

Microwave
MW 800.0

Service Manual: H4-070-14-01-Z

Responsible: D. Rutz
Tel.: (0209) 401-733
Fax: (0209) 401-743
Date: 07.11.2000

KÜPPERSBUSCH HAUSGERÄTE AG
Kundendienst
Postfach 100 132
45801 Gelsenkirchen

Contents

1. Installation requirements	5
1.1 General	5
1.2 Grounding instruction	5
2. General Function and Leakage Tests	6
2.1 General functional test of the microwave	6
2.2 Microwave Leakage Test	7
3. Trouble shooting guide	8
3.1 Trouble shooting table	8
3.2 Interlock switch system	9
4. Major component tests	10
4.1 Testing the door contact monitor switch	11
4.2 Testing the safety switch	11
5. Wiring diagram MW 800.0	12

General Notice

This service manual provides specific information about the operating principle of the microwave MW 800.0 to the service personnel who already has the required technical knowledge concerning the repair of microwaves.

This service manual covers all for this type relevant technical data.

The description and operating principle of the components that are already known are not mentioned in this service manual. You find the description of these in the service manuals H4-070-14-01 MW 900, MWG 1000 and MWGD 900.

Please consult these manuals if necessary.

Technical Data MW 800.0

Outside Dimensions (L) x (H) x (W)	463 mm x 286 mm x 322 mm
Volume of cavity	18l
Weight	approx. 15 kg
Features	Individual setting of programme sequence Electronic clock Turntable 3 automatic defrost programmes 3 cooking programmes
Electrical connection	230V 50 Hz, einphasig
Microwave output	Microwaves: 750W
Total consumption	1.25 kW
Microwave frequency	2450 MHz
Model	MW 800.0 (E18EM)

1. Installation requirements

1.1 General

1. The oven should be placed on a flat and stable surface.
2. Place the oven away from high temperature and steam sources.
3. Clearance of at least 5 cm on each side must be provided to allow adequate ventilation.
4. The microwave oven must be plugged directly to a 3-prong wall receptacle which is properly grounded.
5. The power source must be 230V 50Hz 10A single phase.

1.2 Grounding instruction

**IMPORTANT!**

Disconnect power before servicing, reconnect all grounding devices.

All mechanical parts of this appliance capable of conducting electricity are grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock. This appliance is equipped with a cord having a grounding wire with a ground plug. The plug must be plugged into an outlet that is properly installed and grounded.

**WARNING!**

Improper use of the grounding plug may result in electrical shock.

If grounding wires, screws, straps, clips, nuts or washers used to complete a path to ground are removed for service, they must be returned to their original positions and properly fastened.

GROUNDING SPECIFICATION

Leakage current: 0.5mA max.

Ground path resistance: 0.1 ohm max.

2. General Function and Leakage Tests

2.1 General functional test of the microwave

The following is a simple test to check if the appliance is generating microwave energy. This test is not intended to be an accurate test. An accurate measurement of output power must be performed under strict control following the IEC standard. In field service, accurate measurement of output power is usually not required.



HIGH FREQUENCY LOSS

A high frequency loss test must be carried out before and after each repair or any adjustment work

IMPORTANT!

Measuring the power output

The temperature of 1 l of water increases by 14.3 °C per minute if the power output of the appliance is 1 KW.

The power output is measured as follows:

1. The appliance and the base plate of the oven cavity must be clean.
2. Place a thin-walled glass beaker with an approximate diameter of 10 cm and containing 1 l of water into the centre of the oven cavity, after having determined the water temperature.
3. Run the appliance for 1 minute (control the time by using a stop-watch).
4. Do not start to measure the time until the transformer starts buzzing.
5. Measure the average temperature increase, i.e. [measured temperature after 1 minute] minus [initial temperature].
6. Divide the result by 14.3. The calculated value represents the power output in KW.
7. The power output of the appliance should be greater than 900 W - 20% (720 W) during its entire lifetime.
8. The above measurement should be repeated fairly frequently.

Note: *This measurement just represents a rough guide. It will not be possible to carry it out with total accuracy, meaning that the power output cannot be determined precisely.*

2.2 Microwave Leakage Test

Testing equipment

- 600 cc beaker
- Microwave meter

2.2.1 Testing procedure

1. Place 275 cc of water into the beaker and place it in the center of the oven.
2. Turn on the microwave oven by setting the timer ON at full power.
3. Hold the probe of the microwave meter perpendicular to the surface of the oven and scan it at the rate of approx. 2.5 cm/sec.
4. Test the following areas for microwave leakage:
 - Door and control panel
 - All ventilation openings
 - All lockseams
 - Weld at bottom
 - Bottom plate
 - Oven foot
5. Maximum allowable leakage is 1mW/cm².
6. Record all data.

2.2.2 Oven leakage repair

If the microwave leakage exceeds 5 mW/cm² the service personnel should tell the owner not to operate the oven again until the appliance has been repaired. The service personnel should notify the manufacturer and CDRH (FDA) immediately.

1. If the measured leakage exceeds 1mW/cm² the microwave must be repaired.
2. If there is strong microwave leakage at the control element, the ventilating louvers or at the underside of the appliance please check, if damaged parts or loose screws are the reason. If this is the case, replace the defective parts and tighten the screws.
3. If there is strong microwave leakage at the outsides of the door, adjust door hinges and latches.

2.2.3 Open door test

With the oven in operation state, open the oven door and check if the oven is still operating. If so, the service personnel should tell the owner not to operate the oven again and should notify the manufacturer and CDRH (FDA) immediately.

3. Trouble shooting guide

3.1 Trouble shooting table

Problem	Points to check
Cavity lamp does not light, but other electrical components (e.g. turntable) are working.	<ol style="list-style-type: none"> 1. Lamp burnt. 2. Bad contact between lamp and lamp socket.
Cavity lamp does not light, all other electrical components also do not work.	<ol style="list-style-type: none"> 1. Power outlet has no contact to the socket. No electric supply. 2. Fuse blown. 3. Faulty contact between fuse and fuse holder/clip. 4. Loose door hinge, door not set properly, adjustment of locking not correct; this leads to blowing of the fuse. 5. Faulty connection UL-switch. 6. Short-circuit in electric circuit. Filament of lamp blown, short-circuit of high-voltage capacitor; this leads to blowing of fuse. 7. Faulty contact of contacts or connectors of control element, or primary or secondary interlock switch. 8. Defective high-voltage diode .
The microwave seems to function but the food stays cold.	<ol style="list-style-type: none"> 1. Defective magnetron (defective thread, thread short-circuited to earth, etc). 2. Earth conductor of high-voltage transformer defective. 3. Filament short-circuited to earth. 4. Damaged filament. 5. Faulty contact at magnetron connectors. 6. Defective control units. 7. Damaged high-voltage diode, a humming sound occurs.
Microwave runs for a short period of time, but then stops.	<ol style="list-style-type: none"> 1. Blocked cooling fan. 2. Open cooling fan motor circuit. 3. Defective cooling fan control relay.
Turntable does not turn.	<ol style="list-style-type: none"> 1. Defective turntable motor. 2. Deformed turntable shaft.
Circuit breaker is activated.	<ol style="list-style-type: none"> 1. Strong leakage of electrical components (mostly motor).

3.2 Interlock switch system

Oven door status	Primary switch	Secondary switch	Monitor switch
open	open	open	close
close	close	close	open

1. The interlock and monitor switches positions are not service adjustable. If the screws on the hinges of the oven door are loosen, the door may not be in a correct position. In this case, the interlock switches cannot be operated by the latch pins of the door when the door is shut. To repair the door, remount the door and fasten the screws on the door hinges.
2. The monitor switch is provided to monitor the operation of the primary interlock switch. If the primary switch fails to operate when the door is open, the monitor switch will form a short circuit across the supply and the fuse in the oven will blow. Electric arc may form across the switch contacts of the primary interlock switch, the secondary switch and the monitor switch. The switches may then be damaged. If the fuse is blown due to the failure of the primary interlock, repair the failed mechanical parts and replace all the interlock switches.

IMPORTANT!

After replacement of any part of the interlock and monitor circuit:

1. Check if the microswitches are turned ON and OFF by the latches as specified in the table above.
2. Apply sealant to the screws and nuts of the door hinges.
3. Check microwave leakage.
4. Check if the oven will turn off instantly when the door button is pushed to the position where the door latches leave the interlock switches.

4. Major component tests

Testing the high-voltage transformer

**Attention!**

During cooking the high-voltage terminals of the transformer are under a voltage of 2300 V~. When testing the transformer, keep your hands and all measuring instruments, etc. away from these high-voltage terminals.

1. Switch off the appliance and discharge the capacitor with an insulated screwdriver.
2. Disconnect the connection lead of the capacitor from the terminal of the high-voltage transformer.
3. Connect the voltmeter to the filament terminals of the magnetron with a toothed clamp and ensure that you always keep a good distance from the voltmeter and the wires.
4. Connect the appliance to the mains and und start the cooking process. The voltmeter must indicate a voltage of 3.3 V~.

Caution: *Switch off the appliance before disconnecting the voltmeter.*

If the measuring instrument does not indicate any voltage, you must set the correct value and check whether a voltage of 220 V ~ (240 V) is applied to the primary winding of the transformer during the cooking process.

1. Measure the resistance of the winding using an ohm meter
2. Primary winding 3 ohm (approx.)
3. Secondary winding 100 ohm (approx.)
4. Filament winding 0 ohm (approx.)

Anode voltage

For reasons of safety, it is neither advisable nor necessary to measure the anode voltage as the appliance is under high voltage (approx. 4 KV).

4.1 Testing the door contact monitor switch

1. Switch off the appliance, disconnect one wire at the switch and connect an ohmmeter to the switch terminals.
2. When the door is open, the reading should indicate a short circuit. When the door is closed the reading should indicate an infinite resistance.
3. The switch must be exchanged if the short circuit or the infinite resistance become a permanent condition.

Note *After you have exchanged the monitor switch you must check whether the door is open when the switch is switched on.*

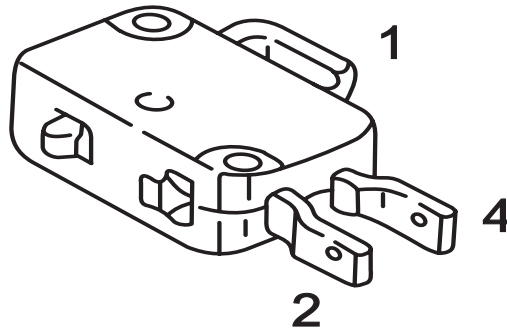
4.2 Testing the safety switch

Disconnect the appliance from the mains, remove the wires of terminal 1 of the switch and connect an ohmmeter between terminals 1 and 4.

The ohmmeter should indicate a short circuit when the door is closed. When the door is open it should indicate an infinite resistance.

If the short circuit or the infinite resistance become a permanent condition the switch should be exchanged.

Note *After a safety switch has been exchanged it must be ensured that the switch is activated when the door is closed.*



5. Wiring diagram MW 800.0

