08/2021

Mod: CM1919/N

Production code: MJ26A6091AT

Diamond

MICROWAVE OVEN

MODEL : CM1919/N

SERVICE Manual

MICROWAVE OVEN

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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 (⚠)

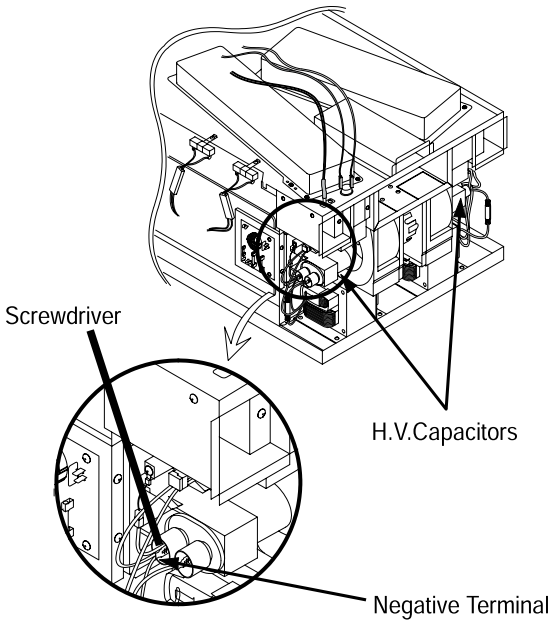
1. All repairs should be done in accordance with the procedures described in this manual.
2. Microwave emission check should be performed to prior to servicing if the oven is operative.
3. If the oven operates with the door open :Instruct the user not to operate the oven and contact the manufacturer and the center for devices and radiological health immediately.
4. Notify the Central Service Center if the microwave leakage exceeds 5 mW/cm^2.
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. Always unplug the unit’s AC power cord from the AC power source before attempting to remove or reinstall any component or assembly.
15. 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.
16. 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.
17. 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.
18. 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.
19. Components that are critical for safety are indicated in the circuit diagram by shading, ⚠ or ⚠ .
20. 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.



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. Specifications

2-1 Features

Product Features
- Heavy Duty Commercial Microwave Oven.
- Mechanical Dial Control.
- Top Feeding Microwave Distribution.
- Easy to VFD Display.
- All Stainless Steel for inside & Outside for Hygiene & Durabillty.

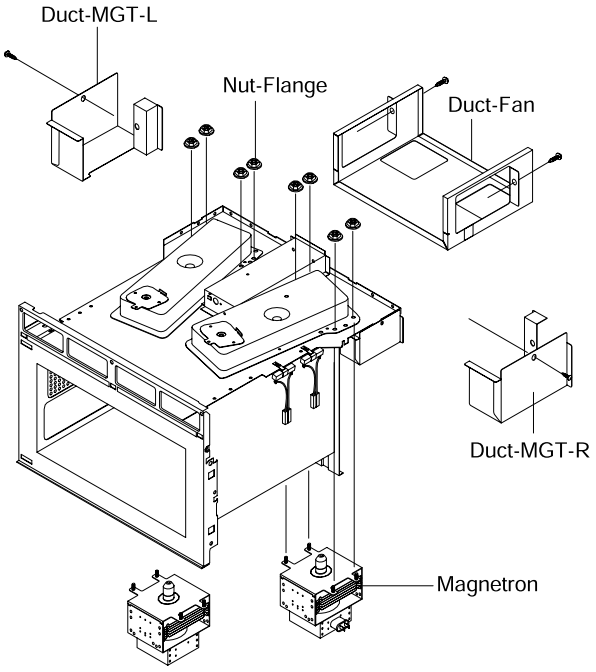
2-2 Table of Specifications

Items		Model	
		Model Basic	Model New
MODEL NAME		CM1919/XEN CM1919/XET CM1919/XEU CM1919A/XEU	MJ26A6091AT/UR MJ26A6051AT/UR
Power Source		230V ~ 50Hz AC	230V ~ 50Hz AC
Power consumption	Microwave	CM1919 : 2600W CM1619 : 3000W CM1319 : 3200W	MJ26A6091 : 2600W MJ26A6051 : 3000W MJ26A6013 : 3200W
Output Power		CM1919 : 1850W (IEC-705) CM1619 : 1600W (IEC-705) CM1319 : 1300W (IEC-705)	MJ26A6091 : 1850W (IEC-705) MJ26A6051 : 1600W (IEC-705) MJ26A6013 : 1000W (IEC-705)
Operating Frequency		2450MHz	2450MHz
Dimensions (W x H x D)	Outside	464 x 368 x 557mm	464 x 368 x 557mm
	Oven cavity	370 x 190 x 370mm	370 x 190 x 370mm
Volume		26Liter	26Liter
Weight	Net	32Kg	33.1Kg
Export Zone		UK,Italy,Netherland	UR

3. Disassembly and Reassembly

3-1 Replacement of Magnetron

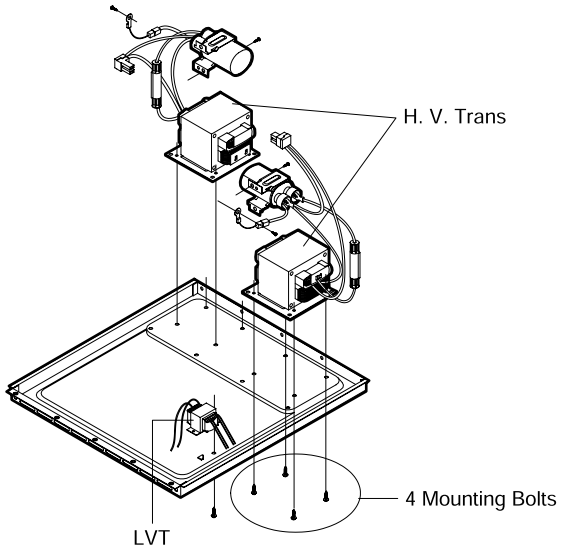
Remove the magnetron including the shield case, permanent magnet, choke coils and capacitors (all of which are contained in one assembly)

Parts	Explaination Photo	Explaination
Magnetron, Motor Assembly and Lamp		**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 leadwires 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.

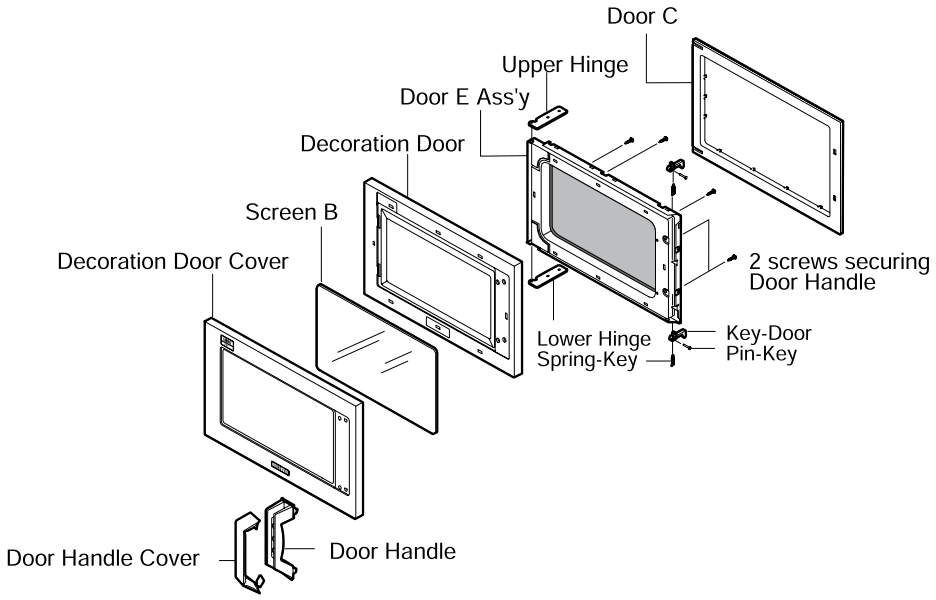
NOTE2: When replacing the magnetron, be sure to remount the magnetron gasket in the correct position and make sure the gasket is in good condition.

3-2 Replacement of High Voltage Tranformer

Parts	Explaination Photo	Explaination
HVT		**1.** Discharge the high voltage capacitor. **2.** Disconnect all the leads. **3.** Remove the mounting bolits securinh the HVT. **4.** Reconnect the leads correctly and firmly.

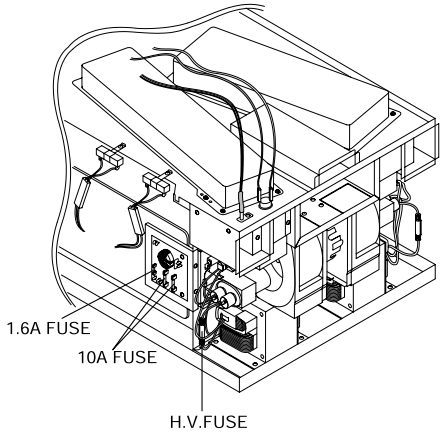
3-3 Replacement of Door Assembly

Explanation Photo

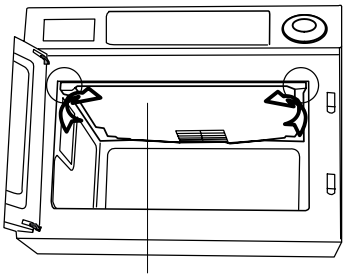
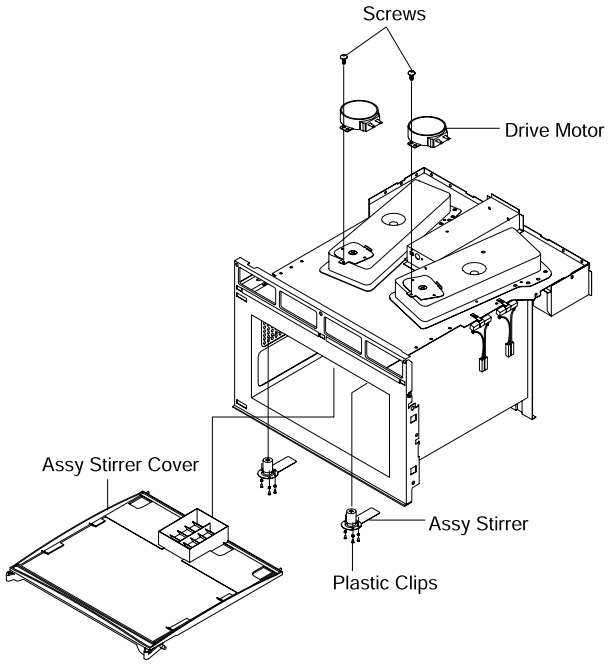


Parts	Explaination
Door Assembly	**NOTE :** Be sure to wear gloves when you disassemble or assemble the parts. **1.** Remove hex bolts securing the upper hinge and lower hinge. Then remove the door assembly. **2.** Insert the flat screwdriver or thin metal plate into the gap between the door-E and door-C to remove Door-C from the door assembly. **3.** Remove 2screws 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 Assy. **6.** Remove upper hinge and lower hinge. **7.** Remove Decoration Door, Screen-B, Key-Door, Spring-Key, Pin-Key as needed.
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 flatscrewdriver 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 Door handle.
Reassembly Test	**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.

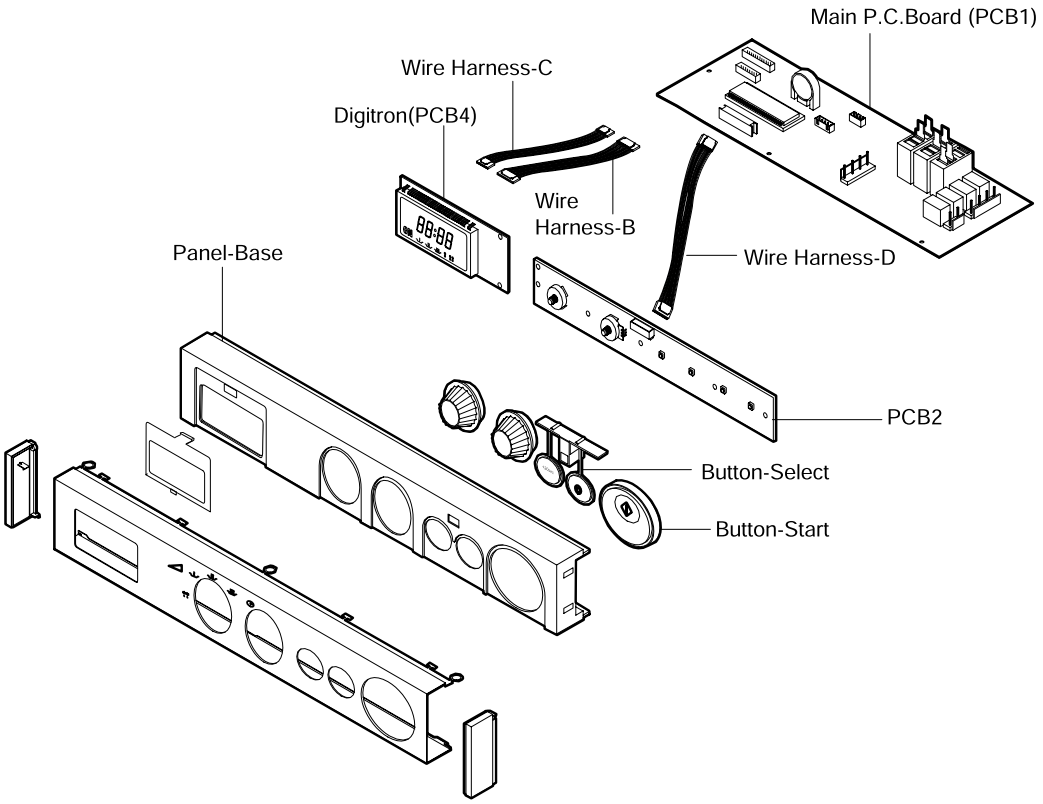
3-4 Replacement of Fuse and H.V.Fuse

Parts	Explaination Photo	Explaination
Fuse, H.V Fuse		1. Disconnect the oven from the power source. 2. Remove defective fuse from Noise filter. 3. When replacing the fuse, besure 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 trans former is defective.

3-5 Replacement of Drive Motor & Ass'y Stirrier

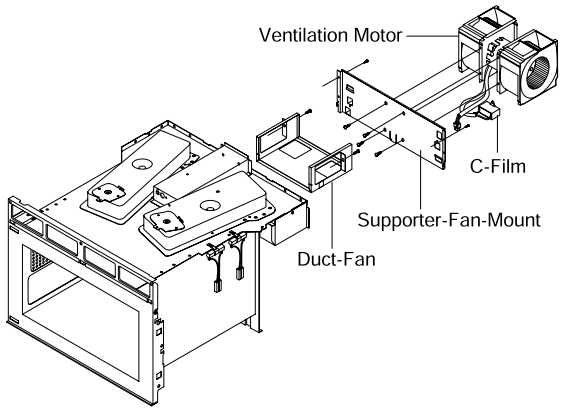
Parts	Explaination Photo	Explaination
Assy Stirrer	 To remove Ass'y Stirrer Cover: Hold side stoppers of ceiling cover with both hands and pull them in and down.	1. Remove a screw securing the drive motor. 2. Open the door. 3. Hold side stoppers of ceiling cover (Ass'y Stirrer Cover) with both hands and pull them in and down. 4. Take the ceiling cover out of the oven cavity. 5. Remove plastic clips securing the Ass'y Stirrer.
Drive Motor		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.

3-6 Replacement of Control Box Assy and P.C.Board

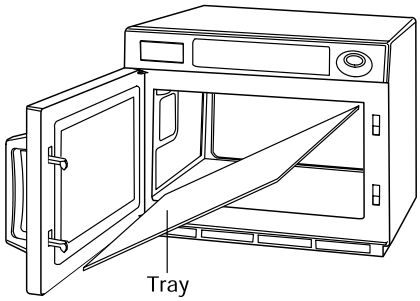


Parts	Explaination
Control Box Assembly	**1.** Be sure to discharge any static electric charge built up on your body and avoid touching the touch control circuitry. **2.** Remove 3 screws securing the ControlBox Ass'y to the oven cavity. **3.** Disconnect all the lead wires, connectors and ground taping (CM1929) 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.(CM1929) **5.** Remove a screw securing the tapped taping to PCB1. (CM1929) **6.** Remove Control Box Ass'y **7.** To replace Digitron, remove 2 screws securing the PCB4. **8.** To replace Start Button Circuitry, remove 3 screws securing the PCB3. (CM1929) **9.** Unbend the metal tabs holding the Panel-Base to Control Box body.
Main P.C.Board	**1.** Remove Control Box Assembly by following the steps1 ~ 5at left. **2.** Remove 4 screws securing the main P.C.Board to the bracket P.C.Board. **NOTE :** When handing the touch control circuitry, be most careful to avoid damage.

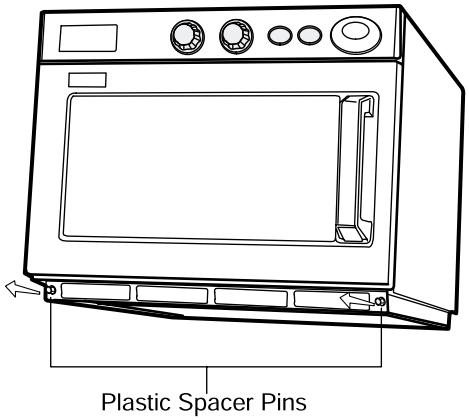
3-7 Replacement of Fan Motor

Parts	Explaination Photo	Explaination
Fan Motor		**1.** Remove the outerpanel 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 Ventilation Motor Ass'y slightly left upward and pull it out. **7.** Remove lead wires and connectors. **8.** Remove a screw securing the C-Film to the Supporter-Fan-Mount. **9.** Turn the fanmotor ass'y over soth at the bracket side is up. **10.** Remove 2 screws securing the Ventilation Motor.

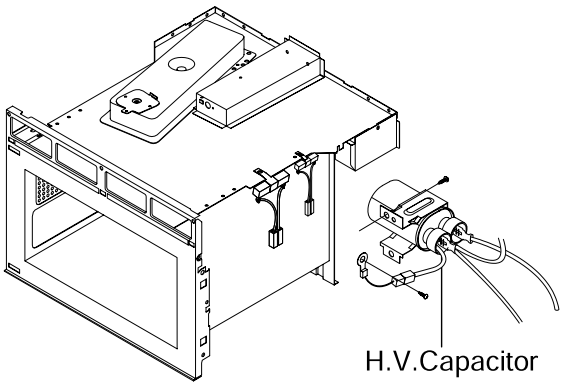
3-8 Replacement of Tray

Parts	Explaination Photo	Explaination
Assy Stirrer		**1.** Open the door. **2.** Remove the tray by inserting a thin metal tool into the gap between the oven wall and the tray silicon cover. **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 back ward part carefully and firmly. **NOTE :** Be careful when you handle the tray since it is fragle.

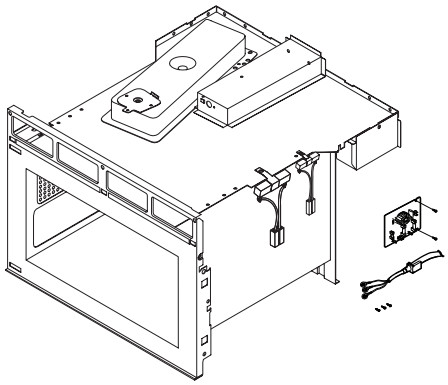
3-10 Replacement of Air Filter

Parts	Explaination Photo	Explaination
Air Filter		**1.** Pull out the spacer pins 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.

3-11 Replacement High Voltage Capacitor

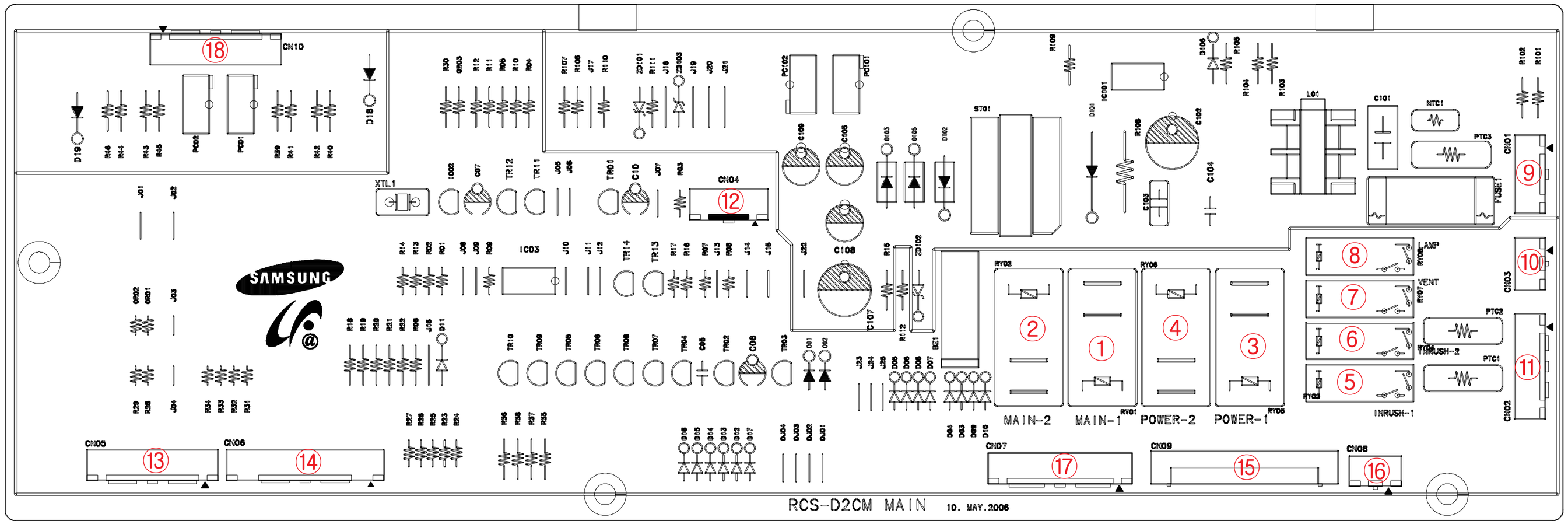
Parts	Explaination Photo	Explaination
High Voltage Capacitor		**NOTE** : It is not necessary to remove Magnetron in order to remove HVC. **1.** Remove the outer panel and back cover. **2.** Discharge HVT wire and H.V.Fuse **3.** Remove HVT wire and H.V.Fuse. **4.** Remove screw securing HVC bracket.

3-12 Replacement of Assy Holder

Parts	Explaination Photo	Explaination
Assy Holder		**1.** Remove the Outer Panel and Back Cover. **2.** Remove Screw securing Bracket Noise Filter. **3.** Remove 2 Screws securing Noise Filter and Power Cord. **4.** Remove screw securing Power cord grond wire.

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.

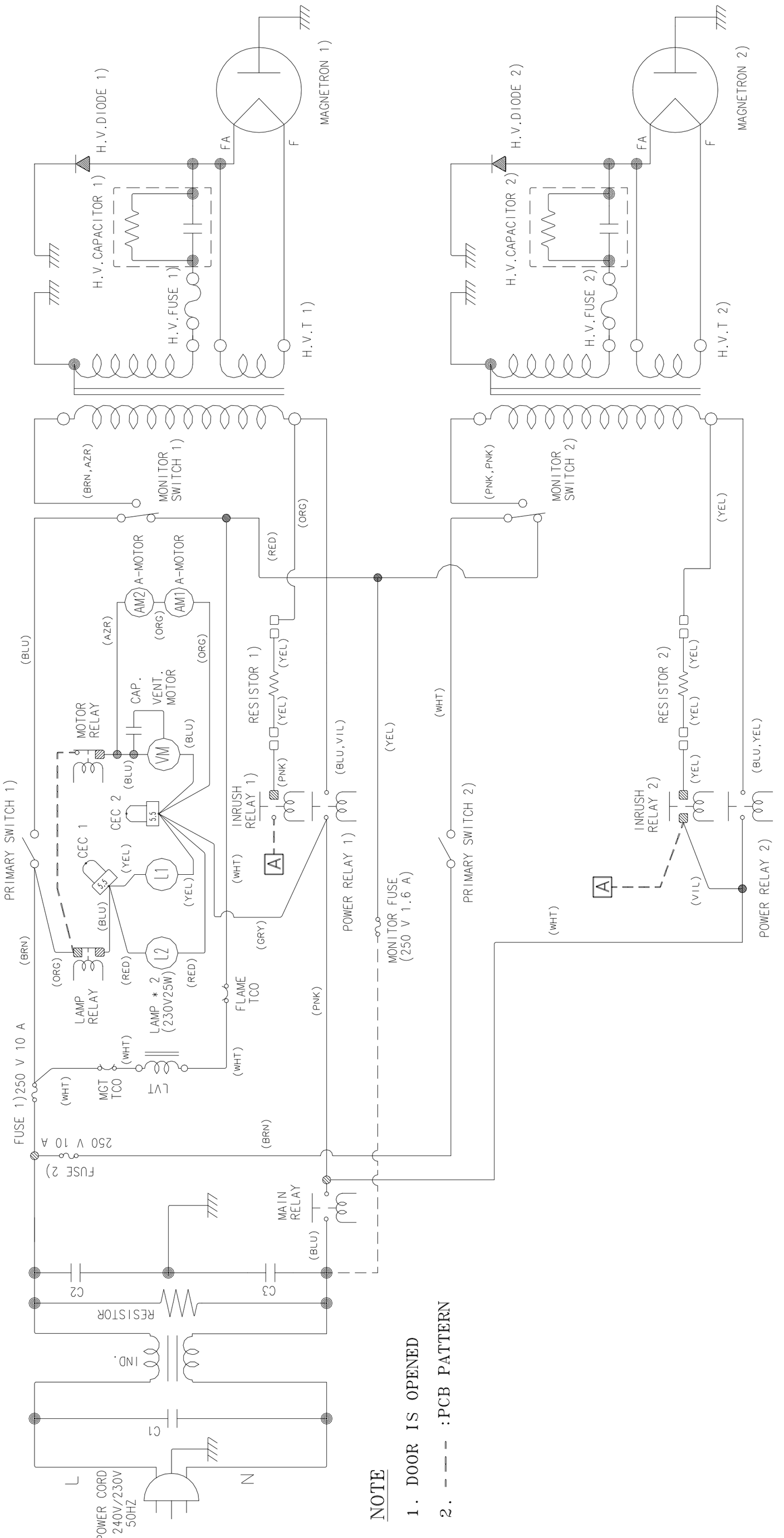
5-1 PCB Diagrams



No.	Parts Number	Part Name	Function and Rule
1	RY01	Main-1 Relay	MW-1 , Lamp, Fan Control
2	RY02	Main-2 Relay	MW-2 Control (Model Option)
3	RY03	Inrush-1 Relay	When supply power to MW-1, Inrush Electric Current Decrease
4	RY04	Inrush-2 Relay	When supply power to MW-1, Inrush Electric Current Decrease (Model Option)
5	RY05	Power-1 Relay	MW-1 Power Control
6	RY06	Power-2 Relay	MW-2 Power Control (Model Option)
7	RY07	VENT Relay	Fan Motor Control
8	RY08	LAMP Relay	Lamp Motor Control
9	CN01	Power Connector	A Terminal for Connecting with Power supply
10	CN02	Relay Connector	A Terminal for Connecting with Lamp Relay Contact (Load Control)
11	CN03	Inrush Relay Connector	A Terminal for Connecting with Vent Relay & Inrush Relay1,2 Contact
12	CN04	Door switch and Humidity Sensing Connector	A Terminal for Connecting with Door Switch , Humidity Sensor
13	CN05	Display Connector 1	A Terminal for Connecting with Display
14	CN06	Display Connector 2	A Terminal for Connecting with Display
15	CN07	Membrane switch Connector	A Terminal for Connecting with Membrane switch (Model Option)
16	CN08	Tact switch Connector	A Terminal for Connecting with Tact Switch (Start and Cancel) (Model Option)
17	CN09	Tact & Encoder switch Connector	A Terminal for Connecting with Tact , Encoder Switch (Model Option)
18	CN09	MW1,2 Power Detector Connector	A Terminal for Connecting with MW1,2 Power Detector Connector

6-1 Wiring Diagrams

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



NOTE

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

SAMSUNG

GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, CIS, Mideast & Africa	gspn1.samsungcsportal.com
Asia	gspn2.samsungcsportal.com
North & Latin America	gspn3.samsungcsportal.com
China	china.samsungportal.com