

DAEWOO

Service Manual Microwave Oven

Model : KOC-870T0S



**DAEWOO ELECTRONICS CO., LTD.
OVERSEAS SERVICE DEPT.**

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

- (a) Do not operate or allow the oven to be operated with the door open.
- (b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary: (1) Interlock operation, (2) proper door closing, (3) seal and sealing surfaces (arcing, wear, and other damage), (4) damage to or loosening of hinges and latches, (5) evidence of dropping or abuse.
- (c) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
- (d) Any defective or misadjusted components in the interlock, monitor, door seal and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
- (e) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

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PROPER USE AND SERVICE 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) This microwave oven weight 17.6kg (38.9 lbs.) and must be placed on a horizontal base strong enough to support this weight.
- 2) The oven should be placed as far from high temperature source and vapour as possible.
- 3) The power supply cord is about 1.1m (3.6ft) long. Earthing is required when connecting the power source.
- 4) Maximum power consumption of this oven is approximately 2.6Kw(230V). It is suggested that the unit is operated on such power line (about 13 amperes) that can provide more power than this rating.
- 5) Object must not be placed on the top enclosure so as not to obstruct air flow for ventilation.

WARNING : This appliance must be earthed.

IMPORTANT

The wires 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' or by earth symbol or 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

POWER SUPPLY		230V ~ , 50Hz	240V~, 50Hz
MICROWAVE	POWER CONSUMPTION	1,500 W	1,550w
	OUTPUT POWER	900 W (IEC 705)	900W(IEC 705)
	FREQUENCY	2,450 MHZ	2,450MHz
GRILL POWER CONSUMPTION		1,150 W	1,200W
CONVECTION POWER CONSUMPTION		1,550 W	1,600W
COMBINATION HEATING POWER CONSUMPTION		2,600 W	2,650W
OUTSIDE DIMENSIONS (W X D X H)		501 X 398 X 320 mm (19.7 X 15.7 X 12.6 in.)	
CAVITY DIMENSIONS (W X D X H)		310 X 320 X 229 mm (12.2 X 12.6 X 9.0 in.)	
NET WEIGHT		17.6 kg (38.9 lbs.)	
TIMER		60 minutes	
SELECT FUNCTION		Microwave/Grill / Convection / Combination	
MICROWAVE POWER LEVEL		10 stages	

* Specifications subject to change without notice.

EXTERNAL VIEWS

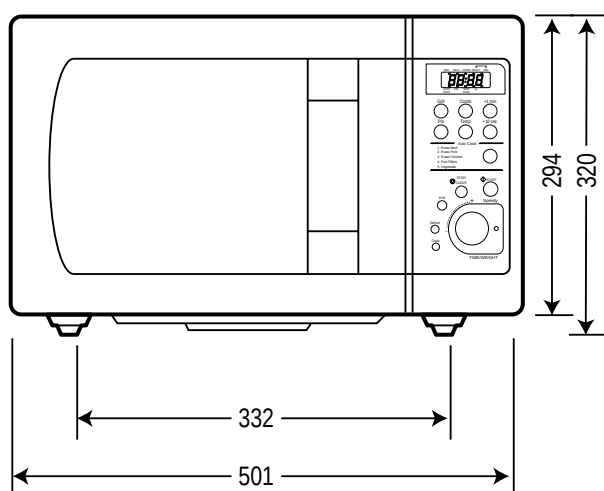


Fig. 1 Front View

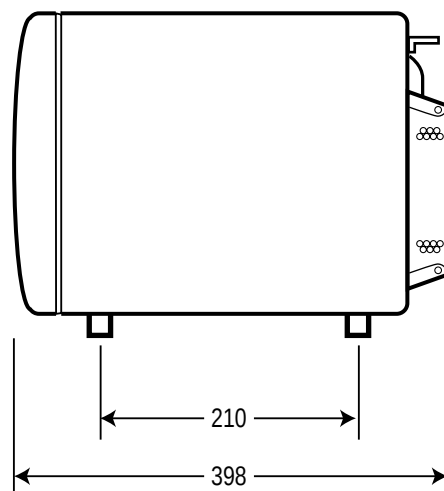
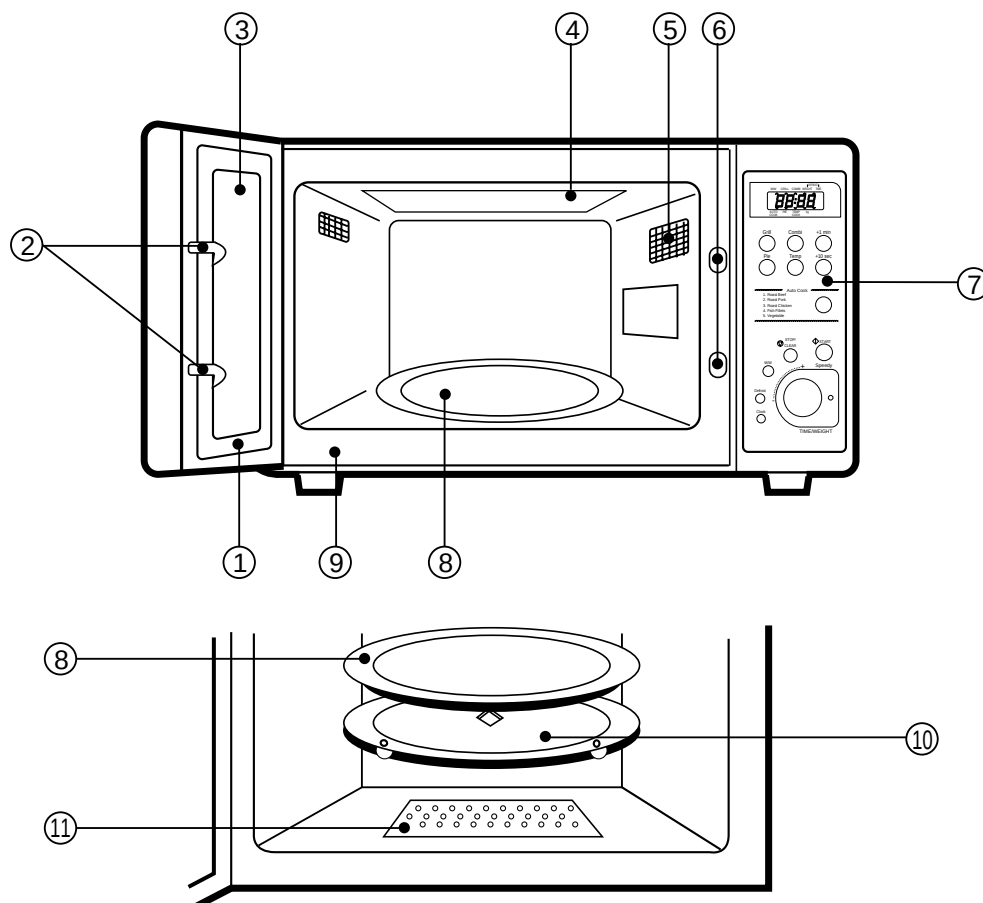


Fig. 2 Side View

NAMES AND FUNCTION OF PARTS



▣ **DOOR SEAL** *f* ; Door seal maintains the microwave within the oven cavity and prevents microwave leakage.

▣ **DOOR HOOK** *f* ; When door is closed, it will automatically lock shut. If door is opened while oven is operating, magnetron tube will immediately stop operating.

▣ **DOOR SCREEN** *f* ; Allows viewing of food. Microwave cannot pass through perforations in screen.

▣ **GRILL HEATER** *f* ; Turns on when grill and simultaneous cooking is selected.

▣ **OVEN LAMP** *f* ; Automatically turns on during oven operating.

▣ **SAFETY INTERLOCK SYSTEM**

▣ **CONTROL PANEL**

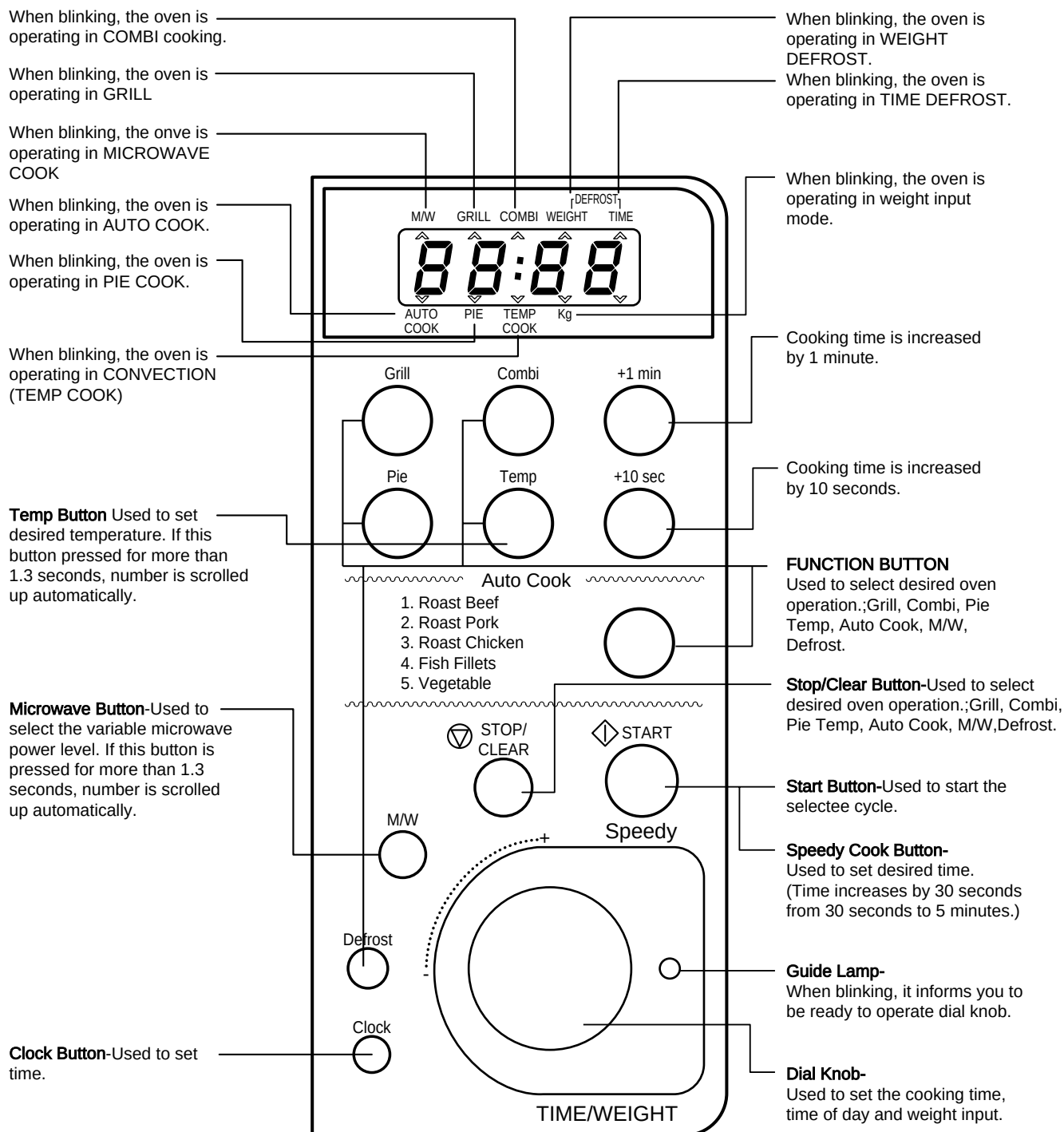
▣ **TURNTABLE TRAY** *f* ; Rotates during cooking and ensure even distribution of Microwaves. It can also be used as a cooking utensil.

▣ **OVEN FRONT PLATE**

▣ **ROTATING BASE** *f* ; This fits over the shaft in the center of the oven's cavity floor. This is to remain in the oven for all cooking. It should only be removed for cleaning.

▣ **UNDER HEATER**

CONTROL PANEL



OPERATION

TO STOP THE OVEN WHILE THE OVEN IS OPERATING

1. Press (STOP / CLEAR) button.

- The  (STOP) indicator starts blinking.
- You can restart the oven by touching  (START) button.
- Touch  once more to erase all instruction except clock.

2. Open the door

- You can restart the oven by closing the door and touching  button.

NOTE : Oven stops operating when door open.

ERASING INSTRUCTIONS

- Touch  (STOP/CLEAR) button to erase all instructions you set previously.
- Opening the oven door during cooking dose not erase cooking instruction.
- If you touch  button during operation, the cooking instructions is all erased.

INTERLOCK MECHANISM FUNCTIONS AND ADJUSTMENTS

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.

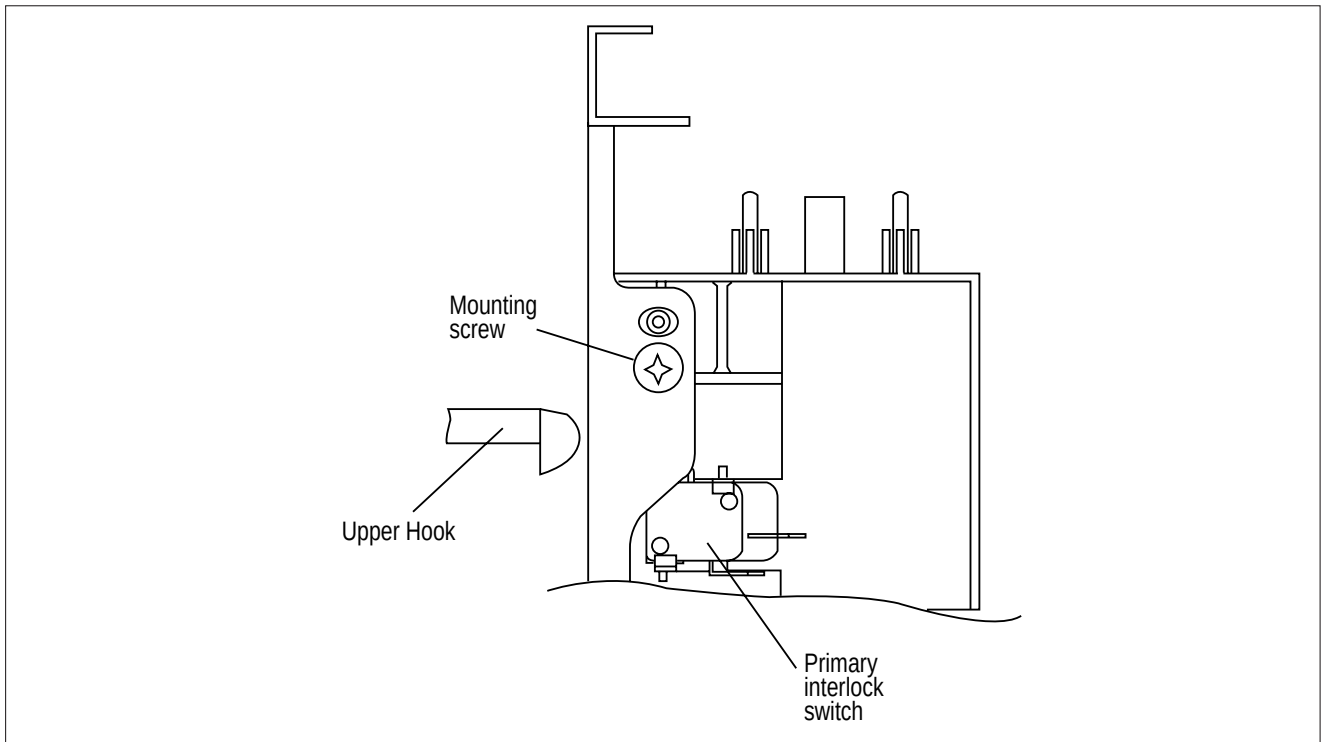
(1) Primary interlock switch

When the door is closed, the hook locks the oven door.

If the door is not closed properly, the oven will not operate.

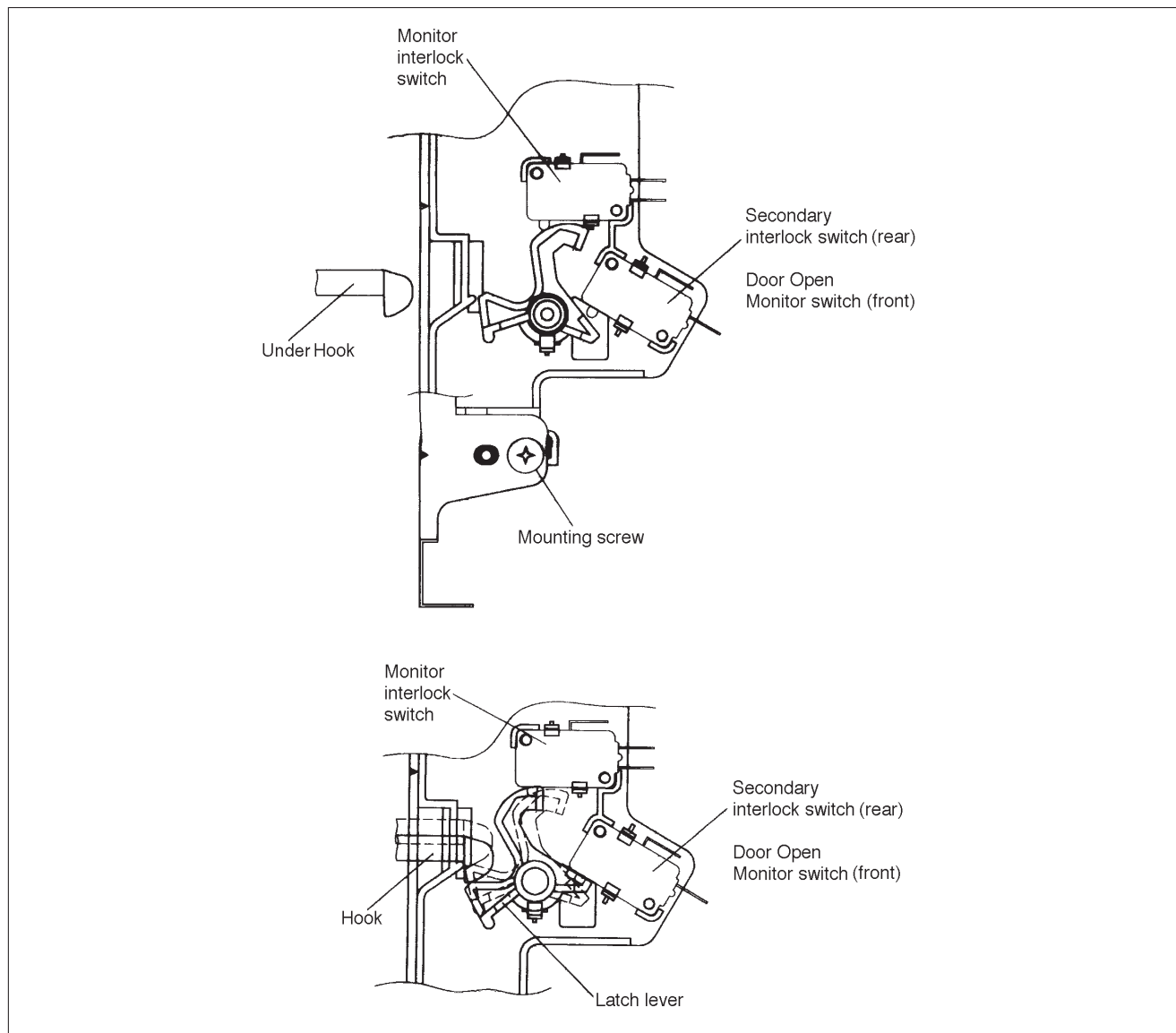
When the door is closed, the hook pushes the lever downward.

The lever press the button of the primary interlock switch to bring it under 'ON' condition.



(2) Monitor interlock switch

When the door is closed, the hook pushes the lever forward, and pushes the Latch Lever downward the lever press the button of the interlock monitor switch to bring it under 'OFF' condition. The latch Lever press the button on the secondary interlock switch to bring it under 'ON' condition.



- Adjustment

Interlock monitor switch

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

Adjustment steps :

- Loosen the two mounting screws.
- Adjust the interlock switch assembly position.
- Make sure that the latch lever moves smoothly after adjustment is completed.
- Completely tighten the two mounting screws.

PRECAUTIONS FOR DISASSEMBLY AND REPAIR

– Cautions to be observed when trouble shooting.

Unlike many other appliances, the microwave oven is high-voltage, high-current equipment. It is completely safe 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 wear rubber gloves when servicing the high voltage side.
- (3) Warning about the electric charge in the high voltage capacitor. When inspecting and repairing the high voltage side, always short the capacitor terminals and make sure of discharge.

1. Check the earthing.

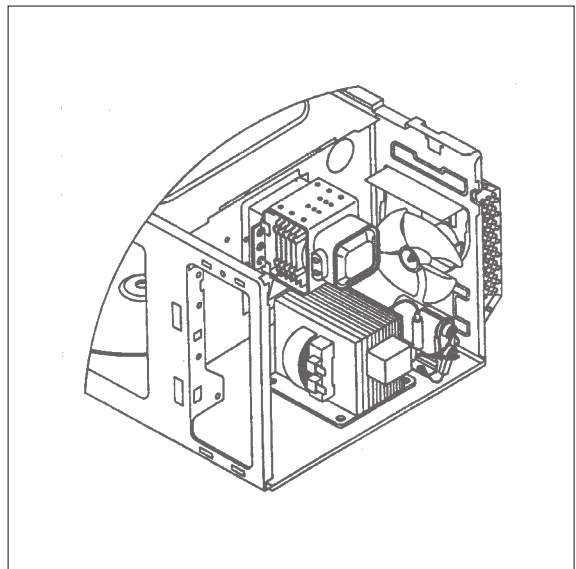
Do not operate on a 2-wire extension cord.

The microwave oven is designed to be used when 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 stops, 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 screw driver to discharge.



- (4) When the 15 Amp fuse (normal blow type) is blown out due to the operation of the monitor switch; replace primary, secondary interlock switch and monitor switch. Refer to 17 page for the necessary adjustment.
- (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.

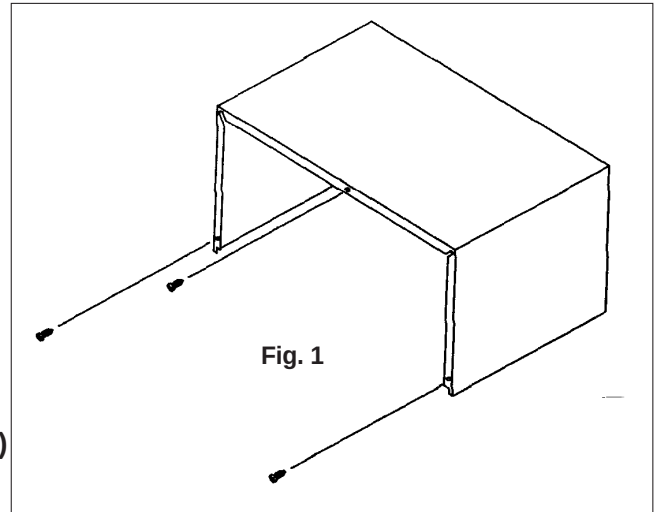
CAUTION : Service personnel should remove their watches whenever working close to or repairing the magnetron.

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 - H.V. Transformer, magnetron, H.V. Diode, H.V. Capacitor.

DISASSEMBLY AND ASSEMBLY

1. To remove cabinet. (Refer to Fig. 1)

- 1) Remove three screws on cabinet back.
- 2) Push the cabinet backward.



2. To remove guide wind assembly. (Refer to Fig. 2)

- 1) Release two screws ㄱ.
- 2) Remove back-cover ㄴ
- 3) Pull the fan ㄹ to the motor shaft.
- 4) Release two screws ㄷ which secure the motor shaded pole ㄹ
- 5) Reverse the above steps for reassembly.

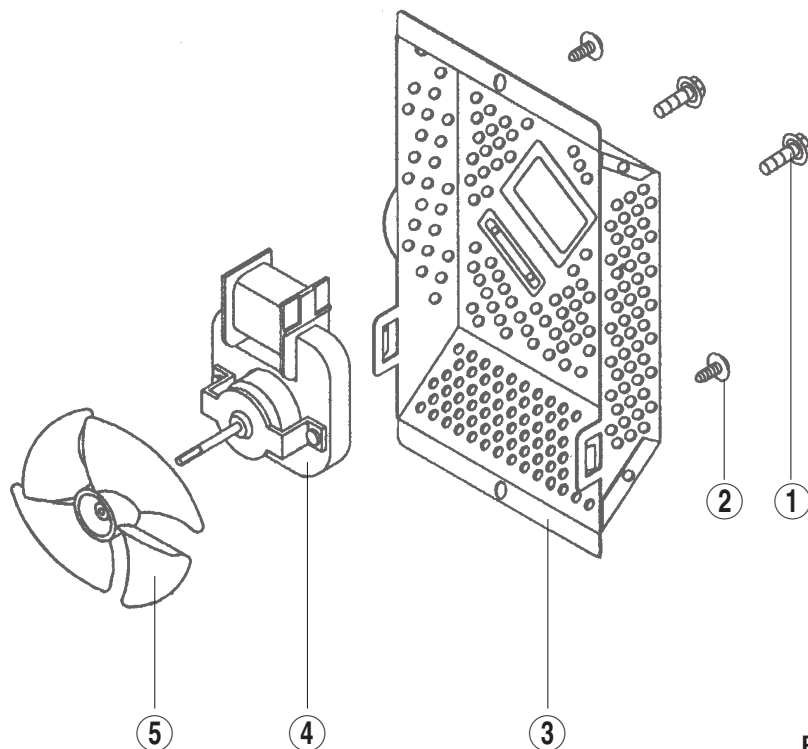
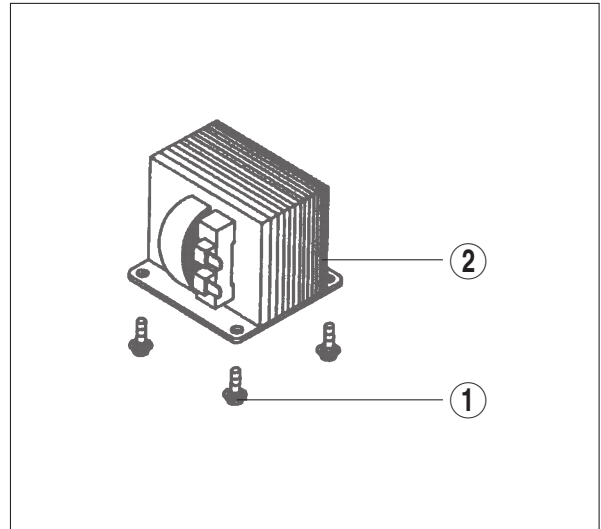


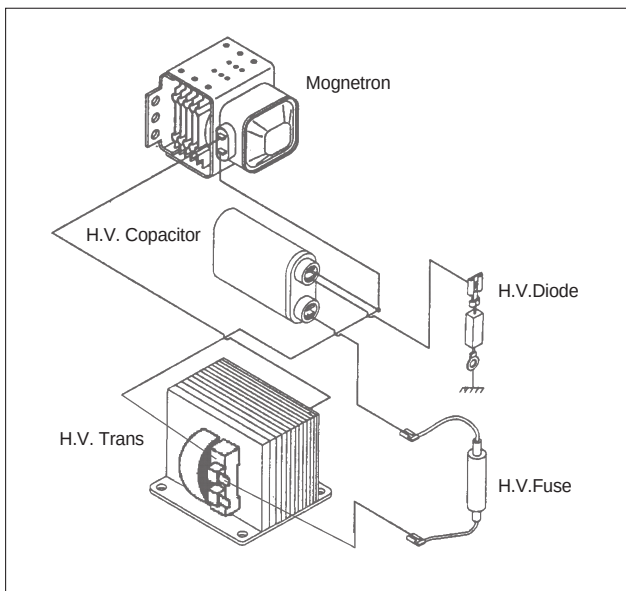
Fig. 2

3. To remove H.V. transformer. (Refer to Fig. 3)

- 1) Remove four screws ① which secure the H.V. Transformer bracket to the base plate.
- 2) Remove the H.V. Transformer ②.



High voltage circuit wiring



4. To remove magnetron. (Refer to Fig. 4)

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

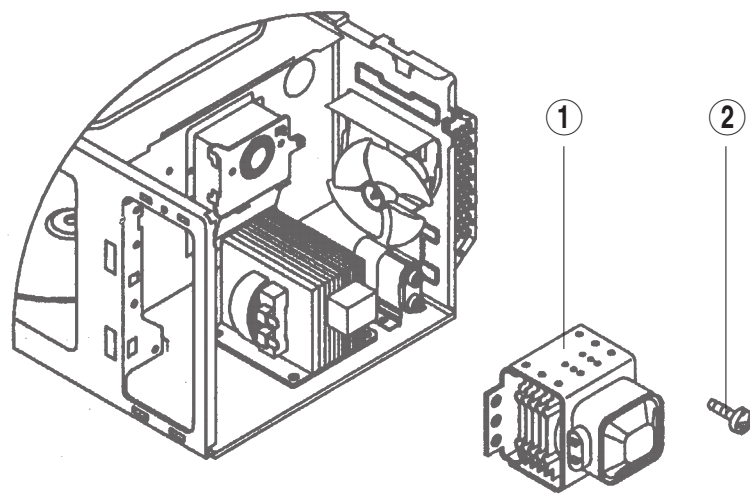
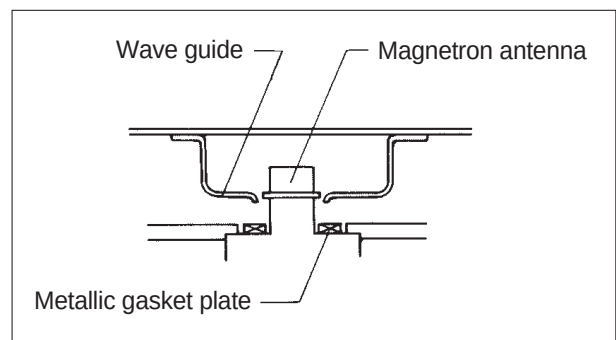
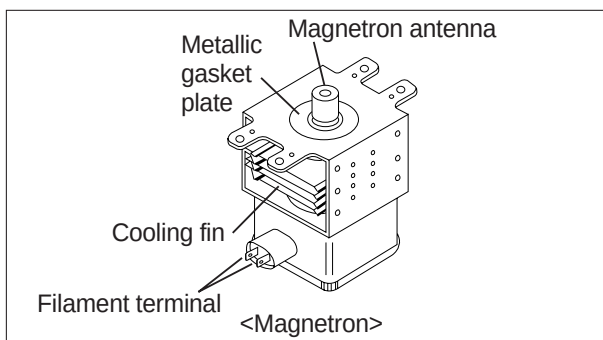


Fig. 4

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 $4\text{mW}/\text{cm}^2$ for a fully assembled oven with door normally closed.



5. To remove control panel assembly. (Refer to Fig. 5, 6)

- (1) Remove a screw holding control panel assembly to the oven front plate.
At the same time, draw forward the control panel assembly from oven front plate.
- (2) Remove the Dial knob ㉓
- (3) Remove nine screws ㉓ which secure the main and sub PCB assembly ㉑, ㉒ to control panel ㉒
- (4) Remove buttons ㉔, ㉕, ㉖, ㉗ .
- (5) Remove the Window display ㉘, and Decorator Panel ㉙ .

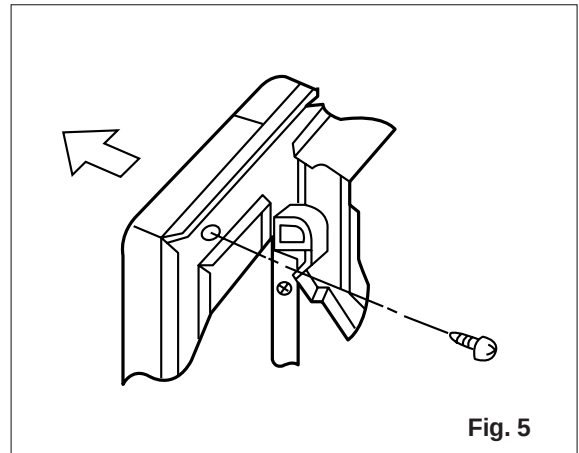


Fig. 5

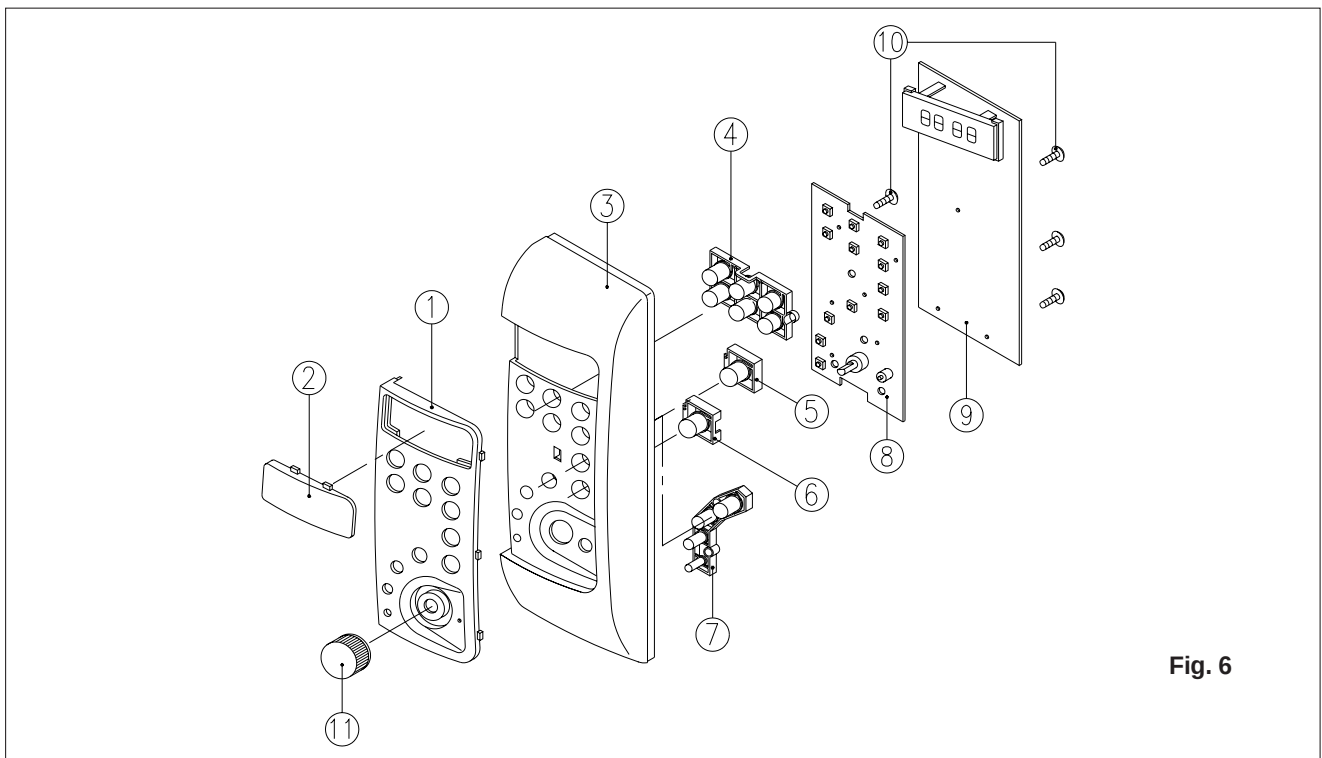
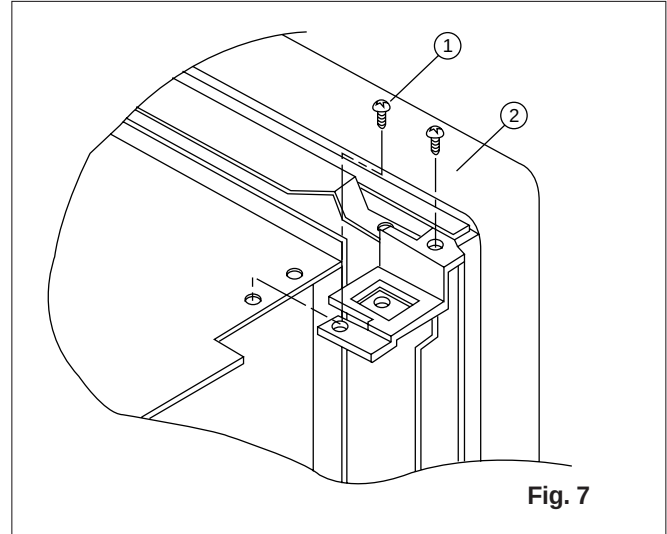


Fig. 6

REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	3511602500	DECORATOR C-PANEL	ABS	1	
2	3515501300	WINDOW DISPLAY	PMMA	1	SMOG
3	3516716310	CONTROL-PANEL	ABS	1	
4	3516906000	BUTTON FUNCTION	ABS	1	
5	3516905900	BUTTON FUNCTION	ABS	1	KOR-816
6	3516905800	BUTTON START	ABS	1	KOR-816
7	3516906100	BUTTON FUNCTION	ABS	1	
8	3514314810	PCB SUB AS	KOC-970T	1	
9	3514314710	PCB MAIN AS	KOC-970T	1	
10	7121030811	SCREW TAPPING	T2S PAN 3X8 MFZN	9	
11	3513403810	KNOB VOLUME	ABS	1	KOR-816

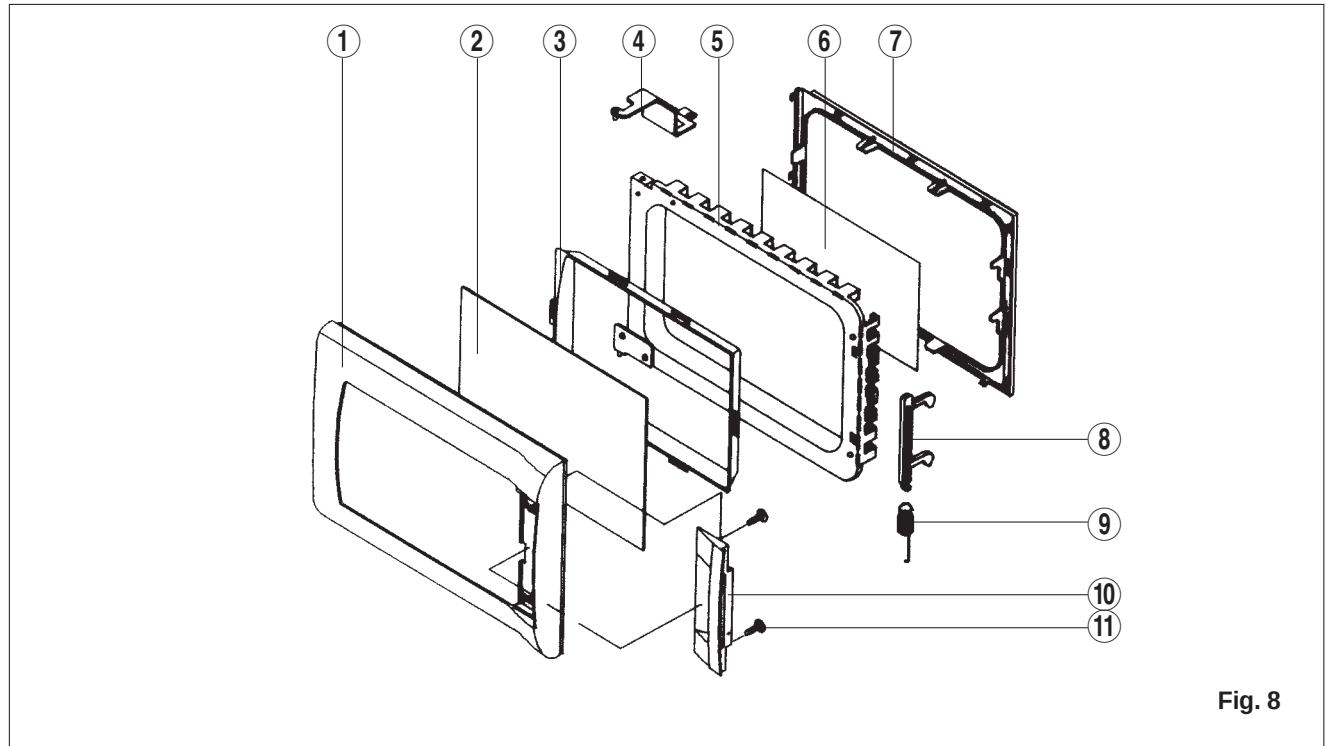
6. To remove door assembly. (Refer to Fig. 7)

- 1) Remove two screws ① which secure to hinge.
- 2) Remove door assembly ②.
- 3) Remove door above for reassembly taking case to replace fixing glue.



7. To remove door part. (Refer to Fig. 8)

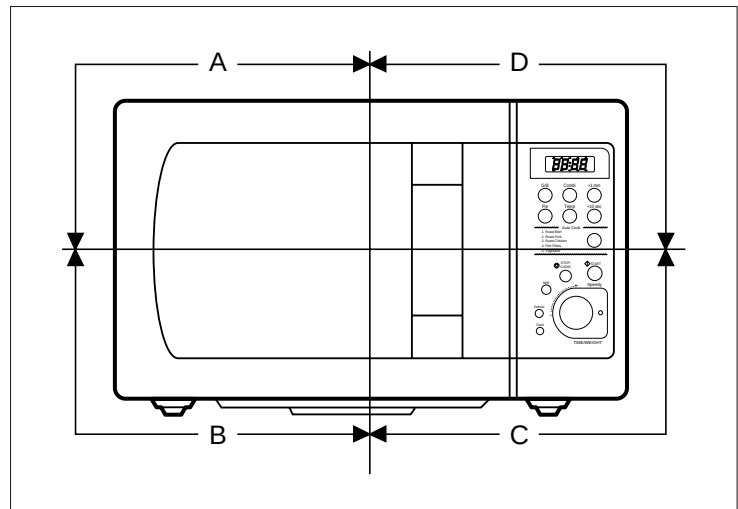
- (1) Remove the Gasket door ⑦.
- (2) Remove the Door seal Ass'y ⑤.
- (3) Remove the Hook ⑧ and Spring ⑨.
- (4) Remove the Supporter barri-s *0 ③.
- (5) Remove the Barrier Screen ②.
- (6) Remove the Handle ⑩ from the Frame door ③.



REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	3512203520	FRAME DOOR	ABS XR-401	1	
2	3517004510	BARRIER-SCREEN*O	GLASS 3.2T	1	
3	3515305300	SUPPORTER BARRI-S*O	PBT	1	
4	3515203600	STOPPER HINGE*T AS	KOC-970T1S	1	
5	3511709000	DOOR SEAL AS	KOC-871C0S	1	
6	3517004400	BARRIER-SCREEN*I	GLASS 3.0T	1	
7	3512301310	GASKET DOOR	PP G/F 30%	1	
8	3513101300	HOOK	POM	1	
9	3515101300	SPRING HOOK	PW1	1	
10	3512601500	HANDLE DOOR	ABS XR-401	1	
11	7S341W40B1	SCREW TAPPING	T2S PAN 4X12 PW SE	2	

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

- (1) To reduce gap located on part 'A'.
 - 1) Remove the cabinet.
 - 2) Loosen a screw on top door hinge, then push the door to contact the door seal to oven front surface.
 - 3) Tighten a screw.



- (2) To reduce gap located on part 'B'.
 - 1) Loosen a screw on bottom hinge, then push the door to contact the door seal to oven front surface.
 - 2) Tighten a screw.
- (3) To reduce gap located on part 'C'.
 - 1) Remove the cabinet.
 - 2) Loosen a screw on interlock switch assembly located bottom of oven body.
 - 3) Draw the interlock switch assembly inward as possible to engage with hook on the door bottom.
 - 4) Tighten a screw.
- (4) To reduce gap located on part 'D'.
 - 1) Remove the cabinet.
 - 2) Loosen a screw on interlock switch assembly located top of oven body.
 - 3) and 4) are same as step (3).

NOTE : Small gap may be acceptable if the microwave leakage does not exceed $1\text{mW}/\text{cm}^2$.

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 vent, the very purpose of which is to exhaust the vapor-laden air from the oven cavity.

9. To remove tray motor and under Heater. (Refer to Fig. 9)

- 1) Cut the tray motor cover parts from the base plate (Refer to Fig. 9).
- 2) Remove two screws ⑦ which secure the tray motor ⑥ and supporter to tray motor bracket ④ .
- 3) Remove three screws ① and under heater assembly ② in cavity.

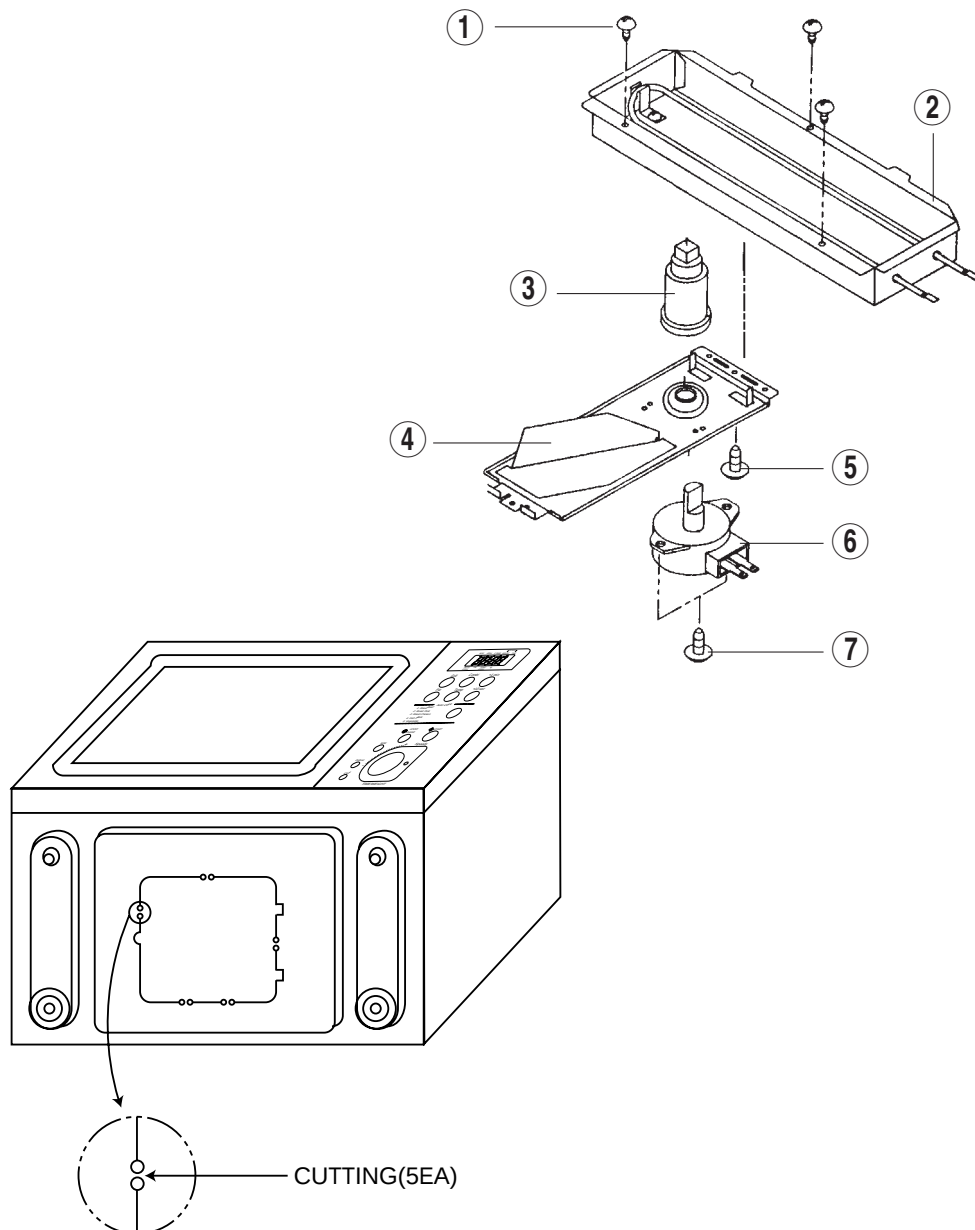


Fig. 9

10. To remove grill heater assembly. (Refer to Fig. 10)

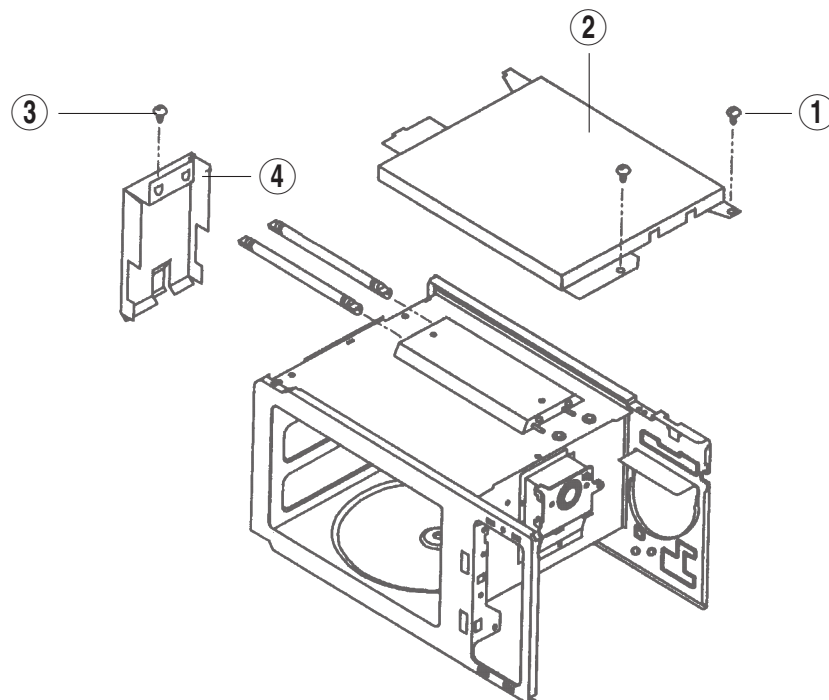


Fig. 10

- 1) Remove the cabinet.
- 2) Release two screws ① , and remove the Top cover ②.
- 3) Release a screws ③ , and remove Air Guide outlet ④.
- 4) Release the above steps for reassembly.

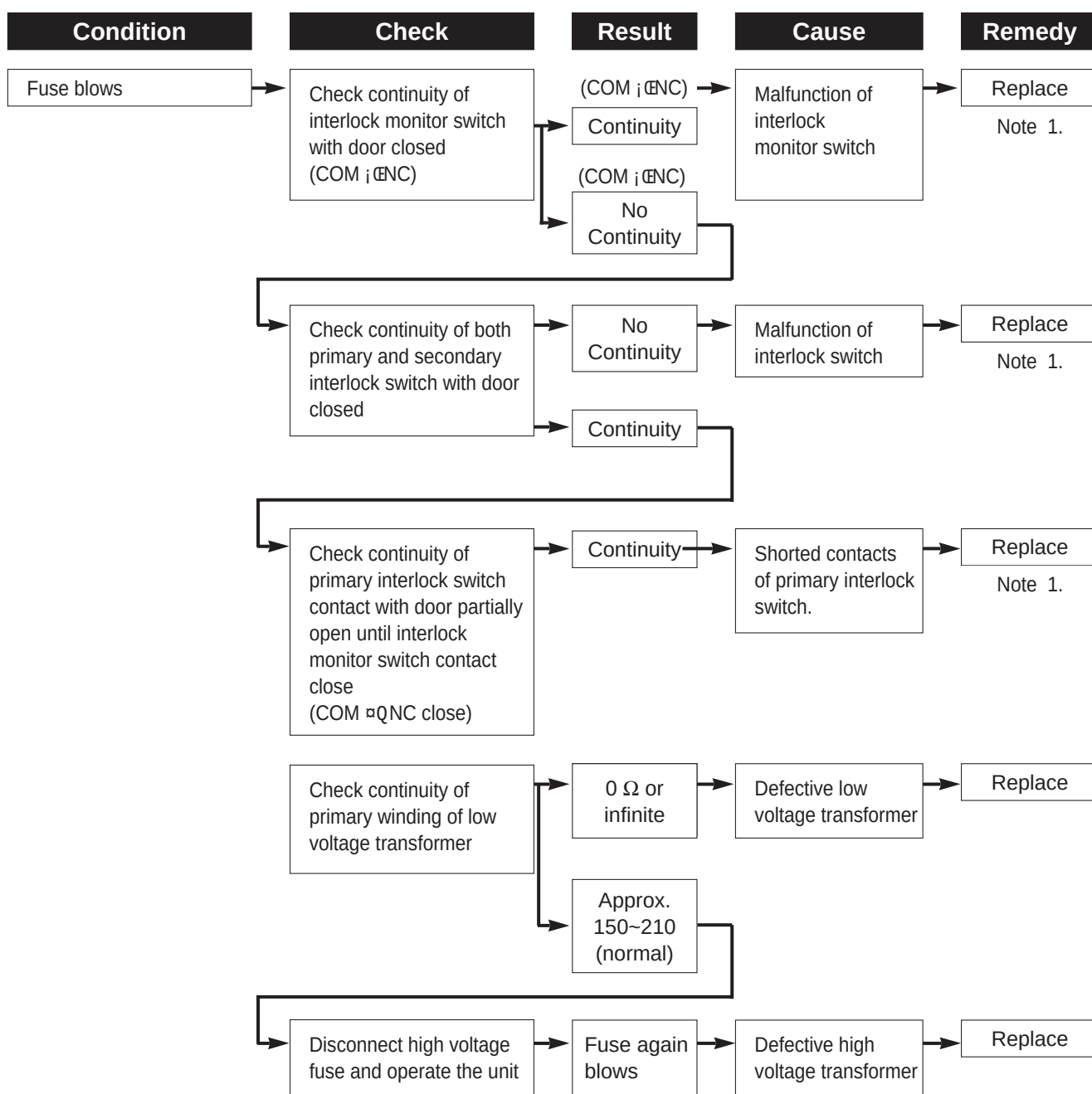
TROUBLE SHOOTING GUIDE

Following the procedure below to check if the oven is defective or not.

1. Check earthing before trouble checking.
2. Be careful of the high voltage circuit.
3. Discharge the high voltage capacitor.
4. When checking the continuity of the switches, fuse or high voltage transformer, disconnect one lead wire from these parts and check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.

NOTE : When electric parts are checked, be sure the power cord is not inserted the wall outlet.
Check wire harness, wiring, and connected of the terminals, and power cord before check the parts listed below.

(TROUBLE 1) Oven does not operate at all ; any inputs can not be accepted.



Condition	Check	Result	Cause	Remedy
Outlet has proper voltage. Fuse does not blow.	Check continuity magnetron	No Continuity	Defective magnetron	Replace
	Check continuity of noise filter board	No Continuity	Defective line filter board	Replace
	Check continuity of power supply cord	No Continuity	Open power supply cord	Adjust.
		Normal	Defective touch control circuit	Adjust.

NOTE1 : All these switches must be replaced at the same time, please refer to page 17 for adjustment instructions

(TROUBLE 2) Grill Heater (Top heater) does not heat (Food will not become hot).

Condition	Check	Result	Cause	Remedy
Grill heater is not heated	Check continuity of primary interlock switch	No Continuity	Malfunction of Primary Interlock Switch	Adjust or replace
	Check continuity of secondary interlock switch	No Continuity	Malfunction of secondary interlock switch	Adjust or replace
	Check continuity of heater	No Continuity	Defective heater	Replace
	Check D.C. voltage being supplied to RELAY (RY2) coil	0V	Defective touch control circuit	Replace
		Approx. 13VDC	Faulty contacts of RELAY (RY2) or open relay coil	Replace

(TROUBLE 3) No microwave oscillation even though fan motor rotates.

Condition	Check	Result	Cause	Remedy
No microwave oscillation	Check continuity of high voltage fuse	No Continuity		
	Replace high voltage fuse			
	Check continuity of high voltage capacitor terminals with wires removed	Continuity	Defective high voltage transformer	Replace
	Check continuity of high voltage rectifier in forward and backward direction with DC megger	Continuity in backward direction	Defective high voltage rectifier	Replace
	Connect megger leads to magnetron terminal and magnetron body	Continuity	Defective magnetron	Replace
	Check resistance of primary and secondary coil of high voltage transformer	0 Ω or ∞	Defective high voltage transformer	Replace
	Check continuity of magnetron with wires removed	No Continuity	Defective magnetron	Replace
	Check continuity of filament terminal of high voltage transformer	No Continuity	Defective high voltage transformer	Replace
	Check continuity of microwave select switch	No Continuity	Defective timer ass'y	Replace
	Check D.C. voltage being supplied to RELAY (RY3) coil	0V	Defective touch control circuit	Replace
		Approx. 13VDC	Faulty contacts or RELAY (RY3) or open relay coil	Replace

(TROUBLE 4) Display shows all figures selected, but oven does not start cooking, even though desired program and time are set and start pad is tapped.

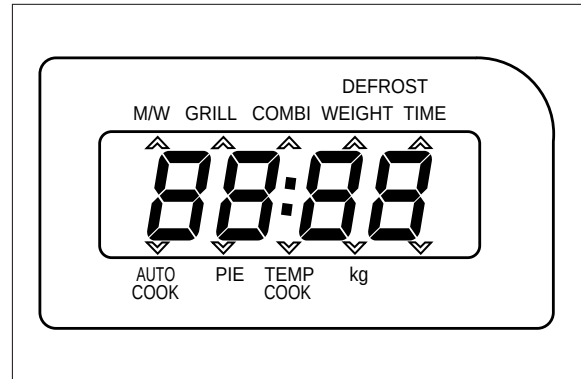
Condition	Check	Result	Cause	Remedy
Turn table motor, and oven lamp do not turn on	Check continuity of primary interlock switch	No Continuity	Malfunction of Primary interlock switch	Adjust or replace
	Check continuity of secondary interlock and D.O.M. switch	No Continuity	Malfunction of secondary interlock and D.O.M. switch	Adjust or replace
	Check D.C. voltage being supplied to RELAY (4) coil.	0V	Defective touch control circuit	Replace
		Approx. 13VDC	Faulty contacts of RELAY (4) or open relay coil	Replace

(TROUBLE 5) Under Heater does not heat (Food will not become hot).

Condition	Check	Result	Cause	Remedy
Under heater is not heated	Check continuity of primary interlock switch	No Continuity	Malfunction of Primary interlock switch	Adjust or replace
	Check continuity of secondary interlock switch	No Continuity	Malfunction of secondary interlock switch	Adjust or replace
	Check continuity of heater	No Continuity	Defective Heater	Replace
	Check D.C. voltage being supplied to RELAY (RY6) coil	0V	Defective touch control circuit	Replace
		Approx. 13VDC	Faulty contacts of RELAY (RY6) or open relay coil	Replace

(TROUBLE 6) The following visual conditions indicate a probable defective touch control circuit or membrane switch assembly

1. Incomplete segments,
 - (A) Segments missing.
 - (B) Partical segments missing.
 - (C) Digit flickering other than normal fluorescent slight flickering.
 - (D) 0 i -does not display when power is on.
2. A distinct change in the brightness of one or more numbers is the display.
3. One or more digits in the display are not on when they should be.
4. Display indicates a number different from one touched.
5. Specific numbers (for example 2 or 3) will not display when the panel is touched.
6. Display does not count down or up with time cooking or clock operation.
7. Oven is programable and cooks normally but no display shows.
8. Display obviously jumps in time while counting down.
9. Display counts down noticeably too fast while cooking.
10. Display does not show the time of day when clear pad is touched.
11. Oven lamp and turntable motor do not stop although cooking is finished. Check if the RELAY "4" contacts close if they are close, replace touch control circuit.



Condition	Check	Result	Cause	Remedy
Display does not show programming at all, even if keyboard is touched.	Check each button for continuity of the button keyboard for the following keyboard check procedure	Normal	Malfunction of touch control circuitry of control box sub-assembly	Replace control box sub-assembly
		Abnormal	Malfunction of the button keyboard	Replace the button keyboard

NOTE1 : Before following the particular steps listed above in the trouble shooting guide for the button keyboard's, failure, please check for the continuity of each wire-harness between the button keyboard and P.C.B. assembly.

BUTTON KEYBOARD CHECK PROCEDURE

1. Type of encoding and button names.

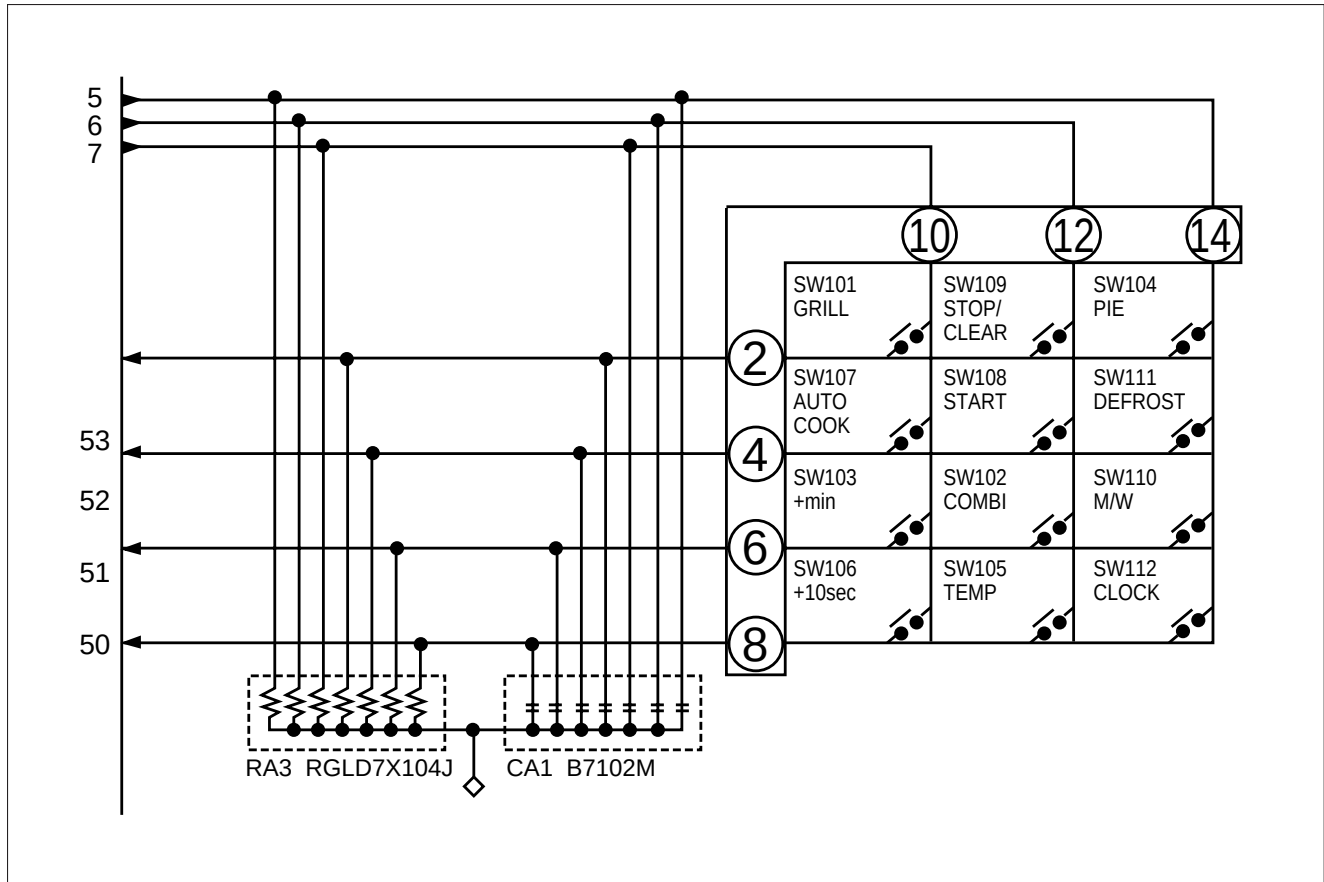


Fig. 11 Key Matrix and circuit diagram

The button keyboard consists of 12 keys whose configurations are described above and provides 8 pad terminations to be connected to the touch control circuit as in Fig. 11.

2. Key check procedure.

To determine if the button keyboard is defective or not, check the continuity of each button (Key) contacts with a multimeter.

1) AUTO COOK	button : Between 4 and 10
2) DEFROST	button : Between 4 and 14
3) °C, TEMP	button : Between 8 and 12
4) MICROWAVE	button : Between 6 and 14
5) COMBI	button : Between 6 and 12
6) GRILL	button : Between 2 and 10
7) +10 SEC	button : Between 8 and 10
8) +1 MIN	button : Between 6 and 10
9) STOP/CLEAR	button : Between 2 and 12
10) START	button : Between 4 and 12
11) CLOCK	button : Between 8 and 14
12) PIE	button : Between 2 and 14

MEASUREMENT

1. Microwave Output Power

1-1. Standard Method

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.

- 1) Microwave power output measurement is made with the microwave oven supplied at rated voltage and operated at its maximum microwave power setting with a load of 1,000 ± 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 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. (fig. 12).
- 4) Microwave power is switched on.
- 5) Heating time should be exactly 46 seconds.
Heating time is measured while the microwave generator is operating at full power.
- 6) The initial and final water temperatures are selected so that the maximum difference between the ambient and final water temperatures is 5K.
- 7) The microwave power output P in watts is calculated from the following formula :

$$P = 4187 \pm \Delta T / t$$

Δ T is actual temperature rise.

t is the heating time.

The power measured should be 900W ± 10%

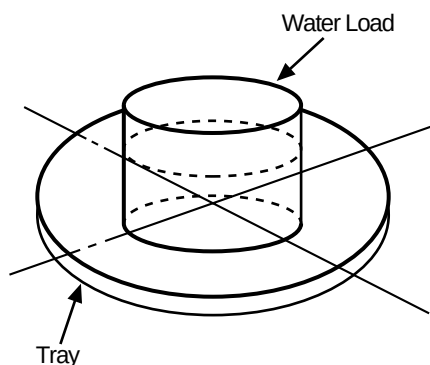


Fig. 12

CAUTION :

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

2. Electrical Continuity Check of Interlock Switch

2-1. Procedure

NOTE : Remove the power plug from the wall receptacle before testing.

1) Primary Interlock Switch

- 1) Disconnect two connector from Primary Interlock Switch.
- 2) Connect the ohm-meter leads between the terminals of the primary 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.

2) Secondary Interlock Switch

- 1) Disconnect two connector 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 oven door is closed.

3) Interlock Monitor 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 item '1' and the power supply natural plug pin.
- 3) Read the value of resistance between the lead wire connector and the power supply natural plug pin, when the oven door is opened, and when the oven door is closed.

2-2. Judgement

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

Door	Open	Closed
Primary Interlock Switch	∞	0
Secondary Interlock Switch	∞	0
Interlock Monitor Circuit	0	∞

3. Microwave Leakage Test

3-1. Warning

- 1) DO NOT place your hands into any suspected microwave leakage field unless the safe density level is known.
- 2) Always start measuring of an unknown field to assure safety for operating personnel from microwave energy.
- 3) Slowly approach the unit under test until the radiometer reads and appreciable leakage from the unit under test.
- 4) Care should be taken not to place the eyes in direct line with the source of microwave energy.

3-2. Method

The power density of the microwave leakage emitted by the microwave oven should not exceed $1\text{mW}/\text{S}^\dagger$ at any point 50mm (2 in). or more away from the external surface of the oven as measured prior to acquisition by a purchaser and there after once the oven is in use, $4\text{mW}/\text{S}^\dagger$ at any point 50mm (2 in) or more away from the external surface of the oven, checks to be made around the whole of the door seal and on each of the main unit surface.

Measurements should be made with the oven operating at its maximum output and containing a load of 275 ; 15 milliliters of tap water initially at 68 ; 9¢ (20 ; 5 ;) placed within the cavity at he center of the load carrying surface provided by the manufacture. The water container should be a low from 600 milli-liters beaker having an inside diameter of approximately 85mm (3-11/32 in.) and made of an electrically nonconductive material such as glass or plastic.

3-3. Procedures

- 1) Prepare 600cc glass or plastic container.
- 2) Pour 275 ; 15 milliliters of tap water initially at 68 ; 9¢ (20 ; 5 ;) in the container.
- 3) Place it at the center of the tray and set it is a cavity.
- 4) Operate oven.
- 5) Measure the microwave leakage using a Narda 8100 or similarly approved microwave leakage meter after a few minutes operation.

NOTE : The scan rate should not exceed 1 inch/sec.

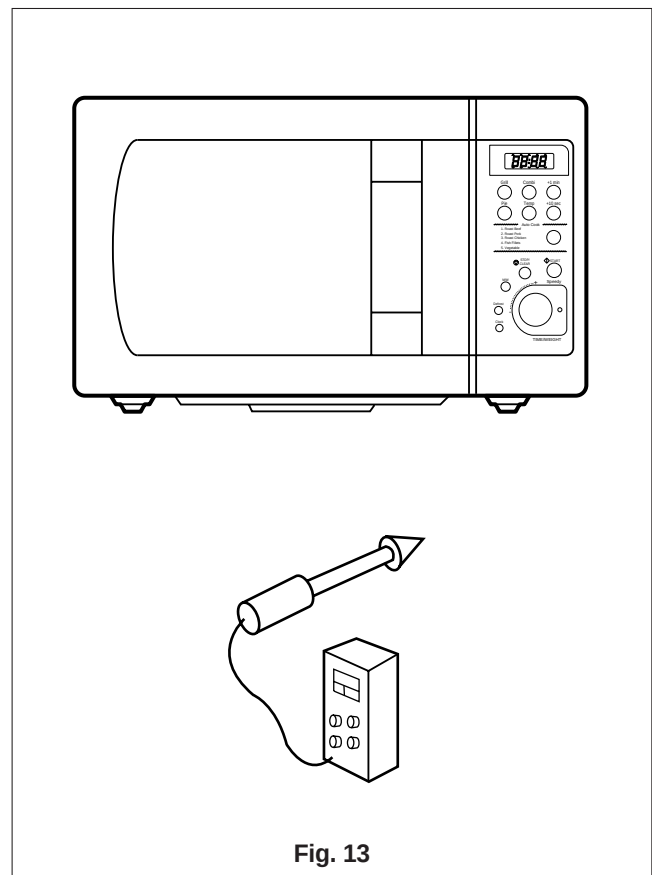


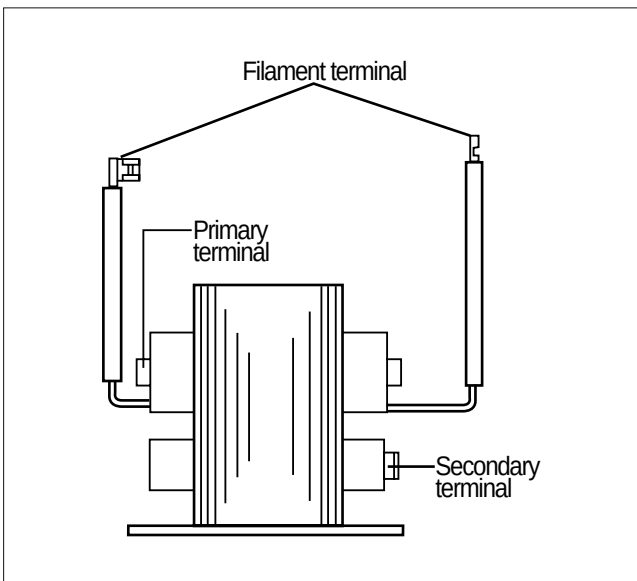
Fig. 13

COMPONENT TEST PROCEDURE

1. High voltage is present at the high voltage terminal of the high voltage transformer during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components or wiring, always unplug the oven from its power source and discharge the capacitor (see page 20).

1. High voltage transformer

- (A) Remove connections from the transformer terminals and check continuity.
- (B) Normal readings should be as follows:
- | | |
|-------------------|---------------------------|
| Secondary winding | Approx. 100Ω ; 10% |
| Filament winding | Approx. 0Ω |
| Primary winding | Approx. 0Ω |



2. High voltage capacitor

- (A) Check continuity of capacitor with meter on the highest ohm scale.
- (B) A normal capacitor will show continuity for a short time, and then indicate $9M\Omega$ once the capacitor is charged.
- (C) A shorted capacitor will show continuous continuity.
- (D) An open capacitor will show constant $9M\Omega$.
- (E) Resistance between each terminal and chassis should be infinite.

3. High voltage diode

The high voltage diode is located on the base near the transformer.

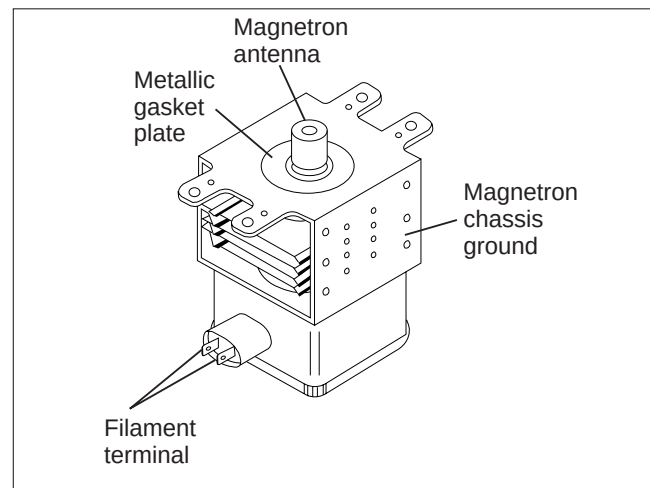
- (A) Isolate the diode from the circuit by disconnecting the leads.
- (B) With the ohmmeter set on the highest resistance scale, measure the resistance across the diode terminals. Reverse the meter leads and again observe the resistance reading. Meter with 6V, 9V or higher voltage batteries should be used to check the front-to-back resistance may be read in both directions. A normal diodes resistance will be infinite in one direction and several hundred $K\Omega$ in the other direction.

4. Magnetron

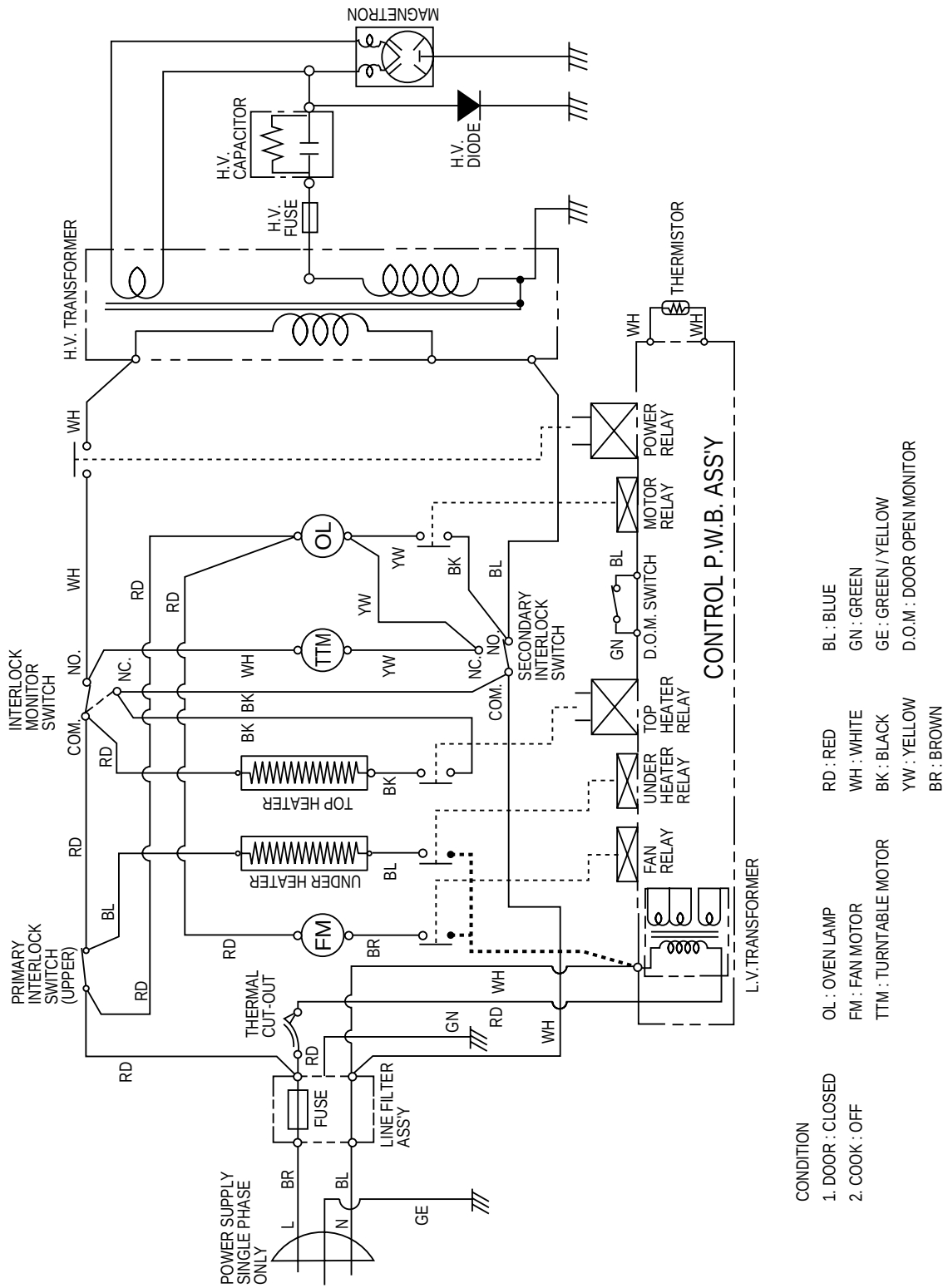
For complete magnetron diagnosis, refer to "Measurement of the Microwave Output Power".

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

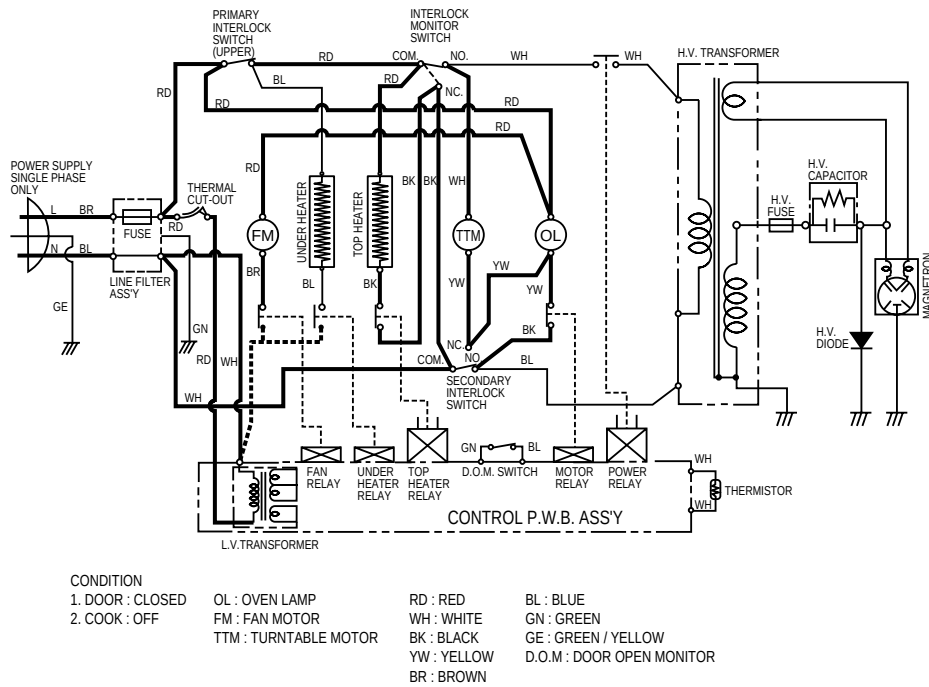
- (A) Isolate magnetron from the circuit by disconnecting the leads.
- (B) A continuity check across magnetron filament terminals should indicate one ohm or less.
- (C) A continuity check between each filament terminal and magnetron case should read open.



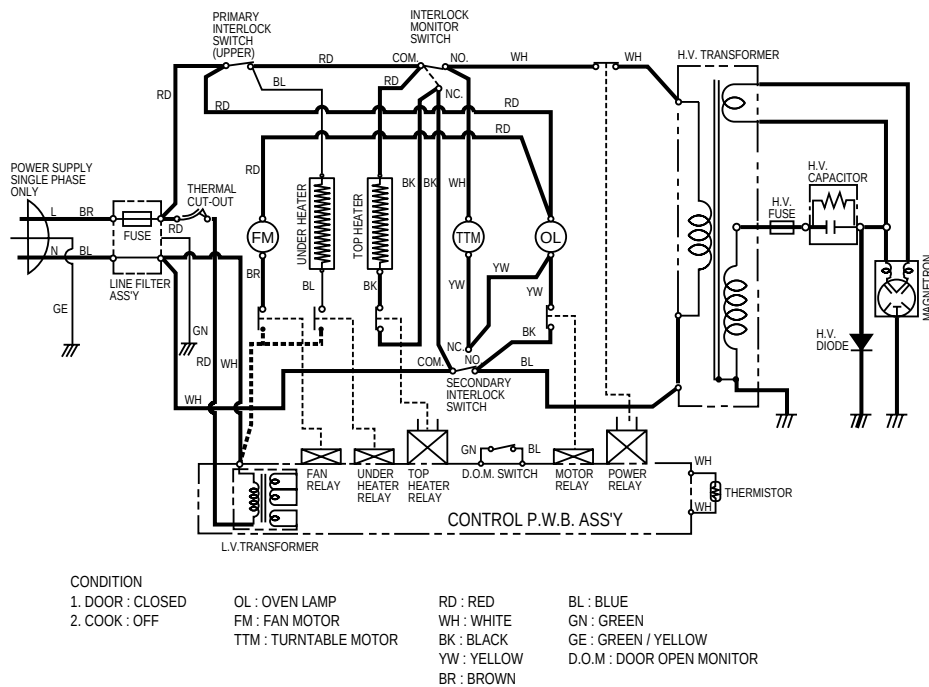
WIRING DIAGRAM



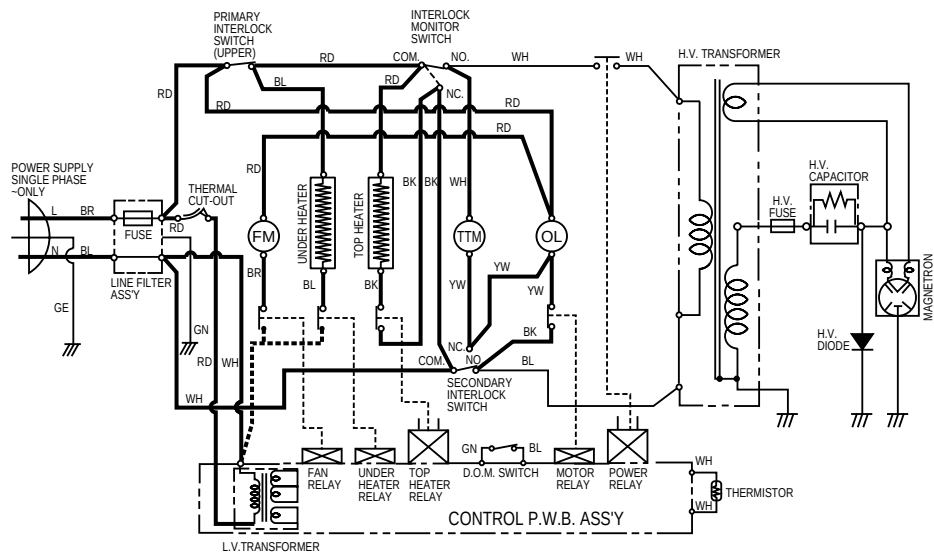
GRILL COOKING CONDITION



COMBI COOKING CONDITION



CONVECTION COOKING CONDITION



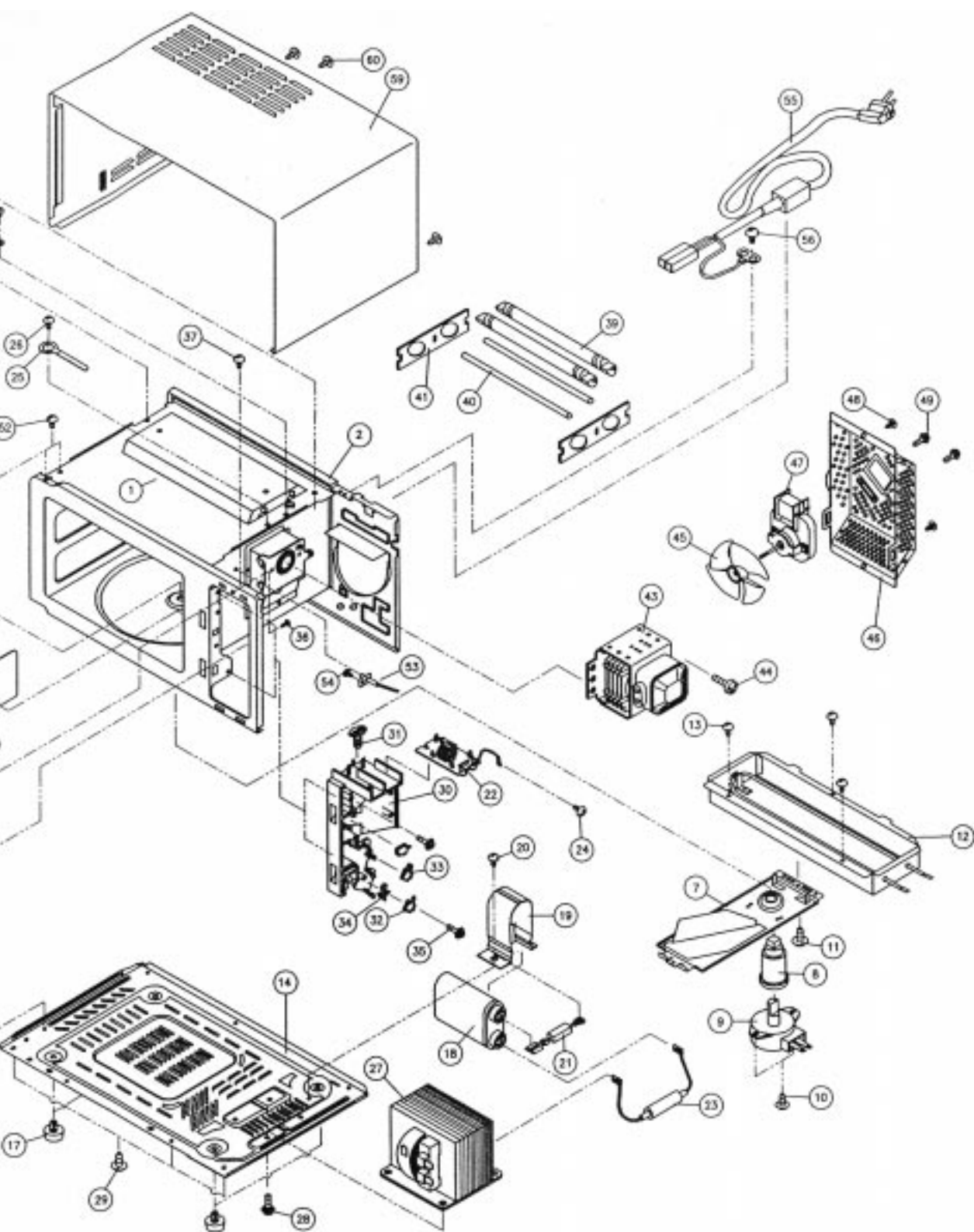
CONDITION

1. DOOR : CLOSED
2. COOK : OFF

OL : OVEN LAMP
FM : FAN MOTOR
TTM : TURNTABLE MOTOR

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

BL : BLUE
GN : GREEN
GE : GREEN / YELLOW
D.O.M : DOOR OPEN MONITOR

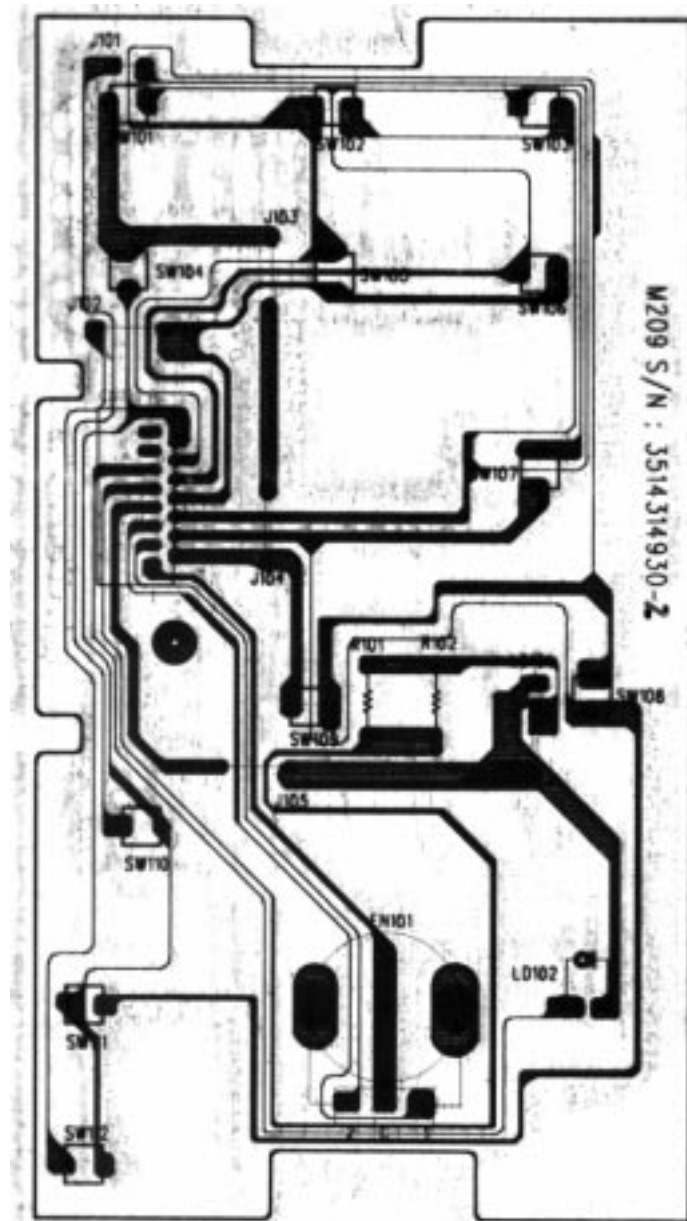


3) Display problems

NO	CAUSE	MEASUREMENT	RESULT	REMEDY
1	Poor contact between P.C.B. and display filament.	Check the voltage of display pin 1 & 25	2.6VAC	Fix the pin 1 & 25 on the P.C.B.
2	The display has some trouble in its segment or gril.	Refer to "The display trouble shooting data" below		Replace P.C.B. assembly.
3	Loss vacumm 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.
M/W & AUTO COOK don't come on.	Grid 1 (G1), 21	24
GRILL & PIE don't come on.	Grid 2 (G2), 17	17
COMBI & TEMP COOK don't come on.	Grid 3 (G3), 14	18
WEIGHT DEFROST & Kg don't come on.	Grid 4 (G4), 10	16
TIME DEFROST doesn't come on.	Grid 5 (G5), 4,7	13
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

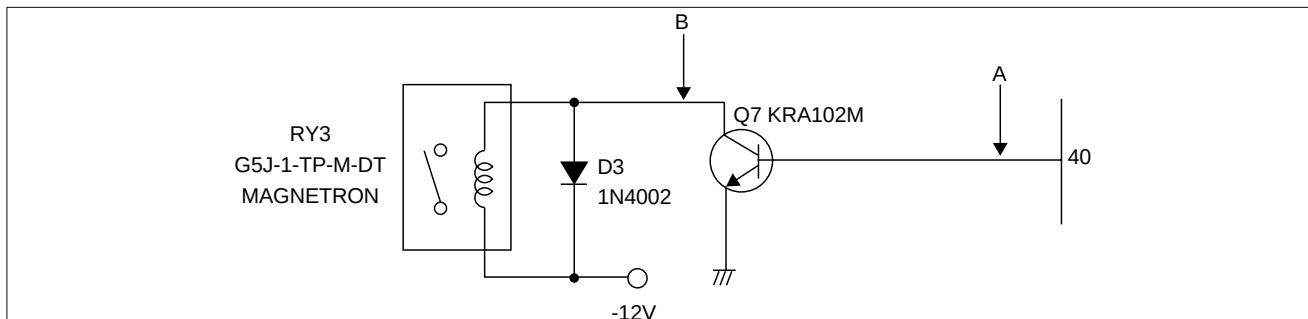


4) When there is no microwave oscillation.

(1) When touching "M/W" button, oven lamp turns on.

Fan motor and turntable motor rotate and cook indicator in display comes on.

* Cause : Relay 3 (RY3) dose not operate.



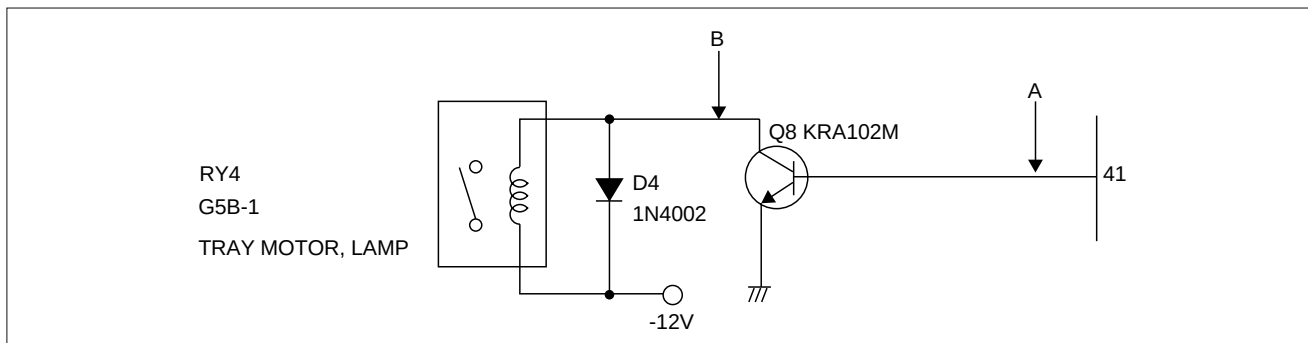
CHECK METHOD

STAGE \ POINT	A	B
RY3 "ON"	-5VDC	GND
RY3 "OFF"	GND	-12VDC

(2) When touching "M/W" button, oven lamp dose not turn on.

Turntable motor dose not rotate, but cook indicator in display comes on.

* Cause : Relay 4 (RY4) dose not operate.



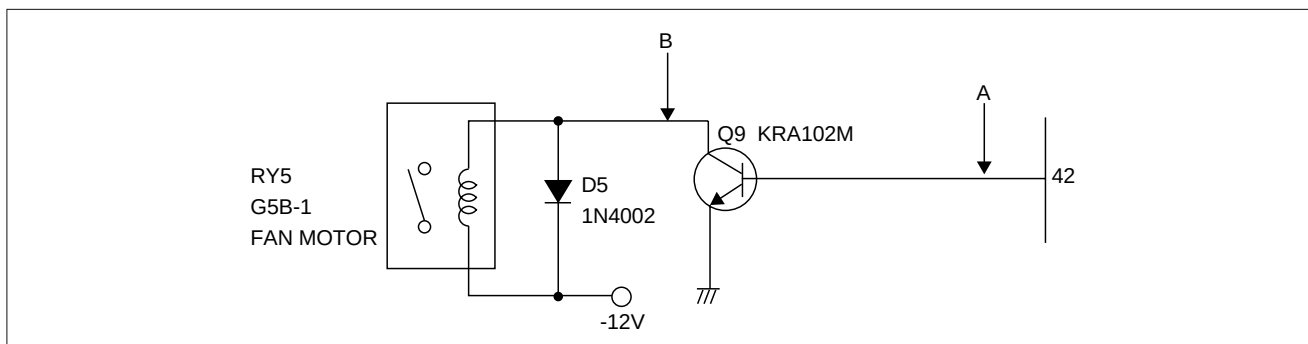
CHECK METHOD

STAGE \ POINT	A	B
RY4 "ON"	-5VDC	GND
RY4 "OFF"	GND	-12VDC

(3) When touching "M/W" button, oven lamp turns on.

Fan motor dose not rotate, but cook indicator in display comes on.

* Cause : Relay 5 (RY5) dose not operate.



CHECK METHOD

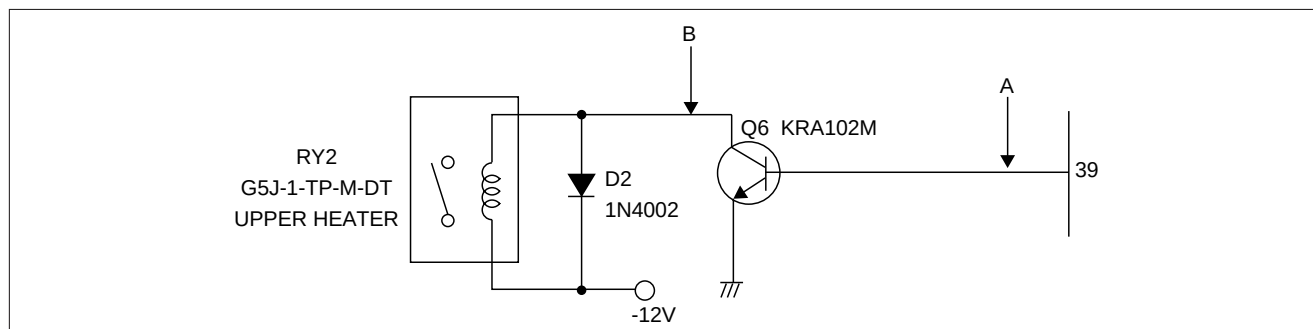
STAGE \ POINT	A	B
RY5 "ON"	-5VDC	GND
RY5 "OFF"	GND	-12VDC

5) When there is not upper heater.

When touching "TEMP COOK & COMBI" button, oven lamp turns on.

Fan motor and turntable motor rotate and cook indicator in display comes on.

* Cause : Relay 2 (RY2) dose not operate.



CHECK METHOD

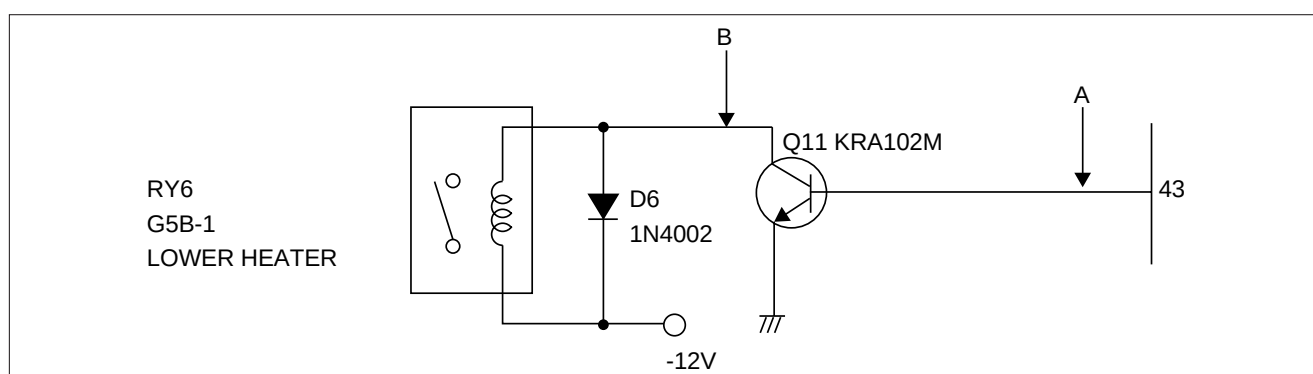
STAGE \ POINT	A	B
RY2 "ON"	-5VDC	GND
RY2 "OFF"	GND	-12VDC

6) When there is not lower heater.

When touching "TEMP COOK & PIE" button, oven lamp turns on.

Fan motor and turntable motor rotate and cook indicator in display comes on.

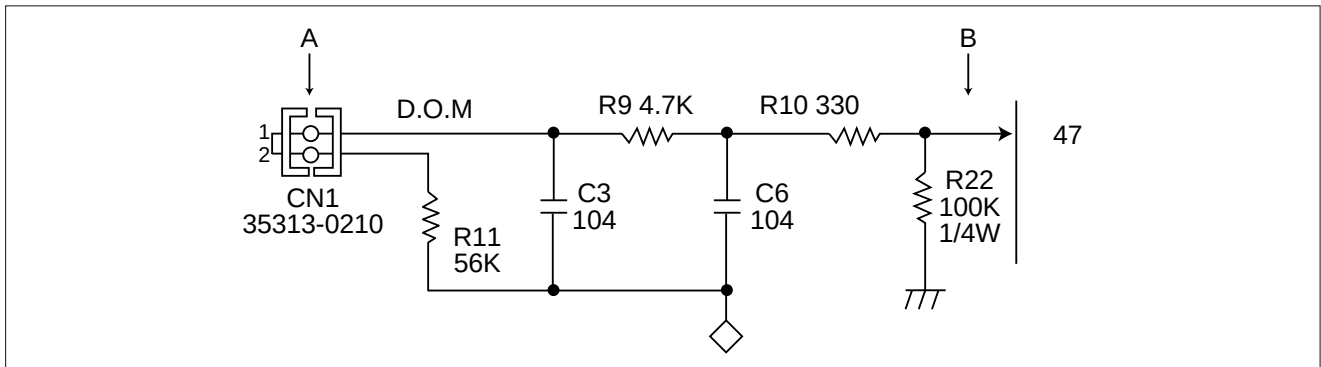
* Cause : Relay 6 (RY6) dose not operate.



CHECK METHOD

STAGE \ POINT	A	B
RY6 "ON"	-5VDC	GND
RY6 "OFF"	GND	-12VDC

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

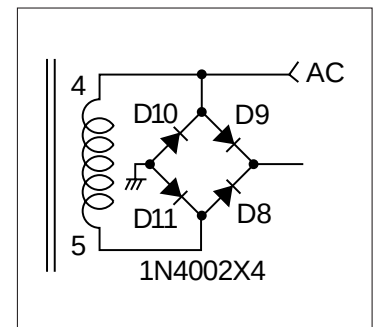
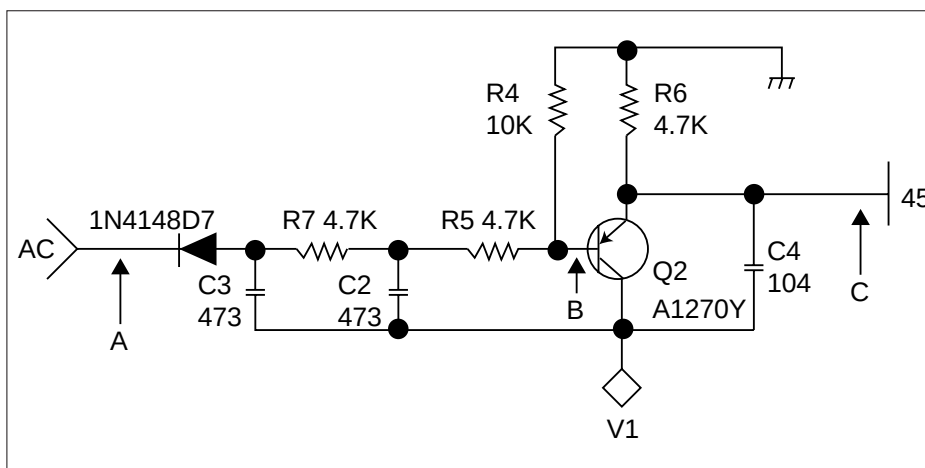


CHECK METHOD

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

NOTE : Check the state of the secondary interlock switch.

8) When “Err” comes on display.

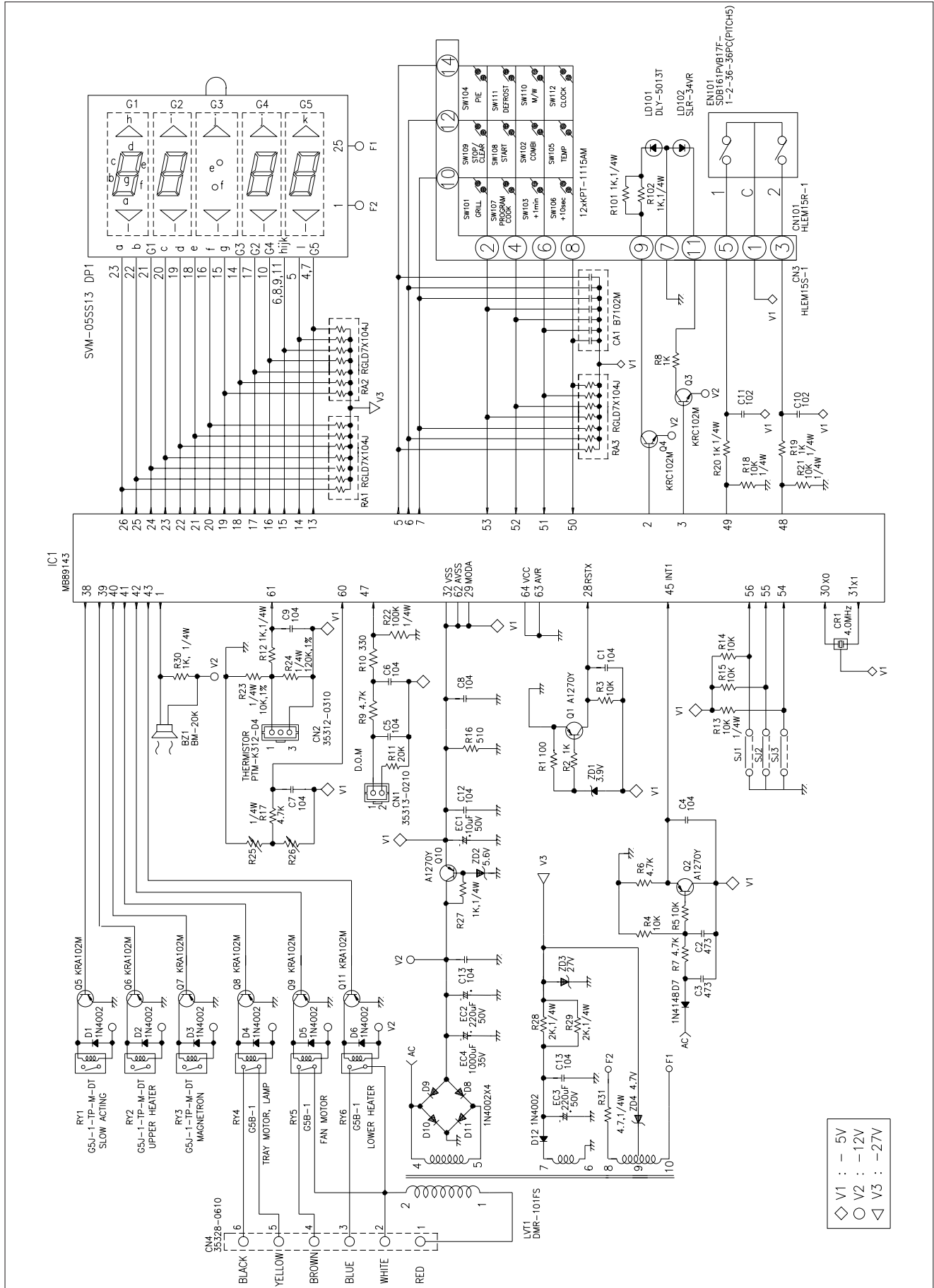


CHECK METHOD

POINT	WAVEFORM
A	
B	
C	

if clock does not keep exact time, you must check. Diode D7, transistor Q2.

P.C.B CURCUIT DIAGRAM



P.C.B. LOCATION NO.

NO.	SYMBOL	SYMBOL	SPECIFICATION	PART CODE	Q'TY	REMARK
1	PCB MAIN	M208	92X195	3514314920	1	
2	TRANS POWER	LVT1	DMR-101FS	5EPV041351	1	
3	HOLDER VFD		PP	3513002600	1	
4	R CARBON FILM	R17	1/4W, 4.7K OHM J	RD-4Z472J-	1	
5	R CARBON FILM	R22	1/4W, 100K OHM J	RD-4Z104J-	1	
6	R CARBON FILM	R13,18,21	1/4W, 10K OHM J	RN-4Z103J-	3	
7	R CARBON FILM	R28,29	1/4W, 2K OHM J	RD-4Z202J-	2	
8	R CARBON FILM	R12,19,20,27,30	1/4W, 1K OHM J	RD-4Z102J-	5	
9	R CARBON FILM	R31	1/4W 4.7 OHM J	RD-4Z479J-	1	
10	R CARBON FILM	R11	1/6W, 20K OHM J	RD-AZ563J-	1	
11	R CARBON FILM	R3,4,14,15	1/6W, 10K OHM J	RD-AZ103J-	4	
12	R CARBON FILM	R5,6,7,9	1/6W, 4.7K OHM J	RD-AZ472J-	4	
13	R CARBON FILM	R2,8	1/6W, 1K OHM J	RD-AZ102J-	2	
14	R CARBON FILM	R10	1/6W, 330 OHM J	RD-AZ331J-	1	
15	R CARBON FILM	R16	1/6W, 510 OHM J	RD-AZ511J-	1	
16	R CARBON FILM	R1	1/6W, 100 OHM J	RD-AZ101J-	1	
17	R CARBON FILM	R23	1/4W, 10K OHM F	RN-4Z1002F	1	
18	R CARBON FILM	R24	1/4W, 120K OHM F	RN-4Z1203F	1	
19	BUZZER	BZ1	BM-20K	3515600100	1	
20	DIGITRON	DP1	SVM-5SS13(S/S)	DSVM5SS13-	1	
21	DIODE SWITCHING	D7	1N4148M	DZN4148M--	1	
22	DIODE RECTIFIER	D2~D6, D8~D12	1N4002A	DZN4002A--	10	
23	DIODE ZENER	ZD1	MTZ 3.9B	DZTZ3R9B--	1	
24	DIDOE ZENER	ZD2	UZ-5.6B	DZTZ5R6B--	1	
25	DIODE ZENER	ZD3	MTZ 27B	DZTZ27B---	1	
26	C ELECTRO	ZD4	MTZ 4.7B	DZTZ4R7B---	1	
27	C ELECTRO	EC1	RS 50V 10uF	CEXE1H100A	1	
28	C ELECTRO	EC4	RSS 35V 1000uF	CEXF1V102V	1	
29	C ELECTRO	EC2, EC3	RSS 50V 220uF	CEXF1H221V	2	
30	C ARRAY	CA1	8P(7) 50V 1000pF	CN7XB-102M	2	
31	C CERA AXIAL	C1,C4,C5~C9,C12~C14	H1KF 50V 0.1uF Z	CCKF1H104Z	10	
32	C CERA AXIAL	C10,11	H1KF 50V 1000pF Z	CCZF1H102Z	2	
33	C CERA AXIAL	C2,3	H1KF 50V 0.047uF Z	CCKF1H473Z	2	
34	CONNECTOR WAFER	CN1	35313-0210	30166M7020	1	
35	CONNECTOR WAFER	CN2	35312-0310	30166M5030	1	
36	CONNECTOR FILM	CN3	HLEM15S-1	4CW215SBD0	1	

NO.	SYMBOL	SYMBOL	SPECIFICATION	PART CODE	Q'TY	REMARK
37	CONNECTOR WAFER	CN4	35328-0610	4CW3061MX0	1	
38	TRAMSOSTPR	Q1,Q2,Q10	KTA1270Y	TZTA1270Y-	3	
39	TRANSISTOR	Q3,Q4	KRC102M	TZRC102M--	2	
40	TRANSISTOR	Q6,Q7,Q8,Q9,Q11	KRA102M	TZRA102M--	5	
41	RESONATOR	CR1	CST4.00MGW	5PCST400MG	1	
42	IC MICOM	IC1	MB89143	141SC970T0	1	
43	RELAY	RY4~RY6	G5B-1-12V	5SC0101110	3	
44	RELAY	RY2~RY3	G5J-1-TP-M-DT 12V	5SC0101112	2	
45	R ARRAY	RA1~RA3	RGLD7X104J	RA-88X104J	3	
46	WIRE FLAT		1.25X15X90XC	WSJ-159007	1	
47	JUMPER WIRE	J1,3~6, 8~10	1/0.52 TIN COATING	85801052GY	8	10mm
48	JUMPER WIRE	J2,J7	1/0.52 TIN COATING	85801052GY	2	5mm
49	JUMPER WIRE	R26	1/0.52 TIN COATING	85801052GY	1	5mm

SUB PCB

NO.	SYMBOL	SYMBOL	SPECIFICATION	PART CODE	Q'TY	REMARK
1	PCB SUB	M209	86X159.5	3514314930	1	
2	COVER LED		PP	3511404600	1	
3	LED	LD101	DLS0-5013T	DLS0-5013T	1	
4	LED	LD102	SLR-34VR	DSL34VR--	1	
5	R CARBON FILM	R101,R102	1/4W, 2K OHM J	RD-4Z202J-	2	
6	SWITCH TACT	SW101~SW112	KPT-1115AM	5S50101Z93	12	
7	SW ROTARY	EN101	SDB161PVB17F-1-2 -36-36PC(PINCH 5)	5S10109002	1	
8	CONNECTOR FILM	CN101	HLEM 15R-1	4CW215RBD0	1	
9	JUMPER WIRE	J102,103,104,105	1/0.52 TIN COATING	85801052GY	4	10mm
10	JUMPER WIRE	J101	1/0.52 TIN COATING	85801052GY	1	5mm