5. Alignment and Adjustments

PRECAUTION

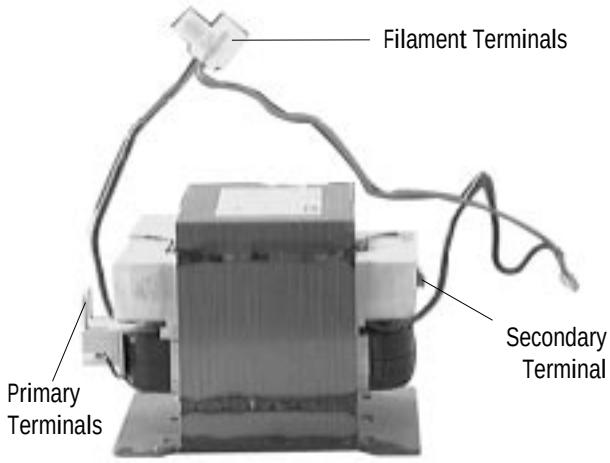
1. High voltage is present at the high voltage terminals during any cook cycle.
2. Do not attempt to measurement the high voltage.
3. Before touching any oven components or wiring, always unplug the oven and discharge the high voltage capacitor.

5-1 High Voltage Transformer

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

MODEL	CE1279KSE
Secondary	Approx. 96Ω
Filament	Approx.0Ω
Primary	Approx.1.58Ω

(Room temperature = 20˚C)



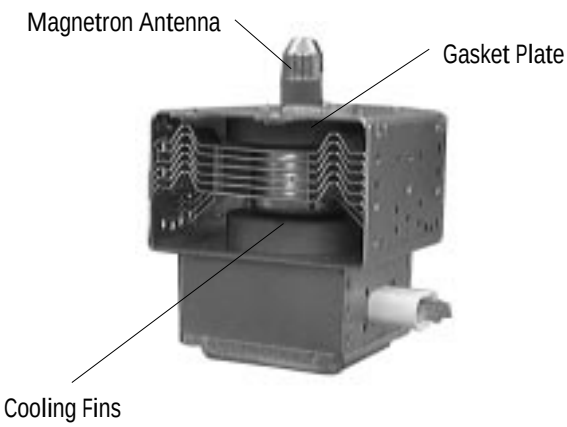
5-2 Low Voltage Transformer

1. The low voltage transformer is located on the base plate.
2. Remove the low voltage transformer from the base plate and check continuity.
3. Normal resistor readings a shown in the table.

Terminals	Resistance
1~2(11V)	0.56Ω
1~3(Input)	77.27Ω
4~5(Output 17.5V)	1.39Ω
5~6(Output 7.3V)	0.6Ω
7~8(Output 3.2V)	0.61Ω
8~9(Output 2.7V)	0.51Ω

5-3 Magnetron

1. Continuity checks indicate only an open filament or a shorted magnetron. To diagnose an open filament or shorted magnetron, do the following:
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 the magnetron case should read open.



5-4 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. Shorted capacitor indication: continuity.
4. Open capacitor noication constant 9MΩ.
5. Resistance between each terminal and chassis should read infinite.

5-5 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 reverse direction.

5-6 Main Relay and Power Control Relay

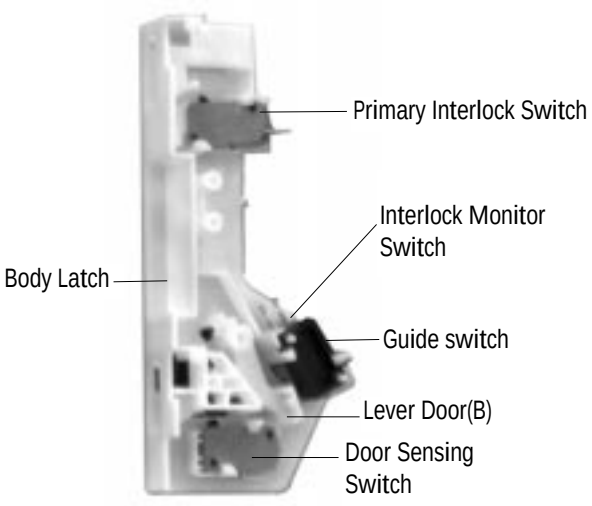
1. The relays are located on the PCB Ass'y. Isolate them from the main circuit by disconnecting the leads.
2. Operate the microwave oven with a water load. Set the power level to "high"
3. Check continuity between terminals of the relays after the start pad is pressed.

5-7 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 is necessary 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 has vo "play". Check for play 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 re-check that the the monitor circuit and all latch switches are secured.(see 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.



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

5-8 Output Power of Magnetron

CAUTION
MICROWAVE RADIATION

DO NOT ALLOW EXPOSURE TO MICROWAVE RADIATION FROM ANY PARTS CONDUCTING MICROWAVE ENERGY.

The output power of the magnetron can be measured by performing a water temperature rise test.
Equipment needed :
* One 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. Brenk the line here 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 51 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 as follows :

$$\text{Output Power} = \frac{4.187 \times 1000 \times \Delta T}{49}$$

49 : Heating Time (sec)
4.187 : Coefficient for Water
1000 : Water (cc)
ΔT : Temperature Rise (T2-T1)

* Output (W) = 85.5x ΔT

7. Normal temperature rise for this model is 9˚C to 11˚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 done if temperature rise is marginal.
   NOTE 2: Output power in watts is computed by multiplying the temperature rise (step E) by a factor of 91 times the centigrade temperature.

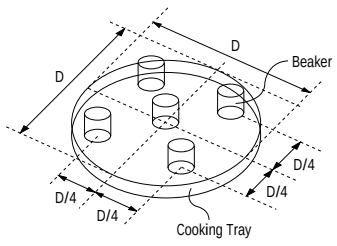
5-9 Uniformity of Microwave Heat Distribution

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', each having 100 milliliters capacity.
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 decimal.)
4. Put each beaker in place on the cooking tray as illustrated in the figure. 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:

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

The result should exceed 65%.



5-9 Leakage Measuring Procedure

5-9-1 Equipment

1. Microwave Energy Survey Meter
2. Glass beaker, 600cc
3 Mercurial or digital thermometer 100˚C or 212˚F

5-9-2 Procedure for Measurement of Microwave Leakage

1. Pour 275±15cc of 20±5˚C (68±9˚F) in toA 600cc graduated beaker. Place the beaker in the center of the oven.

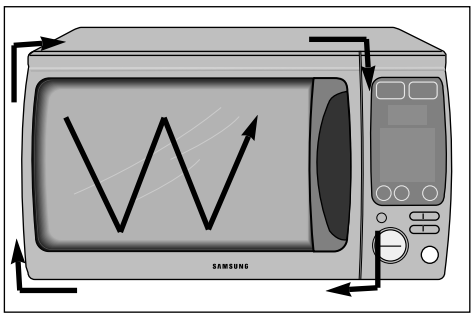
2. Start the oven and measure the leakage using a microwave energy survey meter.

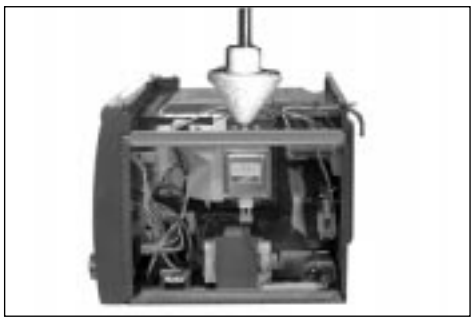
3. Set survey meter (dual ranges) to 2,450MHz.

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 on the door seam and move the probe along the viewing windows and exhaust openings. Move the probe at about 1 inch per second.

   If the leakage from door seam is measured near a corner, keep the probe perpendicular, making sure the probe end(at the base of the cone) does not gt closer than 2 inches to any metal (otherwise, erroneous readings readings will result).

5. The measured leakage must be less than 5mW / cm^2.





WARNING
AVOID TOUC HING THE HIGH VOLTAGE COMPONENTS.

5-9 Leakage Measuring Procedure

5-9-3 Check for Microwave Leakage (With the opter panel removed)

1. Remove the outer panel.
2. 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.
3. Start the oven at the highest power level.
4. Set survey meter dual ranges to 2,450MHz.
5. Using the survey meter and spacer cone as described above, measure arnear the opening of magnetron, the surface of the air guide and the surface of the wave guide as shown in the following photo.(but avoid the high voltage components.) The neading should be less than 5mW/cm^2.

5-9-4 Measurement Notes

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 hand is between the 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 the manufacturer of the microwave energy survey meter.

5-9-5 Record Keeping and Special Notification

1. After adjustment and repair of a radiation protection device, record for the measured values, and keep the data.
2. If the radiation leakage exceeds 5mW/cm^2 (after determining that all parts are in good condition, functioning properly and that central service center identical parts are replaced as listed in this manual) notify the central repair facility.
3. At least once a year have the Microwave Energy Survey Meter checked for accuracy by its manufacturer.