



Microwave oven  
EMWK 9600.0 / 9800.0

# Service Manual: H4-72-02-03

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# 1. Safety

The purpose of this service manual is to provide the customer service technicians who already have the technical knowledge necessary to repair microwave ovens with specific information on the mode of operation of the EMWK 9600/9800.0.



## **Danger!**

***Repairs may only be carried out by a qualified electrician!  
Incorrect repairs can be extremely dangerous for the user!***

**To prevent electric shocks, please observe the following tips:**

- In the event of faults, housing and frame may be live!
- Touching live components inside the appliance may cause dangerous currents to flow through your body!
- Unplug the appliance before repair!
- When inspecting live parts, a residual current operated device must be used at all times!
- The ground wire resistance must not exceed that specified in the standard! It is of vital importance for ensuring the safety of people and the functioning of the appliance.
- On completion of repairs, an inspection must be carried out in accordance with VDE 0701 [Association of German Electrical Engineers] or the corresponding regulations for your country!
- On completion of repairs, a function and impermeability inspection must be carried out.
- On completion of the repair work a leak rate measurement must be made!



## **Note!**

**It is essential to observe the following notes in order to prevent damage to the appliance or the components:**

- The appliances must be disconnected from the mains prior to all repairs. If inspections must be carried out on live appliances, make sure you use a residual current operated device.
- **Do not take any measurements in the high-voltage circuit during operation. Risk to life and limb!**
- The mains plug of the microwave oven must always be accessible!
- Do not replace any components as long as the appliance is functioning.
- When looking for faults proceed systematically as outlined in the fault-finding steps.
- Observe EGB instructions.
- Never attempt repairs through the **indiscriminate** exchange of components!
- Always proceed systematically and observe the notes on troubleshooting!
- Do not take any measurements in the high-voltage circuit during operation. **Risk to life and limb!**

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## 1.1 Microwave warnings

- **The microwave oven generates high voltages which may lead to serious or even fatal injury - it is essential to observe the safety regulations contained in this repair manual at all times.**
- Always disconnect the microwave from the mains prior to removing or installing components. Never attempt to measure voltage on the inverter, the magnetron or high-voltage conducting wire. This high-voltage circuit generates voltages exceeding 4000 volts.
- Always connect the microwave oven to a residual current overload circuit breaker prior to measuring electric currents.
- Check to ensure that the power required by the oven does not exceed the nominal power of the mains power supply.
- Pull the plug out of the mains socket and discharge the high-voltage capacitors of the converter switch prior to removing or installing components.
- Connect the microwave oven with a twin-wire extension cable. The microwave oven must be earthed. Looking for faults on a microwave oven that is not earthed is extremely dangerous.
- Carry out a functional test when repair work has been completed.
- Carry out a microwave leakage current test when repair work has been completed.

## 1.2 Electric connection

- Only connect the appliance to sockets with a safety fuse of at least 16 A. Please also check to ensure that the main fuse in your home has a minimum output of at least 16 A so that it will not suddenly trip when the microwave oven is in operation.
- Before operation, check whether the mains voltage is the same as that indicated on the name/rating plate of the appliance and **whether the socket outlet is effectively earthed. The manufacturer assumes no liability for damage which occurs through the non-observance of these regulations.**

## 1.3 Converter switch warnings

- The converter switch generates current of more than 4000 volts! Never attempt to measure the voltage in this switch.
- The aluminium dissipater on the converter switch gets very hot! Allow the dissipator to cool down prior to removing the converter switch.
- Pull the plug out of the mains socket and discharge the high-power capacitors of the conversion switch before removing the converter switch.
- The converter switch must be earthed. After replacing the converter switch tighten the earth terminal and the earthed leads to the microwave oven casing. A converter switch with no earth connection may be dangerous.

## 2. Assembly

### 2.1 Disposing of the packaging and your old appliance

The packaging material for transport is fully recyclable.

Recycling the packaging saves raw materials and reduces the amount of waste. Disposed appliances still contain useful materials. Take your old appliance to a recycling collection point. Please make your old appliances unserviceable before disposing of it, to prevent it from misuse.

### 2.2 Technical Data

<b>Voltage / Frequency</b>	230V - 50Hz
<b>Power consumption</b>	6.7 A
<b>Total electrical connection</b>	3.6 kW
<b>Microwave output</b>	900 W (max) (5 levels)
<b>Grill levels</b>	EMWK 9800.0 2500 W EMWK 9600.0 2150 W
<b>Appliance dimensions (WxHxD)</b>	595 x 454 x 520 approx.
<b>Niche dimensions (WxHxD)</b>	562 x 450 x 550 mm approx.
<b>Cooking cavity dimensions (WxHxD)</b>	424 x 221 x 520 approx. (42 litres capacity)

<b>EMWK 9800.0</b>	<b>EMWK 9600.0</b>
12 oven functions	5 oven functions
3 Rack levels	3 Rack levels
6 memory programmes	
Up to 3 microwave power levels in sequence can be programmed	Up to 3 microwave power levels in sequence can be programmed
Programmable electronic timer with minute minder	Electronic clock with a timed control

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## 3. Construction components

### 3.1 Power supply unit

The power supply unit is a part of the relay board. It is essential to connect an earthed conductor (PE) in order for the appliance to function properly.

#### Possible consequences if there is no earthed conductor

- **If there is no PE connection**
  - The clock reference will be determined by the internal processor clock. Error pattern: **running deviations of the clock** in the minutes section per day.
  - If the power filter is not properly wired, the Y-capacitors will not be connected. Error pattern: the Y-capacitors form a voltage divider. **The appliance cabinet will be under half of the mains voltage!**
  - Operation of the power filter will be very limited. Error pattern: **radio screening**.
  - There will be no guarantee that the appliance is safe! It is absolutely essential for a protection class I appliance to be connected to an earthed conductor
  - The resistance to jamming of the appliance may be diminished due to the house wiring.
- **In the event of the above-mentioned error patterns**
  - Check that an earthed conductor has been properly connected. **If this is not the case the appliance must be put out of operation and the customer must be notified accordingly!**

## 4. Functions

### 4.1 Demo mode (wiring for fairs) (EMWK 9800.0 only)

#### Activate the demo mode

1. Press the memory button for approx. 4 seconds. The display will indicate: "Select your language".
2. Select "English".
3. Press the clock button for approx. 4 seconds. At the bottom on the right the display will show a "D".

#### Deactivate the demo mode

1. Press the stop button for approx. 4 seconds. The "D" on the display will go off and the appliance will be ready for operation again.

**Please note! The demo mode will remain activated even if the power supply is cut off for a longer period.**

### 4.2 Children's safety device

#### Activating the child-proof lock

Press the stop button for approx. 4 seconds. The display will indicate "Child-proof lock".

#### Deactivating the child-proof lock

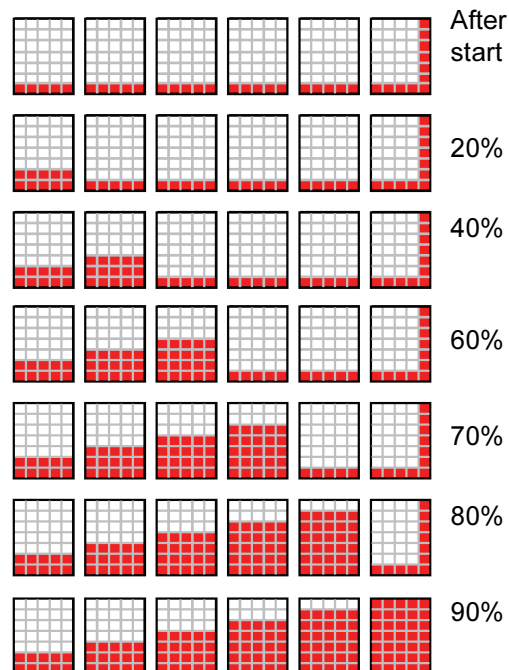
Press the stop button for approx. 4 seconds. The lock will be released.

### 4.3 Swelling arrow (EMWK 9800.0 only)

The swelling arrow indicates when the appliance has reached the temperature set.  
The display refers to 90% of the temperature set.

Here are two examples of different temperature settings.

Line		Temperature set	
		120°C	250°C
7	90%	110°C	227°C
6	80%	100°C	204°C
5	70%	90°C	181°C
4	60%	80°C	158°C
3	40%	60°C	112°C
2	20%	40°C	66°C
1	Room temperature	20°C	20°C



### 4.4 Oven safety shutdown

#### 4.4.1 EMWK 9600.0

The safety cut-off device is activated after 8 hours of operation.

**Please note! The waiting time for the safety cut-off device is re-started every time a button is pushed (or a knob is turned)!**

#### 4.4.2 EMWK 9800.0

The safety cut-off is activated irrespective of the temperature set.

30 - 100°C	24 hours
100 - 195°C	6 hours
200 - 245°C	3 hours
250 - 300°C	2 hours
Grill settings	2 hours

**Please note! The waiting time for the safety cut-off device is restarted every time a button or knob is activated.**



## 5. Repairs

### 5.1 Safety precautions - microwave energy



Service technicians must never be exposed to the microwave radiation which can be emitted by the magnetron or other components producing microwaves if the appliance is not connected correctly or operated improperly.

All input and output connections, waveguides, flanges and seals are to be attached and sealed correctly.

Never operate the appliance without having placed items in the cooking cavity which absorb the microwaves.

Never look into the open waveguide or the antenna when the magnetron is live.

The appliance must never be operated without the housing or with the door open.

If the fuse blows, always block the system operability first (all microswitches) before the appliance is switched on again. If a microswitch is defective, always replace all microswitches.

**Before activation of the magnetron or before repair work, check the following points with all appliances:**

- The door does not close properly at the frame because it is deformed or the hinges are damaged.
- Door or door seal damaged
- Appliance obviously damaged

All defective or incorrectly set components in the locking, control, door locking, microwave generator and transmission systems must be repaired, replaced or correctly set. Service technicians must first remove their watches for all work on or near the magnetron.

- **Attention!**

The high-voltage capacitor could still be electrically charged about 30 sec. after the appliance has been switched off. It is advisable to discharge the capacitor each time through both poles using a suitably insulated cable. Secondary power circuits of the transformer have a high voltage and a low amperage and for this reason it is extremely dangerous to work near these components if the appliance is plugged into the mains. Never touch cables with your bare hands or with non-insulated tools when the appliance is in operation.

- Do not measure the electric voltage of a high-voltage circuit or magnetron filament.
- Make sure that the door is not loose or is missing. If the screws are not tightened fully, this could lead to the discharge of microwaves.
- Before you switch on the appliance, check that all electric connections are tight.
- Ensure with a reasonable procedure that no microwaves are emitted.
- Do not insert any metal objects either through the lamp gap or through any other gap as such objects could act as an antenna and could result in the emission of microwaves.

## 5.2 Checking the diode

1. Disconnect the high-voltage conducting wires from the magnetron.
2. Measure the resistance at the supply points. A good magnetron will have a heating filament resistance of less than 1  $\Omega$ .
3. Measure the resistance between each terminal and the magnetron shell. The resistance between each terminal and the shell of a good magnetron will be infinite.

Measuring point	Normal	Fault
Between the terminals	< 1 $\Omega$	$\infty$
Between terminal and shell	$\infty$	Fewer watts

### Note!

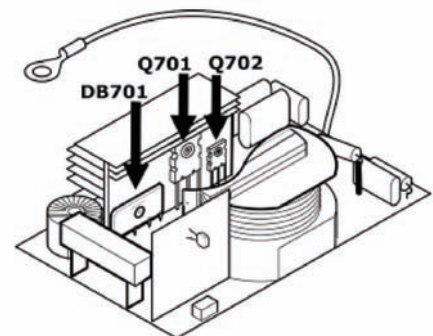
- It is not possible to recognise all of the magnetron faults on the basis of resistance readings.
- It is difficult to determine an internal jump (short circuit) between anode and cathode.
- When examining the magnetron look out for burns around the antenna and for flawed magnets and also check the terminals.
- It may also be possible to determine some magnetron faults by means of an audio test (buzzing and rattling when the microwave oven is in operation).

## 5.3 Checking the converter switch

### 5.3.1 Checking the converter for a short circuit

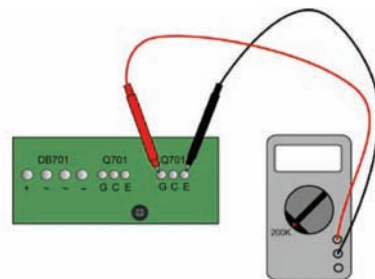
The converter switch will probably have short-circuited if the 8A safety fuse of the microwave oven triggers.

1. Disconnect all the conducting wires from the converter.
2. Remove the converter.
3. Check the three components indicated on the drawing by measuring the switch resistance. Defect components will generally have a very low resistance (almost 0  $\Omega$ ).



**Q701 / Q702 (for adjusting resistance on a 9-V measuring instrument)**

	Normal		Fault	
	Forwards	Back	Forwards	Back
<b>E-C</b>	> 1k $\Omega$	> 1k $\Omega$	approx. 0 $\Omega$	approx. 0 $\Omega$
<b>E-G</b>	> 1k $\Omega$	> 1k $\Omega$	approx. 0 $\Omega$	approx. 0 $\Omega$
<b>G-C</b>	> 1k $\Omega$	> 1k $\Omega$	approx. 0 $\Omega$	approx. 0 $\Omega$


**DB701 (for diode adjusting on a 9-V measuring instrument)**

	Forwards	Back
+ –	Reading	$\infty$
~ ~	$\infty$	$\infty$

### 5.3.2 Carrying out a check due to a short circuit

- Function of the cooling fan!
- Microwave oven has been installed in accordance with installation instructions!
- The ventilation slits are not blocked and air can enter!

## 5.4 Checking the safety switch

The safety switch ensures that no microwaves are generated when the door of the oven is open.

**Main switch**

- Cuts off the supply of 230V alternating current for converter switching.

**Short-circuit switch**

- If the main switch fails when the circuit is closed (short circuit) and the user then opens the door, the monitoring switch will trigger a short circuit on the 230V power unit. The short circuit will activate the 10 A safety fuse and the short-circuited switching contacts will be fused together.

**Signalling switch**

- Reports the position of the door (open/closed) to the control module.

**Checking the switch**

1. Remove all of the leads from the three switches.
2. Check each switch for transmission with the door open and closed.

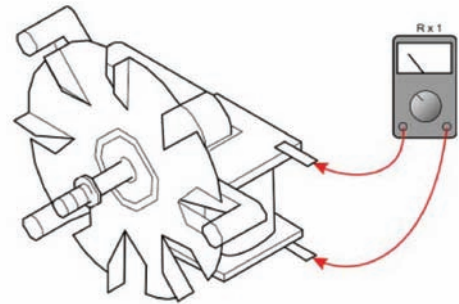
	Door open	Door closed
<b>Main switch</b>	$\infty \Omega$ open	0 $\Omega$ closed
<b>Signalling switch</b>	$\infty \Omega$ open	0 $\Omega$ closed
<b>Short-circuit switch</b>	$\infty \Omega$ open	$\infty \Omega$ open

## 5.5 Checking the hot-air fan motor

1. Disconnect the power supply cables from the motor.
2. Measure the resistance of the motor winding when cold.

Normal: 150  $\Omega$  - 200  $\Omega$

Fault: Low  $\Omega$  reading or  $\infty$

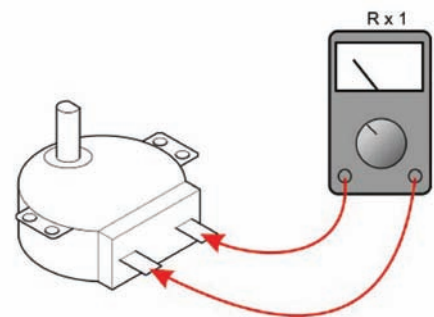


## 5.6 Checking the antenna motor

3. Disconnect the power supply cables from the motor.
4. Measure the resistance of the motor winding when cold.

Normal: 150  $\Omega$  - 200  $\Omega$

Fault: Low  $\Omega$  reading or  $\infty$



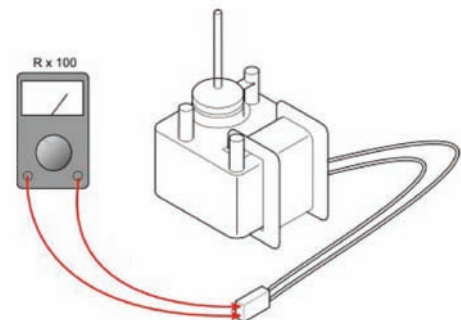
## 5.7 Checking the magnetron, cross-flow and vapour filter

5. Disconnect the power supply cables from the motor.
6. Measure the resistance of the motor winding when cold.

### 5.7.1 Magnetron fan

Normal: 200  $\Omega$  - 200  $\Omega$

Fault: Low  $\Omega$  reading or  $\infty$



### 5.7.2 Cross-flow fan

Normal: 1 - 2: 150  $\Omega$  - 200  $\Omega$   
 1 - 3: 170  $\Omega$  - 190  $\Omega$   
 2 - 3: 70  $\Omega$  - 90  $\Omega$

Fault: Low  $\Omega$  reading or  $\infty$

### 5.7.3 Vapour fan

Normal: 2 - 3: 610  $\Omega$  - 630  $\Omega$   
 2 - 4: 350  $\Omega$  - 370  $\Omega$   
 3 - 4: 240  $\Omega$  - 260  $\Omega$

Fault: Low  $\Omega$  reading or  $\infty$

## 5.8 Checking the power connection

The following approximate voltages must be measured on the connection points when the mains plug is plugged in or when the mains cable has been connected.

### 400 V mains, 3-phase (most widely used in Germany and Europe)

Terminals	Reading		
X19 / X20	30 V~ or 240 V~		
X19 / X18	approx. 0 V	or	230 V~ or 240 V~
X20 / X18	230 V~ or 240 V~		approx. 0 V

### 230 V mains, 3-phase (still used in parts of Europe, e.g. in France and Belgium)

Terminals	Reading
X19 / X20	230 V
X19 / X18	133 V~
X20 / X18	133 V~

### 230 V mains, 2-phase, symmetrical voltage distribution (still used in parts of Europe, but seldom, e.g. in France and Belgium)

Terminals	Reading
X19 / X20	230 V~
X19 / X18	115 V~
X20 / X18	115 V~

The functioning of the appliance is limited with this power supply. Running deviations of the clock in the minute section per day, since the clock reference cannot be taken from the power frequency. The clock reference in this case is the internal processor clock.

**Please note!** The F901 (8A) fuse is not a part of the power unit. It is in the electric circuit of the MW power supply.

*When the fuse is triggered the electronic module (relay board) must not generally be replaced. The MW components will need to be checked for a fault and the fault rectified.*

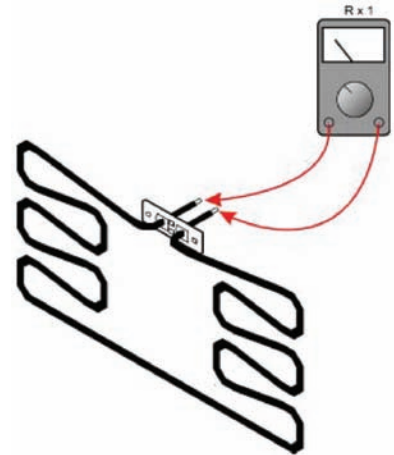
**(Exception: The short circuit has damaged the strip conductors (visual check).**

## 5.9 Checking the ring heater

7. Disconnect the power supply cables from the heater.
8. Measure the resistance of the heater element when cold.

Normal:  $80\ \Omega$  -  $90\ \Omega$

Fault: Low  $\Omega$  reading or  $\infty$

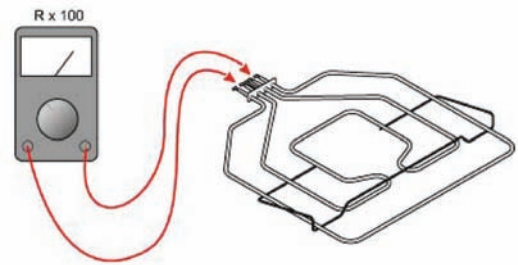


## 5.10 Checking the grill heater

9. Disconnect the power supply cables from the heater.
10. Measure the resistance of the heater element when cold.

Normal: external:  $40\ \Omega$  -  $60\ \Omega$   
internal:  $30\ \Omega$  -  $50\ \Omega$

Fault: Low  $\Omega$  reading or  $\infty$



## 5.11 Checking the bottom heat

11. Disconnect the power supply cables from the heater.
12. Measure the resistance of the heater element when cold.

Normal:  $30\ \Omega$  -  $50\ \Omega$

Fault: Low  $\Omega$  reading or  $\infty$

## 5.12 Possible complaints from customers about the swelling arrow (EMWK 9800.0 only)

If food is very moist or if the food comprises water (baking tray filled with water for preserving food) or if the load is large (baking on several levels) the last segment of the swelling arrow may not be switched on.

The temperature will still be regulated in the oven without any restrictions. Baking and cooking results will not be affected.

Any complaints which may be made are unjustified.

## 6. Cleaning

**Prior to all maintenance or cleaning work always pull out the mains plug and wait until the appliance has cooled down.**

The cavity is made of stainless steel and therefore cleaning is extremely easy. Always keep the cover panel of the microwave outlet opening free of oil and grease splashes.

Never use scouring agents, metal wool or sharp metal objects for cleaning the cavity. Moreover, make sure that no water or liquid cleaning agent enters the waste air and vapour extractor slits on the top of the appliance.

No alcohol, scouring agents or ammonia-containing cleaning agents are to be used for cleaning the inside and outside of the door.

To ensure perfect closing, always keep the inside of the door clean and make sure that dirt and food residues are not jammed between the door and the appliance front.

Regularly clean the fresh air openings on the rear of the appliance and the surface under the turntable so that they do not become clogged with dust and dirt over the course of time. Please contact the **Customer service** to check the fresh air openings on the rear of the appliance.

## 7. Safety precautions during troubleshooting

Before it leaves the factory, every appliance is carefully checked but it must be correctly installed and operated. In spite of all safety measures, safety depends on correct installation and correct operation and maintenance by the customer.



**Service technicians must never be exposed to the microwave radiation which can be emitted by the magnetron or other components producing microwaves if the appliance is not connected correctly or operated improperly. Make sure you observe the following instructions "5.1 Safety precautions - microwave energy" on page 9.**

### 7.1 Test program

#### Activating the test program

The test program can only be carried out when the power network has been reset (max. time after reset of 5 min.)

The following steps must be taken to activate the test program:

1. Press the clock button.
2. Press 90 W.
3. Press the clock button.
4. Press 900 W.
5. Press the start button.

Acknowledgement appears in the text display, all of the segments light up and a signal will sound.

#### Acknowledgement of a program start with door open/close or only door close.

Line 1 of the LED display will show "Test" and line 2 will show the software status of the electronic unit.

If the door is opened again line 2 of the display will show "Close door".

#### Deactivating the test program

1. Cut off the power supply.
2. Press the stop button for approx. 6 seconds.
3. Do not press any buttons for 10 minutes.

Once the test program has been activated the following tests may be carried out:

- Testing the individual consumers
- Testing the converter
- The debug mode
- Testing the control elements



## 7.2 Testing the individual consumers

### 7.2.1 EMWK 9600.0

Start up the test program.

Buttons to press	Symbols displayed	Clock display	Consumers
Press the clock button once		01	
Press the plus or minus button	None	A1	Time, end (opener)
		A2	Cooling fan + magnetron fan + vapour fan
		A3	Antenna motor + converter
		A4	Oven lamp

### 7.2.2 EMWK 9800.0

Start up the test program.

Buttons to press	Symbols displayed	Clock display	Text display	Consumers
Turn the temperature knob clockwise (one lock-in)	None		Test Output	
Turn the program knob clockwise (one lock-in each)		A1:A6		Grill, interior + oven lamp
		A2:A6		Grill, exterior + oven lamp
		A3:A6		Ring heater + oven lamp
		A4:A6		Bottom heat + oven lamp
		A6		Universal disconnection + oven lamp
		A7		Magnetron fan + cooler fan
		A8		Vapour fan, slow
		A9		Vapour fan, fast
		A11		Antenna motor + converter + oven lamp
		A12		Recirculation motor

### 7.3 Testing the converter

1. Start up the test program.
2. Turn the temperature knob clockwise (three lock-ins).

Display:     Test converter  
              Water Load

3. Press the start button.

Test is carried out at 900W for 2 minutes. **Only carry out the test with the door closed!!!**

Once the test has been completed a corresponding error message will be shown in the clock display.

Possible error messages are indicated under "10. Troubleshooting" on page 23 .

### 7.4 Testing the control elements

#### 7.4.1 EMWK 9600.0

Start up the test program.

Buttons to press	Symbols shown	Clock display
Press the clock button once	LED_CLOCK	02
Door contact open	None	00:
Door contact closed	None	:00
MW power button 90 W	LED_MW1	11:11
MW power button 180 W	LED_MW2	22:22
MW power button 360 W	LED_MW3	33:33
MW power button 600 W	LED_MW4	44:44
MW power button 900 W	LED_MW5	55:55
Start button	None	0S:00
Stop button	None	0S:01 + and error signal (no time limit)

### 7.4.2 EMWK 9800.0

Start up the test program.

Buttons to press	Symbols shown	Clock display	Text display
Turn the program knob clockwise (two lock-ins)	None		Test Input
Door contact open	None	00:	
Door contact closed	None	:00	
MW power button 90 W	LED_MW1	11:11	
MW power button 180 W	LED_MW2	22:22	
MW power button 360 W	LED_MW3	33:33	
MW power button 600 W	LED_MW4	44:44	
MW power button 900 W	LED_MW5	55:55	
Button for changing the line in the text display	None	. kg	
Rapid heating button	LED_rapid heating		
Memory button	LED_Memory	1 2 3 4 5 6	
Clock button	LED_clock	"	
Minute minder button	LED_MM	h min	
Start button	None	0S:00	
Stop button	None	0S:01 + and error signal (no time limit)	

## 7.5 The debug mode

### 7.5.1 EMWK 9600.0

Start up the test program.

Buttons to press	Symbol display	Clock display	Designation
Press the clock button once	None	04	
Start button			Start the debug mode
Any button	None		• Timer 10x faster
Error has occurred		Error	• Error shown in the clock display

### 7.5.2 EMWK 9800.0

Start up the test program.

Buttons to press	Symbol display	Clock display	Text display	Designation
Turn the temperature knob clockwise (fourth lock-in)	None	None	Test debug Mode	
Start button			Oven temperature	Start the debug mode
Any button				• Timer 10x faster
Error has occurred		Error		• Temperature setting in line 2 of the text display • Error shown in the clock display

Possible error messages are indicated under "10. Troubleshooting" on page 23.

## 8. Leak test (leak indicator gauge)

The rate of leak is understood as the microwave energy that escapes from the oven despite intact leak systems. It is measured with suitable measuring instruments as energy density at 5 cm intervals. A measuring unit is  $\text{mW}/\text{cm}^2$ . Limits for permissible readings and the conditions for measurement are stipulated in VDE regulation 0700/No. 25. They are as follows:

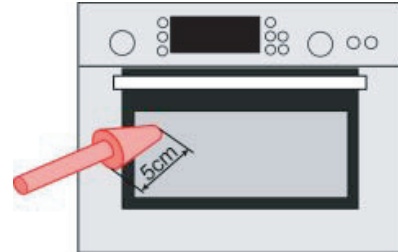
### 8.1 Abnormal operation (no-load operation)

Microwave output power: Maximum 1000 W

Load: None (no-load operation)

Max. permissible reading:  $10 \text{ mW} / \text{cm}^2$

Measuring interval: 5 cm



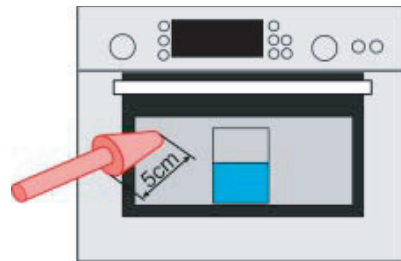
### 8.2 Normal operation, loaded

Setting: Maximum power level of the appliance

Load:  $275 \text{ cm}^3$  water

Permissible limit:  $5 \text{ mW} / \text{cm}^2$

Spacing: 5 cm



This test is to be performed on the door, the lock, the microswitches and the magnetron every time maintenance work has been carried out.

#### Test equipment

- 600 ml glass beaker
- Microwave measuring instrument

#### Test procedure

1. Pour 250 ml of water into the beaker and then place this in the centre of the microwave oven.
2. Switch on the microwave oven. Set it to 5 minutes at the maximum power level.
3. Hold the test sensor of the microwave measuring instrument vertical to the door edge of the appliance and slowly move it along.

#### The following areas must be tested for microwave leaks:

- Door and control section
- All ventilation slits
- All folded joints
- Weld on the underside
- Base plate

#### Procedure:

1. Open the door just so much that the appliance is not switched off.
2. The distance between the door and the sensor must not be less than 5 cm.  
The maximum admissible radiation leak is  $4 \text{ mW} / \text{cm}^2$ .

## 9. Measuring the output power of the magnetron

The following procedure provides information on the working conditions of the magnetron but it does not reproduce an accurate measurement of the microwave output power.

The test load is one litre (1000 ml) of water with a starting temperature of 15 - 24 °C in a container with a capacity of 1000 ml. The use of a different amount of a different material may lead to a distortion of the test results.

**Proceed as follows to measure the output power:**

1. Measure the voltage of the AC power and set the voltage to the correct value.
2. Remember that the test result is affected by the value of the supply voltage.
3. If the voltage is too high or too low, the test result is not accurate.
4. Place a container holding exactly 1000 ml of water at 15 - 24 °C in the centre of the microwave oven.
5. Use an accurate thermometer to measure the exact starting temperature (T1).
6. Run the appliance for 63 seconds at maximum power.
7. At the end of this period quickly stir the water and read off the final temperature of the water. The difference between the final temperature T2 and the initial temperature T1 represents the rise in temperature.

**Result:** *The microwave output power of the appliance can be determined with the following formula:  $P (W) = 70 \times (T_2 - T_1)$   
If the output power is more than 15% of the nominal rating of the microwave oven, the high-voltage capacitor and possibly also the magnetron must be replaced.*

### Determining the microwave output

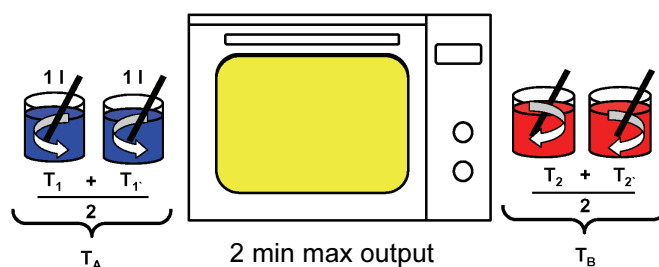
The PAb output is determined by heating up a certain quantity of water (cold tap water).

#### Required:

- 2 vessels suitable for microwave ovens each holding 1 litre.
- 1 thermometer with an immersion sensor.

#### Procedure:

1. Determine the initial temperature (average).
2. Cooking time 2 min. at max. power.
3. Determine the final temperature (average).
4. Calculate the difference in temperature.
5. Calculate the output.



$$(T_B - T_A) \times 70 + 100 = P_{Ab} [ \text{Watt} ]$$

## 10. Troubleshooting

Fault	Cause / Remedy
The appliance does not work.	<ul style="list-style-type: none"> <li>The door is not properly closed.</li> <li>The plug is not properly inserted into the socket outlet.</li> <li>There is no electricity in the socket outlet. (Check the house fuse.)</li> </ul>
Condensation on the cooking surface, inside the cavity or near the door.	<ul style="list-style-type: none"> <li>If food containing water is cooked, it is completely normal for the steam which forms inside the appliance to precipitate in the cavity, on the cooking surface or on the door frame as condensation.</li> </ul>
Sparkling in the appliance.	<ul style="list-style-type: none"> <li>In the modes with microwaves and in combination mode, do not operate the appliance without food.</li> <li>In the above-mentioned modes do not use any metal containers, bags or packing with metal clips for cooking.</li> </ul>
The food does not heat up and is not cooked through.	<ul style="list-style-type: none"> <li>Select the correct cooking function or increase the cooking time.</li> <li>The food was not completely thawed out before the cooking process.</li> </ul>
The food burns.	<ul style="list-style-type: none"> <li>Select the correct cooking function or reduce the cooking time.</li> </ul>
The food is not cooked evenly.	<ul style="list-style-type: none"> <li>Stir the food during the cooking process.</li> <li>Note that the food cooks better when it has been cut into pieces of the same size.</li> </ul>

### Note!

If the bulb for the interior lighting goes, the appliance can still be readily used. Contact an **authorised customer service office** to replace the bulb.

## 10.1 Error messages

### 10.1.1 EMWK 9600.0

Error specification	Error code	Possible causes of faults	Possible repair measures
MW operation, start sequence: magnetron does not start	E7	See fault-finding tree	
MW operation, start sequence: converter does not react when activated	E8		
MW operation, run mode: microwave oven defect during operation	E9	Converter defect	Replace converter
		Magnetron defect	Replace magnetron



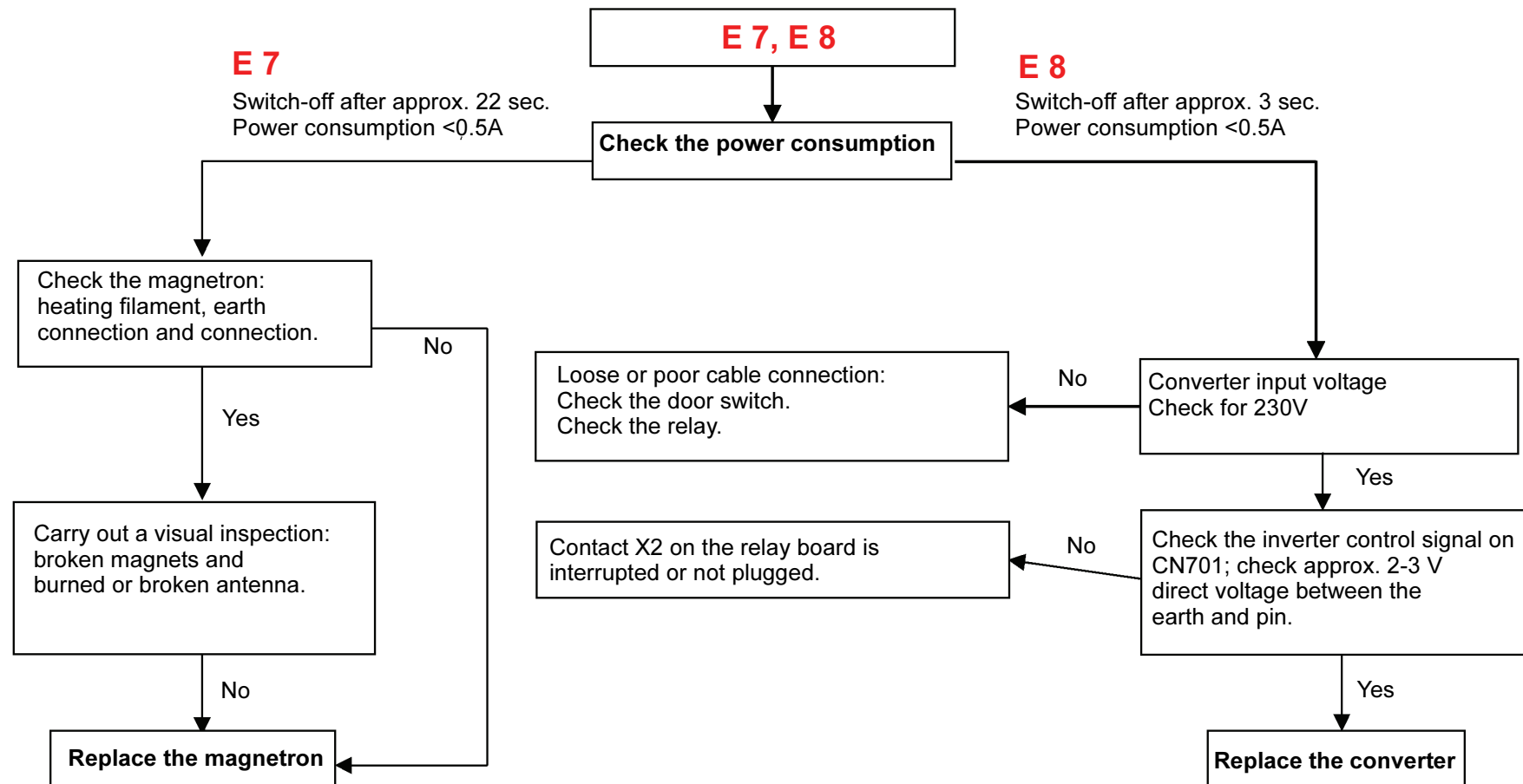
### 10.1.2 EMWK 9800.0

Error specification	Error code	Possible causes of faults	Possible repair measures
Oven temperature probe highly resistant	E1	Oven temperature probe defect	Replace temperature probe
		Relay board defect	Replace relay board
	E1 unstable	MW leakage radiation (leak in the oven, etc.)	Replace appliance
Low-resistance oven temperature	E2	Oven temperature probe defect	Replace temperature probe
		Relay board defect	Replace relay board
	E2 unstable	MW leakage radiation (leak in the oven, etc.)	Replace appliance
Microwave oven operation, start sequence: Magnetron does not start	E9	See fault-tracing tree	
Microwave oven operation, start sequence: con- verter does not react when activated	E10		
Microwave oven operation, run mode: MW defect during operation	E11	Converter defect	Replace converter
		Magnetron defect	Replace magnetron
ROM fault	E16	Relay board defect	Replace relay board
EEPROM fault	E17	Relay board defect	Replace relay board

## 10.2 Fault tracing tree

### 10.2.1 EMWK 9600.0

Appliance switches E7 off after 22 seconds or E8 off after 3 seconds in microwave operation.



## 10.2.2 EMWK 9800.0

Appliance switches E10 off after 3 seconds or E9 off after 23 seconds in microwave operation.

