08/2011

Mod: CM1529

Production code: CM-1529A

Diamond
catering equipment

MICROWAVE OVEN

BASIC: CM1529

MODEL: CM1529A
MODEL CODE: CM1529A

SERVICE Manual

MICROWAVE OVEN

FEATURES

1. Handle Door Design.
2. 0.9 cu.ft Cavity
3. High Power Output

Refer to the service manual in http://itself.sec.samsung.co.kr for more information.

• Contents

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.

1. Precaution

Follow these special safety precautions. Although the microwave oven is completely safe during ordinary use, repair work can be extremely hazardous due to possible exposure to microwave radiation, as well as potentially lethal high voltages and currents.

1-1 Safety precautions (⚠)

1. All repairs should be done in accordance with the procedures described in this manual. This product complies with Federal Performance Standard 21 CFR
2. Microwave emission check should be performed to prior to servicing if the oven is operative.
3. If the oven operates with the door open :Instruct the user not to operate the oven and contact the manufacturer and the center for devices and radiological health immediately.
4. Notify the Central Service Center if the microwave leakage exceeds 5 mW/cm2.
5. Check all grounds.
6. Do not power the MWO from a “2-prong” AC cord. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.
7. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including: nonmetallic control knobs and compartment covers.
8. Make sure that there are no cabinet openings through which people --particularly children--might insert objects and contact dangerous voltages. Examples: Lamp hole,ventilation slots.
9. Inform the manufacturer of any oven foundto have emission in excess of 5 mW/cm2 ,Make repairs to bring the unit into compliance at no cost to owner and try to determine cause. Instruct owner not to use oven until it has been brought into compliance.

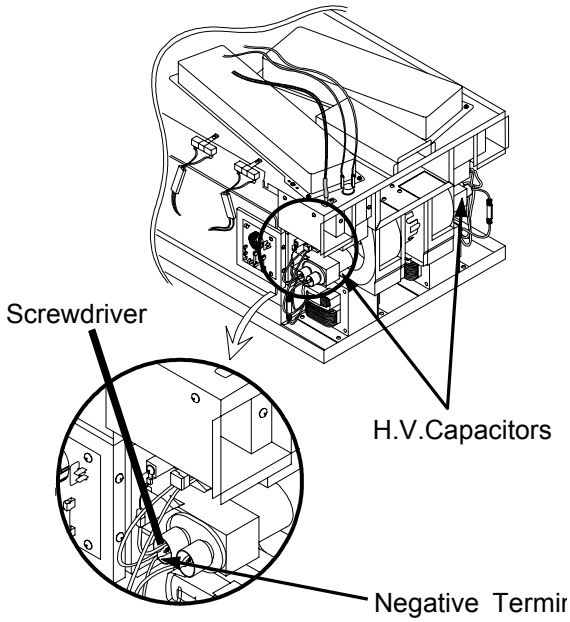
   CENTRAL SERVICE CENTER
10. Service technicians should remove their watches while repairing an MWO.
11. To avoid any possible radiation hazard,replace parts in accordance with the wiring diagram. Also, use only the exact replacements for the following parts: Primary and secondary interlock switches, interlock monitor switch.
12. If the fuse is blown by the Interlock Monitor Switch: Replace all of the following at the same time: Primary, door sensing switch and power relay, as well as the Interlock Monitor Switch. The correct adjustment of these switches is described elsewhere in this manual. Make sure that the fuse has the correct rating for the particular model being repaired.
13. Design Alteration Warning: Use exact replacement parts only, i.e.,only those that are specified in thedrawings and parts lists of this manual. This is especially important for the Interlock switches, described above. Never alter or add to the mechanical or electrical design of the MWO. Any design changes or additions will void the manufacturer’s warranty. Always unplug the unit’s AC power cord from the AC power source before attempting to remove or reinstall any component or assembly.
14. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
15. Some semiconductor (“solid state”) devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs). Examples include integrated circuits and field-effect transistors. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground.
16. Always connect a test instrument’s ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument’s ground lead last.
17. When checking the continuity of the witches or transformer, always make sure that the power is OFF, and one of the lead wires is disconnected.
18. Components that are critical for safety are indicated in the circuit diagram by shading, ⚠ or ⚠ .
19. Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

    NOTE : Connect the oven to a 20A. When connecting the oven to a 15A,make sure that circuit breaker can operate.

1-2 Special High Voltage Precautions

1. High Voltage Warning Do not attempt to measure any of the high voltages --this includes the filament voltage of the magnetron. High voltage is present during any cook cycle. Before touching any components or wiring, always unplug the oven and discharge the high voltage capacitor (See Figure 1-1)
2. The high-voltage capacitor remains charged about 30 seconds after disconnection. Short the negative terminal of the high-voltage capacitor to to the oven chassis. (Use a screwdriver.)
3. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.

Discharge the 2 High Voltage Capacitors before servicing!



Note : Touch chassis side first then short to the high voltage capacitor terminal by using a screwdriver.

⚠ PRECAUTION

There exists HIGH VOLTAGE ELECTRICITY with high current capabilities in the circuits of the HIGH VOLTAGE TRANSFORMER secondary and filament terminals. It is extremely dangerous to work on or near these circuits with the oven energized.

DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.

⚠ PRECAUTION

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

⚠ PRECAUTION

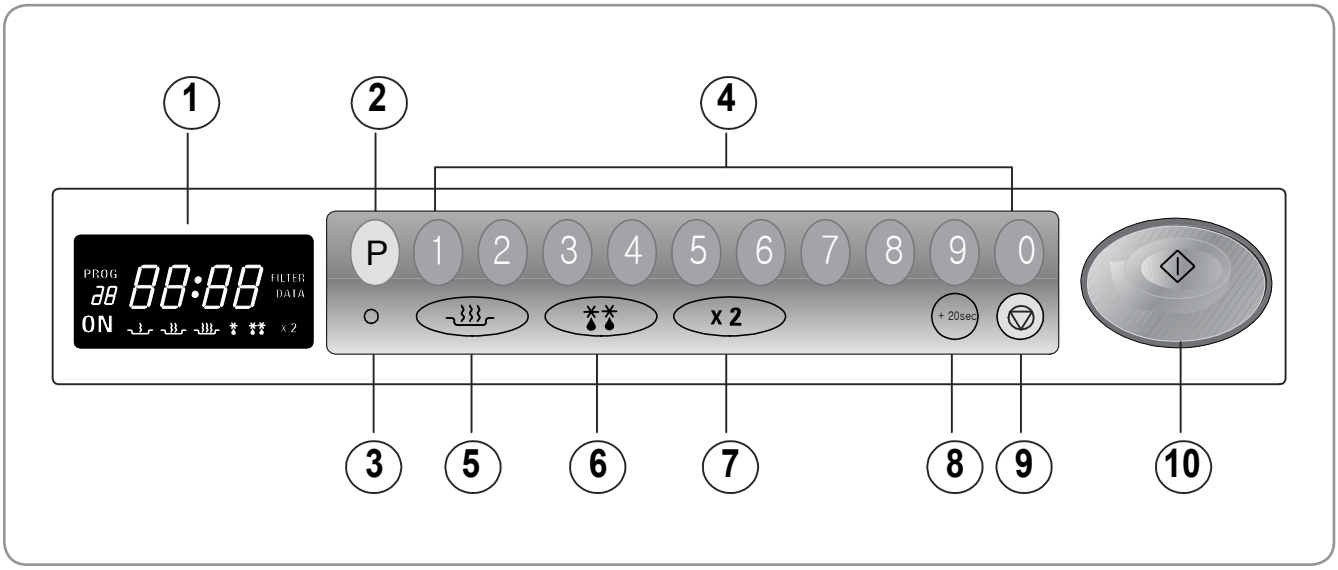
Never touch any circuit wiring with your hand nor with uninsulated tool during operation.

2-1 Table of Specifications

Items		Model	
		Model Basic	Model New
Model		CM1929, CM1919/ELE	CM1529A
Timer		Max. 25min (Power Level : HIGH)	Max. 25min (Power Level : HIGH)
Power Source		230V 50Hz, AC	240V 50Hz, AC
Power Consumption		Microwave : 3200W	Microwave : 3000W
Output Power		1850W (IEC-705)	15000W (IEC-705)
Operating Frequency		2450MHz	2450MHz
Magnetron		OM75P(20)ESS	OM75P(20)ESGN
Dimensions	Outside	464 x 368 x 557mm	464 x 368 x 557mm
(W x H x D)	Oven Cavity	370 x 190 x 370mm	370 x 190 x 370mm
Net		32Kg	32Kg
Shipping		34,5 Kg	34,5 Kg
		.	.

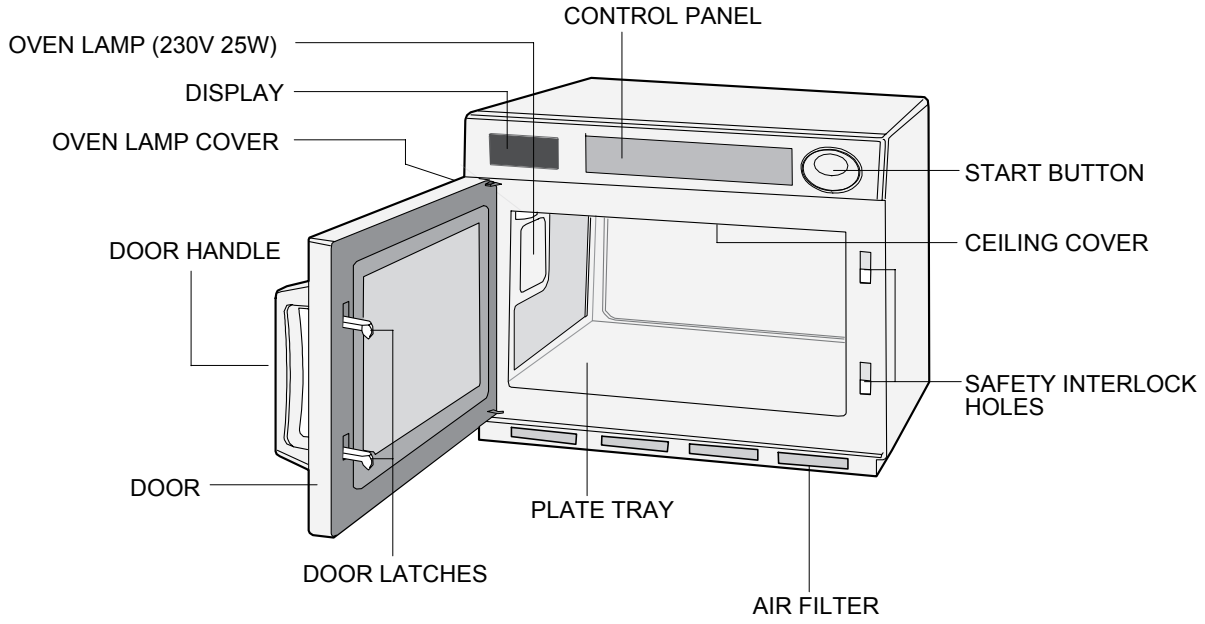
3. Operating Instructions

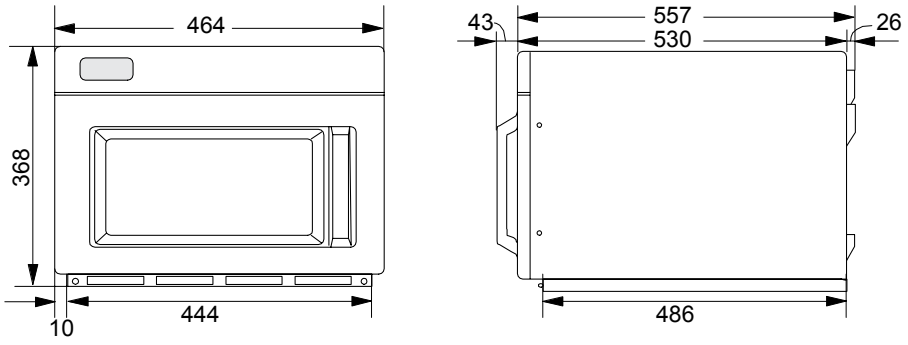
3-1 Control Panel

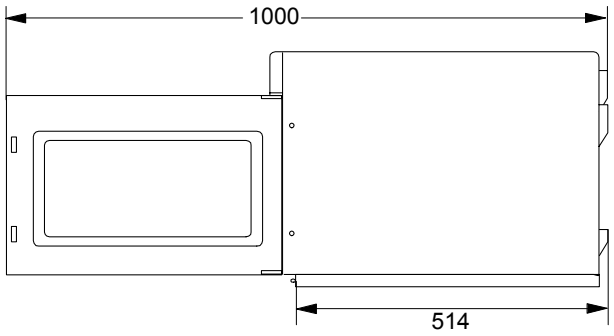


1. DISPLAY
2. PROGRAM PAD
3. PROGRAM LOCK PAD
4. NUMBER PADS(Time, Memory Programming)
5. POWER LEVEL SELECTOR PAD
6. DEFROST SELECTOR PAD
7. DOUBLE QUANTITY PAD
8. +20sec PAD (One Touch Cook Pad)
9. STOP/CANCEL PAD
10. START BUTTON

3-2 Features & External Views







4-1 Replacement of Magnetron, Motor Assembly and Lamp

Remove the magnetron including the shield case, permanent magnet, choke coils and capacitor (all of which are contained in one assembly).

1. Remove the outer panel.

NOTE: Before servicing, make sure to discharge electric charge remaining on the high voltage capacitors or wait for more than 5 min.

2. Remove the back cover.

3. Disconnect all lead wires from the magnetron.

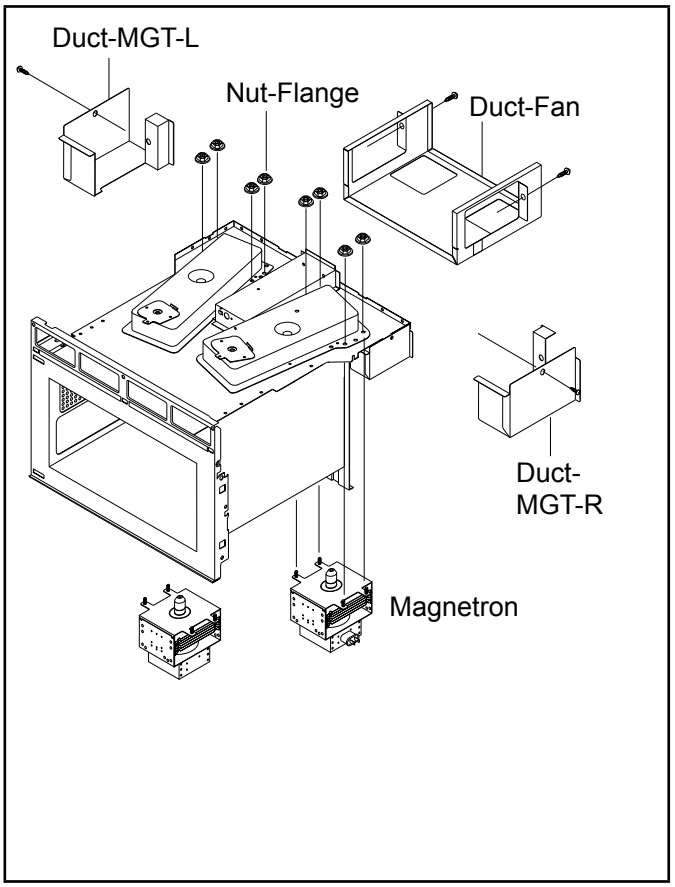
4. Remove screws securing the duct-MGT and duct-fan.

5. Remove the nut-flanges securing the magnetron by using a box wrench.

6. Take out the magnetron very carefully.

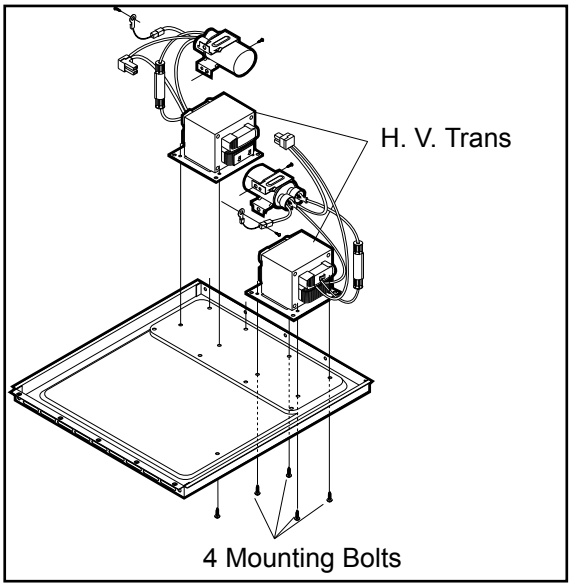
NOTE1: When removing the magnetron, make sure that its antenna does not hit any adjacent parts, or it may be damaged.

NOTE2: When replacing the magnetron, be sure to remount the magnetron gasket in the correct position and make sure the gasket is in good condition.
(See page 19 for adjustment instructions.)



4-2 Replacement of High Voltage Transfomer

1. Discharge the high voltage capacitor.
2. Disconnect all the leads.
3. Remove the mounting bolts.
4. Reconnect the leads correctly and firmly.



4-3 Replacement of Door Assembly

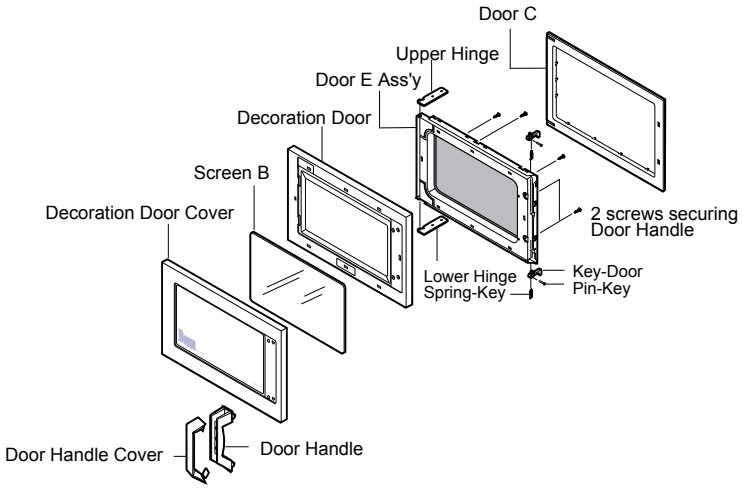
4-3-1 Removal of Door Assembly

NOTE: Be sure to wear gloves when you disassemble or assemble the parts.

1. Remove hex bolts securing the upper hinge and lower hinge. Then remove the door assembly.
2. Insert the flat screwdriver or thin metal plate into the gap between the door E and door C to remove Door C from the door assembly.
3. Remove 2 screws securing the Door Handle.
4. Unbend the 6 metal tabs around the trim of Decoration Door Cover.
5. Remove 3 screws securing the Door E Assay.
6. Remove upper hinge and lower hinge.
7. Remove Decoration Door, Screen B, Key-Door, Spring-Key, Pin-Key as needed.

4-3-2 Removal of Door Handle

1. Remove hex bolts securing the upper hinge and lower hinge. Then remove the door assembly.
2. Insert the flat screwdriver or thin metal plate into the gap between the door E and door C to remove Door C from the door assembly.
   NOTE: Be careful when handling Door C as is fragile.
   NOTE: The thickness of the flat screwdriver or thin metal plate inserted into the gap should be 0.5mm or less.
3. Remove 2 screws securing the Door Handle to the Door E Assy.
4. Unbend the 2 metal tabs at both ends of the Door Handle to remove the Door Handle Cover from the Door Handle.



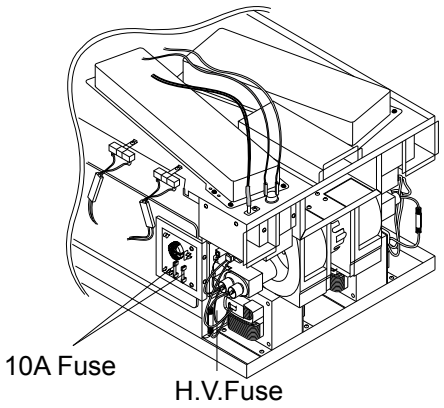
4-3-3 Reassembly Test

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

1. When mounting the door to the oven, be sure to adjust the door parallel to the bottom line of the oven face plate by moving the upper hinge and lower hinge in the direction necessary for proper alignment.
2. Adjust so that the door has no play between the inner door surface and oven front surface. If the door assembly is not mounted properly, microwave energy may leak from the space between the door and oven.
3. Do the microwave leakage test.

4-4 Replacement of Fuse and H.V Fuse

1. Disconnect the oven from the power source.
2. Remove defective fuse from Noise filter.
3. When replacing the fuse, be sure to use an exact replacement part. If new fuse blows out again after replacement, check the primary interlock switch, door sensing switch and interlock monitor switch.
4. When the above three switches operate properly, check if any other part such as the control circuit board, fan motor or high voltage transformer is defective.

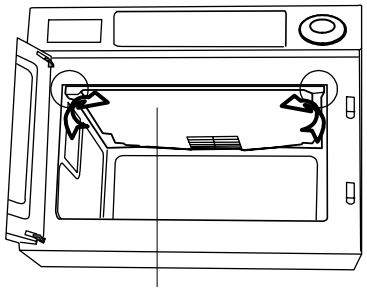


4-5 Replacement of Drive Motor & Assy Stirrer

4-5-1 Replacement of Drive Motor

1. Remove a screw securing the drive motor
2. Open the door.
3. Hold side syoppers of ceiling cover (Ass'y Stirrer Cover) with both hands and pull them in and down.
4. Take the celing cover out of the oven cavity.
5. Remove plastic clips securing the Ass'y Stirrer.

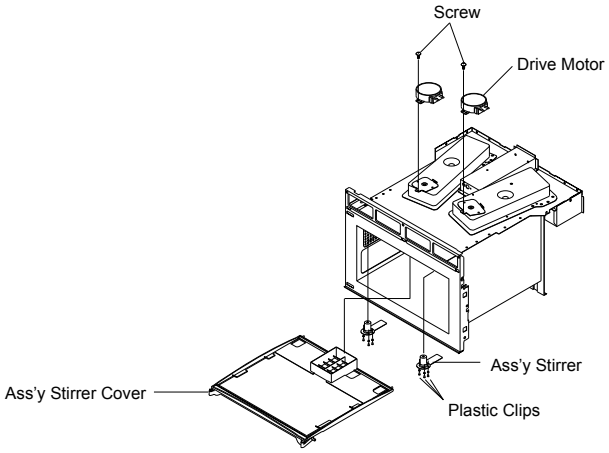
Caution: When removing the Ass'y Stirrer Cover,be sure to be extremely careful about the exposed inside components on the top of the oven cavity. If any of them are deformed, abnormal symptom can happen such as arcing or sparks during operation.



To remove Ass'y Stirrer Cover: Hold side stoppers of ceiling cover with both hands and pull them in and down.

4-5-2 Replacement of Ass'y Stirrer

1. Remove outer panel and back-cover.
2. Disconnect all the lead wires from the drive motor.
3. Remove a screw securing the drive motor.
4. When replacing the drive motor, be sure to remount it in the correct position with the coupler.
5. Connect all the leads to the drive motor.
6. Screw the drive motor to the bracket motor with a screw driver



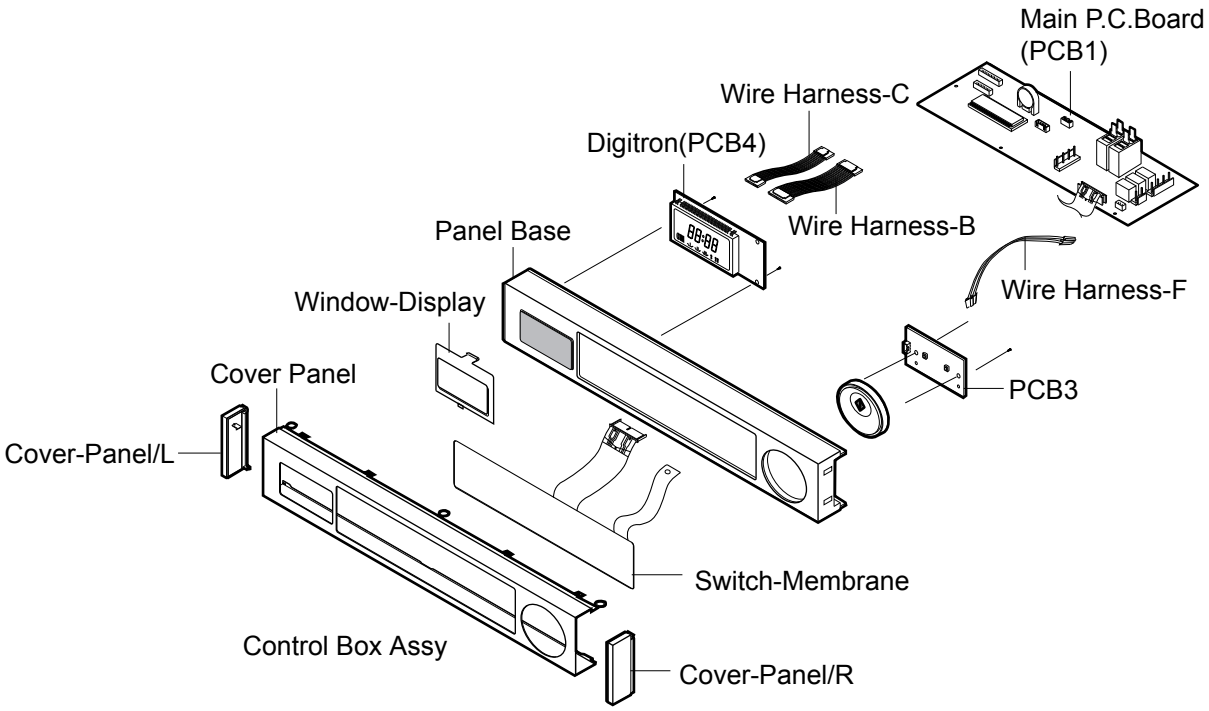
4-6 Replacement of Control Circuit Box Assy and P.C.Board

4-6-1 Removal of Control Box Assembly

1. Be sure to discharge any static electric charge built up on your body and avoid touching the touch control circuitry.
2. Remove 3 screws securing the Control Box Ass'y to the oven cavity.
3. Disconnect all the lead wires, connectors and ground taping from the main control circuit board (PCB1).
4. Lift up the FPC connector hooks about 5mm upward which connects to the main control circuit board (PCB1) from the tail of switch membrane of the control box assembly.
5. Remove a screw securing the tapped taping to PCB1.
6. Remove Control Box Ass'y.
7. To replace Digitron, remove 2 screws securing the PCB 4.
8. To replace Start Button Circuitry, remove 2 screws securing the PCB3.
9. Unbend the metal tabs holding the Panel -Base to Control Box body.

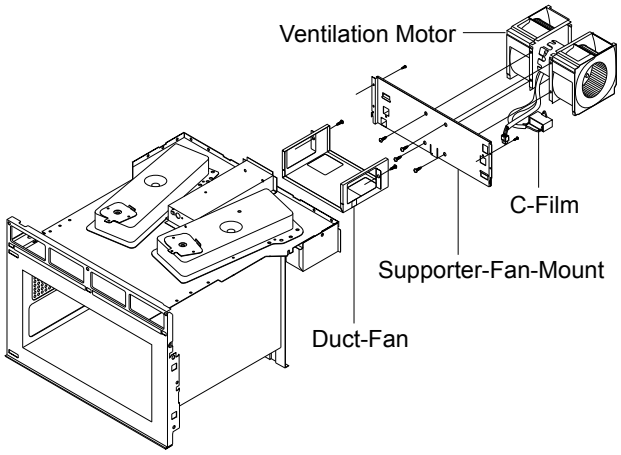
4-6-2 Removal of main P.C.Board

1. Remove Control Box Assembly by following the steps 1~ 5 at left.
2. Remove 4 screws securing the main P.C.Board to the bracket P.C.Board.
   NOTE: When handling the the touch control circuitry, be most careful to avoid damage.



4-7 Replacement of Fan Motor

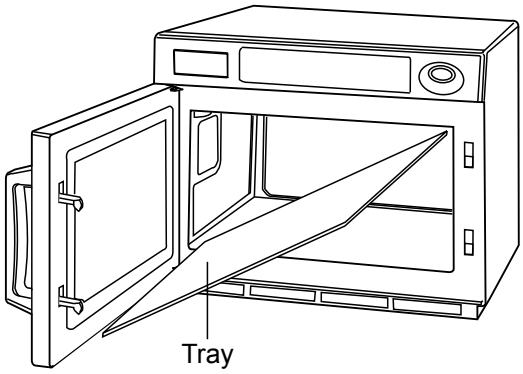
1. Remove the outer panel and back-cover.
2. Discharge the high voltage capacitor.
3. Remove all the lead wires from Magnetron and High Voltage Capacitor.
4. Remove 2 screws securing the duct fan.
5. Remove 2 screws securing the Supporter-Fan Mount.
6. Lift the Fan Motor Ass'y slightly left and pull it out.
7. Remove lead wires and connectors.
8. Turn the fan motor Ass'y over so that the bracket side is up.
9. Remove 2 screws securing the Fan Motor.



4-8 Replacement of Tray

1. Open the door.
2. Remove the tray by inserting a thin metal tool into the gap between the oven wall and the tray siliconcover.
3. Insert the new tray by tilting it across the oven cavity.
4. Firstly fix the front part (refers to the place where the silicon cover is thinner than the other 3 edges) and then place the backward part carefully and firmly.

NOTE: Be careful when you handle the tray since it is fragile.

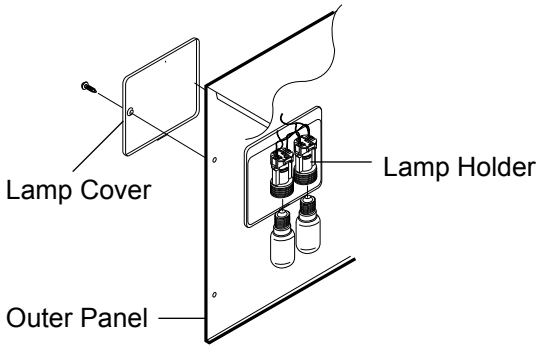


4-9 Replacement of Lamp

NOTE: You don't need to remove the outer panel or other parts in order to replace a lamp.

1. Remove a screw securing the lamp cover.
2. Remove the lamp by rotating it clockwise.
3. Replace with a new lamp by rotating it counter-clockwise.

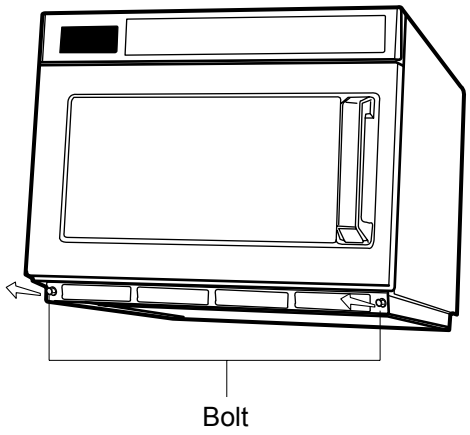
NOTE : If it is necessary to replace the lamp holder, you can disconnect lead wires by pushing down on the hole of lead wires using a long pointed tool.



4-10 Replacement of Air Filter

1. Remove the bolt at both ends of the Air Filter. Then the locking clamps inside are released.
2. Lift the Air Filter off the post carefully.

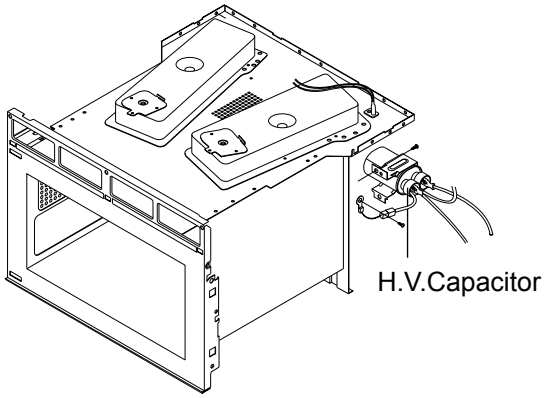
NOTE : Spacer pins are not detachable from the Air Filter



4-11 Replacement of High Voltage Capacitor

NOTE: It is not necessary to remove Magnetron in order to remove HVC.

1. Remove the outer panel and back cover.
2. Discharge the high voltage capacitor.
3. Remove HVT wire and H.V.Fuse.
4. Remove screws securing HVC bracket.



5. Alignment and Adjustments

PRECAUTION

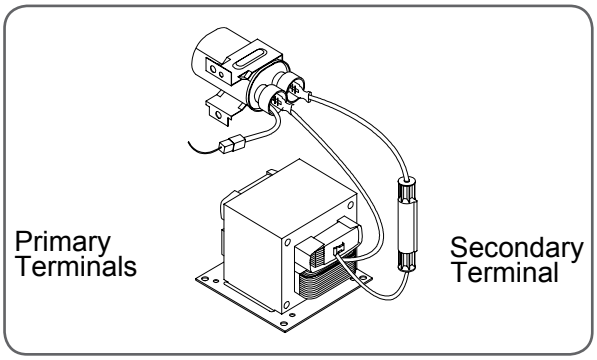
1. High voltage is present at the high voltage terminals during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components or wiring, always unplug the oven from its power source and discharge the high voltage capacitor.

5-1 High Voltage Transformer

1. Remove connectors from the transformer terminals and check continuity.
2. Normal resistance readings are as follows:

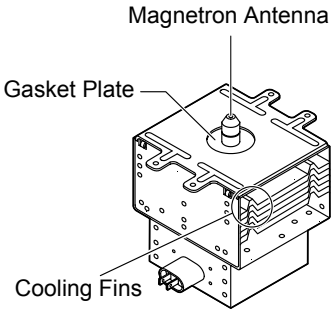
Terminal	Resistance
Secondary	Approx. 98 Ω
Filament	Approx. 0 Ω
Primary	Approx. 1.3 Ω

(Room temperature = 20°C)



5-2 Magnetron

1. Continuity checks can indicate only an open filament or a shorted magnetron. To diagnose an open filament or shorted magnetron.
2. Isolate the magnetron from the circuit by disconnecting its leads.
3. A continuity check across the magnetron filament terminals should indicate one ohm or less.
4. A continuity check between each filament terminal and magnetron case should read open.



5-3 High Voltage Capacitor

1. Check continuity of the capacitor with the meter set at the highest resistance scale.
2. Once the capacitor is charged, a normal capacitor shows continuity for a short time, and then indicates 9MΩ.
3. A shorted capacitor will show continuous continuity.
4. An open capacitor will show constant 9MΩ.
5. Resistance between each terminal and chassis should read infinite.

5-4 High Voltage Diode

1. Isolate the diode from the circuit by disconnecting its leads.
2. With the ohm-meter set at the highest resistance scale, measure across the diode terminals. Reverse the meter leads and read the resistance. A meter with 6V, 9V or higher voltage batteries should be used to check the front-to back resistance of the diode (otherwise an infinite resistance may be read in both directions). The resistance of a normal diode will be infinite in one direction and several hundred KΩ in the other direction.

5-5 Main Relay and Power Control RelayA

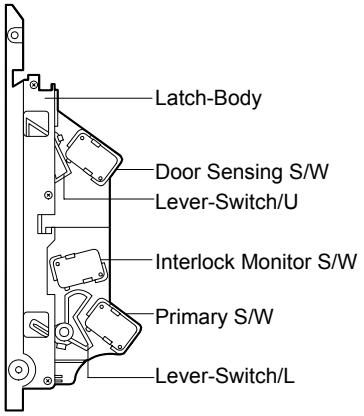
1. The relays are located on the PCB Ass'y. Isolate them from the main circuit by disconnecting the leads.
2. Operate the microwave oven with a water load in the oven. Set the power level set to high.
3. Check continuity between terminals of the relays after the start pad is pressed.

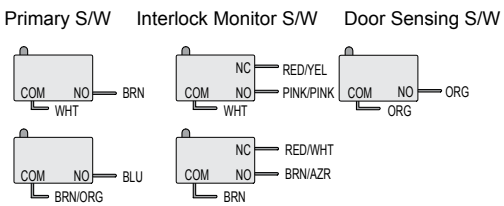
5-6 Adjustment of Primary Switch, Door Sensing Switch and Monitor Switch

⚠ PRECAUTION

For continued protection against radiation hazard, replace parts in accordance with the wiring diagram and be sure to use the correct part number for the following switches: Primary and secondary interlock switches, and the interlock monitor switch (replace all together). Then follow the adjustment procedures below. After repair and adjustment, be sure to check the continuity of all interlock switches and the interlock monitor switch.

1. When mounting Primary switch and Interlock Monitor switch to Latch Body, consult the figure.
2. No specific adjustment during installation of Primary switch and Monitor switch to the latch body is necessary.
3. When mounting the Latch Body to the oven assembly, adjust the Latch Body by moving it so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the Latch Body to the oven assembly.
4. Reconnect to Monitor switch and check the continuity of the monitor circuit and all latch switches again by following the components test procedures.
5. Confirm that the gap between the switch housing and the switch actuator is no more than 0.5mm when door is closed.
6. Interlock Switch Replacement - When replacing faulty switches, be sure switch mounting tabs are not bent, broken or otherwise deficient in their ability to secure the switches in place.





	Door Open	Door Closed
Primary Interlock switch	∞	0
Monitor switch(COM-NC)	0	∞
Monitor switch(COM-NO)	∞	0
Door Sensing S/W (Secondary Interlock S/W)	∞	0

5-7 Output Power of Magnetron

PRECAUTION

MICROWAVE RADIATION

PERSONNEL SHOULD NOT ALLOW EXPOSURE TO MICROWAVE RADIATION FROM MICROWAVE GENERATOR OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

The output power of the magnetron can be measured by performing a water temperature rise test.

Equipment needed :

- Two 1-liter cylindrical borosilicate glass vessel (Outside diameter 190 mm)
- One glass thermometer with mercury column

  NOTE: Check line voltage under load. Low voltage will lower the magnetron output. Make all temperature and time tests with accurate equipment.

1. Fill the one liter glass vessel with water.
2. Stir water in glass vessel with thermometer, and record glass vessel's temperature ("T1", 10±1°C).
3. After moving the water into another glass vessel, place it in the center of the cooking tray. Set the oven to high power and operate for 25 seconds exactly. (3 seconds included as a holding time of magnetron oscillation:)
4. When heating is finished, stir the water again with the thermometer and measure the temperature ("T2").
5. Subtract T1 from T2. This will give you the water temperature rise. (ΔT)
6. The output power is obtained by the following formula;

$$\text{Output Power} = \frac{4.187 \times 1000 \times \Delta T + 0.55 \times Mcx(T2 - T1)}{22}$$

22	: Heating Time (sec)
4.187	: Coefficient for Water
1000	: Water (cc)
ΔT	: Temperature Rise (T2-T1)
To	: Room Temperature
Mc	: Cylindrical borosilicate glass weight

7. Normal temperature rise for this model is 7°C to 10°C at 'HIGH'.

   NOTE 1: Variations or errors in the test procedure will cause a variance in the temperature rise. Additional power test should be made if temperature rise is marginal.

   NOTE 2: Output power in watts is computed by multiplying the temperature rise (step 5) by a factor of 91 times the of centigrade temperature.

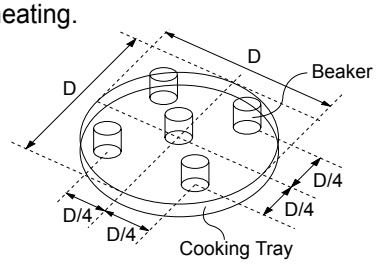
5-8 Microwave Heat Distribution - Heat Evenness

The microwave heat distribution can be checked indirectly by measuring the water temperature rise at certain positions in the oven:

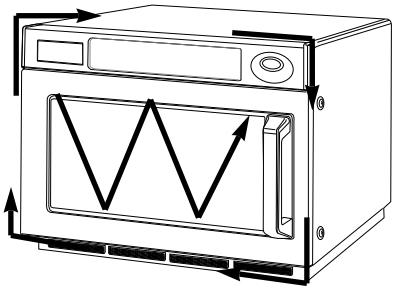
1. Prepare five beakers made of 'Pyrex', having 100 milliliters capacity each.
2. Measure exactly 100milliliters off water load with a measuring cylinder, and pour into each beaker.
3. Measure the temperature of each water load. (Readings shall be taken to the first place of decimals.)
4. Put each beaker in place on the cooking tray as illustrated in figure below. Start heating.
5. After heating for 2 minutes, measure the water temperature in each beaker.
6. Microwave heat distribution rate can be calculated as follows:

$$\text{Heat Distribution} = \frac{\text{Minimum Temperature Rise}}{\text{Minimum Temperature Rise}} \times 100(\%)$$

The result should exceed 65%



5-9 Procedure for Measurement of Microwave Energy Leakage

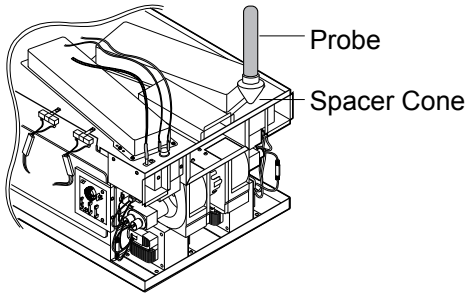


1. Pour 275±15cc of 20±5°C(68±9°F) water in a beaker which is graduated to 600cc, and place the beaker in the center of the oven.
2. Start to operate the oven and measure the leakage by using a microwave energy survey meter.
3. Set survey meter with dual ranges to 2,450MHz.
4. When measuring the leakage, always use the 2 inch spacer cone with the probe. Hold the probe perpendicular to the cabinet door. Place the spacer cone of the probe on the door and/or cabinet door seam and move along the seam, the door viewing window and the exhaust openings moving the probe in a clockwise direction at a rate of 1 inch/sec. If the leakage testing of the cabinet door seam is taken near a corner of the door, keep the probe perpendicular to the areas making sure that the probe end at the base of the cone does not get closer than 5cm to any metal. If it gets closer than 5cm, erroneous readings may result.
5. Measured leakage must be less than 4mW/cm2 , after repair or adjustment.

Maximum allowable leakage is 5mW/cm2 .
4mW/cm2 is used to allow for measurement and meter accuracy

5-10 Note on Measurement

1. Do not exceed the limited scale.
2. The test probe must be held on the grip of the handle, otherwise a false reading may result when the operator's handle and the probe.
3. When high leakage is suspected, do not move the probe horizontally along the oven surface; this may cause damage to the probe
4. Follow the recommendation of manufacturer of the microwave energy survey meter.



5-11 Record keeping and notification after measurement

1. After adjustment and repair of a radiation preventing device, make a repair record for the measured values, and keep the data.
2. If the radiation leakage is more than 4mW/cm2 after determining that all parts are in good condition, functioning properly and the identical parts are replaced as listed in this manual notify that fact to ;

   CENTRAL SERVICE CENTER
3. At least once a year have the microwave energy survey meter checked for accuracy by its manufacturer

6. Troubleshooting

PRECAUTION

1. CHECK GROUNDING BEFORE CHECKING FOR TROUBLE.
2. BE CAREFUL OF THE HIGH VOLTAGE CIRCUIT.
3. DISCHARGE THE HIGH VOLTAGE CAPACITOR.
4. WHEN CHECKING THE CONTINUITY OF THE SWITCHES OR TRANSFORMER, DISCONNECT ONE LEAD WIRE FROM THESE PARTS AND THEN CHECK CONTINUITY WITHOUT THE POWER SOURCE ON. TO DO OTHERWISE MAY RESULT IN A FALSE READING OR DAMAGE TO YOUR METER.
5. DO NOT TOUCH ANY PART OF THE CIRCUIT OR THE CONTROL CIRCUIT BOARD, SINCE STATIC DISCHARGE MAY DAMAGE IT. ALWAYS TOUCH GROUND WHILE WORKING ON IT TO DISCHARGE ANY STATIC CHARGE BUILT UP.

6-1 Electrical Malfunction

SYMPTOM	CAUSE	CORRECTIONS
Oven is dead. Fuse is OK. No display and no operation at all.	1. Open or loose lead wire harness 2. Open thermal cutout (Magnetron) 3. Defective Ass'y PCB	Check fan motor when thermal cutout is defective.
No display and no operation at all. Fuse is blown.	1. Shorted lead wire harness 2. Defective primary latch switch **(NOTE 1)** 3. Defective monitor switch **(NOTE1)** 4. Shorted H.V.Capacitor 5. Shorted H.V.Transformer **(NOTE2)**	Check adjustment of primary, interlock monitor, power relay, door sensing switch.
	NOTE **1** : All of these switches must be replaced at the same time.(refer to adjustment instructions) Check continuity of power relay contacts and if it has continuity, replace power relay also. NOTE **2** : When H.V.Transformer is replaced, check diode and magnetron also.	
Oven does not accept key input (Program)	1. Key input is not in-Sequence 2. Open or loose connection of membrane key pad to Ass'y PCB 3. Shorted or open membrane panel 4. Defective Ass'y PCB	Refer to operation procedure. Replace PCB main.
Timer starts countdown but no microwave oscillation. (No heat while oven lamp and fan motor turn on.)	1. Open or loose connection of high voltage circuit especially magnetron filament circuit NOTE : Large contact resistance will bring lower magnetron filament voltage and cause magnetron to lower output and/or intermittent oscillation. 2. Defective high voltage components H.V.Transformer H.V. Capacitor H.V.Diode, H.V.Fuse Magnetron	Adjust door and latch switches. Check high voltage component according to component test procedure and replace if it is defective.

6. Troubleshooting

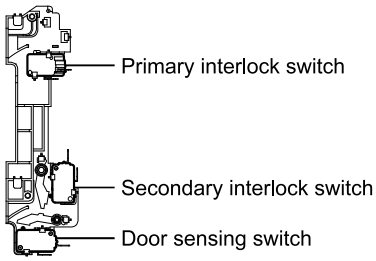
SYMPTOM	CAUSE	CORRECTIONS
Oven lamp goes off	1. Loose lead wire or open filament 2. Misadjustment of latch switch 3. Defactive primary latch switch	Tighten lamp lead wire or replace with a new lamp
Microwave output is low;. Oven takes longer time to cook food. (Noheat while oven lamp and ventilation)	1. Decrease in power source voltage. 2. Open or loose wiring of magnetron filament circuit. (Intermittent oscillation)) 3. Aging of magnetron 4. Defective high voltage compnents H.V. Transfomer H.V. Capacitor H.V. Diode, H.V. Fuse Magnetron	Consult electrician. Check high coltage component according to component test procedure and replace if defective
Oven does not operate and return to the plugged in mode.	Defective Ass'y PCB	Replace PCB main.
Loud buzzing noise can be heard.	1. Loose fan and fan motor 2. Loose screws on H.V.Transformer 3. Shorted H.V.Diode 4. Loose or missing screw on Cover-Back	Tighten screws of fan motor. Tighten screws of H.V.Transformer. Replace H.V.Diode. Tighten screws of Cover-Back
Drive motor not work. (Ass'y stirrer dose not rotate.)	1. Open or loose wiring of turntable motor. 2. Defective turntable motor. 3. Defective ass'y stirrer	Check the wire of drivemotor Replace drive motor. Replace ass'y stirrer.
Oven stops operation during cooking	1.Operationofthermalcutout (Magnetron or Cavity) 2. Fan motor does not rotate.	Adjust door and latch switches. Replace Fan motor.
Sparks	1. Metallic ware or cooking dishes touching on the oven wall. 2. Ceramic ware trimmed with gold or silver powder also causes sparks.	Informthecustomerofproperuse. Do not use any type of cookware with metallic trimming.
Uneven cooking	Uneven intensity of microwave due to its characteristics.	Wrap thinner parts of the food with aluminum foil. Use plastic wrap or cover with a lid. Stir once or twice while cooking foods such as soup, cocoa, or milk.
Noise from the turntable motor when it starts to operate.	Noise may result from the motor.	Replace turntable motor.
Oven can program but timer does not start.	Defective circuitry of Start function of Main P.C.B Ass'y Loose lead wires.	Check circuitry of Start function of Main P.C.B Ass'y and replace if defective. Adjust od repair loose wires.

6-1 Electrical Malfunction (Continued)

Oven does not operate. | ***Inspection method**

Caution
1. Be careful of high voltage circuits.
2. Discharge high voltage capacitor.

Is Fuse OK? — NO → **Is Primary interlock switch normal?** — NO → Make sure to inspect the power relay after replacing primary interlock switch, secondary interlock switch and door sensing switch.



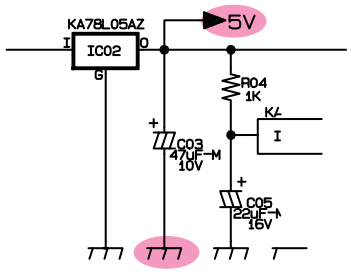
< Latch switch assembly >

YES → **Is Power Relay normal?** — NO → Replace Relay

YES → **Is the magnetron temperature switch normal?** — NO → Replace switch — NO → Check a fan motor after replacing switch

YES → **Is L.V.T nomal?** — NO → Replace L.V.T. — NO → Check PCB after replacing L.V.T.

YES → **Is the IC01 output of PCB normal?** — NO → Replace L.V.T. — NO → Power Point Check Point



YES → Checking high voltagecircuits → **Is high voltage diode normal?** — NO

YES → **Is high voltage capacitor normal?** — NO

YES → **Is magnetron normal?** — NO

→ In case any of high voltage parts is damaged, check all parts related to high votlage.

6-1 Electrical Malfunction (Continued)

Buttons of the control panel do not work.

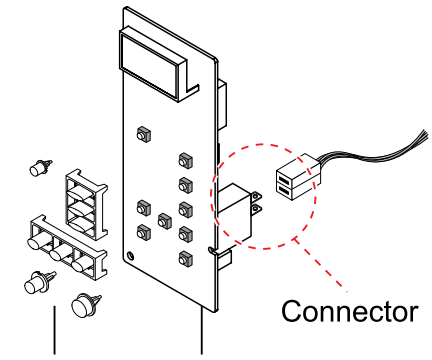
*Inspection method

Are buttons pressed in the correct order?
- NO → Refer to User Manual
- YES ↓

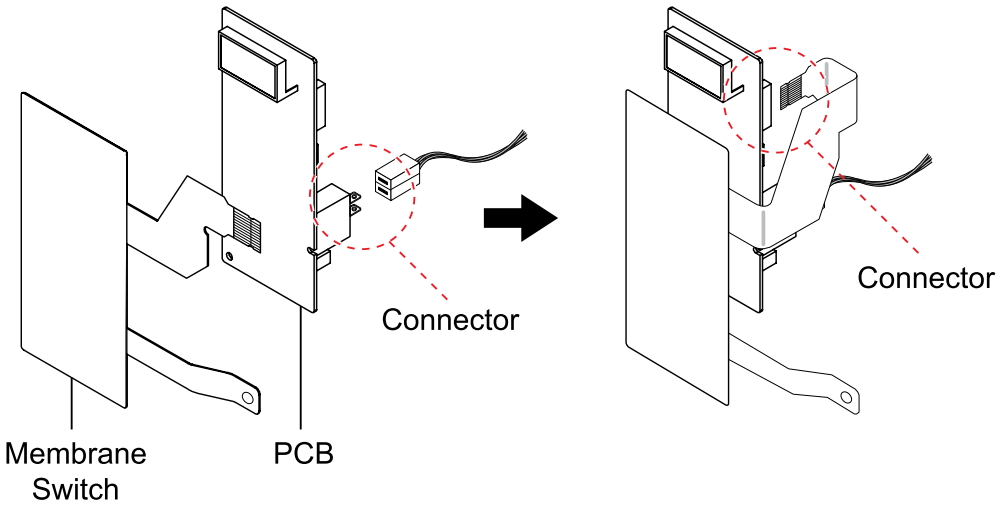
Is the connector of the control panel normal?
- NO → Tact type
- YES ↓

Replace PCB.

Tact type



Membrane type



6-1 Electrical Malfunction (Continued)

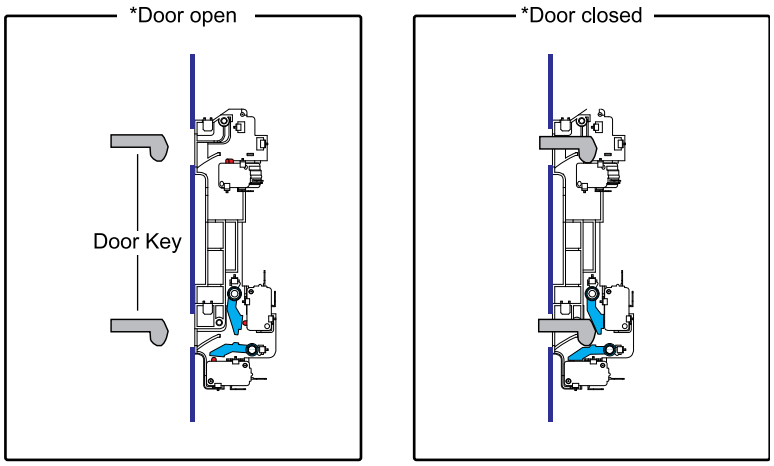
Food is not heated even though an oven works.

***Inspection method**

Is the latch switch operating normally?

NO

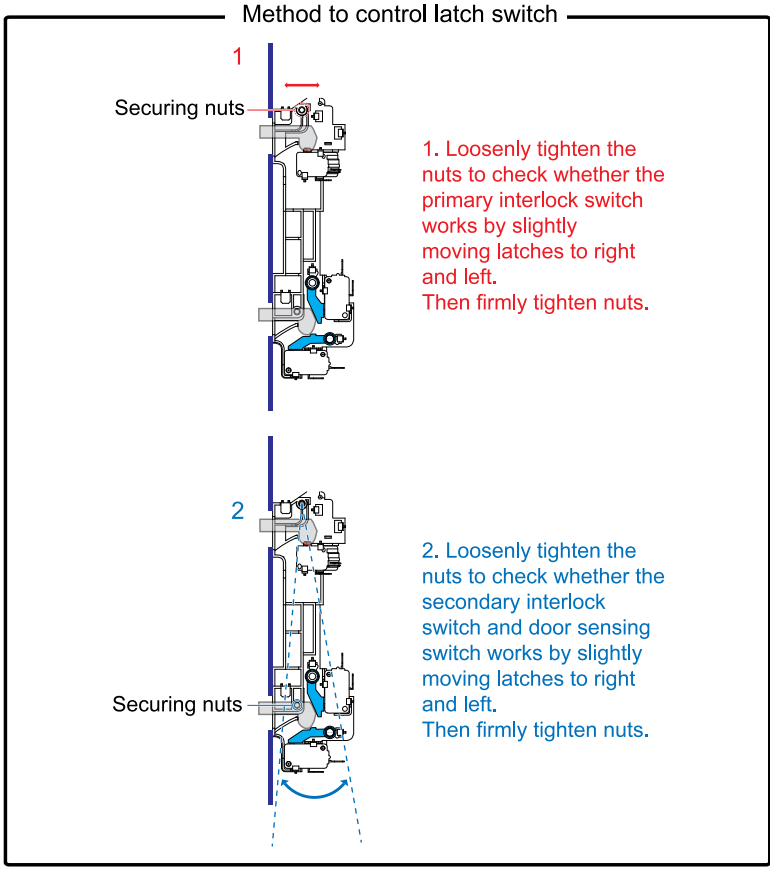
Method to control latch switch



YES

Checking high voltage circuits

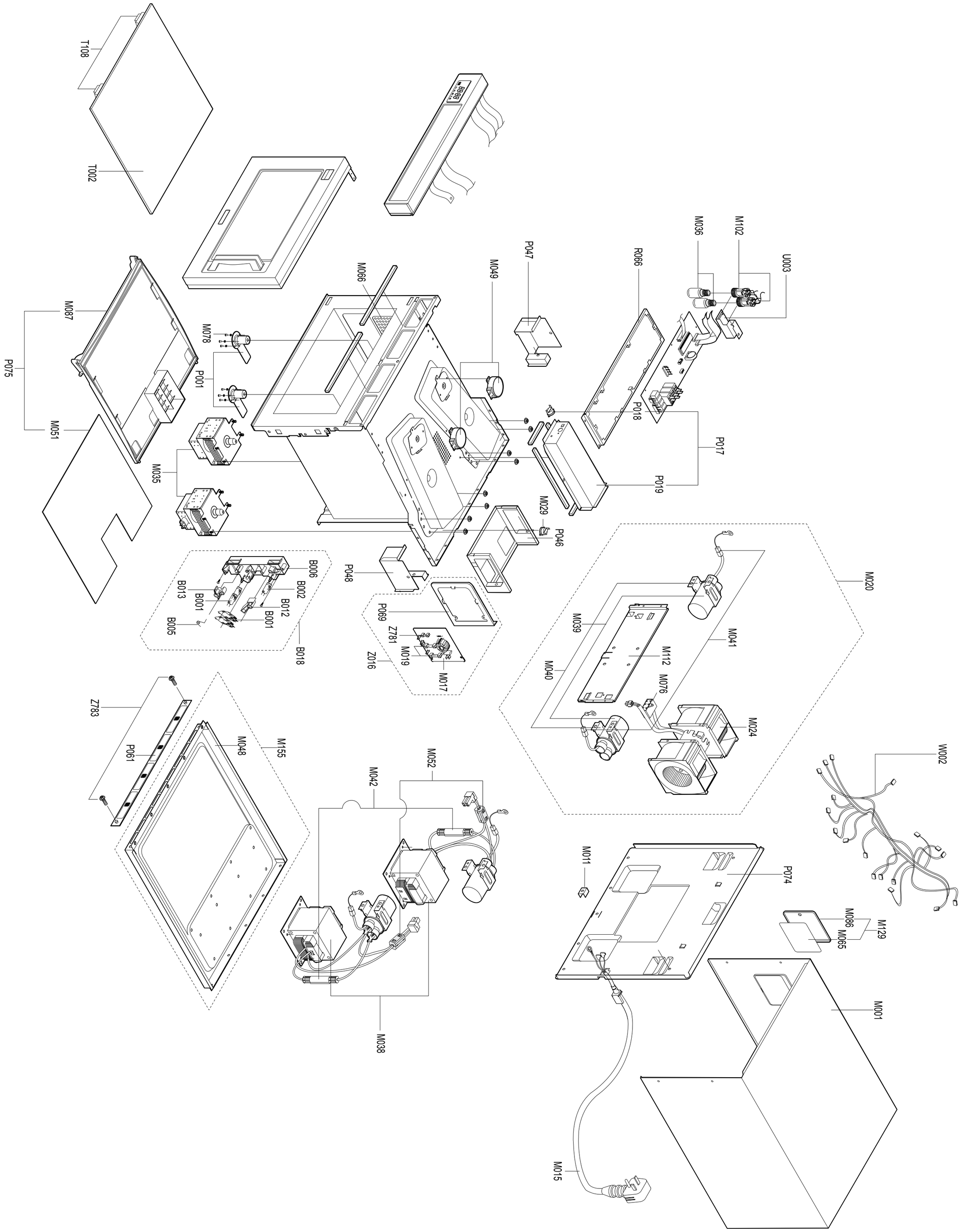
Refer to "Checking high voltage circuits" on the previous page.



6-2 Error Codes & Corrections

CODE	CAUSE	CORRECTIONS
E1	1. Improper input power freqency. 2. Defective Ass'y Main P.C.B	Check if power frequency is 50Hz. Replace Ass'y Main P.C.B or MICOM
E3	1. Overtheating inside cavity (no load or little load aging) 2. Air ventilation blocked around exhaust area 3. Ventilation motor failure and magnetron overheating	Check if the oven was operating without load or too little load and plug the power cord in again. If error code 'E3' appears again in the window display, check resistance of Thermistor sensor and replace if defective. Check of any blocking mterials exhaust area around the Air Exhaust or ventilation opening and follow the instuctions above. Check if the ventilation motor is operative magnetron overheating and replace the motor if defective.
E41	1. Main Relay (RY1) or Power Relay1(RY2) failure 2. Loose lead wires of relay 3. Primary or Monitor S/W failure 4. Loose lead wires of Primary or Monitor S/W 5. H.V.Trans input power sensing circuitry failure	Check Main Relay (RY1), Power Relay1 (RY2) Primary S/W and Monitor S/W and replace if defective. Check if lead wires are loosened and connect firmly if loose. Check the circuitry and replace if defective. (Refer to Operating Sequence as shown in page 32.)
E42	1. Main Relay (RY5) failure 2. Loose lead wires of Power relay (RY5) 3. Primary or Monitor S/W failure 4. Loose lead wires of Primary or Monitor S/W 5. Fuse(10A)blown out on neutral area of Ass'y Noise Filter. 6. H.V.Trans input power sensing circuitry failure	Check Power Relay2,Primary S/W,Monitor S/W or Fuse and replace if defective. Check if lead wires are loosened and repair as necessary. Check the circuitry.(Refer to Operating Sequence as shown in page 32.)
E5	1. Memory IC(EEPROM IC) failure 2. MICOM failure	Check Memory (IC3) and replace if defective. Replace Ass'y Main P.C.B or MICOM.

7-1 Exploded Views



7-2 Main Parts List

(S.N.A : SERVICE NOT AVAILABLE)

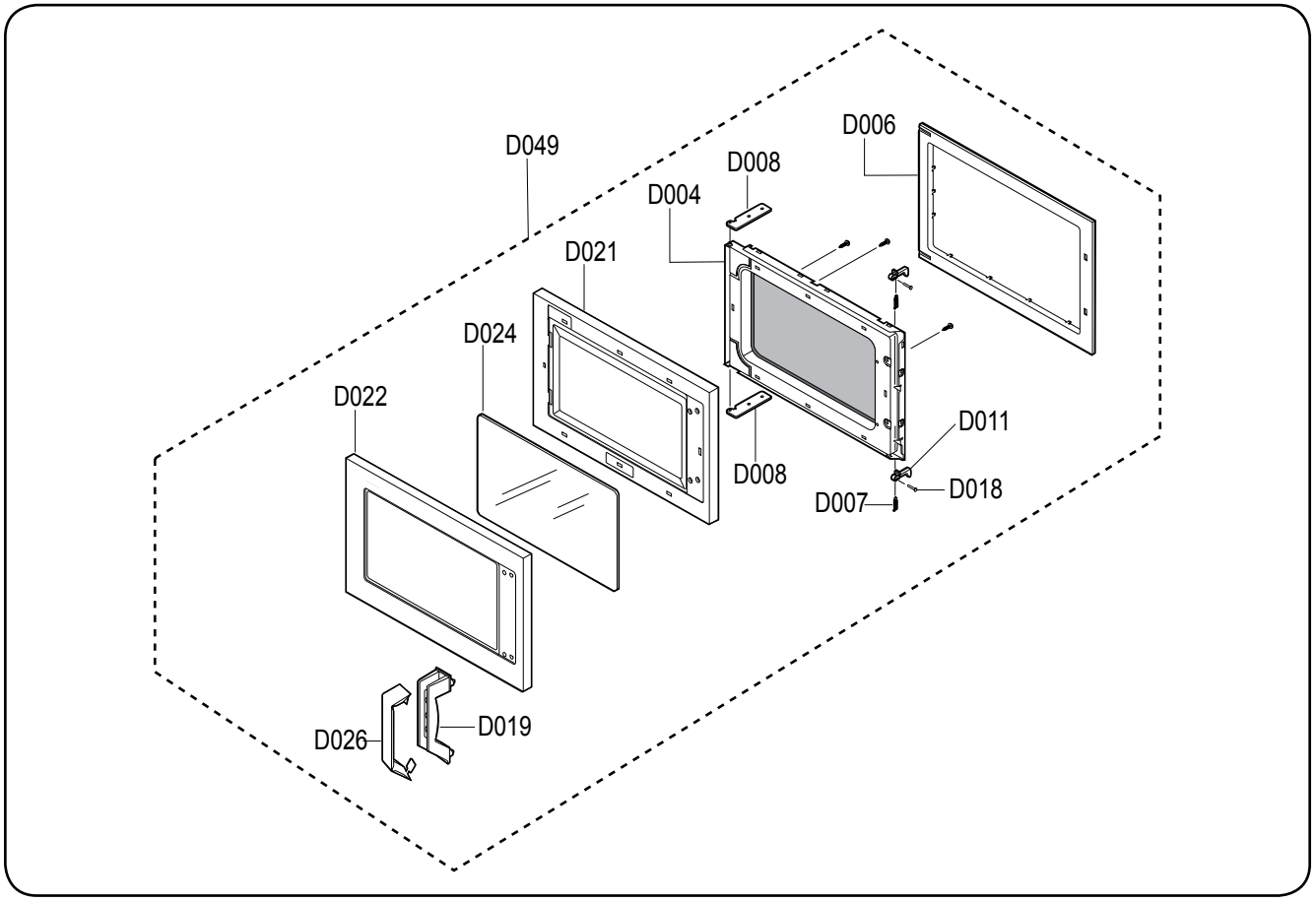
Level	No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
1-1	M036	4713-000168	LAMP-INCANDESCENT	230V,-,25W,ORG,-,-,-	1	SA	
1-1	Z783	6011-001140	BOLT-STUD	M4,L8,NI PLT,BSW	1	SNA	
1-1	M066	DE01-00095A	FILM-LAMP	-,PET,-,84,T0.15,114,CM-1819,-	1	SA	
1-1	M035	OM75P(20)ESGN	MAGNETRON	,1KW/2460MHZ,3 .15V/4	1	SA	
1-1	M038	DE26-00058A	TRANS H.V	SHV-906EG1,230/240V,50HZ,2425V	1	SA	
1-1	M049	DE31-10164B	MOTOR SYNCHRONOUS	M2CK34A709-H(B),120V60	1	SA	
1-1	M029	DE47-20017A	THERMOSTAT	PW-2N(150/60,187Z),250V/7.5A,	1	SA	
1-1	M102	DE47-40029A	SOCKET-LAMP	250V2A,22.23,E14,BJB,-,-,-	1	SA	
1-1	R066	DE61-50520A	BRACKET-PCB	-,SECC,T0.8,CM-1819,-,-,-	1	SA	
1-1	M011	DE61-50541A	BRACKET-EARTH	-,SGCC2,T1.0,W15,L8,-,-	1	SNA	
1-1	U003	DE61-90318A	HOLDER-LAMP	W134,SECC,-,W134,L40.5,-,L40	1	SA	
1-1	M078	DE69-90054A	CLIP-STIRRER	5MM,PFA,CM1819/29,-,	1	SNA	
1-1	M001	DE70-30123A	PANEL-OUTER	-,STS430,T0.6,CM-1819,-,-,-,	1	SA	
1-1	P046	DE72-50088A	DUCT-FAN	-,ALCOAT,T0.5,CM-1819,-,-,-	1	SA	
1-1	P048	DE72-50089A	DUCT-MGT/R	-,SECC,T0.5,CM-1819,-,-,-	1	SA	
1-1	P047	DE72-50090A	DUCT-MGT/L	CM-1819,SECC,T0.5,-,-,-,-	1	SA	
1-1	M052	DE73-90027A	FERRITE-CORE	NI-ZN,T13.8,W21.0,L28.0,BNF	1	SNA	H.V.T
1-1	M020	DE91-50093T	ASSY-MOTOR FAN	-,240V,-,CM1919/1929,COMM	1	SA	
1-2	M076	2301-001204	C-FILM,LEAD-PEF	1.50UF,-5TO+10%,450VAC,-	1	SA	
1-2	M039	2501-001282	C-OIL	1.00UF,2100V(CLASS P),AL CAN T	1	SA	
1-2	M024	DE31-10180A	MOTOR VENTILATION	SMV-1829EA,240V50HZ,22	1	SA	
1-2	M040	DE61-00421A	BRACKET-HVC	CM1829,SECC,T0.8,-,-,-,-	1	SA	
1-2	M112	DE61-30189A	SUPPORT-FAN-MOUNT	-,SECC,T1.0,CM-1819,-,	1	SA	
1-2	M041	0402-001554	HVDIODE-RECTIFIER	HV03-12T01,12000V,0.4A	1	SA	
1-1	M042	DE91-70061A	ASSY-H.V.FUSE	THV060T-0800-H,5KV/0.80A,W	1	SA	
1-1	P074	DE92-90514A	ASSY-BACK COVER	CM-1819,CM-1829,-,-,-,-	1	SA	
1-1	P001	DE92-90515A	ASSY-STIRRER	CM-1819,CM-1829,-,-,-,-	1	SA	
1-1	P061	DE92-90516B	ASSY-BRACKET FILTER	CM1819,-,-,-,-,-	1	SA	
1-1	P017	DE92-90519A	ASSY-DUCT AIR	CM1819/29,-,-,CM1819/29,-,	1	SA	
1-2	P018	DE47-20169A	THERMOSTAT	PW-2N(100/60,H,23.8,250V/7.5A	1	SA	
1-2	P019	DE72-50091A	DUCT-OVEN	-,STS430,T0.4,CM-1819,-,-,-	1	SA	
1-1	P075	DE97-00562A	ASSY-COVER PANEL	CM1829,-,-,-,-,-	1	SA	
1-2	M087		COVER-STIRRER	-,PP,CM-1819,-,-,-,-,-	1	SNA	
1-2	M05		COVER-CEILING	-,MICA_SHEET,T0 .5,W348,L31	1	SNA	
1-1	Z016	DE92-90521D	ASSY-FILTER	COMM-BONN,NEW BKT SUPPORT,-,	1	SA	
1-2	P069	DE61-00723A	BRACKET-SUPPORT	CM1319,SECC/ALCOAT,T0.6,	1	SNA	
1-2	M017	DE96-00734A	ASSY NOISE FILTER	SN-1829,230V/50HZ,-,-,	1	SA	
1-3	M019	3601-000448	FUSE-CARTRIDGE	250V,10A,SLOW-BLOW,CERAMI	1	SA	
1-3	Z781	3601-001126	FUSE-CARTRIDGE	250V,1.6A,FAST-ACTING,CER	1	SA	
1-1	M129	DE92-90533A	ASSY-LAMP HOLDER	CM1819/CM1829,-,-,-,-,-	1	SA	
1-2	M065	DE63-90190B	CUSHION-LAMP	CM1819/29,PUT-FOAM,T7.0,W10	1	SNA	
1-2	M086	DE71-60422A	COVER-LAMP	-,STS430,T0.6,CM-1819,-,-,-,-	1	SNA	
1-1	M155	DE93-10106C	ASSY BASE PLATE	CM1819,SECC	1	SA	
1-2	M048	DE80-10113C	BASE-PLATE	CM1819,SECC1,-,-,-,-,-	1	SNA	

7-2 Main Parts List(Continued)

(S.N.A : SERVICE NOT AVAILABLE)

Level	No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
1-1	B018	DE93-20097E	ASSY BODY LATCH	CM1819/1829,EUROPE	1	SA	
1-2	B002	3405-001032	SWITCH-MICRO	125/250VAC,16A,200GF,SPDT	1	SA	
1-2	B001	3405-001034	SWITCH-MICRO	125/250VAC,16A,200GF,SPST-N	1	SA	
1-2	B001	3405-001055	SWITCH-MICRO	125/250VAC,16A,200GF,SPST-N	1	SA	
1-2	B005	DE61-00066A	SPRING-Q	CM1819/1829,MSWR,PI0.8,-,-,-,-	1	SA	
1-2	B006	DE66-40062A	LATCH-BODY	-,-,-,-,-,-,-	1	SA	
1-2	B012	DE66-90107A	LEVER-SWITCH(U)	PBT,CM-1819,-,-,-,-,-	1	SA	
1-2	B013	DE66-90108A	LEVER-SWITCH(L)	PBT,CM-1819,-,-,-,-,-	1	SA	
1-1	M015	DE96-00356G	ASSY POWER CORD	KKP-550A,-,250V15A,1700M	1	SA	
1-1	W002	DE96-00503A	ASSY-WIRE HARNESS A	CM1929,230V 50HZ VI	1	SA	
1-1	T002	DE97-00319A	ASSY-TRAY CERAMIC	CM1829,-,-,-	1	SA	
1-2	T108	DE61-00170A	FOOT-TRAY	CM1049,URETHANE,-,WHT,-,-,-	1	SA	

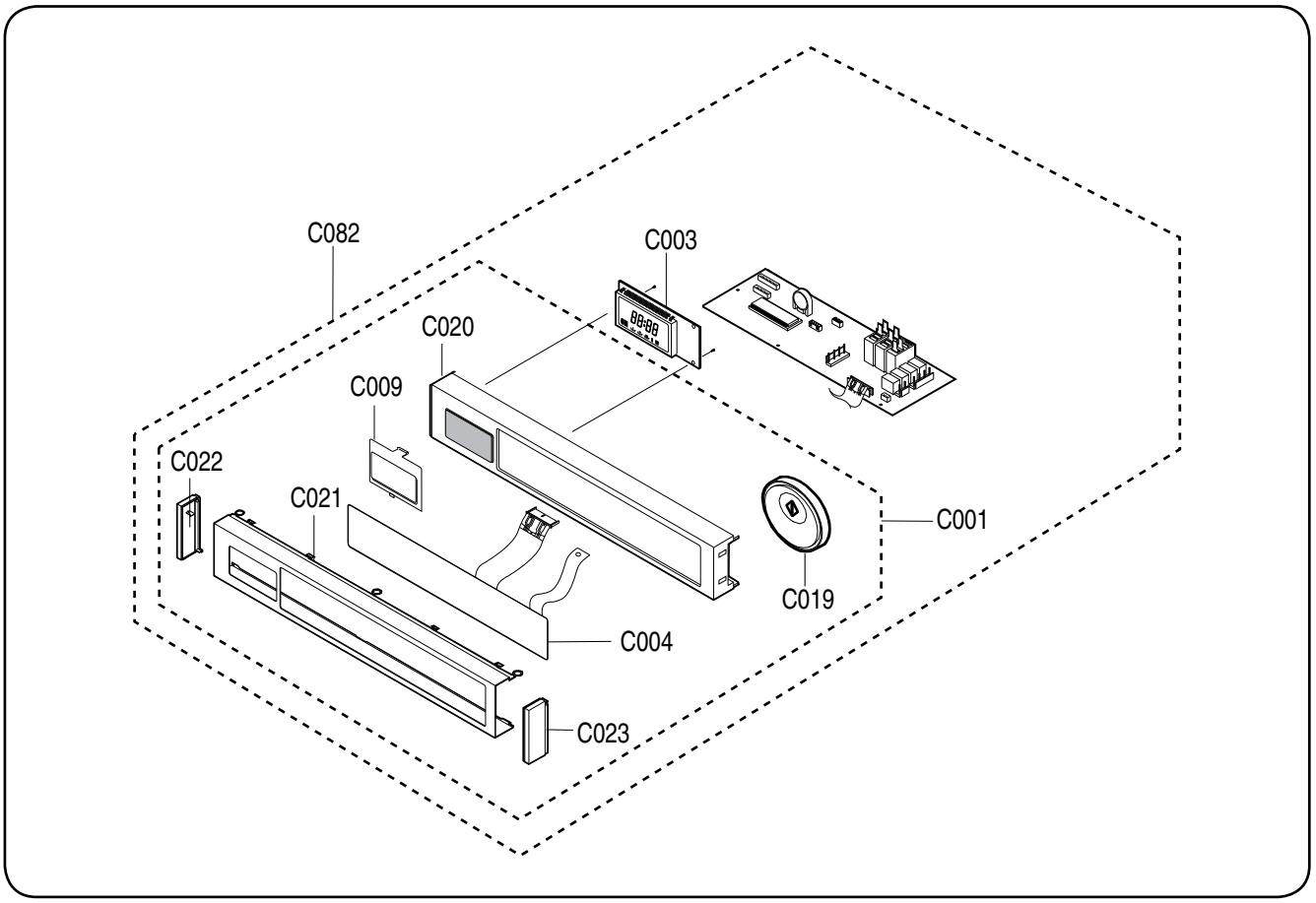
7-3 Door Parts List



(S.N.A : SERVICE NOT AVAILABLE)

Level	No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
1-1	D049	DE94-02846A	ASSY DOOR	CM1529,STS,1500W	1	SA	
1-2	D018	DE60-60080A	PIN-KEY	A,M3.95,L21,STS304,-,CM-1819,-	1	SA	DOOR-E
1-2	D007	DE61-70144A	SPRING-KEY	-,HSWR,PI1.0,-,OD6.5,L32.8,21	1	SA	
1-2	D008	DE61-80138A	HINGE	-,SHV-945EG1,KEC,T3.0,W24.5,L2	1	SNA	
1-2	D019	DE64-20123A	HANDLE	CM-1819,ZN-DICASTING,-,-,-,-,C	1	SA	
1-2	D011	DE64-40296A	DOOR-KEY	-,CR3C,-,-,-,-,-,-	1	SA	
1-2	D006	DE64-40298A	DOOR-C	-,PP,-,-,-,-,-	1	SA	
1-2	D021	DE64-90145A	DECORATION-DOOR	-,ABS,CM-1819,-,-,-,CM-1	1	SA	
1-2	D022	DE64-90146A	DECORATION-COV/DOOR	-,STS,CM-1819,-,-,-	1	SA	
1-2	D024	DE67-20174X	SCREEN-DOOR(B)	CM1929,GLASS,3.2,198.5,36	1	SA	
1-2	D026	DE71-60433A	COVER-HANDLE	-,STS430,T0.5,CM-1819,-,-,-	1	SA	
1-2	D004	DE92-50132B	ASSY DOOR-E	CM-1819,COATING,BLK	1	SA	

7-4 Control Parts List



(S.N.A : SERVICE NOT AVAILABLE)

Level	No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
1-1	C082		ASSY CONTROL-BOX	-,CM1529,-,COMMERCIAL	1	SA	0VER
1-1	C082	DE94-02182H	ASSY CONTROL-BOX	CM1529,230V50HZ,BLACK,STS,ABS,HEAVY-COMMERCIAL MWO,MEMBRANE	1	SA	
1-2	C001	DE93-30529N	ASSY CONTROL-PANEL	-,CM1329,-,COMMERCIAL	1	SA	
1-3	C004	DE34-00158C	SWITCH MEMBRANE	CM1529A-1/XEU,COMMERCIAL,-,	1	SA	
1-3	C009	DE67-40161A	WINDOW-DISPLAY	-,RESIN-PMMA,82555,CM-181	1	SA	
1-3	C020	DE70-30125A	PANEL-BASE	-,RESIN-ABS,TC,CM-1829,-,-,-	1	SA	
1-3	C021	DE71-60426A	COVER-PANEL	-,STS430,T0.5,TC,CM-1829,-,-	1	SA	
1-3	C022	DE71-60428B	COVER-PANEL(L/L)	CM1019,ABS,-,-,-,-,-,CM	1	SA	
1-3	C023	DE71-60429B	COVER-PANEL(L/R)	CM1019,ABS,-,-,-,-,-,CM	1	SA	
1-3	C019	DE66-20212A	BUTTON-START	-,-,NI,CR-PLATING,-,-,CM-18	1	SA	
1-2	C003	RCS-SMS2CM	ASSY PCB PARTS	CM1829 , 230V50HZ	1	SA	

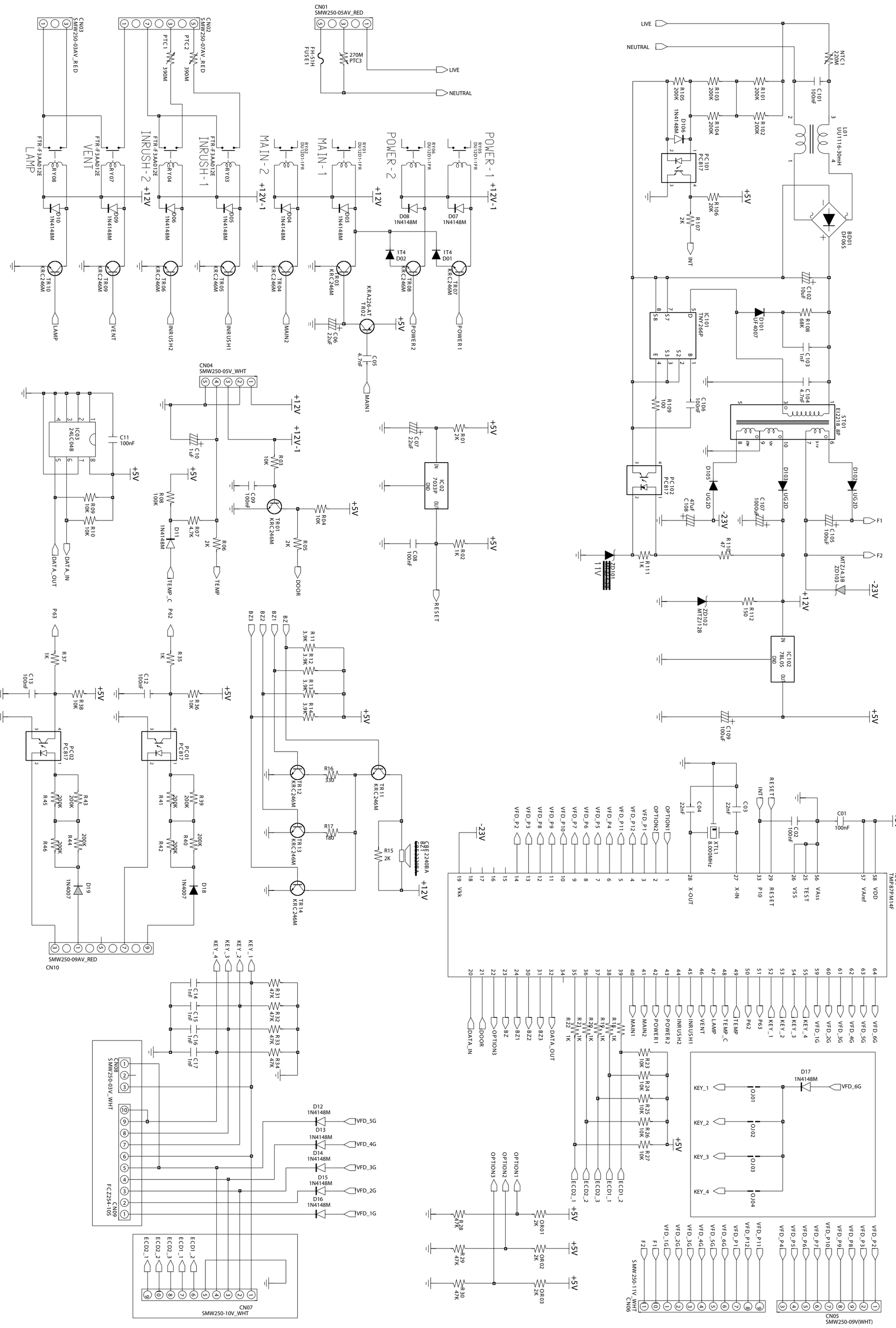
7-5 Standard Parts List

(S.N.A : SERVICE NOT AVAILABLE)

Level	Code No.	Description	Specification	Q'ty	SA/ SNA	Remark
1-1	6002-000630	SCREW-TAPPING	PH,+,2S,M3,L8,ZPC(YEL),SWR	1	SA	MAIN PCB
1-1	6002-001325	SCREW-TAPPING	TH,TORX,2S,M4,L12,ZPC(YEL)	1	SNA	
1-1	6002-001326	SCREW-TAPPING	OH,+,1,M4,L8,NI PLT	3	SNA	OUTER PANEL SIDE,COVER-LAMP,BASE
1-1	6006-001170	SCREW-ASSY TAPP	WS,TH,+,M4,L10,ZPC(YEL)	3	SNA	S.MEM.EARTH,P/C EARTH,BKT-EARTH
1-1	6006-001176	SCREW-ASSY TAPT	WT,PH,+,M4,L8,ZPC(YEL)	6	SNA	DUCT-MGT-R,DUCT-MGT-L,DUCT-FAN,BKT-HI
1-1	6011-001140	BOLT-STUD	M4,L8,NI PLT,BSW	1	SNA	
1-1	DE60-10080A	SCREW-WASHER	-,-,-,-,M5,L12,-,2S,-,-	1	SA	HVT
1-1	DE60-10082I	SCREW-A	-,-,-,-,2S-4X10,FEFZY,-,-,-,-	3	SA	O/P,C-PANEL,BODY-LATCH
1-1	DE60-10199A	SCREW-WASHER	-,MSWR18C,4,L10,TH(WASHER),	7	SA	SUP-FAN,DUCT-OVEN,DUCT-MGT-R,DUCT-MGT
1-1	DE60-20014A	BOLT-FLANGE	M5,L10,MSWR3,FEFZY,-,-,-,-,-	1	SA	
1-1	DE60-30015A	NUT-FLANGE	M5,P0.8,MSWR10,FEFZY,-,-,-,-,	1	SA	MGT
1-2	6006-001176	SCREW-ASSY TAPT	WT,PH,+,M4,L8,ZPC(YEL)	1	SNA	HVD,HVC
1-2	DE60-10082I	SCREW-A	-,-,-,-,2S-4X10,FEFZY,-,-,-,-	2	SA	C-FILM,VENT-MOTOR
1-2	DE60-10045A	SCREW-TAP PH	-,-,FEFZY,-,PH,M3,-,L6,-,-	1	SA	TCO-DUCT
1-2	6002-000630	SCREW-TAPPING	PH,+,2S,M3,L8,ZPC(YEL),SWR	1	SA	
1-2	6002-000630	SCREW-TAPPING	PH,+,2S,M3,L8,ZPC(YEL),SWR	1	SA	PCB
1-2	6002-001237	SCREW-TAPPING	PWH,+,2,M3,L12,ZPC(YEL),SW	1	SA	GUIDE START BUTTON
1-2	6006-001170	SCREW-ASSY TAPP	WS,TH,+,M4,L10,ZPC(YEL)	1	SNA	
1-2	6001-000033	SCREW-MACHINE	TH,+,M4,L10,-,STS304,-	1	SNA	
1-2	6002-000239	SCREW-TAPPING	TH,+,2S,M4,L8,ZPC(YEL),SM2	1	SNA	DECORATION

8-1 Schematic Diagrams

(This Document can not be used without Samsung's authorization)



9. Electrical Parts List

9-1 Electrical Parts List

(S.N.A : SERVICE NOT AVAILABLE)

Level	Code No.	Description	Specification	Q'ty	SA/ SNA	Remark
1-2	RCS-D2CM-01	ASSY PCB PARTS	CM1829 , 230V50HZ	1	SA	
1-3	0202-001341	SOLDER-WIRE FLUX	RMA98,P3,M705,F2-5-A12E	1	SNA	
1-3	0202-001538	ECO WIRE	M708 3.0MM	1	SNA	
1-3	0204-002291	FLUX	SV-PBF-302,ROSIN, R-NH3 HBR,HA	1	SNA	
1-3	0604-000117	PHOTO-COUPLER	TR,130-260%,200MW,DIP-4,ST	4	SNA	PC101,PC102, PC02,PC01
1-3	1103-001086	IC EEPROM	24LC08B,256X8BIT,DIP,8P,300MIL	1	SNA	IC03
1-3	1203-002545	IC-PWM CONTROLLER	266,DIP,8P,300MIL,PLAS	1	SNA	IC101
1-3	3501-000282	RELAY-POWER	12VDC,-,16000MA,1FORMA,9MS,5	3	SA	RY01,RY05,RY06
1-3	3501-001154	RELAY-MINIATURE	12VDC,200MW,3000MA,1FORM	4	SNA	RY07,RY04, RY03,RY08
1-3	3708-000525	CONNECTOR-FPC/FC/PIC	10P,2.54mm,STRAIGHT	1	SA	CN09
1-3	3711-000024	CONNECTOR-HEADER	BOX,3P,1R,2.5mm,STRAIGH	1	SNA	CN08
1-3	3711-000616	HEADER-BOARD TO CABLE	BOX,11P,1R,2.5MM,S	1	SA	CN06
1-3	3711-000999	HEADER-BOARD TO CABLE	BOX,5P,1R,2.5mm,ST	1	SNA	CN04
1-3	3711-001154	HEADER-BOARD TO CABLE	BOX,9P,1R,2.5MM,ST	1	SNA	CN05
1-3	3711-004142	CONNECTOR-HEADER	BOX,3P/5P,1R,5mm/2.5mm,	1	SNA	CN01
1-3	3711-004143	CONNECTOR-HEADER	BOX,2P,1R,5mm/2.5mm,	1	SNA	CN03
1-3	3711-004200	CONNECTOR-HEADER	BOX,4P/7P,1R,2.5MM,STRA	1	SNA	CN02
1-3	3711-004201	CONNECTOR-HEADER	BOX,6P/9P,1R,2.5MM,STRA	1	SNA	CN10
1-3	DE02-00060A	CH-ISOPROPHYL ALCOHO	ALL,MODEL,-,-,-,-,-	1	SNA	
1-3	DE26-00132A	TRANS SWITCHING	EI-2218,PL-3,1.1MH,-,-,1	1	SNA	ST01
1-3	DE29-00005A	FILTER LINE	-,UU1116,SM70S,30MH,1.8OHM,1	1	SNA	L01
1-3	DE47-40024A	HOLDER-FUSE	FH-51H,7.5A,-,-,-,-,-	1	SNA	FUSE1
1-3	DE68-02628A	LABEL-PCB ADHESIVE	-,-,-,-,W10,L30,WHT,-	1	SNA	
1-3	DE92-01891A	ASSY PCB SUB-DISPLAY	AC220V 50/60HZ,CM18	1	SNA	
1-4	3711-000616	HEADER-BOARD TO CABLE	BOX,11P,1R,2.5MM,S	1	SA	CN12
1-4	3711-001154	HEADER-BOARD TO CABLE	BOX,9P,1R,2.5MM,ST	1	SNA	CN11
1-4	DE07-10088A	VF DISPLAY	SVM-06MM29,REDDISHORG/GRN,6G,	1	SA	DSP1
1-4	DE61-90178A	HOLDER-DIGITRON	-,NY66,-,-,-,-,-	1	SNA	
1-3	DE92-01893A	ASSY PCB SUB-TACT	AC220V 50/60HZ,CM1819/	1	SNA	
1-4	3404-001065	SWITCH-TACT	12V,50MA,160GF,12X12X4.3MM,-	2	SNA	SW06,SW05
1-4	3711-000024	CONNECTOR-HEADER	BOX,3P,1R,2.5mm,STRAIGH	1	SNA	CN14
1-3	DE92-01894A	ASSY PCB AUTO	-,-,RCS-D2CM-01,230V50HZ	1	SA	
1-4	0201-001822	3629(LID4417),PINK,2500MP		1	SNA	
1-4	0401-001002	DIODE-SWITCHING	1N4148M,100V,200mA,DO-34	15	SNA	D03~D17
1-4	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	1	SNA	D101
1-4	0402-000137	DIODE-RECTIFIER	1N4007,1KV,1A,DO-41,TP	2	SNA	D19,D18
1-4	0402-001103	DIODE-RECTIFIER	1T4,400V,1A,TS-1,TP	2	SNA	D01,D02
1-4	0402-001194	DIODE-RECTIFIER	SHG2D,200V,2A,-,TP	3	SNA	D105,D103,D102
1-4	0402-001298	DIODE-BRIDGE	DF06S,600V,1A,SMD-4,TP	1	SNA	BD01
1-4	0403-000707	DIODE-ZENER	MTZJ11B,10.5-11.05V,500MW,DO	1	SNA	ZD101
1-4	0403-001211	DIODE-ZENER	MTZJ12B,11.8-12.3V,500mW,DO-	1	SNA	ZD102

9-1 Electrical Parts List(Continued)

(S.N.A : SERVICE NOT AVAILABLE)

Level	Code No.	Description	Specification	Q'ty	SA/ SNA	Remark
1-4	0403-001318	DIODE-ZENER	MTZJ4.3B,4.17-4.43V,500mW,DO	1	SNA	ZD103
1-4	0504-001044	TR-DIGITAL	KRA226M,PNP,400MW,2.2K/10K,TO	1	SNA	TR02
1-4	0504-001178	TR-DIGITAL	KRC246M,NPN,400MW,2.2K/10KOHM	12	SNA	TR09~TR14, TR01~TR06
1-4	1203-000188	IC-POSI.ADJUST REG.	7033P,TO-92,3P,-,PLA	1	SNA	IC02
1-4	1203-001037	IC-VOLTAGE REGULATOR	78L05,SOT-89,3P,185	1	SNA	IC102
1-4	1404-000230	THERMISTOR - PTC 27OHM 20		1	SNA	PTC3
1-4	1404-001194	THERMISTOR-PTC	39ohm,20%,220/240V,270Vac	2	SNA	PTC1,PTC2
1-4	1404-001274	THERMISTOR-NTC	22OHM,1.4A,3100K,9.5MW/C,	1	SNA	NTC1
1-4	2001-000002	R-CARBON(S)	200KOHM,5%,1/2W,AA,TP,2.4X6.	12	SNA	R41~R46, R101~R106
1-4	2001-000003	R-CARBON	330ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	SNA	R16
1-4	2001-000004	R-CARBON	200KOHM,5%,1/8W,AA,TP,1.8X3.2M	1	SNA	R105
1-4	2001-000009	R-CARBON	20KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	SNA	R106
1-4	2001-000023	R-CARBON	47OHM,5%,1/4W,AA,TP,2.4X6.4MM	1	SNA	R110
1-4	2001-000111	R-CARBON	150OHM,5%,1/4W,AA,TP,2.4X6.4MM	1	SNA	R112
1-4	2001-000273	R-CARBON	100KOHM,5%,1/8W,AA,TP,1.8X3.2M	1	SNA	R08
1-4	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	SNA	R109
1-4	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	6	SNA	R38,R03,R04, R36,R10,R09
1-4	2001-000405	R-CARBON	180OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	SNA	R17
1-4	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	4	SNA	R02,R111,R35,R37
1-4	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	8	SNA	R05,R01,OR01~OR03, R06,R107,R15,OR01
1-4	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP,1.8X3.2M	4	SNA	R11~R14
1-4	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2M	1	SNA	R07
1-4	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	7	SNA	R28~R34
1-4	2003-001067	R-METAL OXIDE(S)	68KOHM,5%,1W,AA,TP,3.0X	1	SNA	R108
1-4	2201-000007	C-CERAMIC,DISC	4.7NF,20%,400V,Y5P,BK,16X	1	SNA	C104
1-4	2201-000285	C-CERAMIC,DISC	1NF,10%,1KV,Y5P,TP,8X5MM,	1	SNA	C103
1-4	2203-000192	C-CERAMIC,CHIP	100nF,+80-20%,50V,Y5V,TP,	8	SNA	C106,C11~C13,C01, C02,C08,C09
1-4	2203-000444	C-CER,CHIP	1nF,10%,50V,X7R,TP,2012,-	4	SNA	C14~C17
1-4	2301-001519	C-FILM,LEAD-PEF	100NF,10%,275V,BK,7X13X1	1	SNA	C101
1-4	2401-000151	C-AL	1000uF,20%,25V,GP,TP,10x20,5	1	SNA	C107
1-4	2401-000244	C-AL	100uF,20%,10V,GP,TP,6.3x7,5	1	SNA	C109
1-4	2401-000303	C-AL	100UF,20%,25V,GP,TP,6.3X11,5	1	SNA	C105
1-4	2401-000598	C-AL	1uF,20%,50V,GP,TP,4x7,5	1	SNA	C10
1-4	2401-000911	C-AL	22uF,20%,16V,GP,TP,5x7,5	2	SNA	C06,C07
1-4	2401-001573	C-AL	47uF,20%,50V,GP,TP,6.3x11,2.5	1	SNA	C108
1-4	2401-003505	C-AL	10UF,20%,450V,GP,TP,10X20MM,5	1	SNA	C102
1-4	2801-003933	CRYSTAL-UNIT	8MHZ,50PPM,28-AAA,12PF,70OH	1	SNA	XTL1
1-4	DE09-00316A	IC MICOM	TMP87CM14F-4NK5,CM1929,64PIN,+	1	SNA	IC01
1-4	DE39-60001A	WIRE-SO COPPER	PI0.5,SN,T,52MM,TAPING_WI	25	SNA	J05~J29

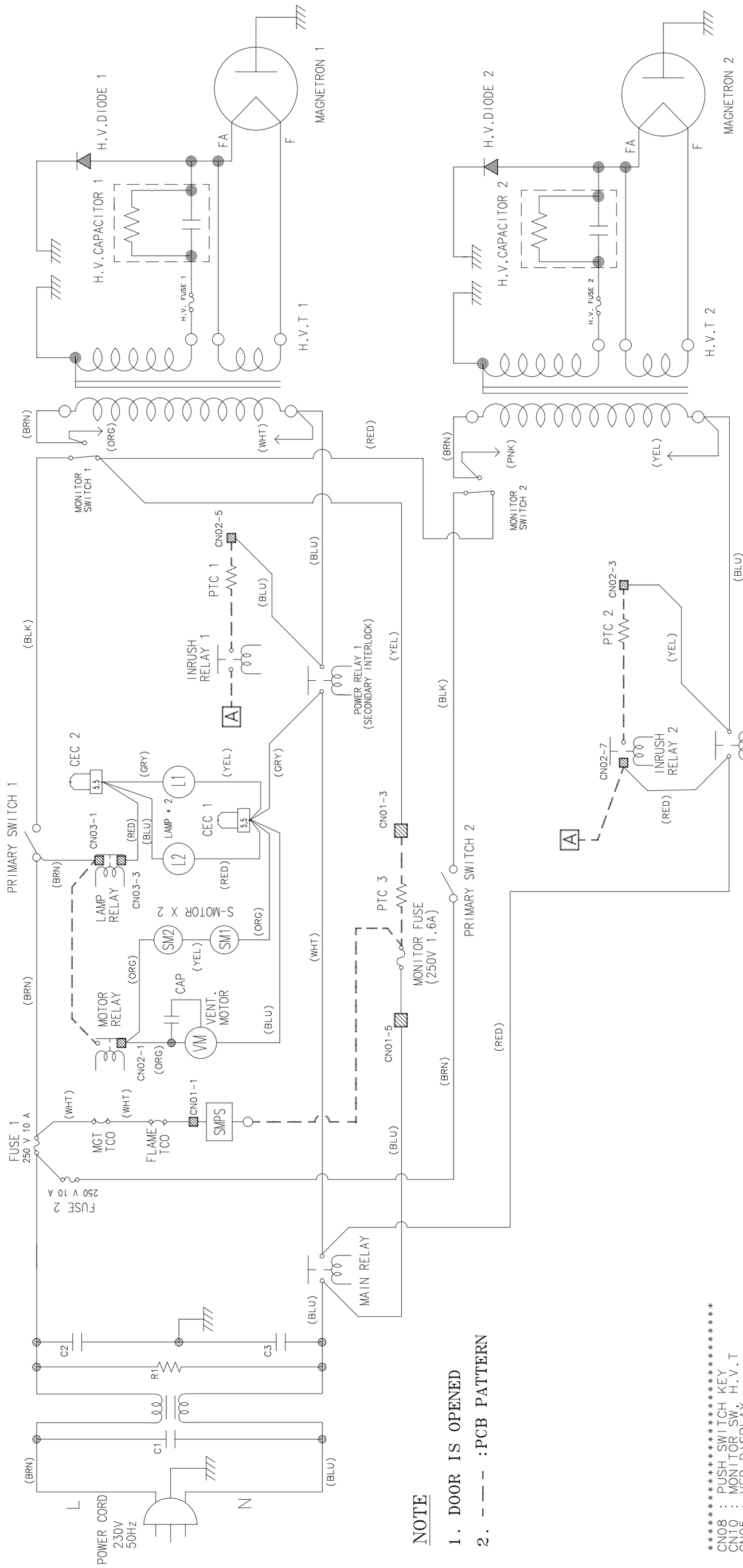
9-1 Electrical Parts List(Continued)

(S.N.A : SERVICE NOT AVAILABLE)

Level	Code No.	Description	Specification	Q'ty	SA/ SNA	Remark
1-4	DE41-00334A	PCB-MAIN	RCS-D2CM,FR-1,1,-,T1.6,296X197	1	SNA	
1-4	2202-000253	C-CERAMIC,MLC-AXIAL	4.7nF,20%,16V,Y5R,-,	1	SNA	C05
1-4	2203-000555	C-CER,CHIP	0.02NF,5%,50V,C0G,TP,2012	2	SNA	C03,C04
1-3	DE39-40692A	WIRE HARNESS-B	11PIN,-,-,CM1819/29,-,-,-	1	SA	WIRE1
1-3	DE39-40694A	WIRE HARNESS-C	9PIN,-,-,-,-,-,-,-,-,-	1	SA	WIRE2
1-3	DE39-40113B	WIRE HARNESS-F	100V,50/60HZ,RE-CH1,-,-,-	1	SNA	WIRE4
1-3	3002-000198	BUZZER-PIEZO	85DB,24,-,4KHZ,ST	1	SNA	BZ1

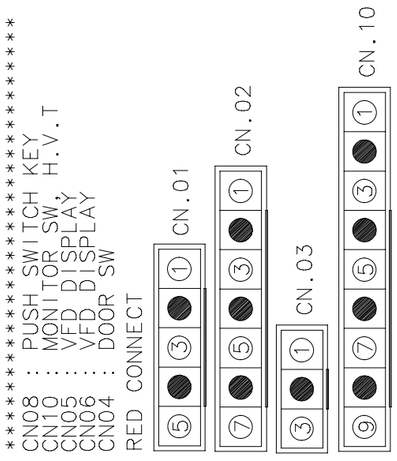
10-1 Wiring Diagrams

(This Document can not be used without Samsung's authorization)



NOTE

1. DOOR IS OPENED
2. - - - :PCB PATTERN



10-2 Description of Operating Sequence

When the oven is set to power level of 100%, 70% or 50%

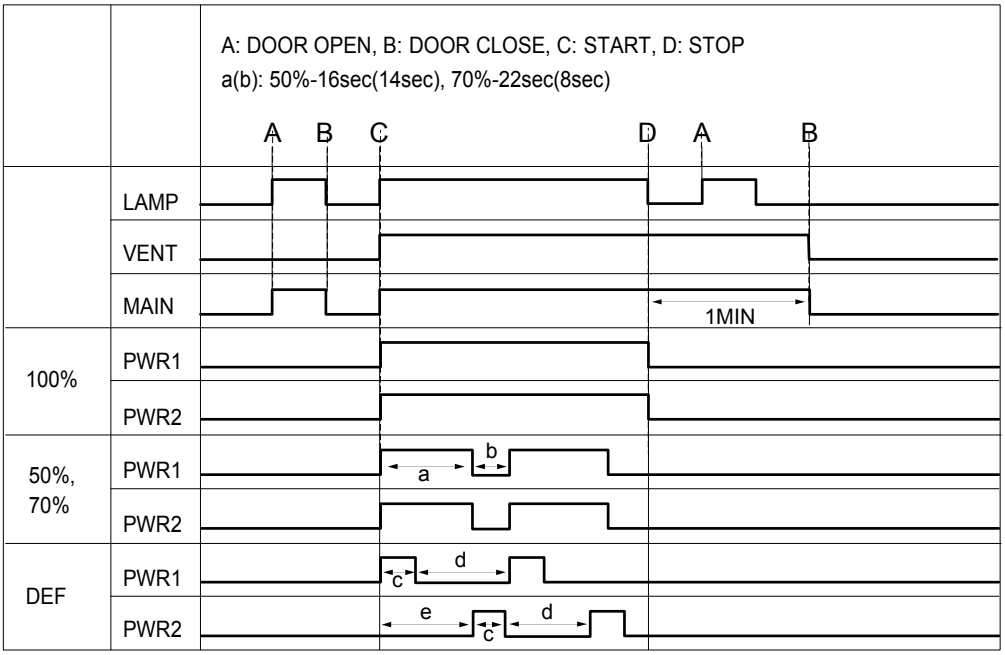
When the oven is operating under the power level of 100%, 70% or 50%, the coil of power relay 1 and 2 are energized intermittently by ON and OFF cycle of 30 seconds in order to supply power source to the High Voltage Transformer and thus to oscillate the magnetron.

When the oven is set to DEFROST power position

When the oven is set to DEFROST power position, the coil of power relay 1 and 2 is programmed to operate not together but alternately. That means power relay 1 should not work when the power relay 2 does(or relay 2 should not work when the power relay 1 does). The power realy 1 is energized for 15 seconds and then the power relay 2 is energized for 15 seconds in turn. One complete ON and OFF cycle time of the power relay 1 and 2 is 30 seconds.

The relation between indications on the display window and the output power of the microwave oven is as shown in figure below.

	CM1519/CM1529
c(d):	20%→opt open-7sec(8sec) 10%→opt open-4sec(11sec)
e :	15 sec
Note : One second included as a time for starting the magnetron oscillation	

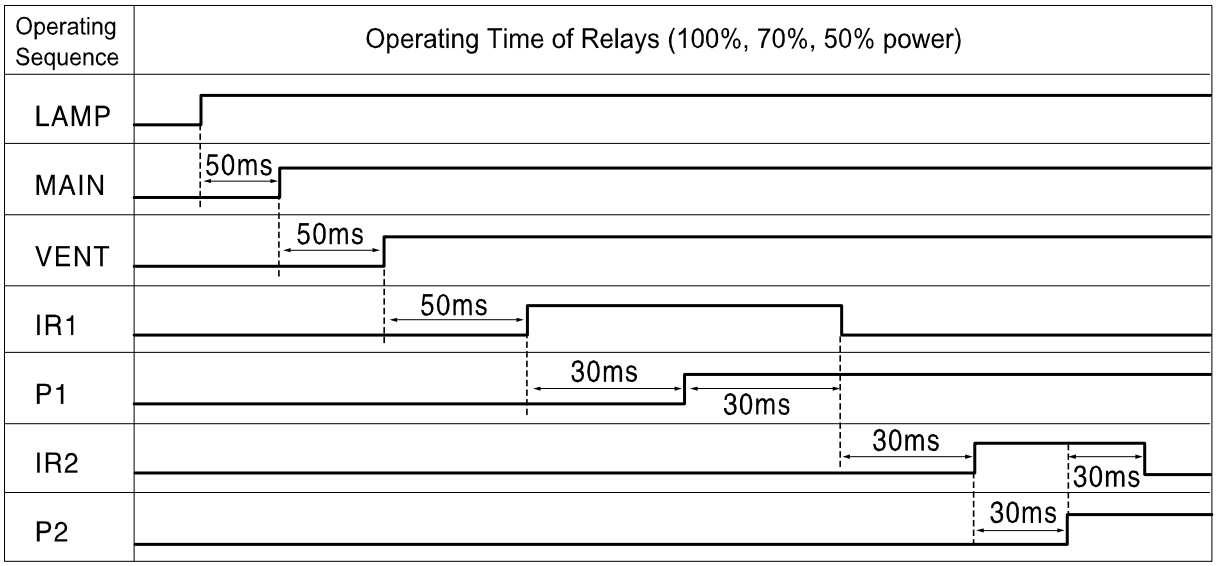


10-2 Description of Operating Sequence(Continued)

Initial operating status of Power Relay when the START button is pressed.

Relays are designed to work as shown in the figure below.

When the oven is set to DEFROST power position, Inrush Relay1 and Power Relay1 are programmed to work with Inrush Relay2 and Power Relay2 not simultaneously but alternately.



NOTE : LAMP: Lamp Relay (250V 5A)
MAIN: Main Relay (250V 16A)
VENT: Ventilation Motor Relay (250V 5A)
IR1: Inrush Relay1 (250V 5A)
IR2: Inrush Relay2 (250V 5A)
P1: Power Relay1 (250V 16A)
P2: Power Relay2 (250V 16A)

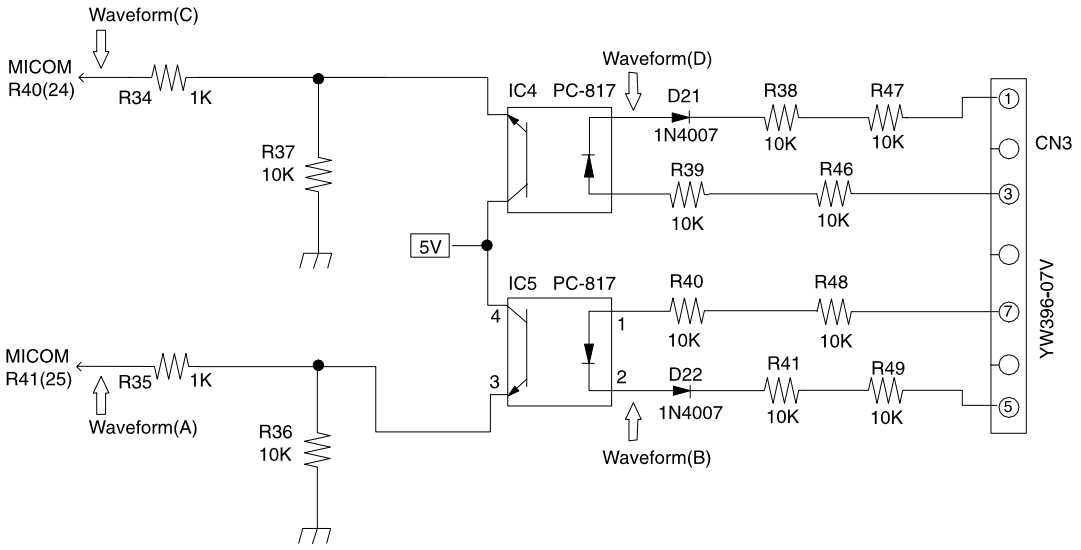
10-2 Description of Operating Sequence(Continued)

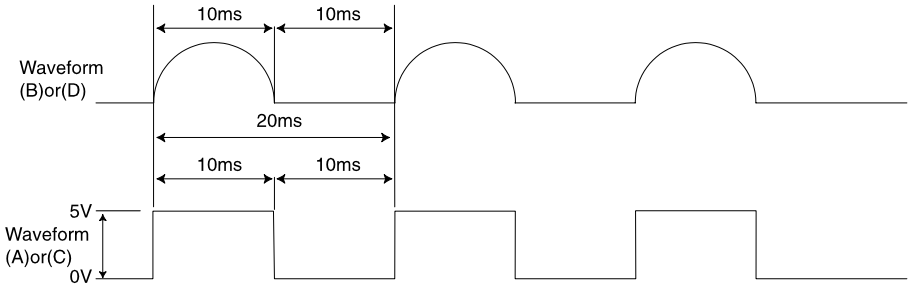
High Voltage Transformer input power sensing circuitry

Refers to the circuitry that detects and check if the input power is correctly supplied to the primary terminal of High Voltage Transformer when the microwave oven is operating. If any abnormal condition(eg. Micro S/W, Relay open) is detected, the error code (E41, E42) shows on the display window. When the error code appears in the display window, check the wave form(A), (B), (C),or (D).

In case of Power Relay 1 (RY2), check the wave form (A), (B) below.

In case of Power Relay 2 (RY5), check the wave form (C), (D) below.





11. Reference

11-1 Model name standard

Baoad Classification	Distinguisher	Middle Classfication	Distinguisher	Product Code	Full Name
USA CMO	M	CMO (Counter-top MWO)	W	MW	USA CMO(EPOXY CAVITY)
		UTC (Under The Cabinet)	U	MU	USA UTC
		Browner, Grill	G	MG	USA GRILL
		Convection	C	MC	USA CONVECTION
		Sensor	S	MS	USA CMO SENSOR
		DC MWO	D	MD	USA DC MWO
		Hospital MWO	H	MH	USA Hospital MWO
		Ceramic Enamel	E	ME	USA CMO(CERAMIC ENAMEL)
USA RV	R	SOLO	M	RM	USA RV SOLO
		CONVECTION	C	RC	USA RV CONVECTION
		BUILT-IN	B	RB	USA RV BUILT-IN
USA Junior	SJ	-	-	SJ	USA Junior MWO
USA OTR	SM	SOLO	H	SMH	USA OTR SOLO
		CONVECTION	V	SMV	USA OTR CONVECTION
EUROPE Epoxy Cavity	M	SOLO	1	M1	EUROPE SOLO(EPOXY CAVITY)
		GRILL	2	M2	EUROPE GRILL(EPOXY CAVITY)
EUROPE Ceramic Enamel	CE	SOLO	1	CE1	EUROPE SOLO(CERAMIC ENAMEL)
		GRILL	2	CE2	EUROPE GRILL(CERAMIC ENAMEL)
EUROPE Quartz GRILL	G2	-	-	G2	EUROPE Quartz GRILL
EUROPE Power Grill	PG	-	-	PG	POWER GRILL
EUROPE Convection	CK	-	-	CK	EUROPE CONVECTION
	C	-	-	C	EUROPE CONVECTION
EUROPE Fully Built-In	F	SOLO	W	FW	EUROPE SOLO FULLY BUILT-IN
		GRILL	G	FG	EUROPE GRILL FULLY BUILT-IN
		CONVECTION	C	FC	EUROPE CONVECTION FULLY BUILT-IN

11-1 Model name standard (Continued)

(Blue Color) : Not Used

Baoad Classification	Distinguisher	Middle Classfication	Distinguisher	Cavity / type	Distinguisher	Full Name
CHINA	C	SOLO / CMO	M	CERAMIC ENAMEL	E	CME / CMC / CMW / CMS
		Inverter SOLO	I			CIE / CIC / CIW / CIS
		Grill / Browner	G	CERAMIC ENAMEL(Clay)	C	CGE / CGC / CGW / CGS
		Quartz Grill / Browner	Q			CQE / CQC / CQW / CQS
		Conv.	C	Epoxy	W	CCE / CCC / CCW / CCS
		TBMO / Power Grill	T			CTE / CTC / CTW / CTS
		Commercial	O	STSS	S	COE / COC / COW / COS
KOREA	D	SOLO / CMO	M	CERAMIC ENAMEL	E	DME / DMC / DMW / DMS
		Inverter SOLO	I			DIE / DIC / DIW / DIS
		Grill / Browner	G	CERAMIC ENAMEL(Clay)	C	DGE / DGC / DGW / DGS
		Quartz Grill / Browner	Q			DQE / DQC / DQW / DQS
		Conv.	C	Epoxy	W	DCE / DCC / DCW / DCS
		TBMO / Power Grill	T			DTE / DTC / DTW / DTS
		Commercial	O	STSS	S	DOE / DOC / DOW / DOS
EUROPE	-	SOLO / CMO	M	CERAMIC ENAMEL	E	ME / MC / MW / MS
		Inverter SOLO	I			IE / IC / IW / IS
		Grill / Browner	G	CERAMIC ENAMEL(Clay)	C	GE / GC / GW / GS
		Quartz Grill / Browner	Q			QE / QC / QW / QS
		Conv.	C	Epoxy	W	CE / (CC) / (CW) / CST
		TBMO / Power Grill	T			TE / (TC) / TM / TST
		Commercial	O	STSS	S	OE / OC / OW / OS
USA	A	SOLO / CMO	M	CERAMIC ENAMEL	E	AME / (AMC) / AMW / AMS
		Inverter SOLO	I			AIE / AIC / AIW / AIS
		Grill / Browner	G	CERAMIC ENAMEL(Clay)	C	AGE / (AGC) / AGW / AGS
		Quartz Grill / Browner	Q			AQE / AQC / AQW / AQS
		Conv.	C	Epoxy	W	ACE / ACC / ACW / ACS
		TBMO / Power Grill	T			ATE / ATC / ATW / ATS
		Commercial	O	STSS	S	AOE / AOC / AOW / AOS
CHINA	C	Fully Built-In	F	SOLO(MW ONLY)	W	CFW / CFG / CFC / CFI / CFT
KOREA	D			GRILL	G	DFW / DFG / DFC / DFI / DFT
EUROPE	-			CONVECTION	C	DFW / DFG / DFC / DFI / DFT
USA	A			INVERTER	I	FW / FG / FC / FI / FPG
				TBMO / Power Grill	T	AFW / AFG / AFC / AFI / AFT
USA OTR	SM			SOLO(MW ONLY)	H	SMH / SMB / SMV / SMI / STB
EUROPE OTR	EM			GRILL	G	EMH / EMG / EMV / EMI / EMT
CHINA OTR	UM			CONVECTION	V	UMH / UMG / UMV / UMI / UMT
KOREA OTR	PM			INVERTER	I	PMH / PMG / PMV / PMI / PMT
				TBMO / Power Grill	T	

CST : EUROPE STSS Conv.

TST : EUROPE TBMO with STSS cavity

TM : EUROPE TBMO with epoxy cavity

FPG : EUROPE FBI POWER GRILL

SMB : USA Grill OTR

STB : USA TBMO OTR

11-2 Customer inquiry cases and countermeasures

Symptom	Cause	Countermeasures
Air is evacuated from the oven.	• The vent of the oven is designed to be placed on the bottom of the product, and air is evacuated from the oven.	• In the past, the vent was placed on the back panel of the oven. Since the oven was placed near the wall of a kitchen, the wall behind the oven was discolored. Thus, the vent of a new oven is placed on the bottom of the product, and air is evacuated from the oven.
The oven works automatically whenever the power is turned on.	• It may happen due to power failure or abnormal voltage. • It may happen when the door does not close completely.	• Connect the power plug three seconds after disconnecting the power plug. • Close the door completely => Press the Cancel button => Press the Start button.
Heating	• In many cases, it may happen when the power level is incorrectly set. • It may happen when the door does not close completely. • It may happen when the oven is out of order.	• Select HIGH by rotating the Cooking Power Control knob. - KEEP WARM: This function is used to warm the cooked food for a certain time period, not to heat the food. - MEDIUM/LOW: This function is used to cook the food slowly. • Close the door completely. => Press the Cancel button. => Press the Start button. • Contact the nearest Samsung after-sales service center.
Ground	• Ground problem may happen when the oven is placed in a humid area and the over is not grounded. • Ground is not provided by an extended electric outlet.	• If the oven is placed in a humid area, buy an electric wire in a store selling electrical products. (Electric wires for home use are also allowed) Ground the oven through the electric wire. • Buy an electric wire in a store selling electrical products. (Electric wires for home use are also allowed) Ground the oven through the electric wire.
Turn table occasionally rotates in reverse order.	• Turntable has been designed to rotate in either direction since 1994.	• In the past, the gear of the turntable was easily worn by turning it during cleaning. Now, the turntable of the oven is designed to rotate in both directions to prevent damage during cleaning. (Rotation direction is set when the oven initially operates.)
The oven sometimes beeps.	• The oven beeps every minute unless the food is in the oven after the food is cooked completely. • The oven occasionally beeps during cooking.	• Open and close the door again. (Beeping sounds indicate that the food is ready to be removed from the oven after cooking is complete.)

11-2 Customer inquiry cases and countermeasures (Continued)

Symptom	Cause	Countermeasures
Strange popping sounds are produced while fish is cooked.	• Since fish is salty and maintains its moisture, it is cooked while making a series of soft popping sounds. (The liquid may come out of the fish when the fish is cooked.)	• Food with bones such as fish (e.g. mackerel) and pork (e.g. pork chops) is cooked while making a series of soft popping sounds. Wrap the food completely so that food particles or spattered oils do not stick to the oven walls or floor.
Strange smell is produced in the oven.	• It may happen when food particles stuck to oven walls or floor.	• Clean the inside of the oven. => Remove strange smell through the Deodorant button => If the strange smell still remains, place a piece of lemon on the turntable and operate the oven for 5 minutes by pressing the Deodorant button.(However, the smells produced from the food exposed such as herbal remedies are not removed.)
Error	• Errors are classified with Failure and Non-failure.	• Refer to the section of ERROR in User Manual.
Accessory		• Visit the nearest Samsung Service Center or local dealer to buy accessories. Before visiting, check the model name printed on the lower right side of the front panel of the oven.
Number does not appear on the display screen.	• It happens when the power saving function is activated.	• Since the government recommends the reduction of electricity, the power saving function is performed for number display like that power cord is unplugged when the oven is not used. (Numbers are displayed when another button is pressed or when the door opens.)