



Microwave oven
EMW 7505.0

Service Manual: H4-70-14-02

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1. Safety



Danger!

*All work and repairs may only be carried out by a qualified service technician.
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!
- Prior to repairs, disconnect the appliance from the mains!
- When inspecting live parts, an earth leakage circuit breaker 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!



Attention!

It is essential to observe the following notes :

- Always disconnect the appliance from the mains before starting repair work! Always use an earth leakage circuit breaker if tests are required while the appliance is energised.
- 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!**



Sharp edges! Use protective gloves.



Components may be electrostatic!

Observe handling precautions!

Electric connection

- Only connect the appliance to socket outlets with a fuse of at least 16 A. Also check that the main fuse of your home has a minimum output of 16 A so that it does not suddenly blow during operation of the microwave oven.
- 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.

2. Features and installation

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 Features

- Light and modern design in stainless steel or aluminium look
- Easiest built in system
- Available for different cupboard widths
- Thin glass door
- Control panel on the top
- Big cooking cavity with interior lighting, 20 cm round plates or 39 cm oval plates possible to use

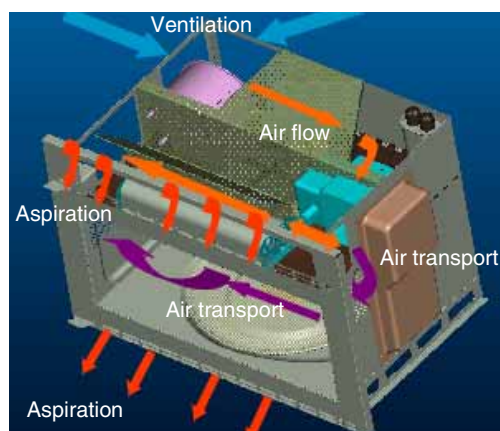


2.3 Technical data

| | |
|--|--|
| Voltage / Frequency | 230V - 50Hz |
| Power consumption | 6,7 A |
| Total electrical connection | 1300 W |
| Microwave output | 750 W (max) (4 levels) |
| Power consumption | 1300 W |
| Appliance dimensions (WxHxD) | 495 x 382 x 313 mm approx. |
| Niche dimensions (WxHxD) | 460 x 362 x 300 mm approx. |
| Cooking cavity dimensions (WxHxD) | 370 x 205 x 290 mm approx. (22 litre capacity) |
| Weight | approx. 20 kg |
| Electronic timer | 30 min. |

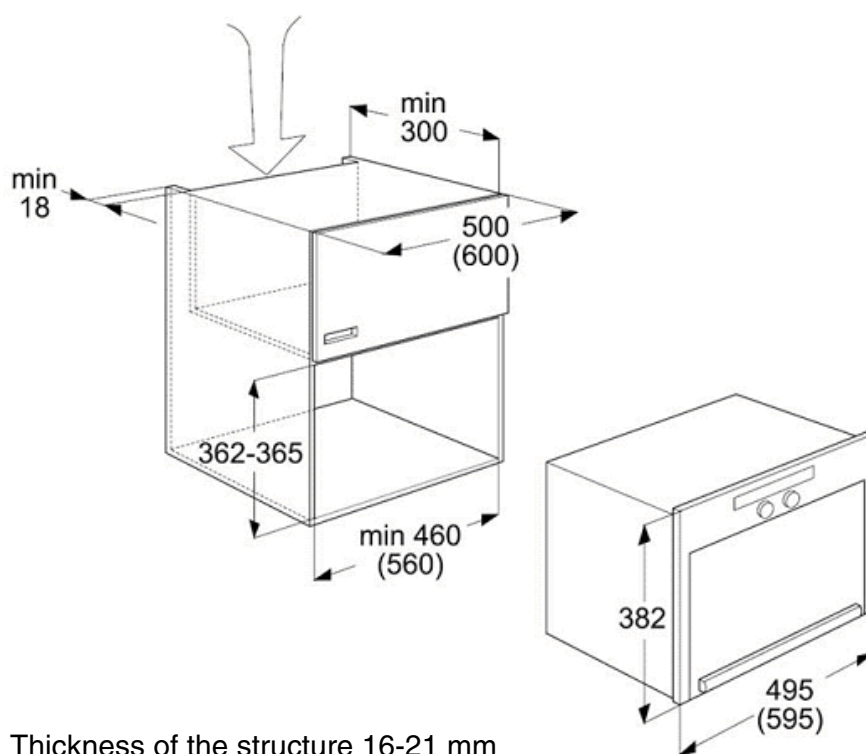
2.4 Ventilation

The appliance has no ventilation slits at the sides of the front panel. The air flow takes place as shown in the illustration.



2.5 Installation

Please see the illustration for the exact installation dimensions.



Appliance dimensions

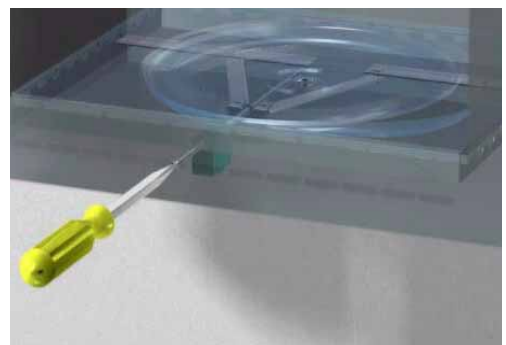
| | |
|--------|--------|
| Height | 382 mm |
| Width | 495 mm |
| Depth | 313 mm |

Procedure

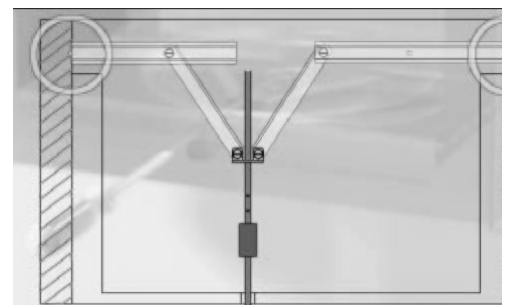
Plug in the appliance and place it in the middle of the cupboard.



Fix the product, by turning the screw with a 2mm allen-key, which is coming with the product as shown in the illustration.

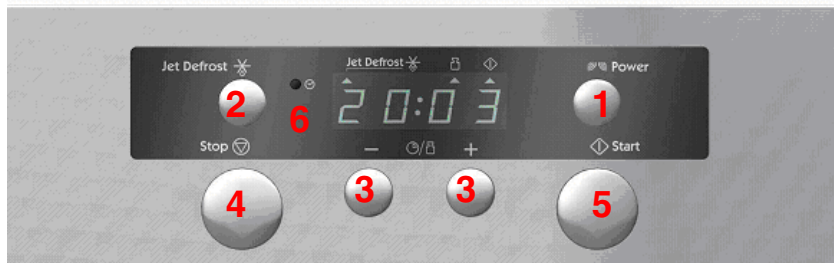


The microwave oven will be centered and fixed automatically by the new fixing system.



3. Functions

3.1 Control panel



- | | | |
|---|-------------|--|
| 1 | POWER | for setting the power level (0, 160, 350, 500, 750 W) |
| 2 | JET DEFROST | for selecting "Rapid Defrost" |
| 3 | + / - | to set weight, time and clock |
| 4 | STOP | to pause cooking and access test mode |
| 5 | START | Start of the "Rapid Defrost" function, normal start or after the food has been turned during the "Rapid Defrost" period. |
| 6 | Clock | 24 hour mode |

3.2 Setting the clock

Keep the door open while setting the clock. This gives you 5 minutes to complete the setting. Otherwise, each step must be accomplished within 30 seconds.

1. Press the CLOCK button until the left-hand digits (hour) flicker.
2. Press the PLUS or MINUS button to set the hour.
3. Press the CLOCK button again until the right-hand digits (minutes) flicker.
4. Press the PLUS or MINUS button to set the minutes.
5. Press the CLOCK button again to confirm the setting.

3.3 Timer

Use this function when you need a kitchen timer to measure exact time for various purposes.

1. Press the PLUS or MINUS button to set the desired time.
2. Press the POWER button repeatedly to set the power to 0 W.
3. Press the START button.

An acoustic signal will be heard when the timer has finished to count down.

3.4 Cooking and Reheating

Use this function for normal cooking and reheating.

1. Press the PLUS or MINUS button to set the desired time.
2. Press the POWER button repeatedly to set the desired power level.
3. Press the START button.

Once the cooking process has been started the time can easily be increased in 30-second steps by pressing the START button. Each press increases the time with 30 seconds. You may also alter the time by pressing the PLUS or MINUS button to increase or decrease the time. Pressing the POWER button may also change the power level.

An acoustic signal will be heard when the cooking has finished and "E N D" is shown in the display. The signal will sound once a minute for 10 minutes, after which all of the functions will automatically be stopped.

Attention! *Once the cooking process has been completed, the fan, the lamp and the rotating plate will remain switched on until:*

- *the door is opened (the ventilator and the lamp will remain switched on when the door is open);*
- *a function button or the POWER button is pressed;*
- *the 10 minutes have lapsed.*

3.5 Rapid Defrost

Rapid Defrost should only be used if the netweight of the frozen food is between 100 - 2000 g.

1. Press the JET DEFROST button.
2. Press the PLUS or MINUS button to set the weight of the food.
3. Press the START button.

The oven stops and prompts you to "TURN FOOD" once the time set is up. Open the door, turn the food, close the door and restart by pressing the START button. The oven continues automatically after 2 minutes if the door hasn't been opened.

If:

- the weight is lesser than 100g or greater than 2 kg, choose 160 W when defrosting and follow the procedure for "Cooking and Reheating";
- the food is warmer than the deep-freeze temperature (+18°C), choose lower weight of the food;
- the food is colder than the deep-freeze temperature (+18°C), choose higher weight of the food.

3.6 Rapid Start

This function is used for quick reheating of foods with a high water content such as clear soups, tea ... Press the START button: the appliance starts with full microwave power and the cooking time is set to 30 seconds. Each additional press increases the time with 30 seconds to a maximum duration of 3 minutes. You may also alter the time by pressing the PLUS or MINUS button to increase or decrease the time.

3.7 Children's safety device / Start blocking

The appliance will lock either after it has been switched off or one minute after switching to the standby mode, and it will not be possible to restart it. In order to restart the oven, the door must firstly be opened and then closed again immediately. If it is not closed again immediately, "D O O R" will appear on the display.

3.8 Exceeding time limits

The following time intervals apply:

- 1 minute after closing the door and
- 10 minutes after opening the door, after which the appliance will switch over to the standby mode.
- 10 minutes after the cooking process has been completed.

The timer can be reset after interruptions by opening and closing the oven door and by pressing the POWER button.

4. Cleaning



**Prior to all maintenance or cleaning work always pull out the mains plug and wait until the appliance has cooled down.
Please heed the safety instructions on “Components” on page 12.**

The cooking 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.

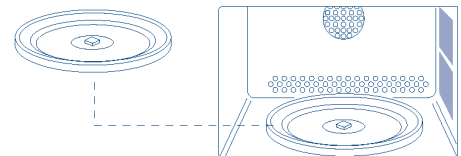
To ensure perfect closing, always keep the inside of the door clean and make sure that dirt and food residues are not jammed between the door and the appliance front.

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.



The turntable and the corresponding holder should also be removed for cleaning and the bottom of the microwave oven cleaned from time to time.

Clean the turntable and the holder with normal washing-up liquid. Adding some lemon juice to a cup of water, placing this on the turntable and boiling for a few minutes can eliminate odours inside the oven.



Do not operate the oven without the turntable in place.

Do not immerse the turntable after prolonged heating in cold water, it would break owing to the severe temperature shock.

The turntable support, the turntable and its cover and the baby bottle holder are dishwasher safe.

5. Components

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 is operated improperly.



All microwave terminals for input and output, the wave guide and all flanges and seals must be fastened and sealed correctly.



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



Never look into an open waveguide or an antenna when the magnetron is under voltage.



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:

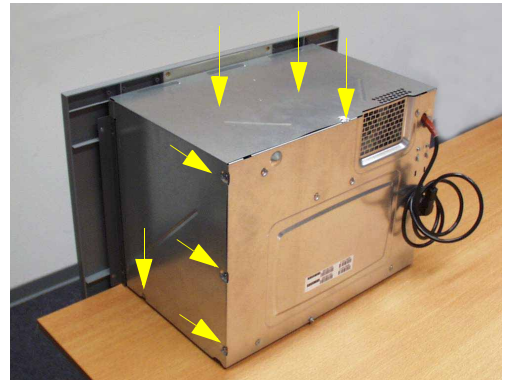
- If the door does not close properly and does not fit the frame because it is distorted or because the hinges have been damaged.
- If the door or the door seal are damaged.
- If the appliance shows obvious signs of damage.

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 Housing

After removing 11 screws on top and on the sides of the cavity, remove the cover by lifting the sides and pull the cover to the rear.

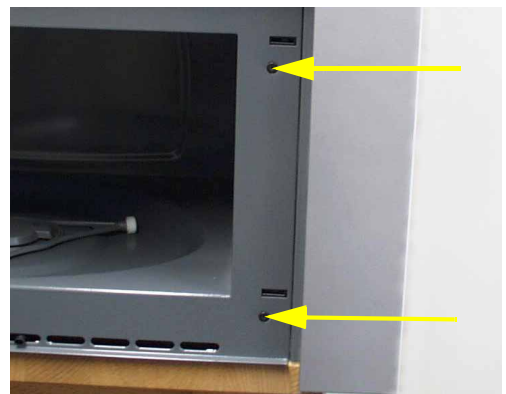


5.3 Microswitches

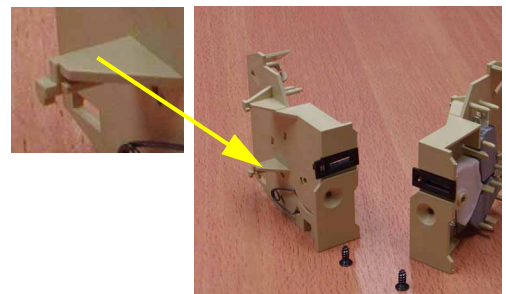
The 3 microswitches are mounted on holders on the right side of the door behind the front wall.



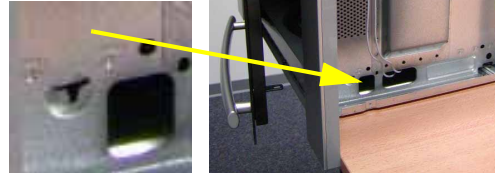
The 2 holders are fixed with two screws behind the door.



Both holders are additionally clipped on the side wall of the cavity (see the arrow).



Maybe you have to bend the plate (see the small picture on the left) to remove the lower holder.



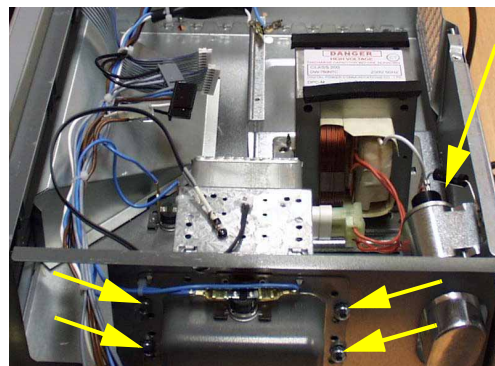
5.4 Magnetron

To remove the magnetron disconnect the power board, the fan motor connection and the primary connections of the HT-transformer.

Remove the support which is fixed with 3 screws from outside (see the arrow)



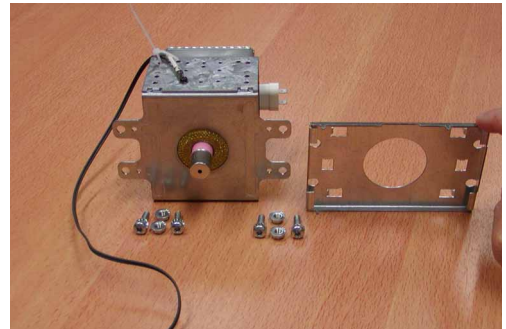
Disconnect the HT-transformer from the magnetron and the HT-capacitor.



Then remove the two screws on the rear panel of the appliance and remove the HT-transformer (see the arrows). Then the magnetron can be disassembled by removing the 4 screws on the side wall (see the arrows).



Magnetron with holder, screws and overheat protection (NTC).



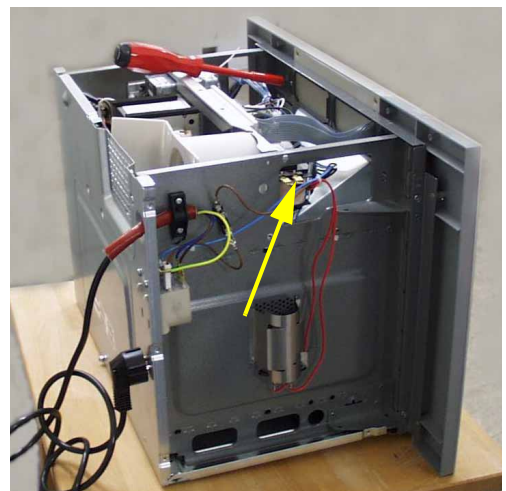
HT-transformer with HT-diode (A)

HT-capacitor on the mounting plate (B)

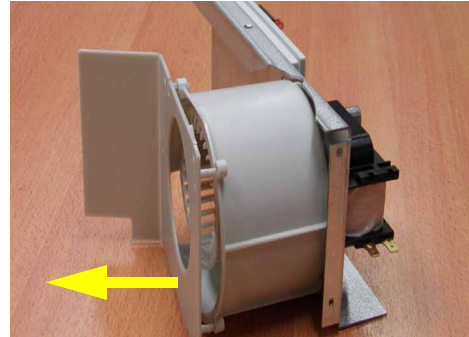


5.5 Fan and fan motor

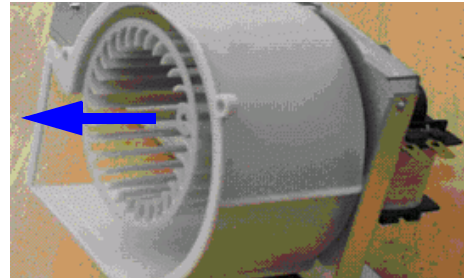
Disconnect the fan, shown by the arrow and remove the support (see the description "Magnetron" on page 14).



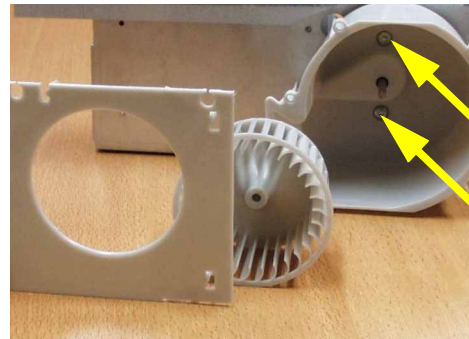
4. Then remove the top panel of the fan housing by unclipping it.



5. The wheel can be pulled out from the housing as shown by the arrow.

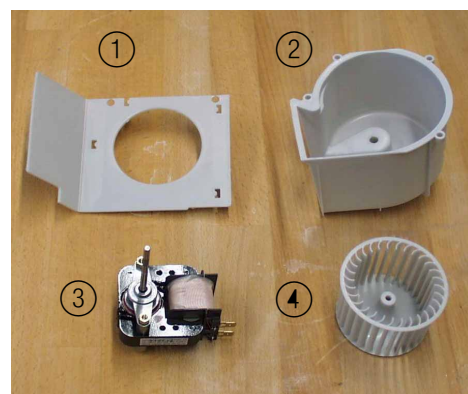


6. Behind the fan wheel are two screws to remove the fan motor from the support.



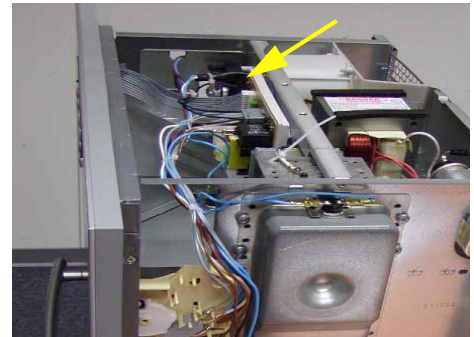
After disassembly the fan divides in

- ① top panel
- ② housing
- ③ fan motor
- ④ fan wheel

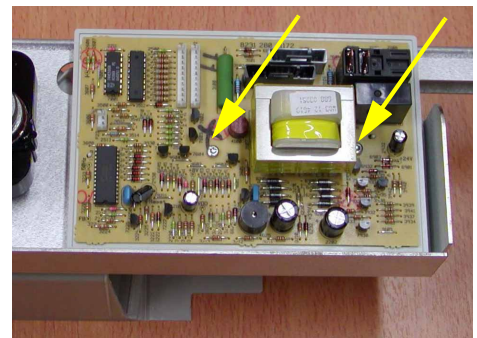


5.6 Power board

Disconnect the power board and remove it with the support (see "Magnetron" on page 14).



Then the power board is removable from its frame by removing two screws on the board.

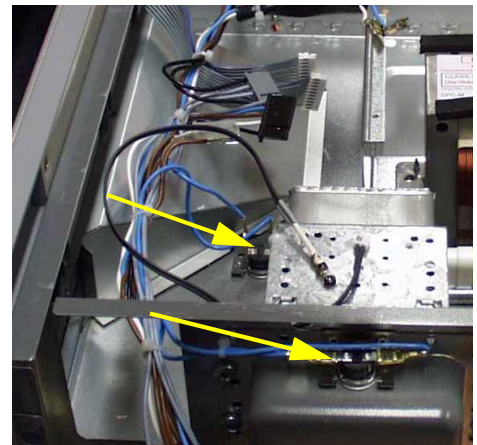


5.7 Safety thermostats

The cavity safety thermostat is located in front of the power board at the cavity top panel. It is just to disconnect and clip out of the frame.

A second safety thermostat is located on top of the magnetron channel.

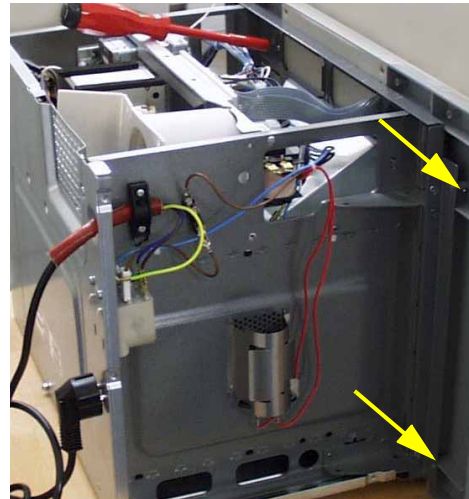
Both will open the circuit if the temperature rises to more than 115 °C, the only difference is the position of the terminals. On the cavity they are vertical and on the magnetron they are horizontal.



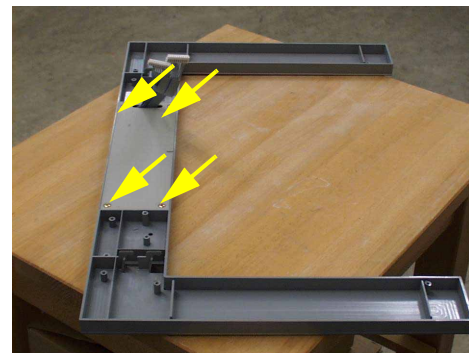
5.8 Front panel and display

Disconnect the two flat cables from the display on the power board.

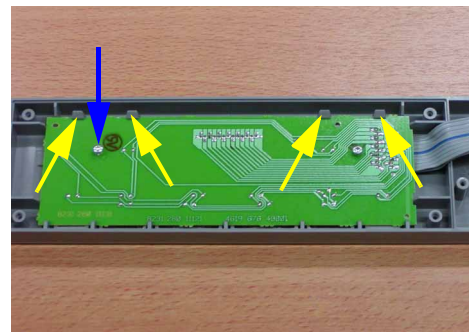
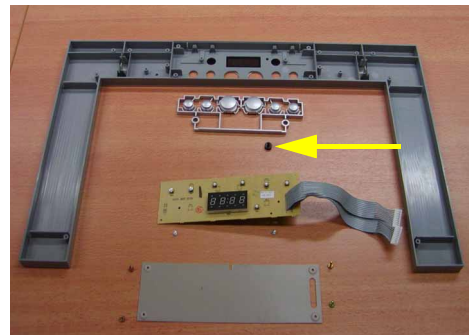
To disassemble the front panel you have to remove 6 screws (see the arrows and the screwdriver).



Remove the 4 screws at the bottom plate of the display and remove the plate too.

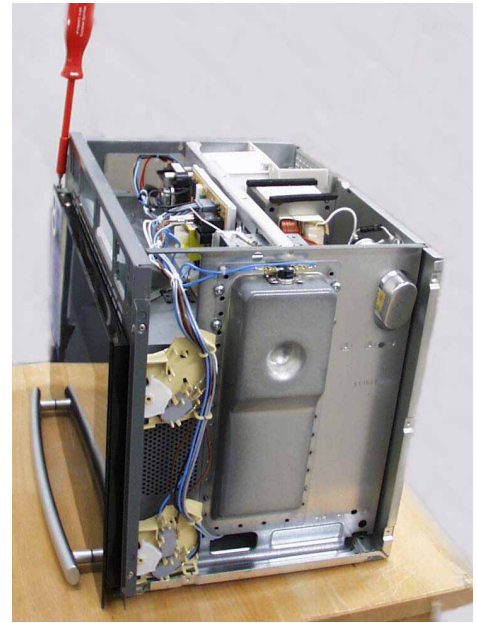


After removing the 2 screws on the display, unclip the board. Then the panel divides in 4 components and the clock setting knob (see the arrow).

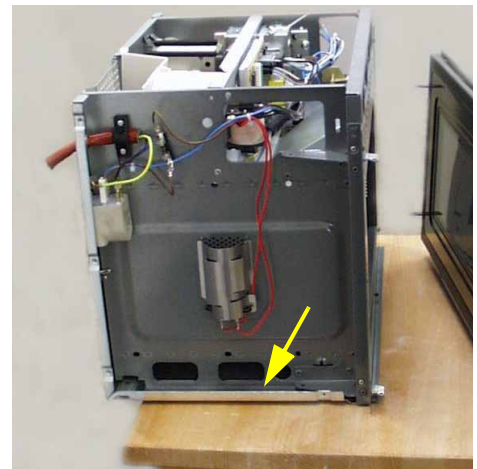


5.9 Door

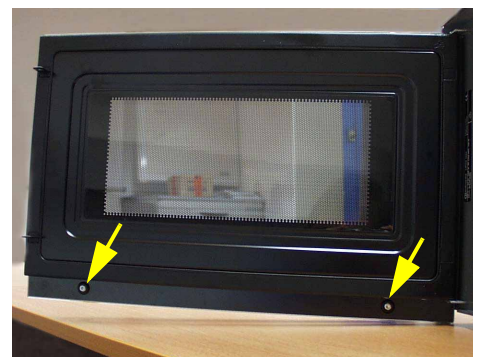
After removing the front panel remove the screw on top hinge of the door.



Open the door, tip it, then lift the door to remove it from the bottom hinge.



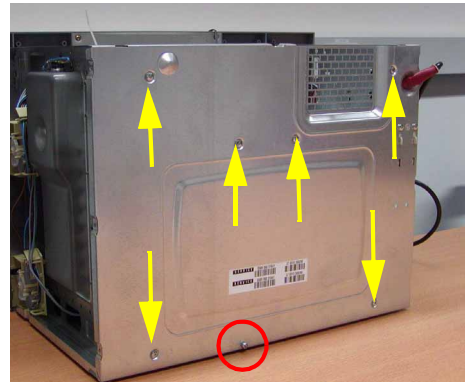
To disassemble the handle remove the two screws on the inside of the door.



5.10 Fixation system and turntable motor

To reach the fixation system remove the 6 screws which are highlighted with arrows. Then the back panel can be pulled away.

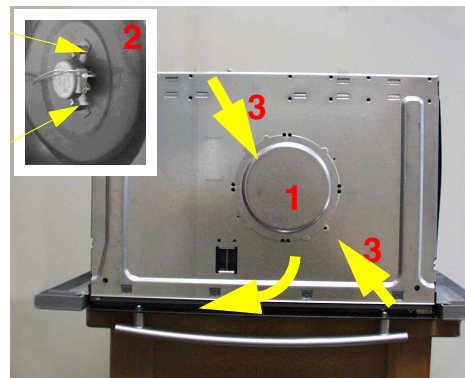
To remove the fixation system lie the microwave oven on the door; take care of glass and handle. **Don't remove** the nut of the fixation system (see circle above).



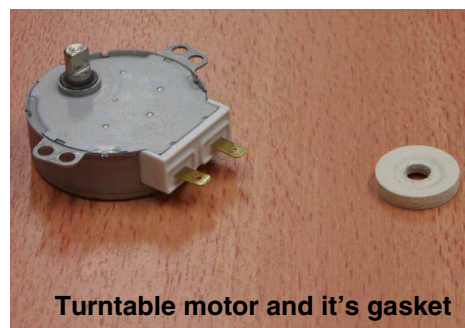
Bottom plate is fixed like a clip system (see the arrows).



To reach the turntable motor just cut out the foreseen part of the bottom plate (1). Then disconnect the motor (2) and remove the 2 screws (3).



To re-assemble the motor plate you have to fix the plate with 2 screws.



6. 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 or 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 T2. 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:

$$P (W) = 70 \times (T2 - T1)$$

If the output power deviates from the nominal rating of the microwave oven by more than 15%, the high-voltage capacitor and possibly also the magnetron must be replaced.

7. Component check

7.1 Magnetron check - Resistance measurement

Resistance measurement:

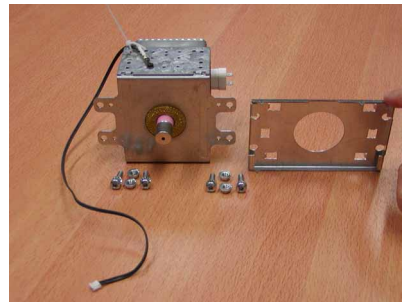
With ohmmeter (scale Rx1) between the connections of the heating filaments of the magnetron.

With ohmmeter at maximum measuring range between each of the heating filament connections and the earthed frame.

Target value:

$> 1 \Omega$

infinite



7.2 High-voltage transformer

Resistance measurement:

With ohmmeter (scale Rx1)

Primary coil

Heating filament

Secondary coil

With ohmmeter at maximum measuring range

Primary coil - earth

Primary coil - earth

Target value:

ca. $1,24 \Omega$

$> 1 \Omega$

ca. 87Ω

infinite

infinite



7.3 High-voltage capacitor

Resistance measurement:

With ohmmeter at maximum measuring range between each connections.

Target value:

Briefly several ohms, then back to "infinite"

Capacitor defective:

Continuity or "infinite" from the very start



Caution! Before checking parts of the high-voltage circuit, always discharge the high-voltage capacitor.

7.4 Diode

Checking the diode

Create a circuit with 12 V DC and a 2.5 V lamp between the connections.

Normal result

The lamp is either on or off, depending on the direction of current.

Diode defective

Lamp lights up too brightly: short circuit

Lamp is never on: open circuit

7.5 Microwave leak test

This test is to be performed after every type of maintenance work on the door, closing device, microswitches and magnetron.

Test equipment

- 600 ml glass beaker
- Microwave measuring instrument

Test procedure

Pour 250 ml of water into the beaker and then place this in the centre of the microwave oven.

Switch on the microwave oven. Set it to 5 minutes at the maximum power level.

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

- Open the door just so much that the appliance is not switched off.
- The distance between the door and the sensor must not be less than 5 cm.
- The maximum admissible radiation leak is 4 mW / cm².

8. Troubleshooting

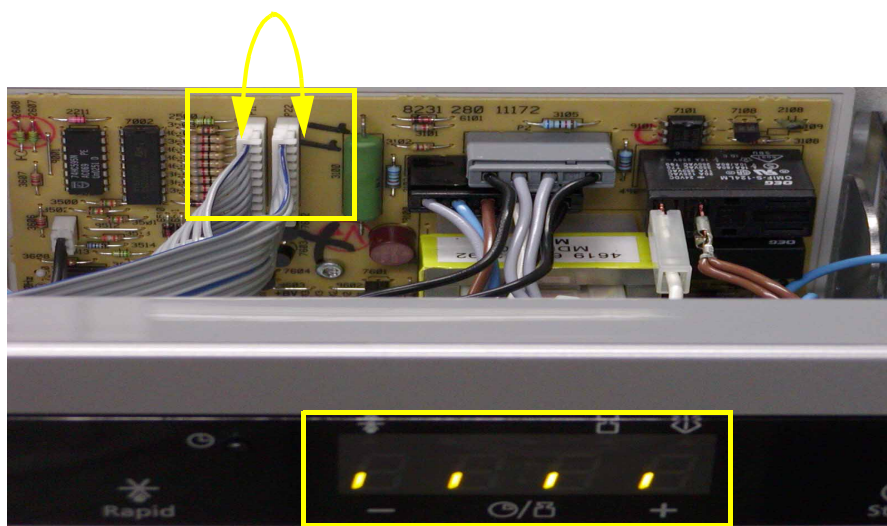
Every appliance is carefully tested before it leaves the factory. However it is important that it is assembled and operated correctly. Despite all safety measures, the safety of the appliance depends on it being correctly installed. It is equally important for the user to operate the appliance correctly and to carry out the appropriate maintenance measures.

WARNING 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 is operated improperly.

8.1 Fault codes



Some defects are indicated in the display

| Fault codes | Description |
|-------------|--|
| ERR 0 | Hot air temperature sensor defect. Interruption/short circuit or not connected properly. |
| ERR 1 | Short circuit in the microwave relay. |
| ERR 3 | Button error if one of the buttons is pressed for longer than a minute. |
| ERR 6 | Weight sensor not calibrated. The weight sensor must always be calibrated on replacing the electronics unit or the weight sensor. |
| ERR 7 | Humidity sensor defect or not properly connected. |
| ERR 8 | Not possible to store in EEPROM. (Electronic defect) |
| ERR 9 | Electronic option not stored. (Electronic defect) |

| Fault codes | Description |
|-------------|---|
| ERR A | No rollers or rotating plate in the oven. |
| ERR B | The weight sensor has no impulse. Sensor defect or not properly connected. |
| ERR C | Fuzzy temperature sensor defect or not properly connected. |
| ERR D | NTC overheating protection device on the magnetron is defect (not activated or short circuit) |
| DOOR | This is not a fault code. It indicates that the door was not opened before starting up the oven (no-load operation protection device) |
| PLATE | This is not a fault code. It indicates that there is no rotating plate in the oven. |

8.2 Faults, causes and remedy

| Fault | Possible Cause / remedy |
|--|--|
| The appliance does not work. | <ul style="list-style-type: none"> • The door is not properly closed. • Check the fuses and check for loose connections. • Check the safety thermostats and their connections. • Check the connection of the black flat cable coming from the control board. |
| Four vertical stripes on the display | <ul style="list-style-type: none"> • Check the flat cable connection. |
| Audible relay pulses after the start. | <ul style="list-style-type: none"> • Relay short circuit? • Micro-switch on the base plate engaged before the door was closed. |
| No lighting and/or appliance cooling system and/or rotating plate not functioning. | <ul style="list-style-type: none"> • Check that the grey flat cable coming from the control panel has been properly connected. |
| The time is displayed after starting, but the appliance does not work. | <ul style="list-style-type: none"> • Micro-switch on the floor plate engaged before the door was closed. <p>Attention! The door can easily be closed, since it is not possible to recognize from the outside whether the switch has engaged or not.</p> |
| Condensation on the cooking surface, inside the cavity or near the door. | <ul style="list-style-type: none"> • 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. |
| Sparkling in the appliance | <ul style="list-style-type: none"> • In the modes with microwaves and in combination mode, do not operate the appliance without food. • In the above-mentioned modes do not use any metal containers, bags or packing with metal clips for cooking. |
| The food does not heat up and is not cooked through. | <ul style="list-style-type: none"> • Select the correct cooking function or increase the cooking time. • The food was not completely thawed out before the cooking process. |
| The food burns. | <ul style="list-style-type: none"> • Select the correct cooking function or reduce the cooking time. |