S/M No. : C972T0S002

DAEWOO

Service Manual

Microwave Oven

Model: KOC-984T

DAEWOO ELECTRONICS CO., LTD.

SAFETY AND PRECAUTIONS

1. FOR SAFE OPERATION

Damage that allows the microwave energy (that cooks or heats the food) to escape will result in poor cooking and may cause serious bodily injury to the operator.
IF ANY OF THE FOLLOWING CONDITIONS EXIST, OPERATOR MUST NOT USE THE APPLIANCE.
(Only a trained service personnel should make repairs.)

(1) A broken door hinge.
(2) A broken door viewing screen.
(3) A broken front panel, oven cavity.
(4) A loosened door lock.
(5) A broken door lock.

The door gasket plate and oven cavity surface should be kept clean.
No grease, soil or spatter should be allowed to build up on these surfaces or inside the oven.
DO NOT ATTEMPT TO OPERATE THIS APPLIANCE WITH THE DOOR OPEN.
The microwave oven has concealed switches to make sure the power is turned off when the door is opened.
Do not attempt to defeat them.
DO NOT ATTEMPT TO SERVICE THIS APPLIANCE UNTIL YOU HAVE READ THIS SERVICE MANUAL.

2. FOR SAFE SERVICE PROCEDURES

1. If the oven is operative prior to servicing, a microwave emission check should be performed prior to servicing the oven.
2. If any certified oven unit is found to servicing, a microwave emission check should be performed prior to servicing the oven.
   (1) inform the manufacturer, importer or assembler,
   (2) repair the unit at no cost to the owner,
   (3) attempt to ascertain the cause of the excessive leakage,
   (4) tell the owner of the unit not to use the unit until the oven has been brought into compliance.
3. If the oven operates with the door open, the service person should tell the user not to operate the oven and contact the manufacturer immediately.

IMPORTANT

The wire in this mains lead coloured in accordance with the following code.

Green-and-yellow	: Earth
Blue	: Neutral
Brown	: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.
The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter 'E' , earth symbol or coloured green-and-yellow.
The wire which is coloured blue must be connected to the terminal which is marked with the letter 'N' or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter 'L' or coloured red.

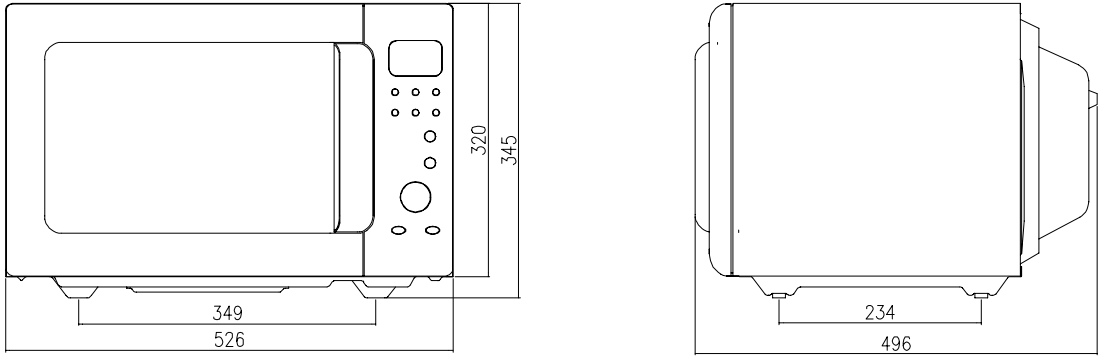
NOTE

This oven is designed for counter-top use only.

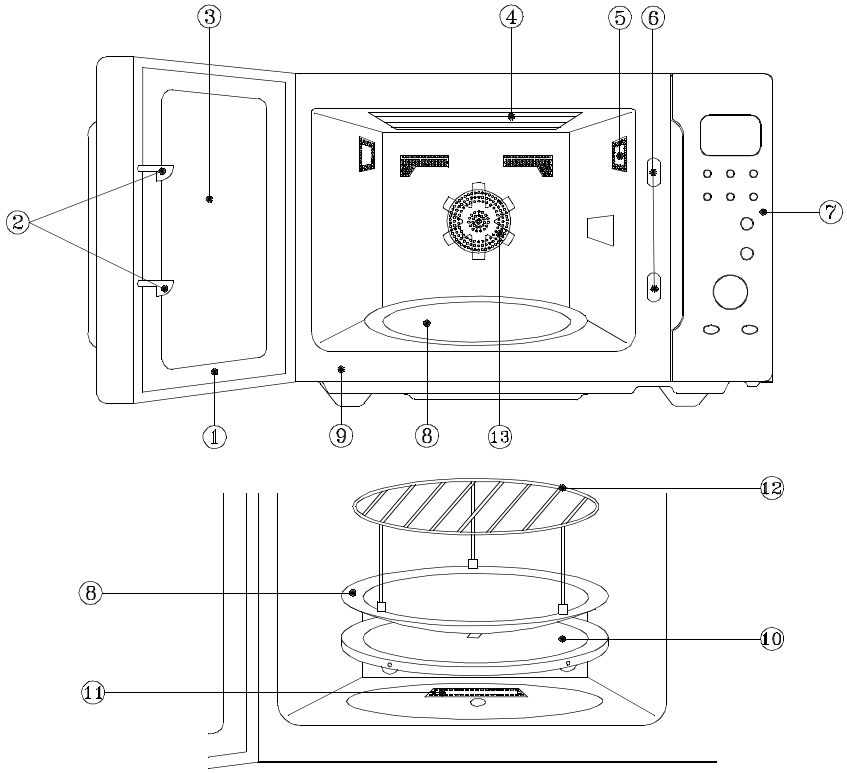
SPECIFICATIONS

MODEL		KOC-984T	
POWER SUPPLY		230V~50Hz	
POWER CONSUMPTION	MICROWAVE	1450W	
	GRILL	1200W	
	CONVECTION	1550W	
	PROGRAM COOK	1850W	
	COMBINATION	2600W (Simultaneous)	
MICROWAVE ENERGY OUTPUT		1000W(IEC705)	
MICROWAVE FREQUENCY		2450MHz	
OUTSIDE DIMENSIONS (W X H X D)		526 x 345 x 496 mm (20.7 x 13.6 x 19.5 in.)	
CAVITY DIMENSIONS (W X H X D)		335 x 250 x 339 mm (13.2 x 9.8 x 13.3 in.)	
NET WEIGHT		APPROX. 21 Kg (46.3 lbs.)	
TIMER		60 minutes	
FUNCTION SELECTIONS		MICROWAVE/GRILL/CONVECTION/COMBI	
POWER SELECTIONS		10 LEVELS	
CAVITY VOLUME		1.0 Cu.Ft.	

EXTERNAL VIEW KOC-984T



KOC-984T



1. **Door seal** - Door seal maintains the microwave energy within the oven cavity and prevents microwave leakage.
2. **Door hook** - When the door is closed, it will automatically shut. If the door is opened while the oven is operating, the magnetron will immediately stop operating.
3. **Door viewing screen** - Allows viewing of food. The screen is designed so that light can pass through, but not the microwave.
4. **Top heater** - Turns on when convection, grill and combi cooking is selected.
5. **Oven lamp** - Automatically turns on during oven operating.
6. **Safety interlock system**
7. **Control panel**
8. **Turntable tray** - Rotates during cooking and ensure even distribution of Microwaves. It can also be used as a cooking utensil.
9. **Oven front plate**
10. **Rotating base** - This fits over the shaft in the center of the ovens cavity floor. This is to remain in the oven for all cooking. It should only be removed for cleaning.
11. **Under heater**
12. **Metal rack**
13. **Convection outlet & Fan**

INSTALLATION

1. Steady, flat location
   This microwave oven should be set on a steady, flat surface.
   This microwave oven is designed for counter top use only.
2. Leave space behind and side
   All air vents should be kept a clearance. If all vents are covered during operation, the oven may overheat and, eventually, cause failure.
3. Away from radio and TV sets
   Poor television reception and radio interference may result if the oven is located close to a TV, radio, antenna or feeder and so on.
   Position the oven as far from them as possible.
4. Away from heating appliances and water taps
   Keep the oven away from hot air, steam or splash when choosing a place to position it,
   or the insulation might be adversely affected and breakdowns occur.
5. Power supply
   Check your local power source. This microwave oven requires a current of approximately 13amperes, 230 Volts, 50 Hz.
   Power supply cord is about 1.2 meters long.
   The voltage used must be the same as specified on this oven. Using a higher voltage may result in a fire or other accident causing oven damage. Using low voltage will cause slow cooking. We are not responsible for damage resulting from use of this oven with a voltage of ampere fuse other than those specified.
   This appliance is supplied with cable of special type, which, if damaged, must be repaired with cable of same type.
   Such a cable can be purchased from DAEWOO and must be installed by a Qualified Person.
6. Examine the oven after unpacking for any damage such as:
   A misaligned door, broken door or a dent in cavity.
   If any of the above are visible, DO NOT INSTALL, and notify dealer immediately.
7. Do not operate the oven if it is colder than room temperature.
   (This may occur during delivery in cold weather.) Allow the oven to become room temperature before operating.

EARTHING INSTRUCTIONS

This appliance must be earthed. In the event of an electrical short circuit, earthing reduces the risk of the electric shock by providing an escape wire for the electric current. This appliance is equipped with
a cord having a earthing wire with a earthing plug. The plug must be plugged into an outlet that is properly installed and earthed.

WARNING

Improper use of the earthing plug can result in a risk of electric shock.
Consult a qualified electrician or serviceman if the earthing instructions are not completely understood, or if doubt exists as to whether the appliance is properly earthed, and either:
If it is necessary to use an extension cord, use only a 3-wire extension cord that has a 3-blade earthing plug, and a 3-slot receptacle that will accept the plug on the appliance.
The marked rating of the extension cord should be equal to or greater than the electrical rating of the appliance, or Do not use an extension cord.

CONTROL PANEL

When blinking, the oven is operating in "COMBI" cooking mode.

When blinking, the oven is operating in "GRILL" cooking mode.

When blinking, the oven is operating in "MICROWAVE" cooking mode.

When blinking, the oven is operating in "PROGRAM COOK" cooking mode.

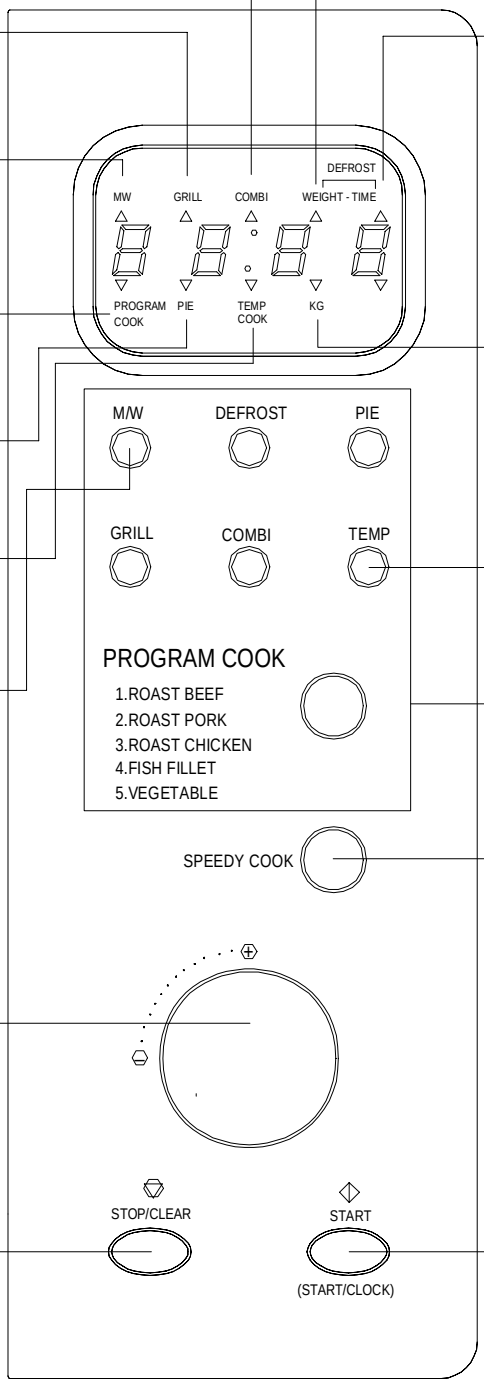
When blinking, the oven is operating in "PIE" cooking mode.

When blinking, the oven is operating in "CONVECTION" cooking mode.

Microwave Power Level-
Used to select the variable microwave power level. If this button(pad) is pressed for more than 1.3 sec, number is scrolled up automatically.

Dial Knob-
Used to input the cooking time and weight.

Stop/Clear Button-
Used to pause and clear all information manually put into the oven.



When blinking, the oven is operating in "WEIGHT DEFROST" cooking mode.

When blinking, the oven is operating in "TIME DEFROST" cooking mode.

When blinking, the oven is operating in weght input mode.

Temperature Button(pad)-
Used to set desired temperature. If this button is pressed for more than 1.3 sec, number is scrolled up automatically.

Function Buttons(pads)-
Used to select desired cooking function.

- M/W : MICROWAVE
- GRILL
- DEFROST : TIME or WEIGHT DEFROST
- TEMP : CONVECTION
- COMBI : COMBINATION
- PIE
- PROGRAM COOK

Speedy Cook Button(pad)-
Used to program quickly cooking time in 30 sec increments.

Start Button-
Used to start the selected cooking cycle.
(KOC-972T)

Start/Clock Button-
Used to start the selected cooking cycle and to set time.

DISASSEMBLY AND ASSEMBLY

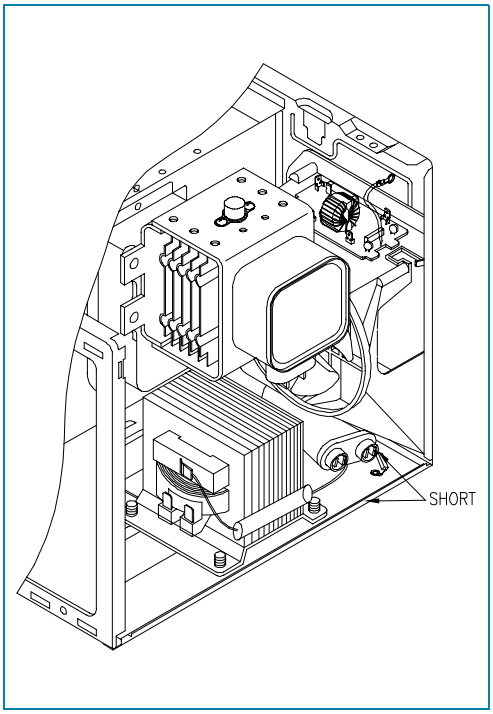
Cautions to be observed when trouble shooting.

Unlike many other appliances, the microwave oven is high-voltage, high-current equipment.
It is completely safety during normal operation.
However, carelessness in servicing the oven can result in an electric shock or possible danger from a short circuit.
You are asked to observe the following precautions carefully.

1. Always remove the power plug from the outlet before servicing.
2. Use an insulated screwdriver and ware rubber gloves when servicing the high voltage side.
3. Discharge the high voltage capacitor before touching any oven components or wiring.

(1) Check the earthed.
Do not operate on a two-wire extension cord.
The microwave oven is designed to be used with earthed.
It is imperative, therefore, to make sure it is earthed properly before beginning repair work.

(2) Warning about the electric charge in the high voltage capacitor.
For about 30 seconds after the operation stopped and electric charge remains in the high voltage capacitor.
When replacing or checking parts, short between oven chassis and the negative high terminal of the high voltage capacitor, by using a properly insulated screwdriver to discharge.



4. When the 15A fuse is blown out due to the operation of the monitor switch; replace primary interlock switch, secondary interlock switch and interlock monitor switch.
5. After repair or replacement of parts, make sure that the screws are properly tightened, and all electrical connections are tightened.
6. Do not operate without cabinet.

CAUTION

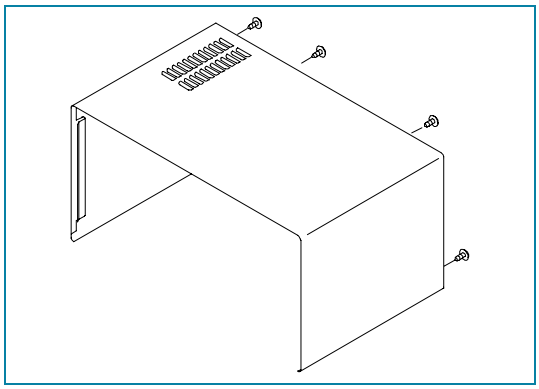
Service personnel should remove their watches whenever working close to or replacing the magnetron.

WARNING

When servicing the appliance, need a care of touching or replacing high potential parts because of electrical shock or exposing microwave. These parts are as follows - HV Transformer, Magnetron, HV Capacitor, HV Diode.

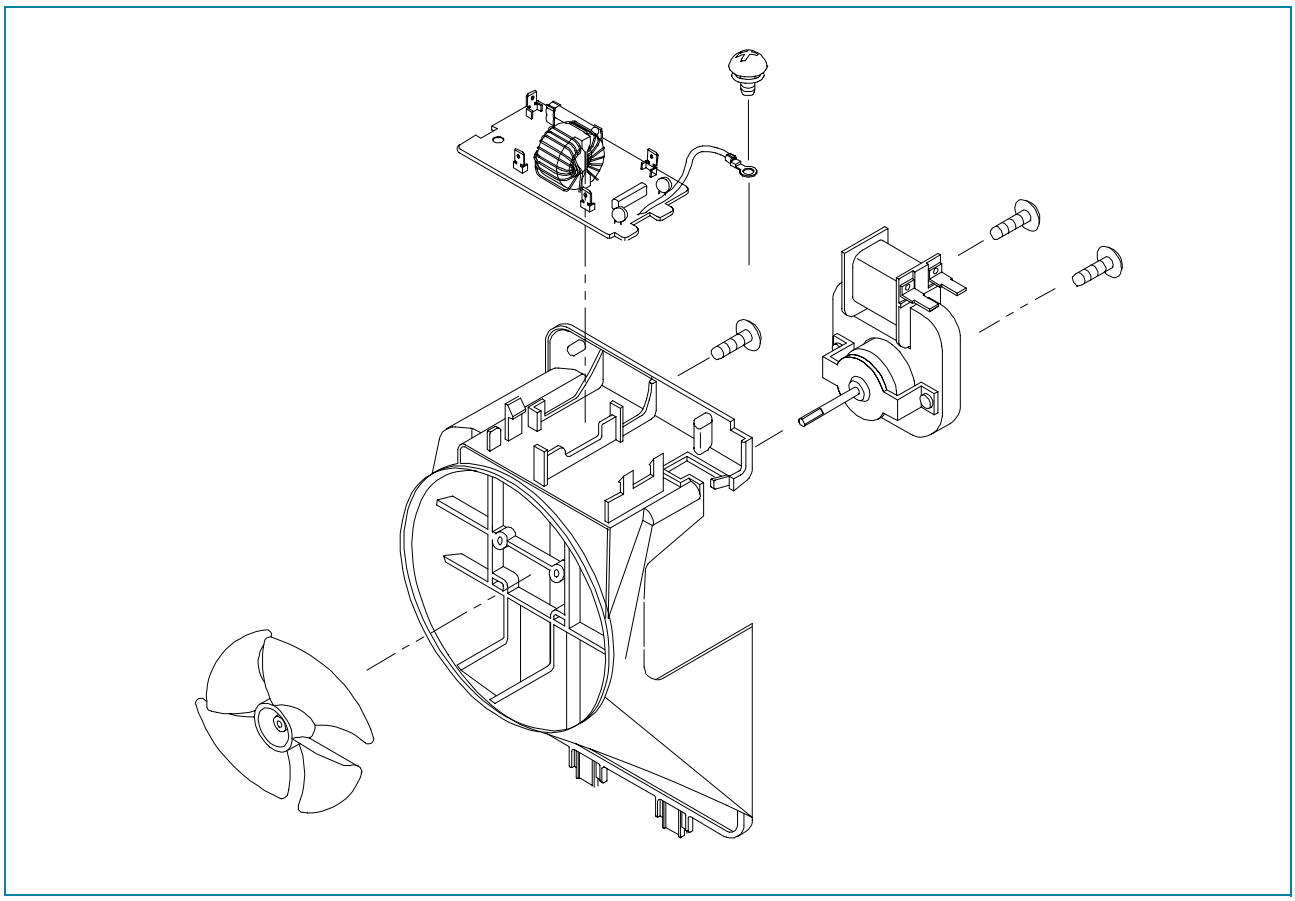
1. To remove cabinet

(1) Remove four screws on cabinet back.
(2) Push the cabinet backward.



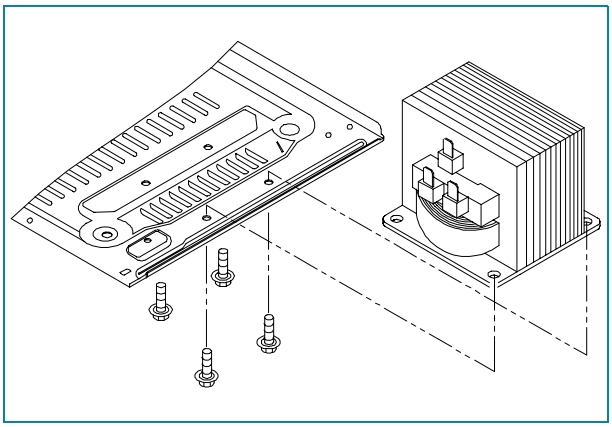
2. To remove guide wind assembly

(1) Remove two screws for earthing and for fixing to rear-plate.
(2) Remove the noise filter from the guide wind.
(3) Pull the fan from the motor shaft.
(4) Remove two screws which secure the motor shaded pole.
(5) Remove the motor shaded pole.
(6) Reverse the above steps for reassembly.



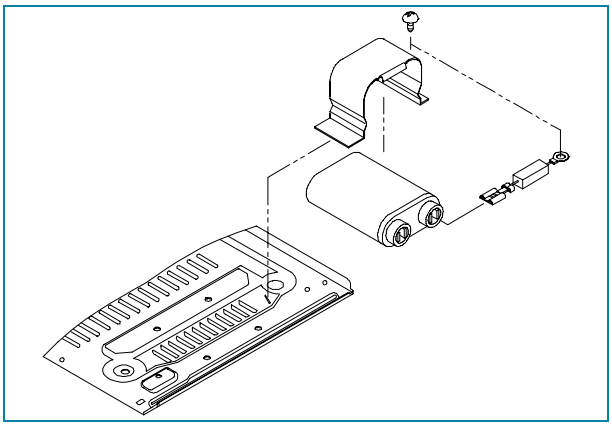
3. To remove H.V.transformer

(1) Remove four screws which secure
the H.V.transformer to the base plate.
(2) Remove the H.V.transformer.
(3) Reverse the above steps for reassembly.

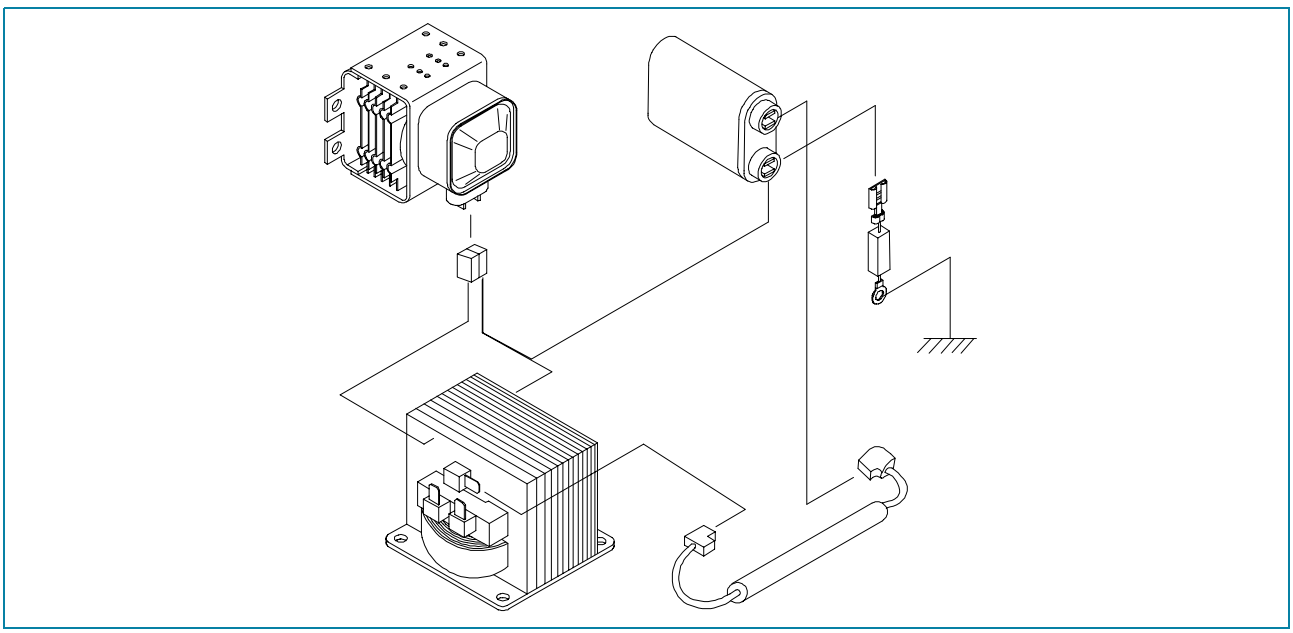


4. To remove high voltage capacitor

(1) Remove a screw which secure the grounding ring
terminal of the H.V. diode and the capacitor holder.
(2) Remove the H.V. diode from the capacitor holder.
(3) Reverse the above steps for reassembly.

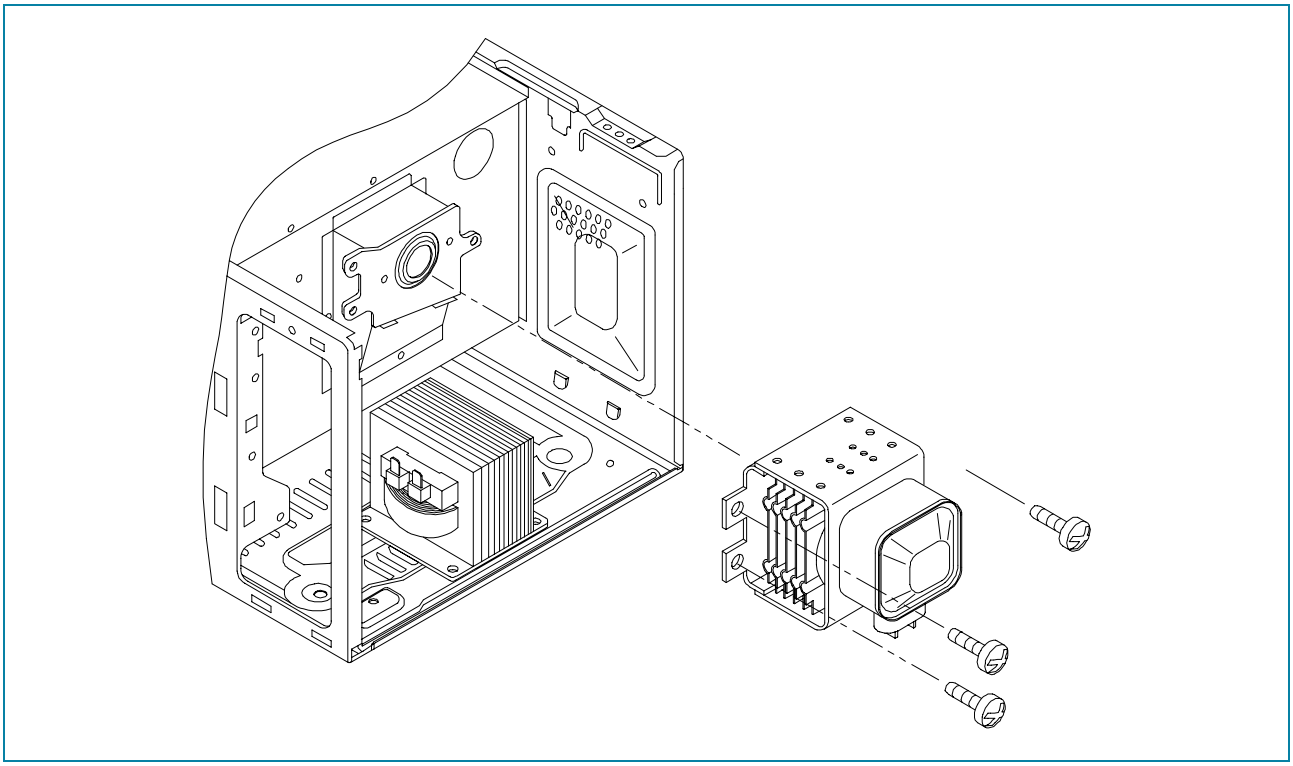


High voltage circuit wiring



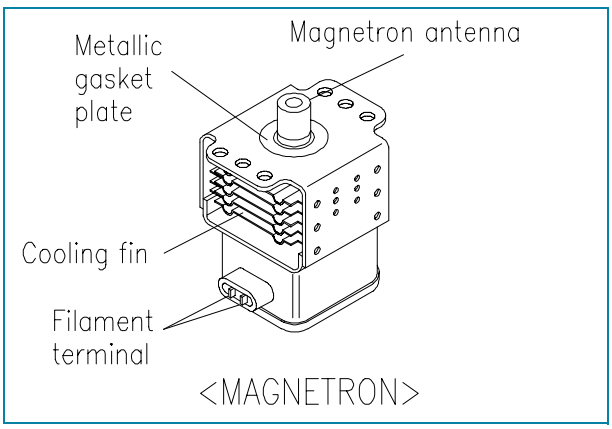
5. To remove magnetron

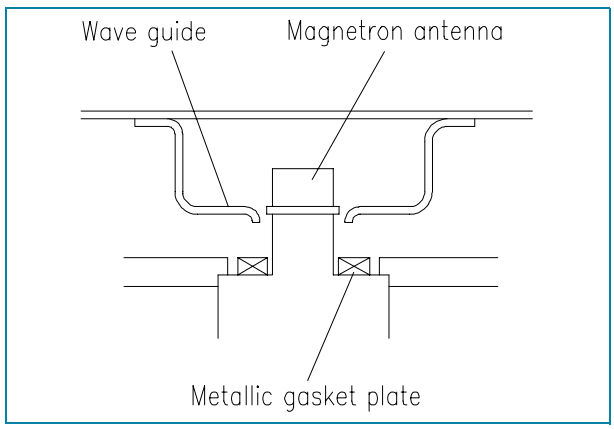
(1) Remove three screws which secure the magnetron.
(2) Remove the magnetron.
(3) Reverse the above steps for reassembly.



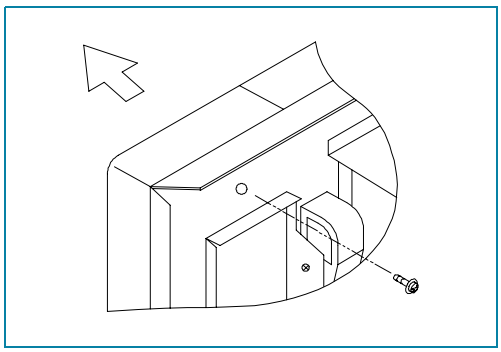
CAUTION

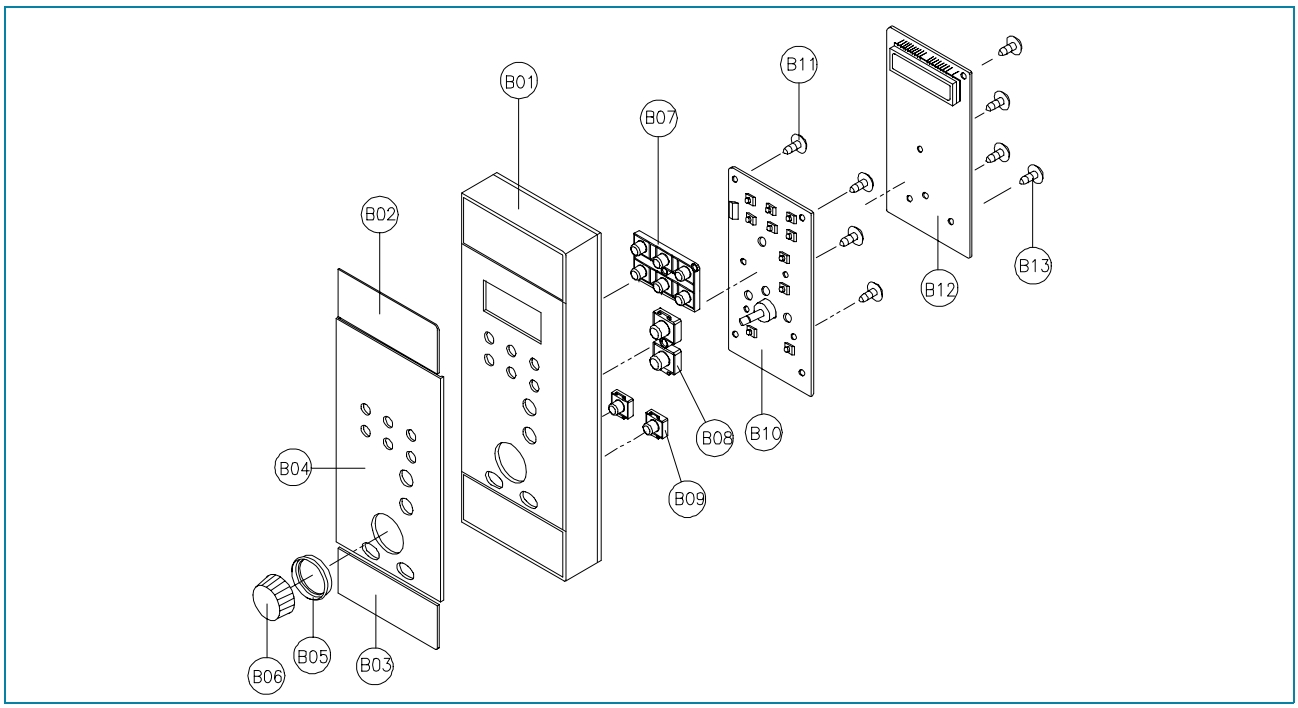
Never install the magnetron without the metallic gasket plate which is packed with each magnetron to prevent microwave leakage. Whenever repair work is carried out on magnetron, check the microwave leakage. It shall not exceed 4mW/cm^2 for a fully assembled oven with door normally closed.





(1) Remove a screw which secure the control panel assembly to the oven front plate.
At the same time, draw forward the control panel assembly from the oven front plate.
(2) Remove the dial knob.
(3) Remove ten screws which secure the main and sub PCB assembly to control panel.
(4) Remove buttons.
(5) Remove the decorator panel.

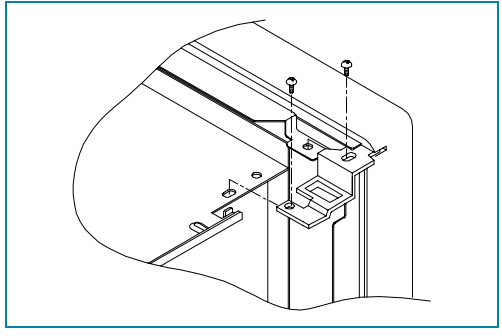




REF NO.	PART CODE	PART NAME	DESCRIPTION	QTY	REMARK
B01	3516719200	CONTROL-PANEL	ABS XR-401	1	
B02	3511602900	DECORATOR C/P *T	STS304 T0.6 H/L	1	
B03	3511603000	DECORATOR C/P *U	STS304 T0.6 H/L	1	
B04	3511603110	DECORATOR C-PANEL	PMMA IF-850	1	SMOG
B05	3511602800	DECORATOR RING	ABS XR-401	1	COATING
B06	3513404620	KNOB VOLUME	ABS XR-401	1	COATING
B07	3516905120	BUTTON FUNCTION	ABS XR-401	1	COATING
B08	3516907200	BUTTON FUNCTION	ABS XR-401	1	COATING
B09	3516906320	BUTTON FUNCTION	ABS XR-401	2	COATING
B10	PKBPMSYB00	PCB SUB AS	KOC-984T	1	
B11	7621301011	SCREW TAPPING	T2S PAN 3x10 PW MFZN	6	
B12	PKMPMSYB00	PCB MAIN AS	KOC-984T1S	1	
			KOC-984T2S		
B13	7122401211	SCREW TAPPING	T2S TRS 4x12 MFZN	4	

7. To remove door assembly

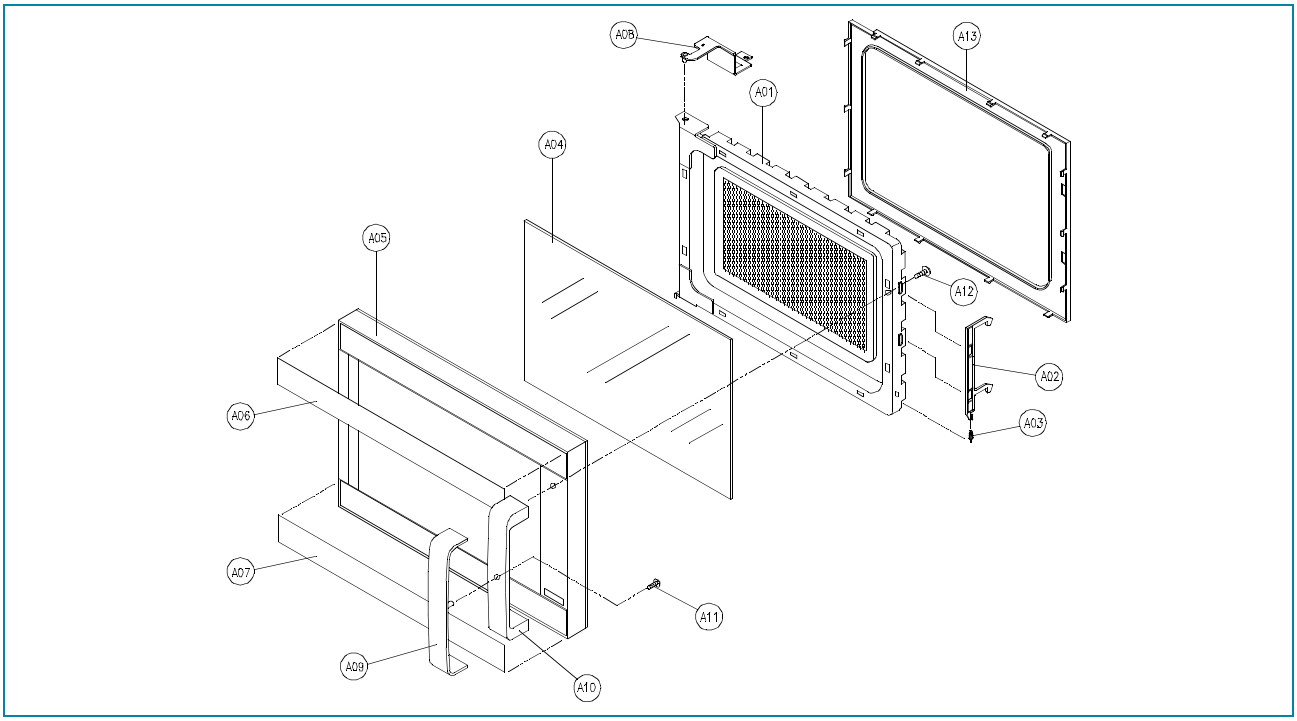
(1) Remove two screws which secure the stopper hinge top.
(2) Remove the door assembly from top plate of cavity.
(3) Reverse the above steps for reassembly.



NOTE

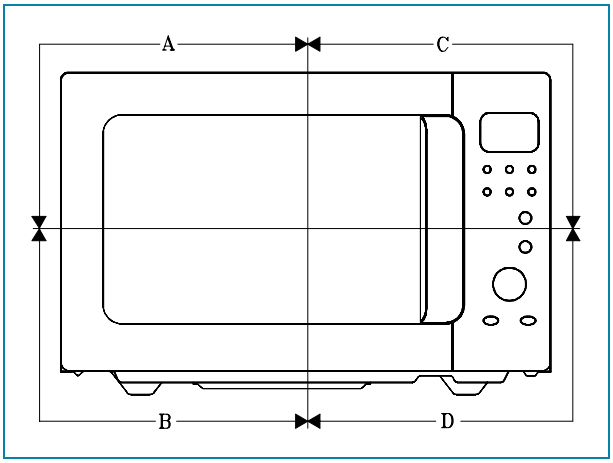
After replacing the door assembly, perform a check of correct alignment with the hinge and cavity front plate.

(1) Remove the gasket door.
(2) Remove a screw holding the handle.
(3) Remove the handle from the frame door.
(4) Remove the door seal ass'y.
(5) Remove the hook and spring.
(6) Remove the barrier-screen *o.



REF. NO.	PART CODE	PART NAME	DESCRIPTION	QTY	REMARK
A01	3511708400	DOOR SEAL AS	KOC-971C0S	1	
A02	3513101100	HOOK	POM	1	
A03	3515101300	SPRING HOOK	PW1	1	
A04	3517004080	BARRIER-SCREEN *O	TEMPERED GLASS T3.2	1	MIRROR
A05	3512204000	FRAME DOOR	ABS XR-401	1	
A06	3511603200	DECORATOR DOOR *T	STS304 T0.6 H/L	1	
A07	3511603300	DECORATOR DOOR *U	STS304 T0.6 H/L	1	
A08	3515203600	STOPPER HINGE *T AS	KOC-970T	1	
A09	3512602400	HANDLE DOOR *T AS	ABS XR-401 WOOD GRAIN	1	KOC-984T
A10	3512602300	HANDLE DOOR *U	ABS XR-401	1	
A11	7621300811	SCREW TAPPING	T2S PAN 3x8 MFZN	1	
A12	7122401211	SCREW TAPPING	T2S TRS 4x12 MFZN	1	
A13	3512300800	GASKET DOOR	PBT	1	

9. Method to reduce the gap between the door seal and the oven front surface.



(1) To reduce gap located on part 'A'
- Loosen two screws on stopper hinge top, and then push the door to contact the door seal to oven front surface.
- Tighten two screws.

(2) To reduce gap located on part 'B'
- Loosen two screws on stopper hinge under, and then push the door to contact the door seal to oven front surface.
- Tighten two screws.

(3) To reduce gap located on part 'C'
- Loosen a screw on interlock switch assembly located bottom of oven body.
- Draw the interlock switch assembly inward as possible to engage with hook on the door bottom.
- Tighten a screw.

(4) To reduce gap located on part 'D'
- Loosen a screw on interlock switch assembly located top of oven body.
- Following steps are same as step (3).

NOTE

Small gap may be acceptable if the microwave leakage does not exceed 1mW/cm^2.

NOTE

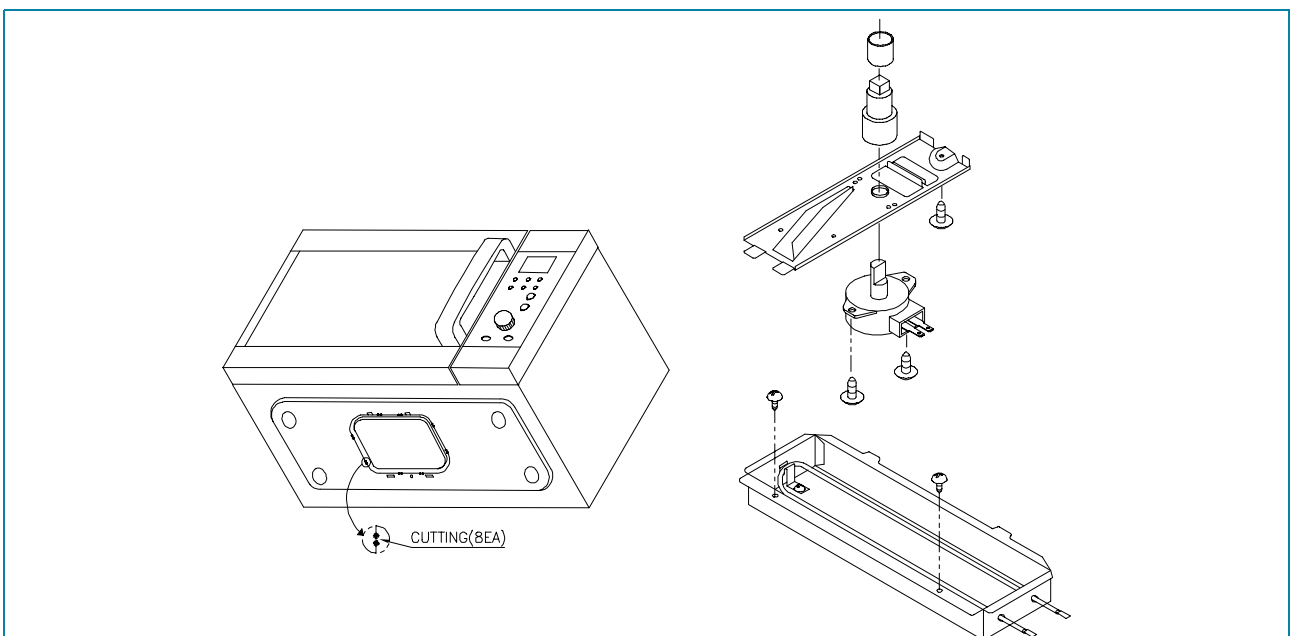
The door on a microwave oven is designed to act as an electronic seal preventing the leakage of microwave energy from the oven cavity during the cook cycle. This function does not require that the door be air-tight, moisture (condensation) Tight or light-tight. Therefore, the occasional appearance of moisture, light or the sensing of gentle warm air movement around the oven door is not abnormal and do not of themselves, indicate a leakage of microwave energy from the oven cavity. If such were the case, your oven could not be equipped with a bent, the very purpose of which is to exhaust the vapor-laden air from the oven cavity.

10. To remove motor syncro and under heater

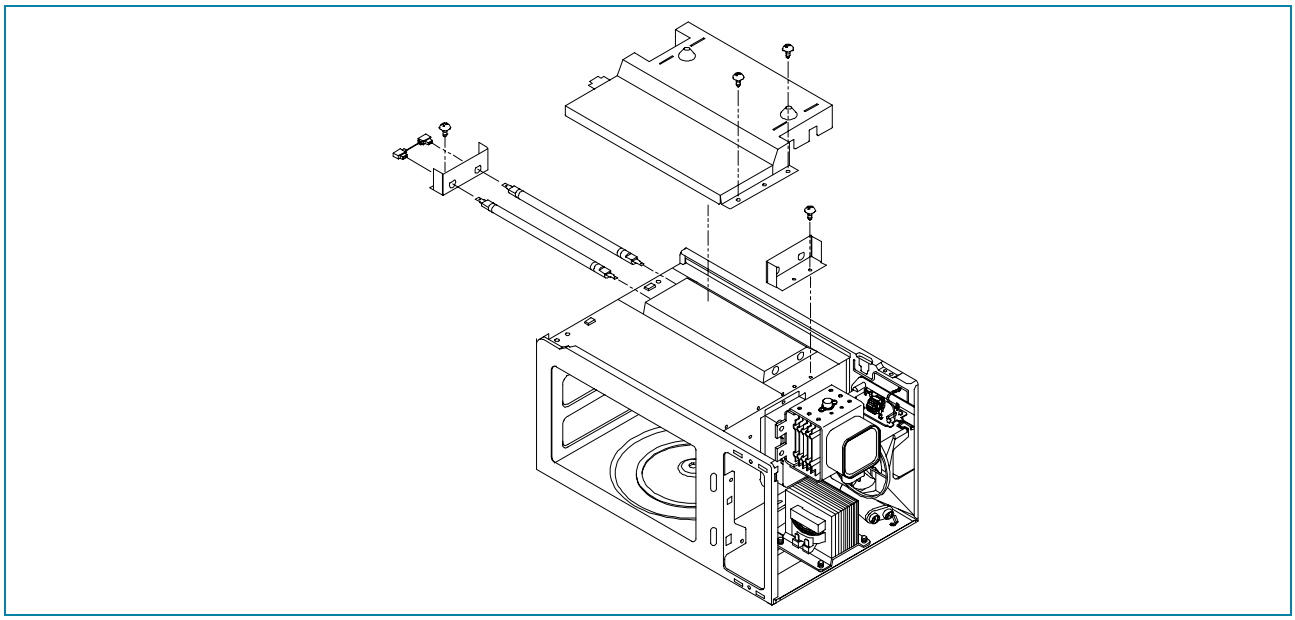
(1) Cut the syncro motor cover parts from the base plate.

(2) Remove two screws which secure the motor syncro and supporter to bracket syncro motor.

(3) Remove two screws and under heater assembly in cavity

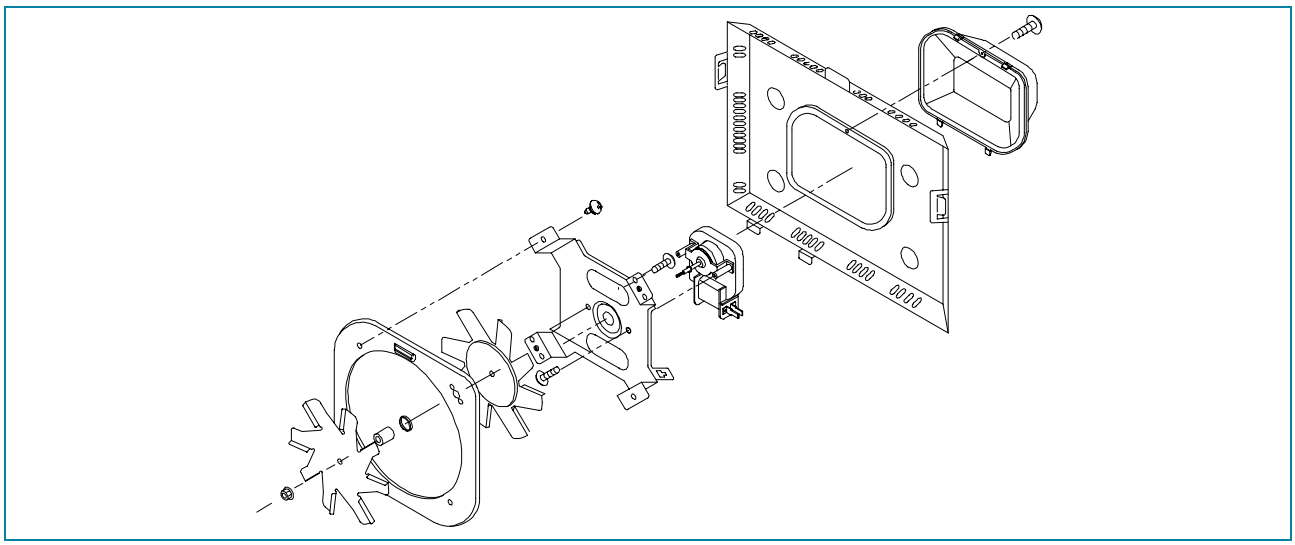


(1) Remove two screws which secure the cover insulator *t to top plate.
(2) Remove the harness between heaters.
(3) Remove two screws for removing heater brackets.
(4) Remove heaters.
(5) Reverse the above steps for reassembly.



12. To remove convection part assembly

(1) Remove cover *b and cover insulator *b protecting convection part assembly. - release two lances of cover insulator *b.
(2) Remove four screws which secure the convection part assembly to the cavity rear plate.
(3) Remove a nut holding the convection fan and the pipe.
(4) Remove two screws which secure the bracket motor to cover insulator.
(5) Remove the cooling fan.
(6) Remove two screws which secure the motor shaded pole to the bracket motor.
(7) Reverse the above steps for reassembly.

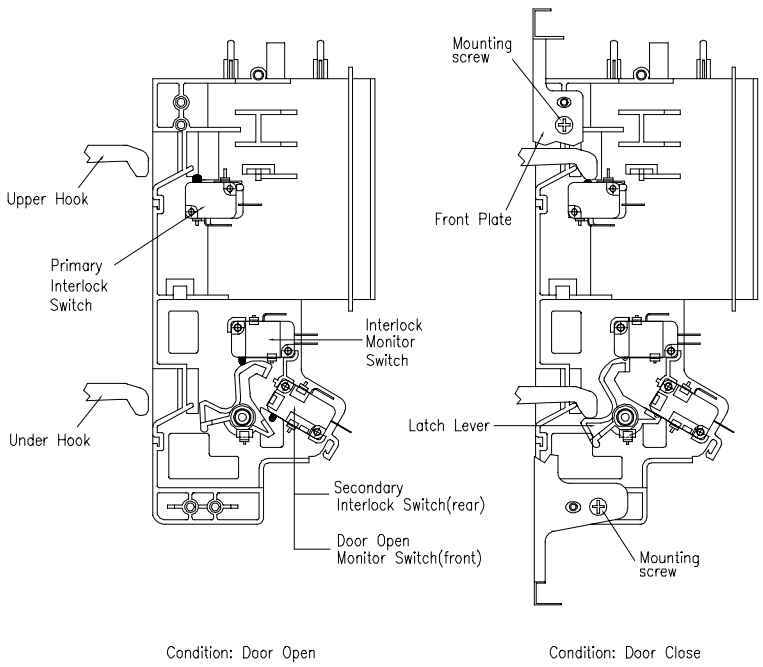


INTERLOCK MECHANISM AND ADJUSTMENT

The door lock mechanism is a device which has been specially designed to completely eliminate microwave radiation when the door is opened during operation, and thus to perfectly prevent the danger resulting from the leakage of microwave.

1. Primary interlock switch
   When the door is closed, the hook locks the oven door. If the door is not closed properly, the oven will not operate.
   When the door is closed, the hook pushes the button of the microswitch.
   Then the button of the primary interlock switch bring it under “ON” condition.

2. Secondary interlock switch, door open monitor switch and interlock monitor switch
   When the door is closed, the hook pushes the latch lever downward.
   The latch lever presses the button of the interlock monitor switch to bring it under “OFF” condition and
   presses the button of the secondary interlock switch and door open monitor switch to bring it under “ON” condition.



ADJUSTMENT

Interlock monitor switch

When the door is closed, the interlock monitor switch should be opened before other switches are closed.
When the door is opened, the interlock monitor switch should be closed after other switches are opened.

3. Adjustment steps
   (1) Loosen two mounting screws.
   (2) Adjust interlock switch assembly position.
   (3) Make sure that latch lever moves smoothly after adjustment is completed.
   (4) Tighten completely two mounting screws.

NOTE

Microwave emission test should be performed after adjusting interlock mechanism.

If the microwave emission exceed 4mW/cm^2, readjust interlock mechanism.

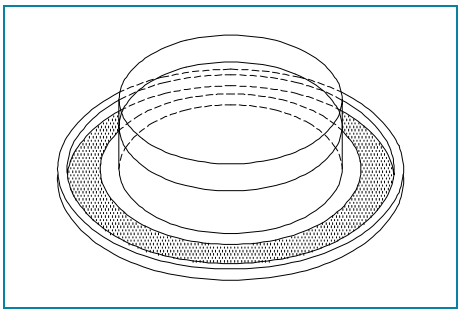
MEASUREMENT AND TEST

1. MEASUREMENT OF THE MICROWAVE POWER OUTPUT

Microwave output power can be checked by indirectly measuring the temperature rise of a certain amount of water exposed to the microwave as directed below.

PROCEDURE

1. Microwave power output measurement is made wit the microwave oven supplied at rated voltage and operated at its maximum microwave power setting with a load of 1000 ± 5cc of potable water.
2. The water is contained in a cylindrical borosilicate glass vessel having a maximum material thickness of 3 mm and an outside diameter of approximately 190 mm.
3. The oven and the empty vessel are at ambient temperature prior to the start of the test.
   The initial temperature of the water is 10 ± 2 °C (50 ± 3.6 °F).
   It is measured immediately before the water is added to the vessel.
   After addition of the water to the vessel, the load is immediately placed on the center of the shelf, which is in the lowest normal position.



4. Microwave power is switched on.
5. Heating time should be exactly **A** seconds.
   Heating time is measured while the microwave generator is operating at full power.
   The filament heat-up time for magnetron is not included.
6. The initial and final temperature of water is selected so that the maximum difference between the ambient and final water temperature is 5K.
7. The microwave power output P in watts is calculated from the following formula:

$$P = 4187 \times \triangle T/t$$

- △ **T** is difference between initial and ending temperature.
- t is the heating time.

The power measured should be **B** (refer to Specifications)W ± 10.0 %.

CAUTION

1. Water load should be measured exactly to 1 liters.
2. Input power voltage should be exactly specified voltage(Refer to SPECIFICATIONS).
3. Ambient temperature should be 20 ± 2 °C (68 ± 3.6°F)

Heating time for power output:

A(second)	70	64	60	56	52	49	47	44	42	40	38
B(W)	600	650	700	750	800	850	900	950	1000	1050	1100

2. ELECTRICAL CONTINUITY CHECK OF INTERLOCK SWITCH

NOTE

Remove the power plug from the wall receptacle before testing.

PROCEDURE

1. Primary interlock switch
   (1) Disconnect two connectors from primary interlock switch.
   (2) Connect the ohm-meter leads between the terminals of the primary interlock switch.
2. Read the value of resistance between the terminals of the switch, when the door is opened, and when the door is closed.
3. Secondary interlock switch
   (1) Disconnect two connectors from secondary interlock switch.
   (2) Connect the ohm-meter leads between the terminals of the secondary interlock switch.
   (3) Read the value of resistance between the terminals of the switch, when the door is opened, and when the door is closed.
3. Monitor interlock switch
   (1) Disconnect the lead wire connecting the primary interlock switch and interlock monitor switch from primary interlock switch terminal.
   (2) Connect the ohm-meter leads between the lead wire connector disconnected as item1 and the power supply neutral plug pin.
   (3) Read the value of resistance between the lead wire connector and the power supply neutral plug pin, when the oven door is opened, and when the oven door is closed.

JUDGEMENT

- The value of resistance should be applied to the value specified below.

Switch	Door Open	Door Close
Primary interlock switch	∞	0
Secondary interlock switch	∞	0
Interlock monitor circuit	0	∞

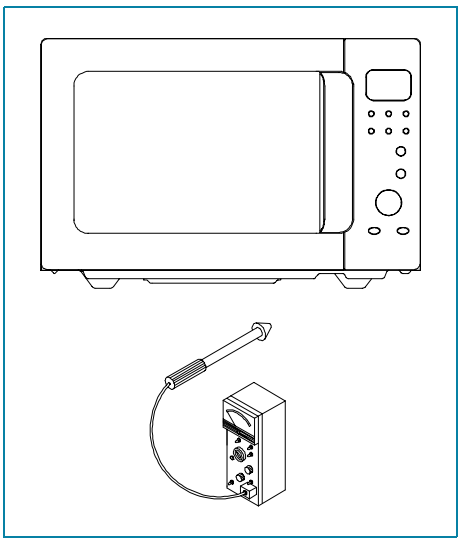
- When value obtained is not acceptable, the switch should be replaced or adjusted again.

3. MICROWAVE RADIATION TEST

WARNING

Make sure to check the microwave leakage before and after repair of adjustment.
Always start measuring of an unknown field to assure safety for operating personnel from microwave energy.
Do not place your hands into any suspected microwave radiation field unless the safe density level is known.
Care should be taken not to place the eyes in direct line with the source of microwave energy.
Slowly approach the unit under test until the radiometer reads an appreciable microwave leakage from the unit under the test.

PROCEDURE



1. Prepare Microwave Energy Survey Meter, 600cc glass beaker, and glass thermometer 100°C (212°F).
2. Pour 275cc ±15cc of tap water initially at 20 ± 5 °C (68 ± 9°F) in the 600 cc glass beaker with an inside diameter of approx. 95 mm(3.5 in.).
3. Place it at the center of the tray and set it in a cavity.
4. Close the door and operate the oven.
5. Measure the leakage by using Microwave Energy Survey Meter with dual ranges, set to 2450MHz.
   - Measured radiation leakage must not exceed the value prescribed below. Leakage for a fully assembled oven with door normally closed must be less than 4mW/cm^2.
   - When measuring the leakage, always use the 5 cm (2 in.) space cone with probe.
     Hold the probe perpendicular to the cabinet and door.
     Place the space cone of the probe on the door, cabinet, door seem, door viewing screen, the exhaust air vents and the suction air vents.
   - Measuring should be in a counter-clockwise direction at a rate of 1 in./sec.
     If the leakage of the cabinet door seem is unknown, move the probe more slowly.
   - When measuring near a corner of the door, keep the probe perpendicular to the areas making sure the probe end at the base of the cone does not get closer than 2 in. from any metal.
     If it does not, erroneous reading may result.

4. COMPONENT TEST PROCEDURE

- High voltage is present at the high voltage terminal of the high voltage transformer during any cooking cycle.
- It is neither necessary nor advisable to attempt measurement of the high voltage.
- Before touching any oven components or wiring, always unplug the oven from its power source and discharge the capacitor.

1. High voltage transformer

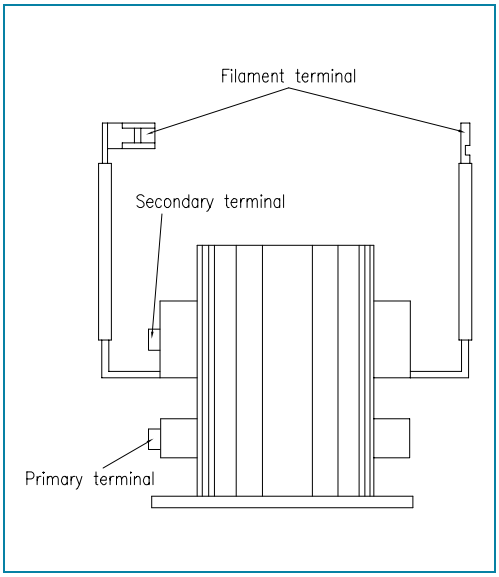
(1) Remove connections from the transformer terminals and check continuity.

(2) Normal readings should be as follows :

Secondary winding ... Approx. 100Ω ± 10%

Filament winding ... Approx. 0.1Ω

Primary winding ... Approx. 1.5Ω



2. High voltage capacitor

(1) Check continuity of capacitor with meter on the highest OHM scale.

(2) A normal capacitor will show continuity for a short time, and then indicate 9MΩ once the capacitor is charged.

(3) A shorted capacitor will show continuous continuity.

(4) An open capacitor will show constant 9MΩ

(5) Resistance between each terminal and chassis should be infinite.

3. High voltage diode

(1) Isolate the diode from the circuit by disconnecting the leads.

(2) With the ohmmeter set on the highest resistance scale measure the resistance across the diode terminals. Reverse the meter leads and again observe the resistance reading. Meter with 6V, 9V or higher voltage batteries should be used to check the front-back resistance of the diode, otherwise an infinite resistance may be read in both directions. A normal diode's resistance will be infinite in one direction and several hundred kΩ in the other direction.

4. Magnetron

For complete magnetron diagnosis, refer to "Measurement of the Microwave Output Power." Continuity checks can only indicate and open filament or a shorted magnetron.

To diagnose for an open filament or a shorted magnetron,

(1) Isolate magnetron from the circuit by disconnecting the leads.

(2) A continuity check across magnetron filament terminals should indicate 0.1Ω or less.

(3) A continuity check between each filament terminal and magnetron case should read open.

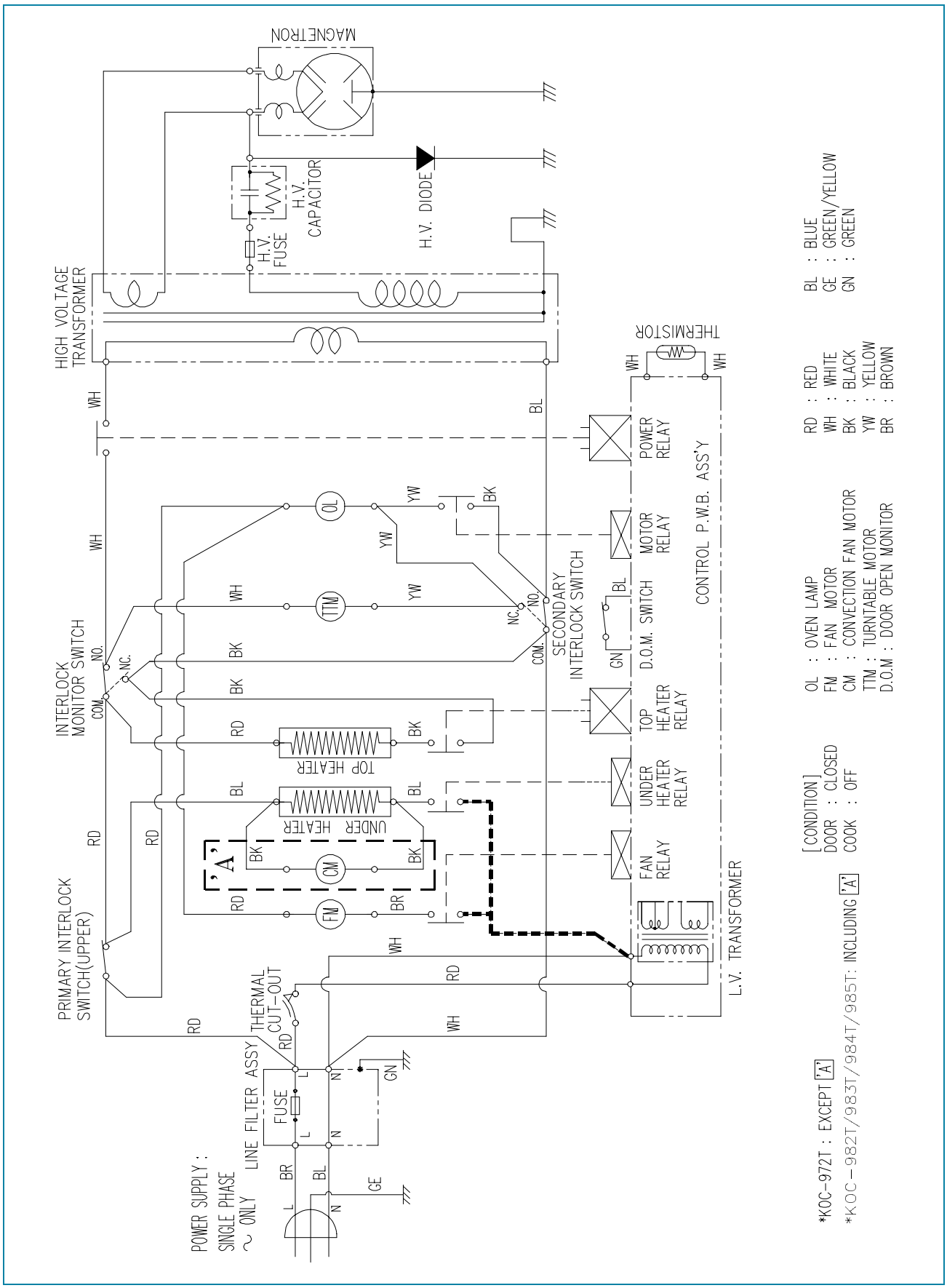
5. Fuse

If the fuse in the primary and monitor switch circuit is blown when the door is opened, check the primary and monitor switch before replacing the blown fuse.

In case the fuse is blown by an improper switch operation, replace the defective switch and fuse at the same time.

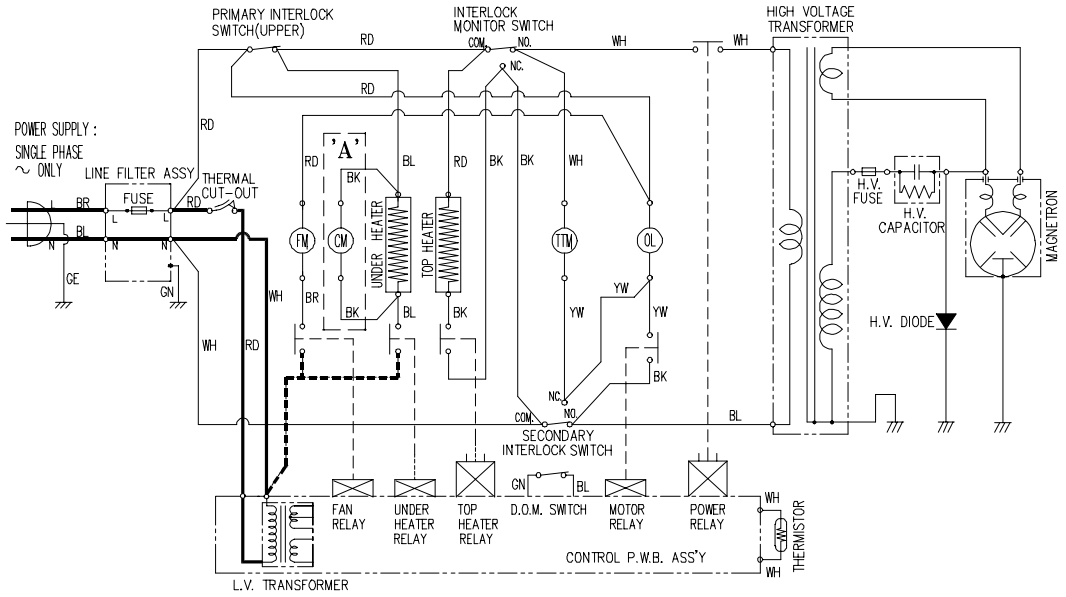
Replace just the fuse if the switches operate normally.

WIRING DIAGRAM



SCHEMATIC DIAGRAM

IDLE CONDITION



*KOC-972T : EXCEPT 'A'
*KOC-982T/983T/984T/985T: INCLUDING 'A'

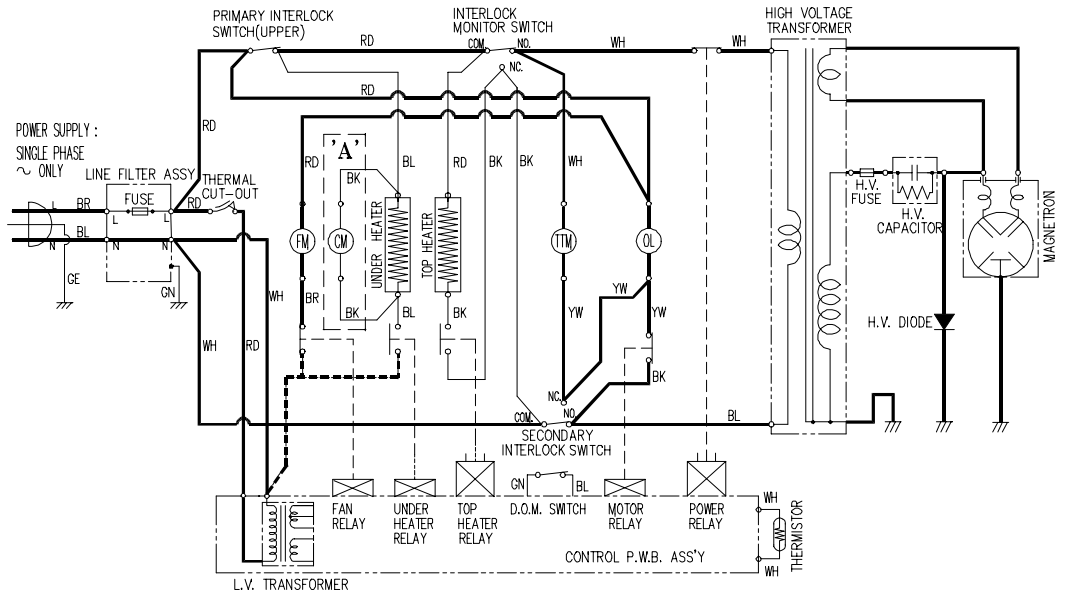
[CONDITION]
DOOR : CLOSED
COOK : OFF

OL : OVEN LAMP
FM : FAN MOTOR
CM : CONVECTION FAN MOTOR
TTM : TURNTABLE MOTOR
D.O.M : DOOR OPEN MONITOR

RD : RED
WH : WHITE
BK : BLACK
YW : YELLOW
BR : BROWN

BL : BLUE
GE : GREEN/YELLOW
GN : GREEN

MICROWAVE COOKING CONDITION



*KOC-972T : EXCEPT 'A'
*KOC-982T/983T/984T/985T: INCLUDING 'A'

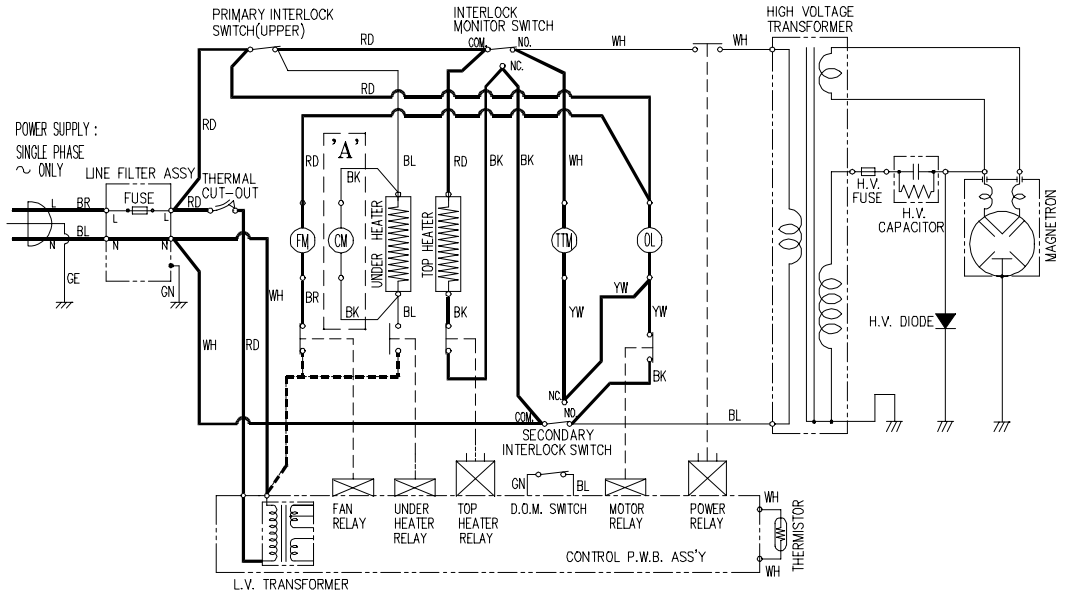
[CONDITION]
DOOR : CLOSED
COOK : ON

OL : OVEN LAMP
FM : FAN MOTOR
CM : CONVECTION FAN MOTOR
TTM : TURNTABLE MOTOR
D.O.M : DOOR OPEN MONITOR

RD : RED
WH : WHITE
BK : BLACK
YW : YELLOW
BR : BROWN

BL : BLUE
GE : GREEN/YELLOW
GN : GREEN

GRILL COOKING CONDITION



*KOC-972T : FXCFPT 'A'
*KOC-982T/983T/984T/985T: INCLUDING 'A'

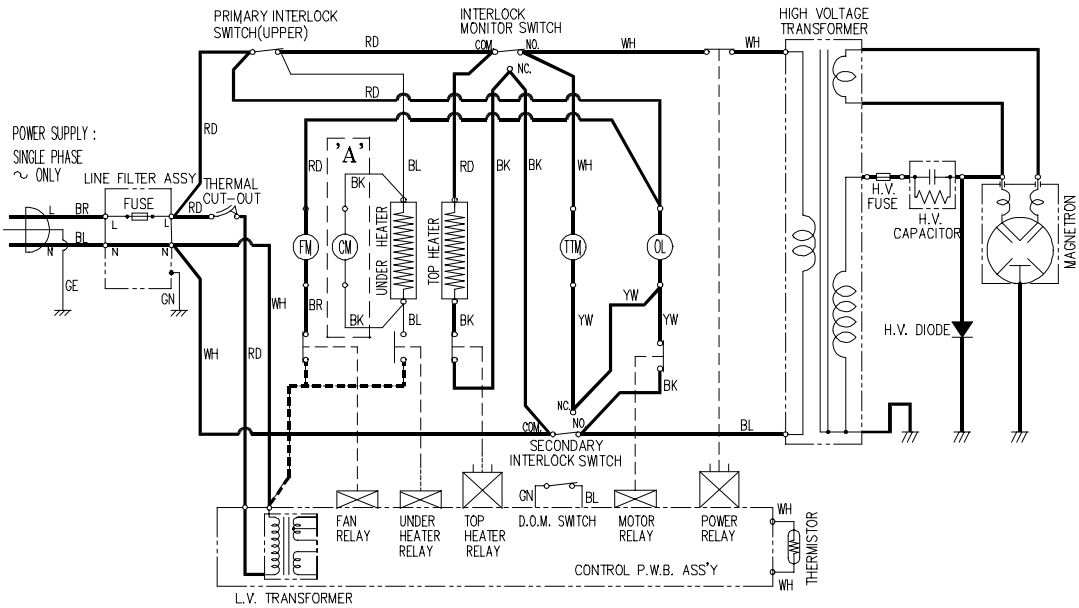
[CONDITION]
DOOR : CLOSED
COOK : ON

OL : OVEN LAMP
FM : FAN MOTOR
CM : CONVECTION FAN MOTOR
TTM : TURNTABLE MOTOR
D.O.M : DOOR OPEN MONITOR

RD : RED
WH : WHITE
BK : BLACK
YW : YELLOW
BR : BROWN

BL : BLUE
GE : GREEN/YELLOW
GN : GREEN

COMBI COOKING CONDITION



*KOC-972T : EXCEPT 'A'
*KOC-982T/983T/984T/985T: INCLUDING 'A'

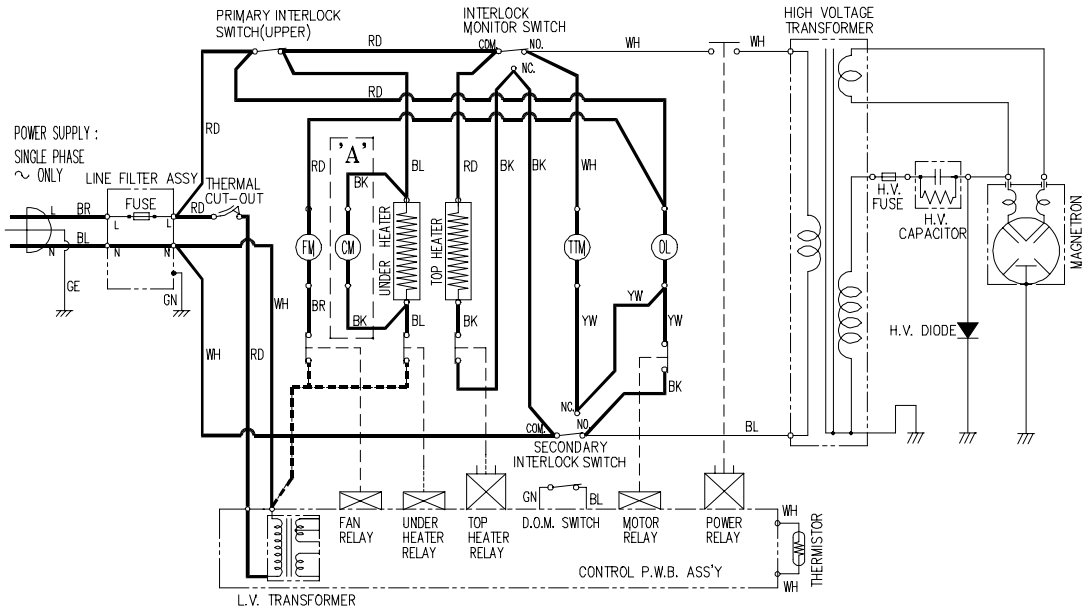
[CONDITION]
DOOR : CLOSED
COOK : ON

OL : OVEN LAMP
FM : FAN MOTOR
CM : CONVECTION FAN MOTOR
TTM : TURNTABLE MOTOR
D.O.M : DOOR OPEN MONITOR

RD : RED
WH : WHITE
BK : BLACK
YW : YELLOW
BR : BROWN

BL : BLUE
GE : GREEN/YELLOW
GN : GREEN

CONVECTION COOKING CONDITION



*KOC-972T : EXCEPT 'A'

*KOC-982T/983T/984T/985T: INCLUDING 'A'

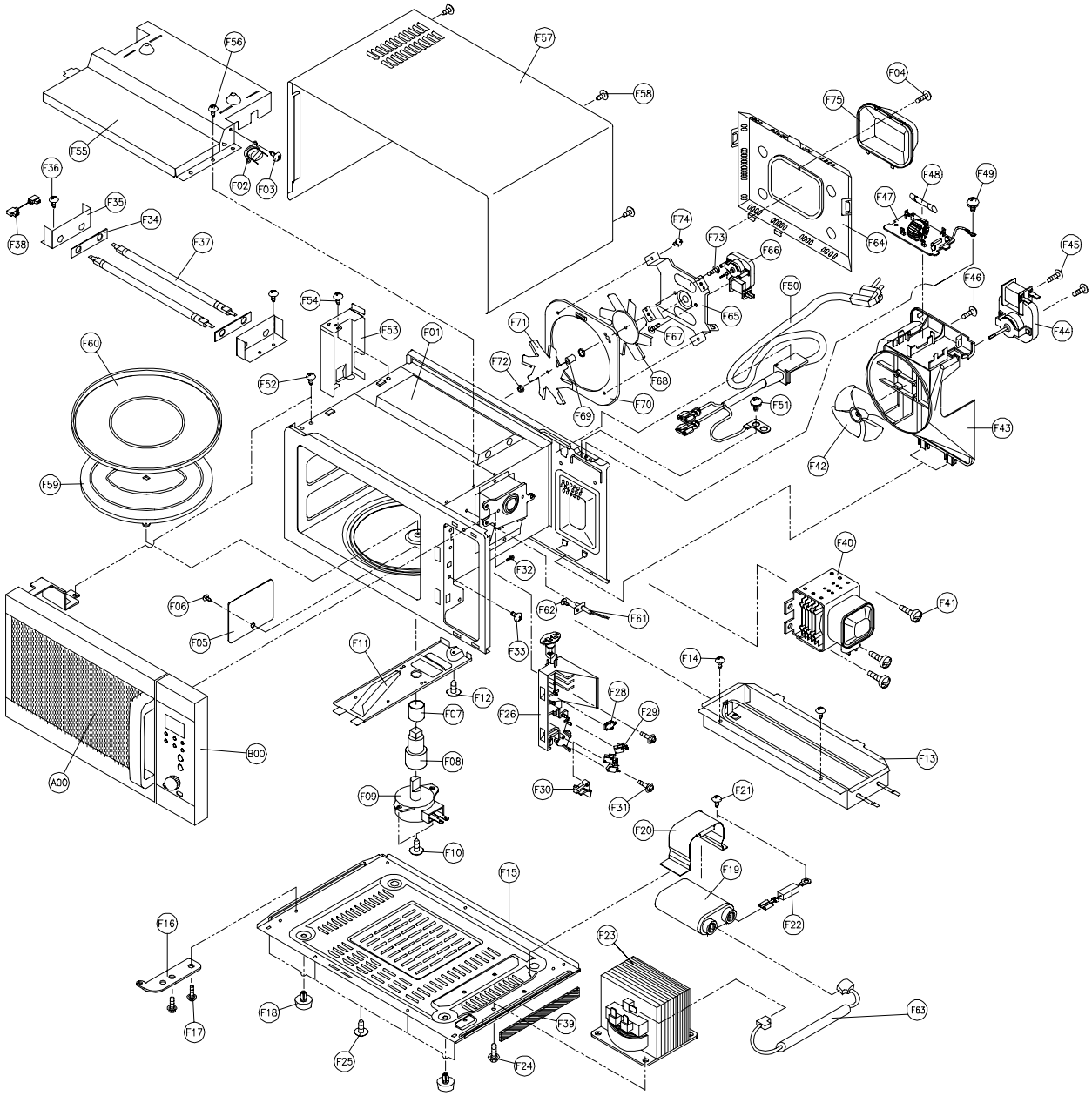
[CONDITION]
DOOR : CLOSED
COOK : ON

OL : OVEN LAMP
FM : FAN MOTOR
CM : CONVECTION FAN MOTOR
TTM : TURNTABLE MOTOR
D.O.M : DOOR OPEN MONITOR

RD : RED
WH : WHITE
BK : BLACK
YW : YELLOW
BR : BROWN

BL : BLUE
GE : GREEN/YELLOW
GN : GREEN

EXPLODED VIEW



PARTS LIST

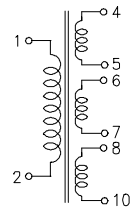
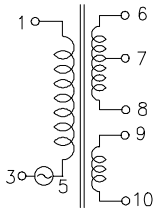
REF NO.	PART CODE	PART NAME	DESCRIPTION	QTY	REMARK
A00	3511708380	DOOR AS	KOC-984T	1	
B00	PKCPSWYB00	CONTROL-PANEL AS	KOC-984T(SIMULTANEOUS)	1	
F02	3518904400	THERMOSTAT	120/60, #187	1	
F03	7121400611	SCREW TAPPING	T2S PAN 4*6 MFZN	1	
F04	7112400811	SCREW TAPPING	T1 TRS 4X8 MFZN	1	
F05	3511403800	COVER WAVE GUIDE	MICA TO.5	1	
F06	7113400814	SCREW TAPPING	T1 BIN 4*8 MFNI	1	
F07	3514400600	PIPE	BRASS C3604BD	1	
F08	3517401300	COUPLER	CERAMIC	1	
F09	3966510200	MOTOR SYNCRO	230V 25W GM-16-24FD24)	1	
F10	7121400811	SCREW TAPPING	T2S PAN 4*8 MFZN	2	
F11	3510604000	BRACKET MOTOR SYNCRO	SECC TO.8	1	
F12	7113400814	SCREW TAPPING	T1 BIN 4*8 MFNI	1	
F13	3512802100	HEATER *U AS	KOC-971COS	1	
F14	7113400814	SCREW TAPPING	T1 BIN 4*8 MFNI	2	
F15	3510310400	BASE	SBHG TO.8	1	
F16	3515202800	STOPPER HINGE *U AS	KOR-121MOA	1	
F17	7S422X4081	SCREW SPECIAL	TT2 TRS 4*8 SE MFZN	2	
F18	3512101400	FOOT	PP, DASF-130	4	
F19	4416W67820	CAPACITOR HV	2100VAC, 1.1uF	1	
F20	441X304112	HOLDER HV CAPACITOR	SECC TO.8	1	
F21	7S422X4081	SCREW SPECIAL	TT2 TRS 4*8 SE MFZN	1	
F22	4416V24000	DIODE HV	SANKEN HVR-1X-32B(D5.3)	1	
F23	3518112100	TRANS HV	DY-N90S0-97T1	1	
F24	7S427W40A1	SCREW SPECIAL	TT2 HEX FG 4*10 SE MFZN	4	
F25	7S312X40A1	SCREW SPECIAL	T1 TRS 4*10 SE MFZN	5	
F26	3513809100	LOCK	POM	1	
F27	3513601600	LAMP	BL 240V 25W T25 C7A H187	1	
F28	5S762S10G0	SW MICRO	SZM-V16-FA-63	2	
F29	5S762310G0	SW MICRO	SZM-V16-FA-61	2	
F30	3513701300	LEVER LOCK	POM	1	
F31	7122401211	SCREW TAPPING	T2S TRS 4*12 MFZN	2	
F32	7122401211	SCREW TAPPING	T2S TRS 4*12 MFZN	1	

REF NO.	PART CODE	PART NAME	DESCRIPTION	QTY	REMARK
F33	7S422X4081	SCREW SPECIAL	TT2 TRS 4*8 SE MFZN	1	
F34	3517502700	PROTECTOR HEATER	MICA MT56 T1.O	2	
F35	3510603610	BRACKET HEATER *T	SECC TO.6	2	
F36	7S312X40A1	SCREW SPECIAL	T1 TRS 4*10 SE MFZN	2	
F37	3512803000	HEATER MIRACLON	115V 550W	2	
F38	3512765100	HARNESS HEATER	#187 FLAG 65MM	1	
F39	3517302500	FOAM	CR 10T*180*30	1	
F40	3518002400	MAGNETRON	2M218J(MF)I	1	
F41	7S427W40A1	SCREW SPECIAL	TT2 HEX FG 4*10 SE MFZN	3	
F42	3511800100	FAN	PP GF20	1	
F43	3512505200	GUIDE WIND	PP	1	
F44	3963513000	MOTOR SHADED POLE	230V 25W OEM-15DWC2-AO3	1	
F45	7112403011	SCREW TAPPING	T2S PAN 4*30 MFZN	2	
F46	7122401211	SCREW TAPPING	T2S TRS 4*12 MFZN	1	
F47	3518604600	NOISE-FILTER	DWLF-P(SIMULTANEOUS)	1	
F48	4417B67600	FUSE	15A 250V(SIMULTANEOUS)	1	
F49	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F50	35113A5Q5J	CORD POWER AS	3*1.5(SIMULTANEOUS)	1	
	35113A5QM5	CORD POWER AS	3*1.0(SIMULTANEOUS)	1	
F51	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	2	
F52	7S427W40A1	SCREW SPECIAL	TT2 HEX FG 4*10 SE MFZN	2	
F53	3512505500	GUIDE AIR OUTLET	SA1D-80 TO.5	1	
F54	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F55	3511404800	COVER INSULATOR *T	SECC TO.5	1	
F56	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F57	3510801000	CABINET	PCM TO.5	1	
F58	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	4	
F59	3512513000	GUIDE TRAY AS	KOC-971COS	1	
F60	3517205200	TRAY METAL	SPP TO.6	1	
F61	3514800800	SENSOR TEMPERATURE	PTM-K312-D4	1	
F62	7113400814	SCREW TAPPING	T1 BIN 4*8 MFNI	1	
F63	3518700220	FUSE HV	5KV 0.7A	1	
F64	3511401300	COVER INSULATOR *B	SBHG-1 0.6T	1	
F65	3510601500	BRACKET MOTOR	SBHG-1 0.8T	1	
F66	3963513200	MOTOR SHADED POLE	OEM-10DWC2-A09	1	
F67	7051400811	SCREW MACHINE	PAN 4*8 SW MFZN	2	
F68	441B629071	FAN	SBHG-1 0.6T	1	
F69	3514400400	PIPE	AL1100	1	
F70	3511401800	COVER INSULATOR	SA1D-80 0.7T	1	
F71	3511800400	FAN CONVECTION	SA1D-80 0.5T	1	
F72	7121400811	SCREW SPECIAL	NUT FLANGE M4 MFZN	1	
F73	7S627W50X1	SCREW TAPPING	T1 TRS 4*8 TB-W MFZN	1	
F74	7S627W50X1	SCREW TAPPING	T1 TRS 4*8 TB-W MFZN	4	
F75	3511402100	COVER *B	P.P	1	

1. CIRCUIT CHECK PROCEDURE

1. Low Voltage Transformer check

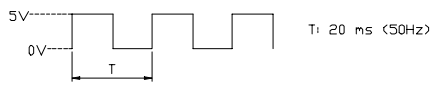
- The low voltage transformer is located on the P.C.B.
- Measuring condition (input voltage) : 230 VAC / 50 Hz

			KOC-984T		
			L.V.T. : DMR-984FS		
				Terminal	Voltage
				1 - 3	230VAC/50Hz
				6 - 7	10.5 VAC
				7 - 8	10.5 VAC
				9 - 10	2.6 VAC

Secondary side voltage of the low voltage transformer changes in proportion to fluctuation of power source voltage.
The allowable tolerance of the secondary voltage is within ±5% of normal voltage.

2. Voltage check

- Key check point (1~5:Micom Pin, 6:Display Pin)

NO	CHECK POINT	REMARK
1	PIN 63, 64	+5 VDC ±5%
2	PIN 29, 32, 62	0 V
3	PIN 28	+5 VDC
4	PIN 45	
5	PIN 30, 31	
6	PIN 1, 25	2.6 VAC (Display filament voltage)

- Check method

NO	VOLTAGE	REMARK	
			KOC-984T
1	+5 VDC		Replace Q3,ZD3,R26,C10
2	+12 VDC		Replace D7,D8,EC2,EC3,C14,C11
3	-24 VDC		Replace D9,D10,EC4,EC5,C15

NOTE

The marks of the above corresponding voltages (+5, +12, -24VDC) are written on the PCB .
Each measuring points must be measured with GND points.

3. Display Problems

NO	CAUSE	MEASUREMENT	RESULT	REMEDY
1	Poor contact between P.C.B. and display filament	Check the voltage of display pin 1 & 25	2.6 VAC	Fix the pin 1 & 25 on the P.C.B.
2	The display has some trouble in its segment or grid	Refer to The display trouble shooting data below		Replace P.C.B. assembly
3	Loss vacuum in the display	Find white spot		Replace P.C.B. assembly

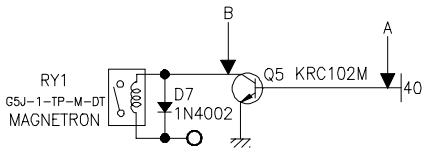
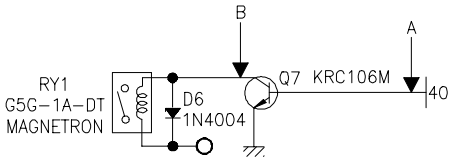
- The display trouble shooting data

TROUBLE	DISPLAY NAME & PIN NO.	MICOM OUTPUT IN PIN NO.
Grid 1 doesn't come on.	Grid 1 (G1), 4, 7	13
Grid 2 doesn't come on.	Grid 2 (G2), 10	16
Grid 3 doesn't come on.	Grid 3 (G3), 14	18
Grid 4 doesn't come on.	Grid 4 (G4), 17	17
Grid 5 doesn't come on.	Grid 5 (G5), 21	24
Segment a doesn't come on from G1 to G5	Segment a, 23	26
Segment b doesn't come on from G1 to G5	Segment b, 22	25
Segment c doesn't come on from G1 to G5	Segment c, 20	23
Segment d doesn't come on from G1 to G5	Segment d, 19	22
Segment e doesn't come on from G1 to G5	Segment e, 18	21
Segment f doesn't come on from G1 to G5	Segment f, 16	20
Segment g doesn't come on from G1 to G5	Segment g, 15	19
Segment h doesn't come on from G1 to G5	Lower bar h, 5	14
Segment i doesn't come on from G1 to G5	Upper bar i, 6,8,9,11	15

4. Case of no microwave oscillation

(1) Situation : When touching M/W button, oven lamp turns on, fan motor and turntable motor rotate and cook indicator in the display comes on.

- CAUSE : Relay 1 (RY1) does not operate.

	KOC-984T
	

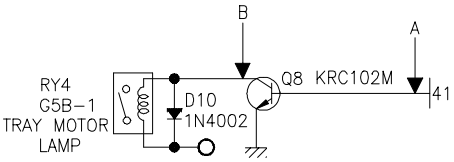
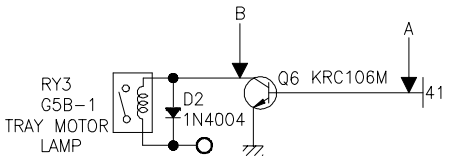
- Check method

STAGE	POINT A	POINT B
RELAY ON	+5 VDC	GND
RELAY OFF	GND	+12 VDC

(2) Situation : When touching M/W button, oven lamp does not turn on and turntable motor does not rotate but cook indicator in the display comes on.

- CAUSE :

  Relay 3 (RY3) does not operate.

	KOC-984T
	

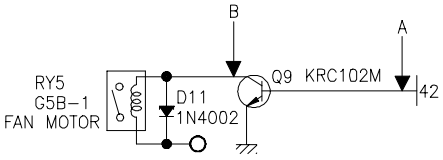
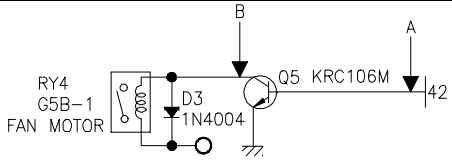
- Check method

STAGE	POINT A	POINT B
RELAY ON	+5 VDC	GND
RELAY OFF	GND	+12 VDC

(3) Situation : When touching M/W button, oven lamp turns on and fan motor does not rotate but cook indicator in the display comes on.

- CAUSE :

  Relay 4 (RY4) does not operate.

	KOC-984T
	

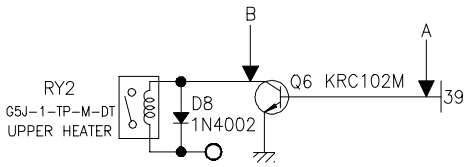
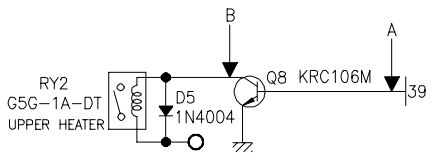
• Check method

STAGE	POINT A	POINT B
RELAY ON	+5 VDC	GND
RELAY OFF	GND	+12 VDC

5. Case of no heating of upper heater

When touching TEMP COOK & COMBI button, oven lamp turns on, fan motor and turntable motor rotate and cook indicator in the display comes on.

• CAUSE : Relay 2 (RY2) does not operate.

	KOC-984T
	

• Check method

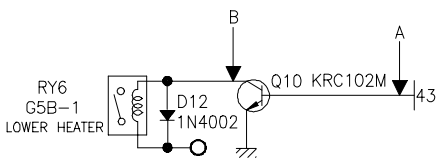
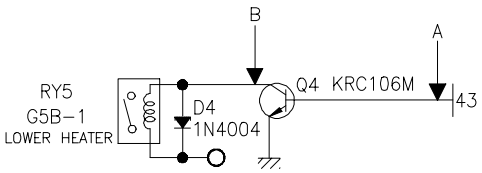
STAGE	POINT A	POINT B
RELAY ON	+5 VDC	GND
RELAY OFF	GND	+12 VDC

6. Case of no heating of lower heater

When touching TEMP COOK & PIE button, oven lamp turns on, fan motor and turntable motor rotate and cook indicator in the display comes on.

• CAUSE :

Relay 5 (RY5) does not operate.

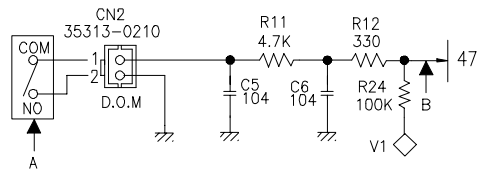
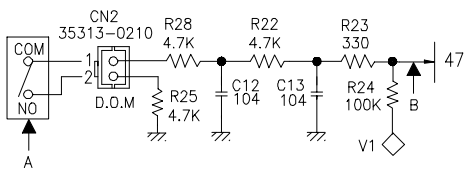
	KOC-984T
	

• Check method

STAGE	POINT A	POINT B
RELAY ON	+5 VDC	GND
RELAY OFF	GND	+12 VDC

7. Case of no stopping of the count down timer

When the door is opened during operation, the count down timer does not stop.

	KOC-984T
	

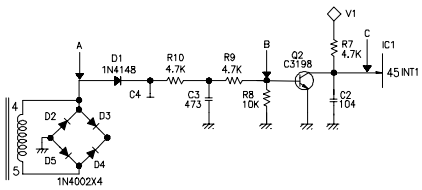
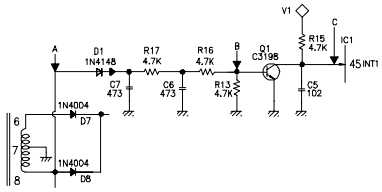
- Check method

STAGE	POINT A	POINT B
Door opened	Open	+5 VDC
Door closed	Closed	GND

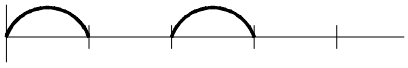
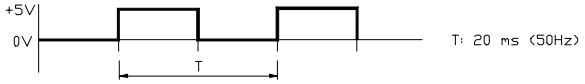
NOTE

Check the state (ON, OFF) of the secondary interlock switch by resistance measurement.

8. Case of appearring Err6 on the display

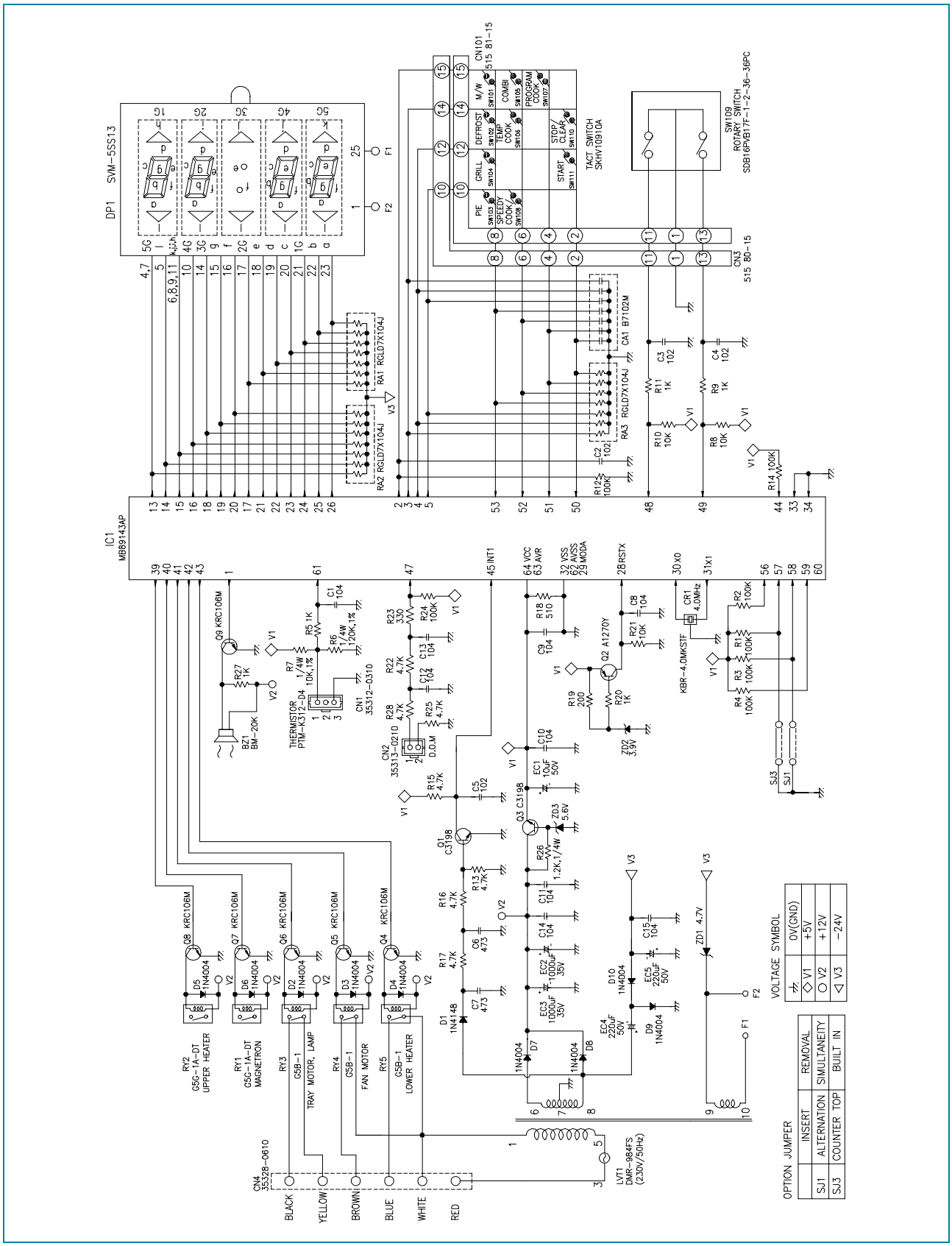
	KOC-984T
	

- Check method

POINT	WAVEFORM
A	
B	
C	

NOTE

If clock does not keep exact time, you must check
Diode D1 & Transistor Q1


DP1 SWM-5S513
IC1 MB89143AP
CN101 515 81-15
CN5 515 80-15
SW109 ROTARY SWITCH SDB16P4B17F-1-2-36-36PC
TACT SWITCH SKHV10910A
CA1 B71D2M
RA1 RGLD7X104J
RA2 RGLD7X104J
RA3 RGLD7X104J
CN1 35312-0310
CN2 35313-0210
CN4 35328-0610
THERMISTOR PTM-K312-D4
BZ1 BM-20K
KBR-4.0MKSTF
LVT1 DMR-9B4FS (230V/50Hz)
RY1 G5G-1A-DT MAGNETRON
RY2 G5G-1A-DT UPPER HEATER
RY3 G5B-1 TRAY MOTOR, LAMP
RY4 G5B-1 FAN MOTOR
RY5 G5B-1 LOWER HEATER
Q1 C3198
Q2 A1270Y
Q3 C3198
Q4 KRC106M
Q5 KRC106M
Q6 KRC106M
Q7 KRC106M
Q8 KRC106M
Q9 KRC106M
BLACK
YELLOW
BROWN
BLUE
WHITE
RED
OPTION JUMPER
INSERT
REMOVAL
SJ1 ALTERNATION SIMULTANEITY
SJ3 COUNTER TOP BUILT IN
VOLTAGE SYMBOL
0V(GND)
V1 +5V
V2 +12V
V3 −24V

PCB ASS'Y PART LIST

NAME	SYMBOL	SPECIFCATION	PART CODE	Q'TY
PCB	M218	93X213	3514314980	1
	M219	91.5X163	3514314990	1
BUZZER	BZ1	BM-20K	3515600100	1
CONNECTOR WAFER	CN1	35312-0310	30166M5030	1
CONNECTOR WAFER	CN2	35313-0210	30166M7020	1
CONNECTOR WAFER	CN3	515 80-15	4CW215SBD0	1
CONNECTOR WAFER	CN4	35328-0610	4CW3061MX0	1
CONNECTOR WAFER	CN101	515 81-15	4CW215RBD0	1
DIGITRON	DP1	SVM-5SS13	DSVM5SS13-	1
HOLDER VFD	DPH	PP KOR-9930	3513002000	1
IC MICOM	IC1	MB89143AP-241	141SC984T0	1
TRANS POWER	LVT1	DMR-984FS	5EPV041305	1
SW RELAY	RY1,RY2	G5G-1A-DT DC 12V	5SC0101123	2
SW RELAY	RY3.RY4,RY5	G5B-1 DC 12V	5SC0101110	3
RESONATOR CERA	CR1	KBR-4.0MKSTF	5PKBR40MKS	1
C ELECTRO	EC1	RS 50V 10uF	CEXE1H100A	1
C ELECTRO	EC2,EC3	RSS 35V 1000 uF	CEXF1V102V	2
C ELECTRO	EC4,EC5	RSS 50V 220 uF	CEXF1H221V	2
TRANSISTOR	Q1,Q3	KTC3198GR	TZTC3198GR-	2
TRANSISTOR	Q2	KTA1270Y	TZTA1270Y-	1
TRANSISTOR	Q4---Q9	KRC106M	TZRC106M--	6
C CERA AXIAL	C1,C8-C15	H1KF 50V 0.1uF Z	CCZF1H104Z	9
C CERA AXIAL	C6,C7	H1KF 50V 0.047uF Z	CCZF1H473Z	2
C CERA AXIAL	C2-C5	H1KF 50V 1000pF K	CCZF1H102Z	4
C ARRAY	CA1	8P(7) 50V 1000 pF	CN7XB-102M	1
DIODE SWITCHING	D1	1N4148M	DZN4148M--	1
DIODE SWITCHING	D2-D10	1N4004A	DZN4004A--	9
R CARBON FILM	R1-R4,R12,R14,R24	1/6W, 100K OHM J	RD-AZ104J-	7
R CARBON FILM	R5,R9,R11,R20,R27	1/6W, 1K OHM J	RD-AZ102J-	5
R CARBON FILM	R6	1/4W, 120K OHM F	RN-4Z1203F	1
R CARBON FILM	R7	1/4W, 10K OHM F	RN-4Z1002F	1
R CARBON FILM	R8,R10,R21	1/6W, 10K OHM J	RD-AZ103J-	3
R CARBON FILM	R13,R15-R17,R22,R28	1/6W, 4.7K OHM J	RD-AZ472J-	6
R CARBON FILM	R18	1/6W, 510 OHM J	RD-AZ511J-	1
R CARBON FILM	R19	1/6W, 200 OHM J	RD-AZ201J-	1
R CARBON FILM	R23	1/6W, 330 OHM J	RD-AZ331J-	1
R CARBON FILM	R26	1/4W, 1,2K OHM J	RD-4Z122J-	1
R ARRAY	RA1,RA2,RA3	8P(7) 1/8 100K J	RA-88X104J	3
DIODE ZENER	ZD1	MTZ J 4.7B	DZUZ4R7BSB	1
DIODE ZENER	ZD2	MTZ J 3.9B	DZUZ3R9BSB	1
DIODE ZENER	ZD3	MTZ J 5.6B	DZUZ5R6BSB	1
SW ROTARY	SW109	SDB161PVB17F-1-2 -36-36PC(PITCH 5)	5S10109002	1
WIRE FLAT	WF1	1.25X15X90XC	WSJ-159007	1
SW TACT	SW101-SW108 ,SW110,SW111	SKHV10910A	5S50101Z90	10