEMBRANE SWITCH(U)	1	CHP, CMP, CTP, CYP, CYT
E13	F630Y7J70SKP	MEMBRANE SWITCH(U)	1	CKP, CKT, CPT
E13	F630Y7J70SZP	MEMBRANE SWITCH(U)	1	CZP
<u>E14</u>	F800A7J70SHP	ESCUTCHEON BASE (AU)	1	CHP, CMP, CTP, CYP, CYT

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
<u>E14</u>	F800A7J70SZP	ESCUTCHEON BASE (AU)	1	CZP
<u>E15</u>	F801N7J70SHP	ESCUTCHEON BASE (BU)	1	CHP, CMP, CTP, CYP, CYT
<u>E15</u>	F801N7J70SKP	ESCUTCHEON BASE (BU)	1	CKP, CKT, CPT
<u>E15</u>	F801N7J70SZP	ESCUTCHEON BASE (BU)	1	CZP
<u>E16</u>	F06397J70XP	PUMP BRACKET	1	
<u>E17</u>	F400M7J70XP	PUMP (U)	1	
<u>E18</u>	F45127J70XP	TIE-IN B	1	
<u>E19</u>	F46487J70XP	TUBE A	1	
<u>E20</u>	F46497J70XP	TUBE B	1	

8.5 DOOR ASSEMBLY



Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
<u>D1</u>	F390L7J70SXP	DOOR (U)	1	
<u>D3</u>	F30447J70XP	DOOR ARM (RIGHT)	1	
<u>D4</u>	F30857J70XP	DOOR C	1	
<u>D5</u>	F33347J70XP	SEAL	1	
<u>D7</u>	F30547J70XP	DOOR ARM (LEFT)	1	
<u>D8</u>	F32317J70XP	DOOR KEY SPRING A	1	
<u>D9</u>	F32307J70XP	DOOR KEY SPRING B	1	

8.6 WIRING MATERIALS

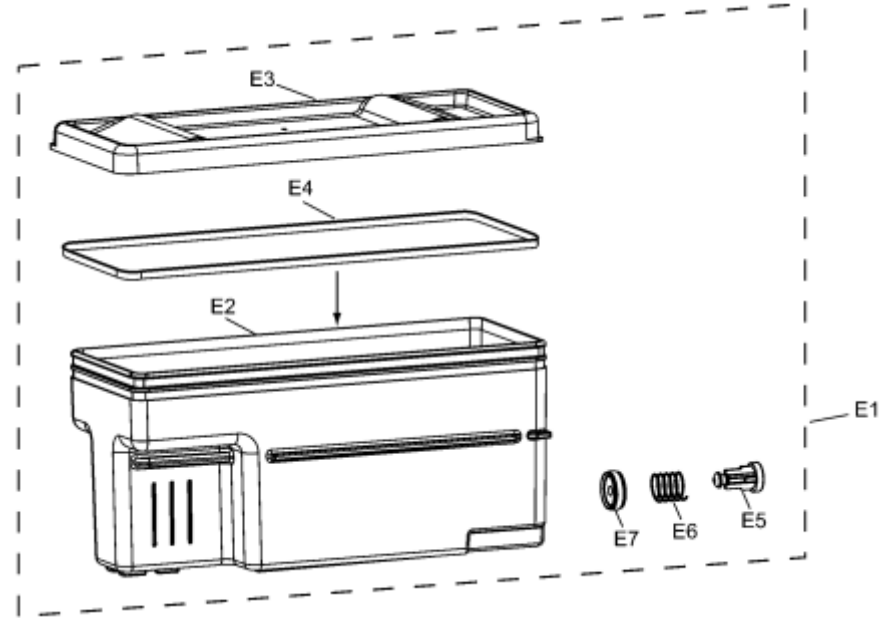


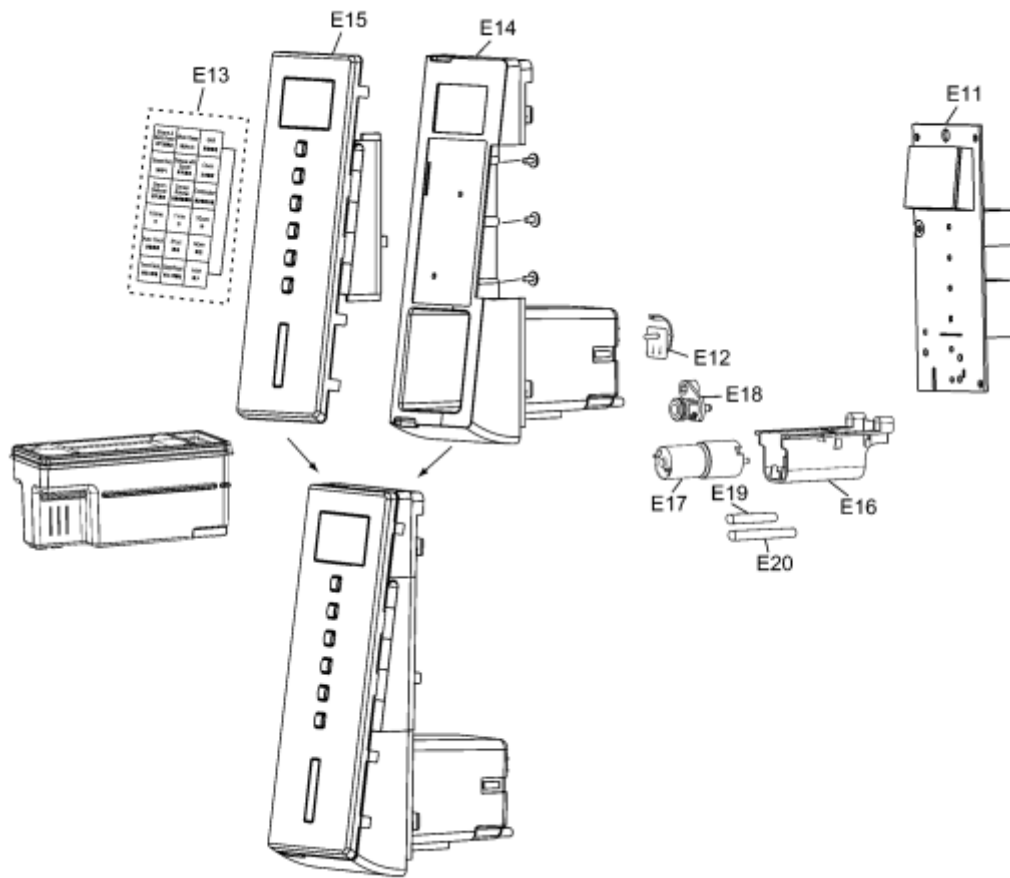
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
<u>W1</u>	F030A7J70YP	LEAD WIRE HARNESS	1	EXCEPT CZP
<u>W1</u>	F030A7J70ZP	LEAD WIRE HARNESS	1	CZP
<u>W2</u>	F030E6W50XP	H.V.LEAD WIRE	1	

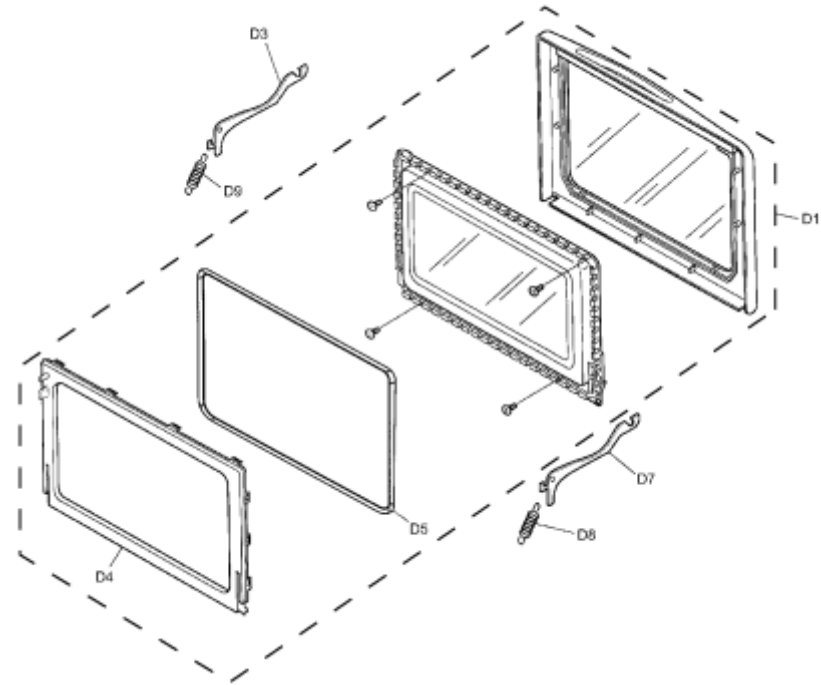
8.7 PACKING AND ACCESSORIES

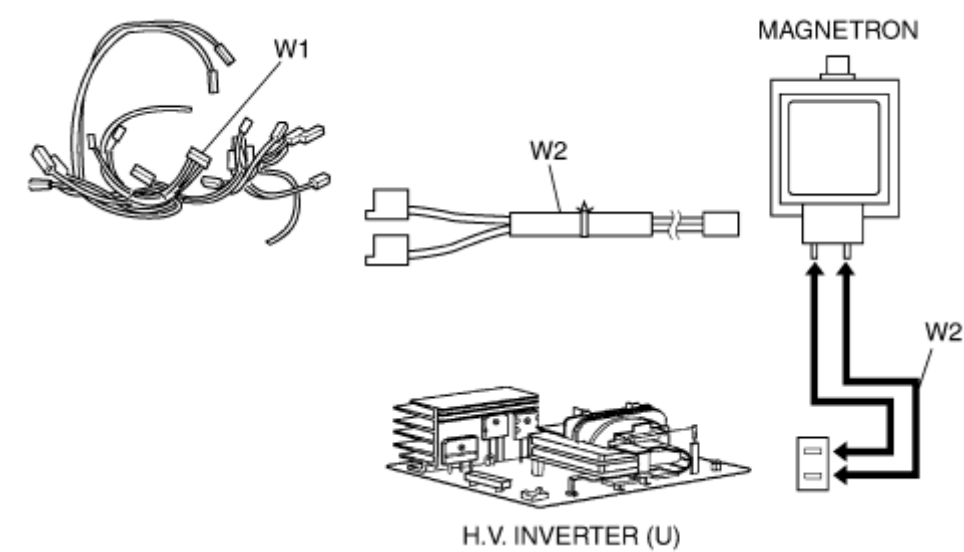


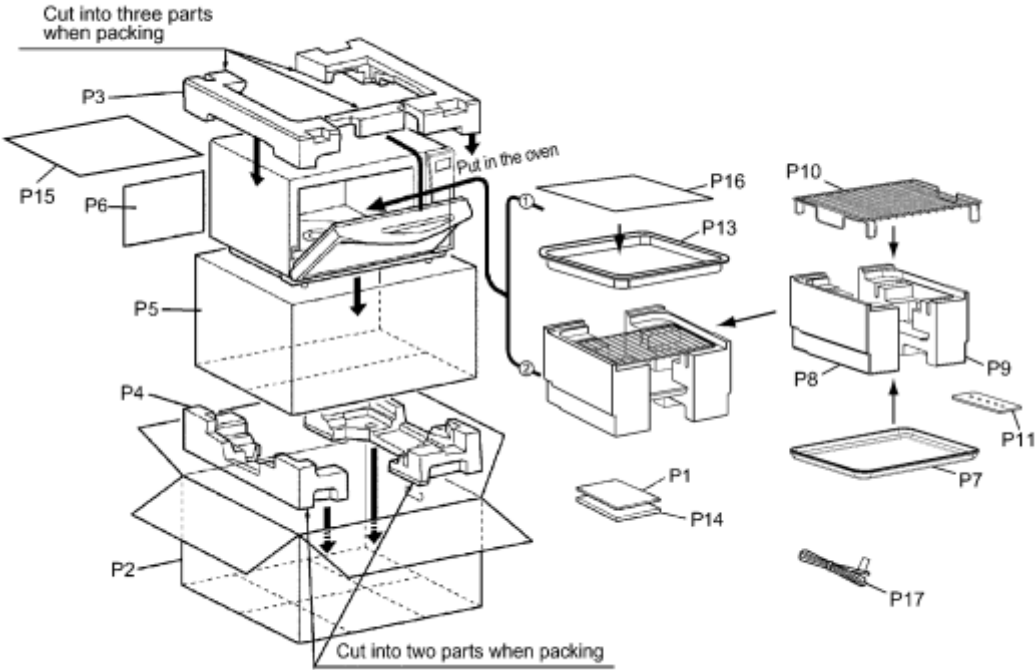
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
<u>P1</u>	F00037J70HP	INSTRUCTION MANUAL	1	CHP, CMP, CTP, CYP, CYT
P1	F00037J70KP	INSTRUCTION MANUAL	1	CKP, CKT, CPT
P1	F00037J70ZP	INSTRUCTION MANUAL	1	CZP
<u>P2</u>	F01027J70HP	PACKING CASE, PAPER	1	CHP, CMP, CTP, CYP, CYT
P2	F01027J70KP	PACKING CASE, PAPER	1	CKP
P2	F01027J70KT	PACKING CASE, PAPER	1	CKT, CPT
P2	F01027J70ZP	PACKING CASE, PAPER	1	CZP
<u>P3</u>	F01047J70KP	UPPER FILLER	1	
<u>P4</u>	F01057J70XP	LOWER FILLER	1	
<u>P5</u>	F01064W00AP	P.E BAG	1	
<u>P6</u>	F01078100XN	DOOR SHEET	1	
<u>P7</u>	F06217J70XP	QUADRATE COOKING TRAY	1	
<u>P8</u>	F01127J70XP	TRAY PACKING	1	
<u>P9</u>	F01137J70XP	TRAY PACKING	1	
<u>P10</u>	F06027J70XP	OVEN RACK	1	
<u>P11</u>	F60037J70XP	CERAMIC COVER	1	
<u>P13</u>	F06037J70XP	BROWN DISH	1	
<u>P14</u>	F000B6V70MP	COOKING GUIDE	1	CHP, CMP, CTP, CYP, CYT
P14	F000B7J70KP	COOKING GUIDE	1	CKP, CKT, CPT
P14	F000B7J70ZP	COOKING GUIDE	1	CZP
<u>P15</u>	F01924T00AP	SHEET	1	
<u>P16</u>	F01177J70XP	TRAY PACKING B	1	
<u>P17</u>	F91644000XN	EARTH LEAD	1	CTP



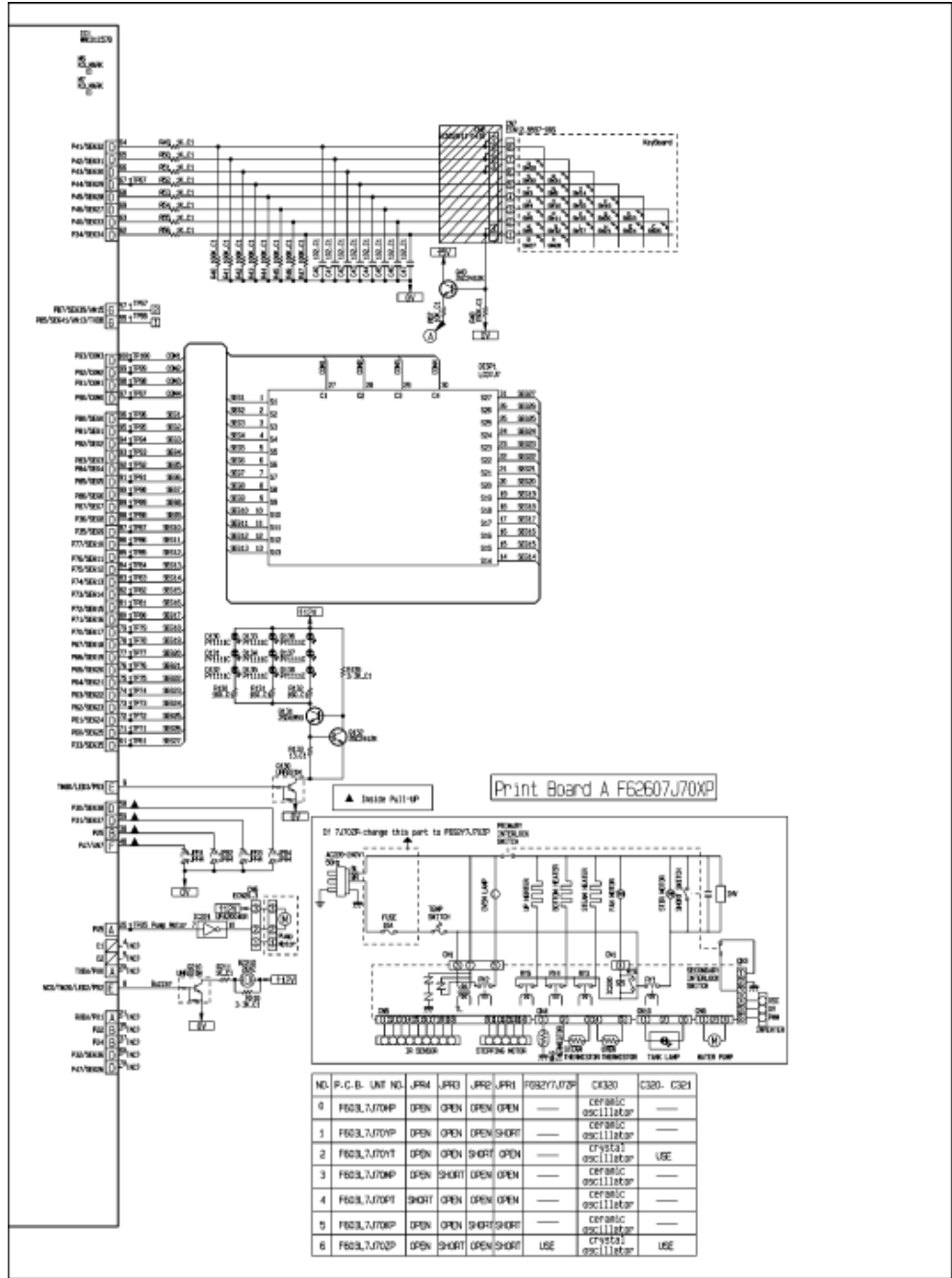












9 DIGITAL PROGRAMMER CIRCUIT

9.1 SCHEMATIC DIAGRAM



9.2 PARTS LIST

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
BZ210	L0DDEA000014	BUZZER	1	2.0KHz
C11	AECEWG1C471B	AL CHEM CAPACITOR	1	470μF/16V
C12	AECETS1C220B	AL CHEM CAPACITOR	1	22μF/16V
C29	AECETK2W101B	AL CHEM CAPACITOR	1	
C224	AECT81F102K	CERAMIC CAPACITOR	1	100PF/1000V
C26	ECKN3A222KBP	CERAMIC CAPACITOR	1	2200PF/1000V
C220, C223,, C225, C540	F1H1A105A108	CHIP CAPACITOR	4	1μF/10V
C10, C13, C14, C222, C350, C440, C442, C443, C541-C547	F1H1E104A108	CHIP CAPACITOR	15	0.1μF/25V
C27	AESCT08F104M	CAPACITOR	1	0.1μF/25V
C40-C47	F1H1H102A896	CHIP CAPACITOR	8	
C100, C221	F1H1H103A897	CHIP CAPACITOR	2	0.01μF/50V
C320, C321	F1H1H220A894	CHIP CAPACITOR	2	22PF/50V (CYT, CZP)
CN1	K1KA04A00419	CONNECTOR	1	4 pin
CN2	F03547J50XP	LEAD WIRE HARNESS	1	5 pin
CN3	K1KA06A00246	CONNECTOR	1	6 pin
CN4	K1KA05A00236	CONNECTOR	1	5 Pin
CN5	K1KA14A00201	CONNECTOR	1	14 Pin
CN6	K1KA03A00299	CONNECTOR	1	3 pin
CN7	K1MN08AA0019	CONNECTOR	1	8 pin
CN9	K1KA05A00460	CONNECTOR	1	5 Pin
CN10	K1KA03A00627	CONNECTOR	1	3 pin
GND1	F03537J70XP	GROUNDING WIRE	1	
CX320	EF0MC1005T4	CRYSTAL RESONATOR	1	10.00MHz
D130-D138	B3ACB0000065	LED	9	
D220, D227	B0EAKT000025	DIODE	2	
D221-D226	B0AACK000004	DIODE	6	
D10	AESB280TLRC	DIODE	1	
D25	AERZ511KSBN	VARISTOR	1	
D26, D27	AERZ102KSBN	VARISTOR	2	
D33	AEUF4006TLRC	DIODE	1	10μF/450V
D100	B0AACK000004	DIODE	1	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
D28	B0EAKT000025	DIODE	1	
DISP1	AEDDHJ7J70ZP	LCD	1	
DISPL1 HOLD	F66177J70XP	LCD HOLDER	1	
	F67527J70XP	DIFFUSION SHEET	1	
IC1	MN101C57DDB	L.S.I.	1	
IC10	C0DBAHD0013	IC	1	
IC221	B1HBGFF00007	IC	1	
IC350	C0EBH0000264	IC	1	
IC26, IC100	B3PAA0000270	IC	2	
IC28	MIP0255SPSCF	IC	1	
IC220	B3PAC0000060	IC (SSR)	1	
Q131	B1BAAJ000003	TRANSISTOR	1	
Q220-Q223, Q40, Q132	2SD0601A0L	CHIP TRANSISTOR	6	
Q224	2SD0602ARL	CHIP TRANSISTOR	1	
Q226	2SB709A0L	CHIP TRANSISTOR	1	
Q130, Q210, Q228	UNR221M00L	CHIP TRANSISTOR	3	
Q540	NUR211M00L	CHIP TRANSISTOR	1	
Q225	UNR211100L	CHIP TRANSISTOR DIGI-	1	
R11, R223	D0AE104JA155	CARBON RESISTOR	2	100K, 1/4W, 5%
R13	D0AE222JA155	CARBON RESISTOR	1	2.2K, 1/4W, 5%
R240, R241	D0AE241JA155	CARBON RESISTOR	2	240Ω, 1/4W, 5%
R220, R221	D0AE391JA155	CARBON RESISTOR	2	390Ω, 1/4W, 5%
R100, R101	AERT15X393JT	CARBON RESISTOR	2	39K, 1/2W, 5%
R27	AERY15J1RQB	RESISTOR	1	1Ω, 1/2W, 5%
R28	AERY16753KCE	RESISTOR	1	75K, 1/2W, 5%
RY1, RY3, RY4, RY5	K6B1AGA00212	POWER RELAY	4	
RY2	K6B1AGA00180	POWER RELAY	1	
T10	ETS19AA2B1AC	SWITCH TRANSFORMER	1	
ZD10	B0BA01100053	ZENER DIODE	1	

11/05

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