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Before Servicing When Testing Is Completed Precautions to Avoid Exposure to Excessive Microwave Energy Chapter 2: Microwaves Measurement Procedure Chapter 3: Foreword and Warning Chapter 4: Product Description SPECIFICATIONS: RCD2200M, RCD2200M Manual Precautions for Servicing Do Not Operate with Door Open Before Servicing When Testing Is Completed Precautions to Avoid Exposure to Excessive Microwave Energy Chapter 2: Microwaves Measurement Procedure Chapter 3: Foreword and Warning Chapter 4: Product Description SPECIFICATIONS: RCD2200M, RCD2200M Manual Precautions for Servicing Do Not Operate with Door Open Service Manual for RCD2200M Microwave Oven **Chapter 2: Microwave Measurement Procedure** - **Requirements:** - The power density of microwave radiation emitted by a microwave oven should not exceed: - 1mW/cm² at any point 5cm or more from the external surface of the oven, measured prior to acquisition. - 5 mW/cm² at any point 5cm or more from the external surface of the oven through the useful life of the oven. **Chapter 3: Foreword and Warning** - This manual is for Sharp Electronics Corp. Service Personnel to provide operation and service information for SHARP MICROWAVE OVENS. R-CD2200M and R-CD1800M. - It is recommended that service personnel study the entire text of this manual so that they will be qualified to render satisfactory customer service. **Chapter 4: Product Description** - **Specifications:** - Power Requirements: Single phase 230/208V, 60Hz, A.C. only - Power Consumption: - R-CD1800M: 3.2kW - R-CD2200M: 2.7kW - Power Output: - R-CD1800M: 230V-14A - R-CD2200M: 230V-12.3A and 208V-16A - Outside Dimensions - Cooking Cavity Dimensions - Control Complement - Weight - Safety Standard **Chapter 5: Operation** - **Description of Operating Sequence** - The following is a description of component functions during oven operation: - OFF CONDITION - Shut-off relay (RY-4) contacts close, completing circuits to turn on the oven lamp and antenna motors. - If the door remains open, 60 seconds later the control unit de-energizes shut-off relay (RY-4), turning off the oven lamp and antenna motors. 4. START PAD TOUCHED. Figure O-2.RCD2200M **DESCRIPTION AND FUNCTION OF COMPONENTS** 1. **DOOR OPEN MECHANISM** When the door opens, the primary interlock relay and secondary interlock switch fail to open, causing the monitor fuse to blow simultaneously with the closing of the monitor switch contacts. During cooking, the upper and lower latch heads operate until at least 1 minute after cooking finishes, with a maximum operating time of 4 minutes. The fan motors stop when the magnetron thermistor temperature drops below 110°C. 2. **FAN MOTORS** Two D.C. motors are used for fan functions during cooking. 3. **HIGH VOLTAGE TRANSFORMER** Large electric currents flow through the high voltage winding, causing fuse 12A to blow due to excessive electrical flow. **CHAPTER 8: TOUCH CONTROL PANEL ASSEMBLY** **SPECIAL FUNCTION FOR SERVICING** This oven features special functions for servicing, as listed in tables 1-4. By using these functions, the service technician can check the usage time or number of uses for electrical components. Additionally, they can verify the AC supply voltage and ensure proper operation of critical systems. **PRIMARY INTERLOCK SYSTEM TEST** To test the primary interlock system: 1. Disconnect power, remove outer case and rear cabinet. 2. Open door and secure it open. 3. Discharge high-voltage capacitor. 4. Isolate switch; connect ohmmeter to common (COM) and normally open (NO) terminals. The meter should indicate an open circuit with the door open and a closed circuit with the door closed. If improper operation is indicated, replace the door sensing switch. **EXHAUST THERMISTOR TEST** Use Special function SF-6 to check the exhaust thermistor. Refer to the Exhaust thermistor check (SF-6) page for instructions. If the display shows "OH", the exhaust thermistor is normal. **KEY UNIT TEST AND REPLACEMENT** If the key unit is defective: 1. Disconnect power, remove outer case and rear cover. 2. Open door and secure it open. 3. Discharge high-voltage capacitors. 4. Replace key unit. 5. Reconnect leads removed during testing. 6. Reinstall rear cover and outer case. **RELAY UNIT TEST AND REPLACEMENT** To test the relay unit: 1. Disconnect power, remove outer case and rear cover. 2. Open door and secure it open. 3. Discharge high-voltage capacitors. 4. Remove relay unit from oven (refer to RELAY UNIT REMOVAL). 5. Check continuity of FUSE1 on relay unit. If open, the relay unit is defective. 6. Check open or short of transformer primary coil on relay unit. **GENERAL INSTRUCTIONS** Before replacing a blown monitor fuse, test the primary interlock relay, secondary interlock switches, door sensing switch, and monitor switches for proper operation. To set the standard voltage, follow these steps: When "SF-2" is selected, the display will show how many times the oven has been used and for how long. For instance, it might say "957700 times" and "1260 hours". If you replace MG1, set 0 hours after that. If there's no error, "0" will be shown on the screen. If you press SELECT POWER, all history will be cleared. To check the current AC supply voltage (SF-5), see what it is right now. For example, if it should be around 230V but actually is 13% higher or lower than that, the display will show it to you. If the exhaust thermistor isn't working correctly, the screen will say "no" and you'll need to check or replace it. To do this, follow these steps: plug in, then on the screen, see the current status. If there's no signal after 5 minutes, stop the process. **WARNING: High-Voltage Components Inside** When handling components like High Voltage Capacitor, Power Transformer, Magnetron, or High Voltage Rectifier Assembly, avoid exposure to microwave energy and keep a safe distance. This is crucial to prevent severe, possibly fatal, electric shock. To access the fan motor and exhaust cover, first remove the rear cover with its fan motor and exhaust cover from the oven cavity. Then: 1. **POWER TRANSFORMERS REMOVAL**: Discharge the two high voltage capacitors. Remove screws holding capacitor unit angle to intake or exhaust duct assemblies. 2. **EXHAUST FAN REMOVAL**: Disconnect power supply cord, remove outer case and rear cover, disconnect fan connector from wire harness, and remove screws/nuts holding exhaust fan. 3. **FAN MOTORS REMOVAL**: Before attaching a new key unit, clean panel fixing plate surfaces with alcohol. Adjust the key unit to its correct position on the panel fixing plate. **DOOR DISASSEMBLY**: 1. **CHOKE COVER REMOVAL**: Remove eight screws holding rear cover and exhaust cover to the bottom plate, power supply cord angle, intake duct, and exhaust duct. 2. Reconnect wire leads to exhaust fan when reinstalling rear cover and outer case cabinet. 3. Monitor switches (1), (2) contacts close when door is opened. Remember to re-check microwave leakage around the door after reinstallation with an approved microwave survey meter. to prevent scratching. 1. Remove the door assembly from oven cavity, referring to "DOOR REMOVAL". 2. Insert a putty knife (thickness of about 0.5mm) at three positions in gap between choke cover and door panel on latch head side as shown in Fig.C-6, to free engaging parts. After removing door panel: 1. Remove five screws holding key fixing plate to door frame. 2. Remove key fixing plate from door frame. 3. Note for position of harness and pipe: Make sure that pipe is positioned at correct place and harness passes through holder of door frame and pipe as shown in Fig.C-7. **Ordering Replacement Parts for Sharp Ovens** To ensure that your replacement part order is processed quickly and correctly, please provide the following information: * Model number (e.g. R-CD1800M or R-CD2200M) * Reference number * Part number * Description of the part **List of Oven Parts** The text then lists a large number of oven parts with their corresponding codes and descriptions. The list is divided into several sections, including: * Models R-CD1800M and R-CD2200M * Door and Control Panel Parts * Index of Parts Codes (with various part numbers and descriptions) **Important Safety Precautions** The text also includes important safety precautions to be observed before and during servicing the oven. These include: * Do not operate or allow the oven to be operated with the door open. * Make sure you follow proper procedures when servicing the oven to avoid exposure to excessive microwave energy. Note that I've tried to keep the paraphrased text concise while still conveying the main points of the original text. Before servicing Sharp electronic oven, perform safety checks to ensure proper function and prevent excessive microwave energy exposure. Check the interlock operation, door closing, seal surfaces for damage or wear, hinges and latches for looseness or damage, and signs of abuse or dropping. Verify magnetron, wave guide, and cavity alignment, integrity, and connections before turning on microwave power. Repair, replace, or adjust any defective components in the interlock, monitor, door seal, and microwave generation systems. Perform a microwave leakage check to ensure compliance with the Federal Performance Standard. If emissions exceed specified limits, contact Sharp Electronics Corporation immediately. Before servicing an operative unit, perform a microwave emission check. If emissions are excessive, inform the user not to operate the oven and contact Sharp Electronics Corporation and FDA's Center for Devices and Radiological Health. Inform the owner of any certified unit with emissions exceeding 4mW/cm, and instruct them not to use the unit until compliance is achieved. (Note: I removed unnecessary content, corrected grammar and punctuation, and reorganized the text to improve readability. I also kept the original language and did not translate it.) CHAPTER 7. ELECTRICAL TESTS 7-1[4] D: HIGH VOLTAGE CAPACITOR TEST 7-2[5] E: SECONDARY INTERLOCK SWITCH TEST 7-2[6] F: PRIMARY INTERLOCK SYSTEM TEST 7-2[7] G: MONITOR SWITCH TEST 7-3[8] H: BLOWN MINITOR FUSE TEST 7-3[9] I: FUSE 12A TEST 7-3[10] J: TEMPERATURE FUSE TEST 7-4[11] K: MAGNETRON THERMISTOR TEST 7-4[12] L: EXHAUST THERMISTOR TEST 7-4[13] M: NOISE FILTER TEST 7-5[14] N: KEY UNIT TEST 7-5[15] O: CONTROL UNIT TEST 7-6[16] P: POWER UNIT TEST 7-6[17] Q: RELAY UNIT TEST 7-6[18] R: ANTENNA SENSOR TEST 7-7[19] S: MICROWAVE SENSOR TEST CHAPTER 8. TOUCH CONTROL PANEL ASSEMBLY 8-1[2] SERVICING FOR BRINTED WIRING BOARDS CHAPTER 9. PRECAUTIONS FOR USING LEAD-FREE SOLDER CHAPTER 10. COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE 10-1[3] POWER TRANSFORMERS REMOVAL 10-2[4] MAGNETRONS REMOVAL 10-2[5] MAGNETRON THERMISTOR ASSEMBLY REPLACEMENT 10-2[6] HIGH VOLTAGE CAPACITOR AND RECTIFIER ASSEMBLY REMOVAL 10-3[7] POWER SUPPLY CORD REPLACEMENT 10-3[8] POSITIVE LOCK CONNECTOR RELEASE 10-4[9] EXHAUST FAN REMOVAL 10-4[10] FAN MOTORS REMOVAL 10-4[11] ANTENNA MOTORS REMOVAL 10-4[12] POWER UNIT REMOVAL 10-4[13] RELAY UNIT REMOVAL 10-4[14] CONTROL PANEL ASSEMBLY AND CONTROL UNIT REMOVAL 10-5[15] DOOR SENSING SWITCH REPAIR 10-6[16] DOOR REPLACEMENT 10-6[17] DOOR DISASSEMBLY Circuit Diagrams: A Visual Representation of Microwave Oven Components The following diagrams provide a pictorial representation of various components in a microwave oven: Parts List: RCD2200M1 - 1 RCD2200M Service Manual **Warning to Service Personnel** Microwave ovens contain high-voltage components that can cause severe electrical shock if not handled properly. Before servicing, ensure the power supply cord is disconnected, and the outer case is removed. **Pre-Servicing Checklist** 1. Disconnect power supply cord 2. Remove outer case 3. Open door and block it open 4. Discharge high-voltage capacitor **Troubleshooting Procedure** 1. Disconnect power supply cord 2. Remove outer case 3. Open door and block it open 4. Discharge high-voltage capacitor 5. Disconnect leads to primary of power transformer 6. Ensure leads remain isolated with insulation tape 7. Reconnect power supply cord after testing **Post-Repair Procedure** 1. Reconnect all removed leads 2. Reinstall outer case (cabinet) 3. Reconnect power supply cord after installation 4. Run oven and check all functions **Important Safety Note** Microwave ovens should not be run empty. To test for microwave energy, place a cup of cold water on the turntable, close the door, set power to HIGH, and timer to 2 minutes. Carefully confirm that the water has reached a scorching temperature. If it stays chilly, perform the Before Servicing procedure and inspect the connections to the tested component once again. Upon completion of all maintenance work and assembly of the oven, check the microwave's power output and conduct a leakage test for safety. Be cautious - high-voltage electrical shock is hazardous! Important safety notes for service personnel: - Double-check that the interlock switches and door seal are intact. - Never operate the oven unless its door is securely closed, brackets & hinges intact, packing undamaged, and free of any visible damage. Perform maintenance work only by trained professionals. Electrical shock risks exist during servicing due to specific components not being grounded initially. Avoid contact with high-voltage parts (Capacitor, Transformer, Magnetron) while the appliance is energized. Other critical parts may expose users to microwave radiation if damaged or removed improperly. For precise measurement and safety procedures, refer to Chapter 2 of this manual, specifically focusing on microwave leakage limits and interlock switches' requirements. Important: Only use survey instruments that comply with the requirement for instrumentation as prescribed by the performance standard for microwave ovens. 1. Place the oven tray in the oven cavity. 2. Add 275±5 ml (9.8 oz) of tap water initially at 20±5°C (68°F) to the center of the oven cavity. The water container should be a low form, 600 ml (20 oz) beaker with an inside diameter of approx. 8.5 cm (3-1/2 in.) and made of electrically nonconductive material such as glass or plastic. 3. Set the cooking control on Full Power Cooking Mode. 4. Close the door and select a cook cycle of several minutes. If the water begins to boil before the survey is completed, replace it with 275 ml of cool water.