CM140

Caple Built in Microwave

Technical information

CM140

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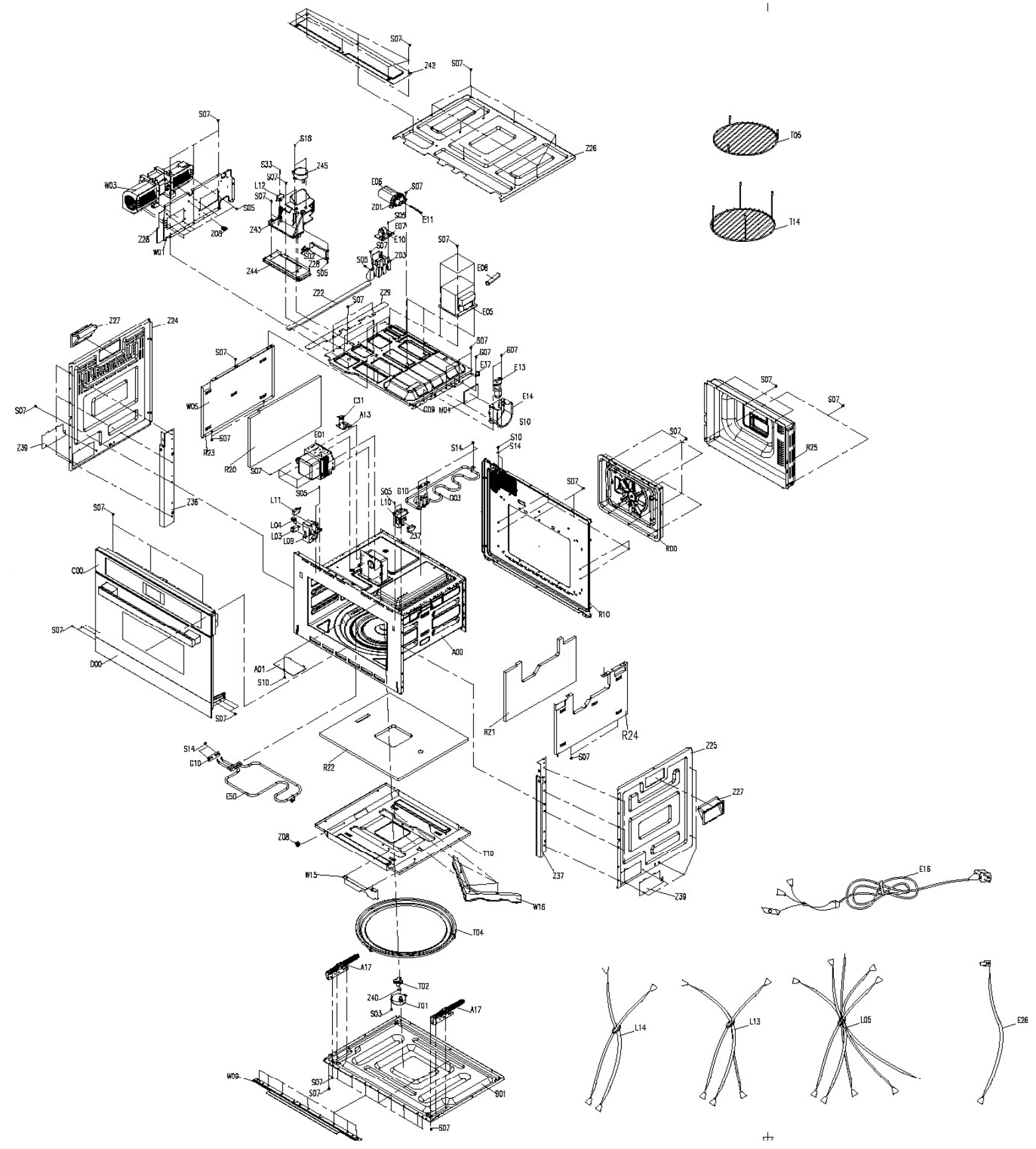

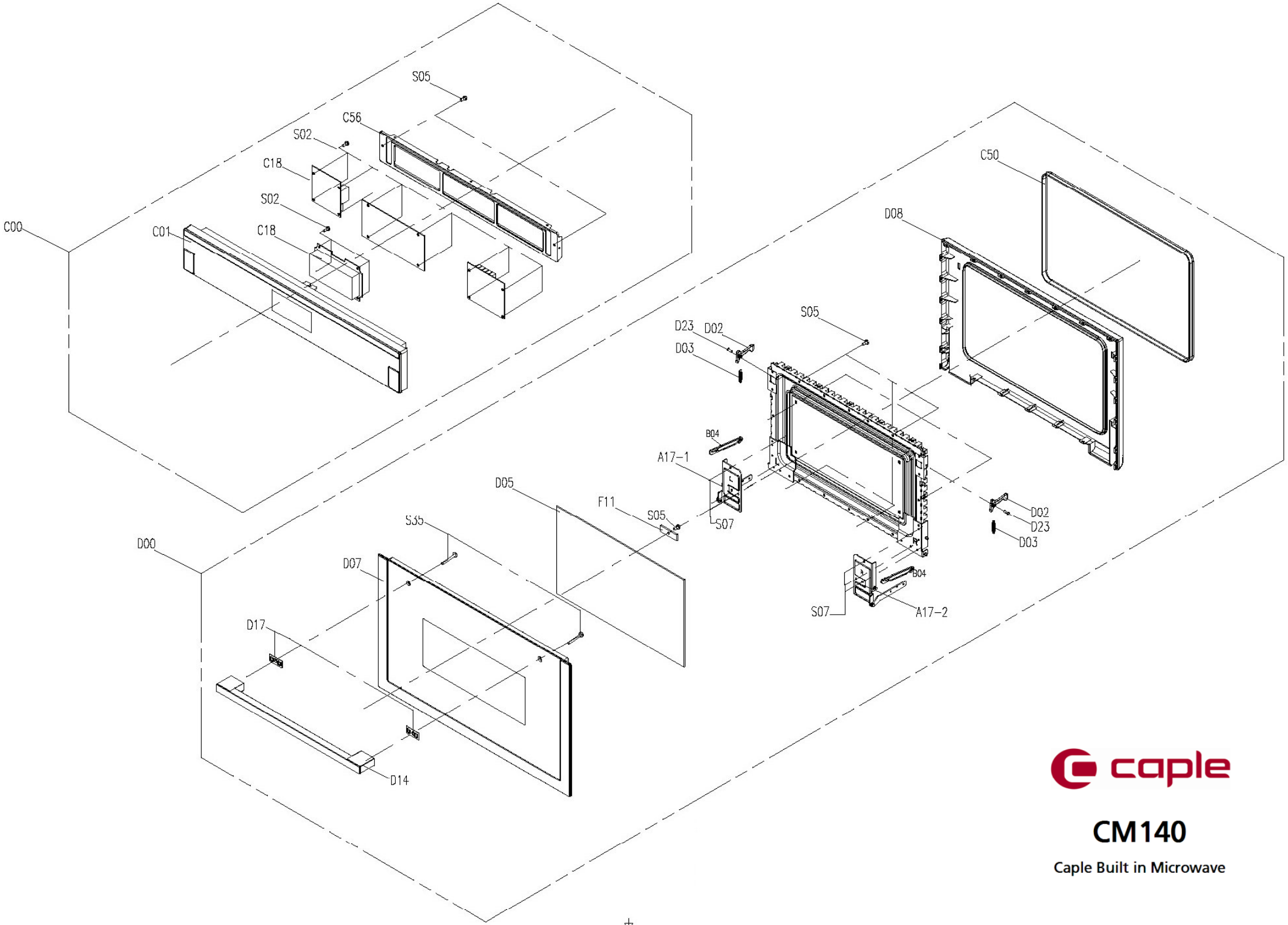

caple

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Item	Part Code	Description	Qty
0	11300410000018	RING	2
0	12171100000295	Handle	2
A00	12270000004942	ASS'Y CAVITY	1
A01	12570000000067	SPLASH COVER	1
A16/A13	12270000008244	THERMOSTAT BRKT.	1
A17	12270000005573	ASS'Y BRKT HINGE	2
B01	12270000009910	BASE PLATE	1
C00	17270000000313	ASS'Y CONTROL	1
D00	12270000007448	ASS'Y DOOR	1
E01	17470000000806	MAGNETRON	1
E05	17470000003445	H.V.TRANSFORMER	1
E06	17470000000689	H.V.CAPACITOR	1
E07	17470000001007	H.V.DIODE	1
E10+E11	17170000002914	ASS'Y NOISE FILTER	1
E13	17470000000636	LAMP	1
E14	12270000000200	LAMP COVER	1
E16	17470000000062	POWER CORD	1
E26	11201007000351	TEMPERATURE SENSOR	1
E28/34T,E08	17470000001561	H.V.FUSE	1
E34	17470000001471	THERMOSTAT 180/145℃ *H	1
E37	17470000001487	THERMOSTAT 150/90℃ *V	1
E48	17470000001483	THERMOSTAT 100/80℃ *H	1
G03	17470000001053	METAL HEATER *UPPER	1
G09	12270000006265	HEAT INSULATOR *UPPER	1
G10（36F）	12270000003490	Heater holder	2
G10/E50	17470000001085	HEATER *LOWER	1
L03/L12	17470000002315	MICROSWITCH INTERLOCK	1
L03/L12	17470000002315	MICROSWITCH INTERLOCK	2
L04	17470000002299	MICROSWITCH MONITOR	1
L05	17470000001353	#N/A	1
L09	12170000011191	LATCH BOARD *LEFT	1
L10	12170000011190	LATCH BOARD *RIGHT	1
L11	12170000007317	INTERLOCK LEVER	1
L13	17470000001212	HARNESS MAIN -2	1
L14	17470000001462	HARNESS MAIN -3	1
R00	12270000005274	Convection ASS'Y	1
R01	11002017000370	Motor Conv.	1
R02	12270000004607	CONVECTION MOTOR BRKT.	1
R03	12270000005062	COOLING FAN(CONV.)	1
R04	12270000006226	HEAT INSULATOR *Inner	1
R05	12270000006356	BACK HEATER COVER	1
R06	17470000001081	METAL HEATER *Back	1
R08	12270000005066	CONV. FAN	1
R10	12270000006225	BACK COVER	1

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Item	Part Code	Description	Qty
R11	12470000000021	HEAT INSULATOR *Back	1
R19	12970000000613	PIN COVER	1
R20+R23	12270000003380	INSULATOR HEAT *L	1
R21+R24	12270000003359	INSULATOR HEAT *R	1
R22	12470000000015	#N/A	1
R25	12270000008463	Chamber Over	1
T01/Z33	11002014000043	TURNTABLE MOTOR	1
T01/Z33	11002014000043	TURNTABLE MOTOR	1
T02	12570000000020	COUPLER	1
T05	12970000000342	Grill rack	1
T06	12270000003329	METAL TRAY	1
T07	12970000000345	RACK	1
T10	12270000003378	INSULATOR HEAT ASS'Y *	1
T10(E36L)/R22(34F)	12270000006271	INSULATOR HEAT ASS'Y	1
W01	12270000008100	FAN GUIDE	1
W03	11002017000177	FAN MOTOR/ MOTOR CONV.	1
W09	12270000008430	WIND GUIDE COVER *LOWER	1
W18	12170000000659	VENT MOTOR COVER	1
W23	12170000000631	AIR GUIDE - 3	1
W28/36L,Z42	12270000008147	UPPER BRKT.	1
Z01	12270000006217	H.V.C HOLDER	1
Z03	12170000009443	FILTER BRKT.	1
Z07/Z08	12170000003919	WIRE BINDER	3
Z18/36L,Z28	12270000008421	WIND PROTECTOR	1
Z24	12270000005842	LEFT COVER	1
Z25	12270000005929	Right cover	1
Z26	12270000005627	TOP COVER	1
Z28	12670000000441	MAGNETRON SPONGE	3
Z29（E36L）/Z28（34F）	12270000008420		1
Z35	12970000000037	WIRE BRKT.	1
Z36/36L,M04	12570000000937	LAMP GLASS	1
Z37/36L,Z36/34F,Z40	12270000008187	FRONT PLATE BRKT. *LEFT	1
Z38	12170000000152	SPACER	1
Z38/36L,Z37/34F,Z41	12270000005547	FRONT PLATE BRKT. *RIGHT	1
Z39	12270000003558	MOUNTING PLATE	2
Z39	12970000000431	胶钉	1
Z40	12170000000070	SHAFT RUBBER	1
Z42	12170000000636	Waveguid	1
Z43	12170000000646	DAMP BRKT.	1
Z44	12270000008237	HOLDER	1

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Service Manual

1 SAFETY

1.1 Danger

Repairs may be carried out by an electrician only!

Improper repairs may endanger and injure the user!

To prevent electric shocks, always comply with the following information:

• If the appliance is faulty, the housing and frame may be live!

• Do not touch any modules in the appliance, even modules can be live!

• Before commencing repairs, always disconnect the appliance from the power supply!

• If tests have to be performed while the appliance is live, always use a residual-current-operated circuit-breaker!

• The protective conductor connection must not exceed the standard values! This connection is extremely important for personal safety and function of the appliance!

• When repairs are complete, conduct a test in accordance with VDE 0701 or national regulations!

• When repairs are complete, conduct a function test!

• When repairs are complete, conduct a leak rate test!

1.2 Caution!

Always comply with the following instructions to prevent damage to the appliance or to components:

• Comply with ESD instructions!

• Never attempt repairs by randomly replacing components!

• Always proceed systematically and follow the troubleshooting instructions!

• Do not test the high-voltage circuit while the appliance is running – Danger of death -!

• Always discharge the high-voltage capacitor before testing!

1.3 Leak test (leak detection measurement)

The leak rate is the microwave energy which escapes despite the intact sealing systems.

The leak rate is measured as an energy density with suitable measuring instruments at a distance of 5 cm. The unit of measurement is mW/cm$^{2.}$

The limiting values for the permitted measured values, as well as the measurement conditions, have been specified in the VDE regulation 0700/Part 25 and are as follows:

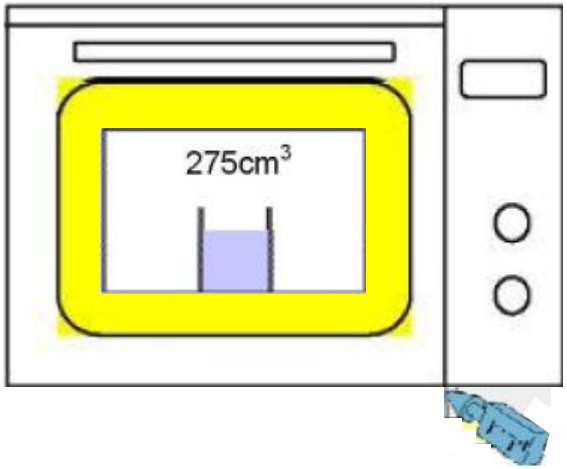
1.3.1 Normal operation with load

Setting: maximum power setting of the appliance

Load: 275 cm^3 water

Permitted limiting value: 5 mW/cm^2

Measurement distance: 5 cm



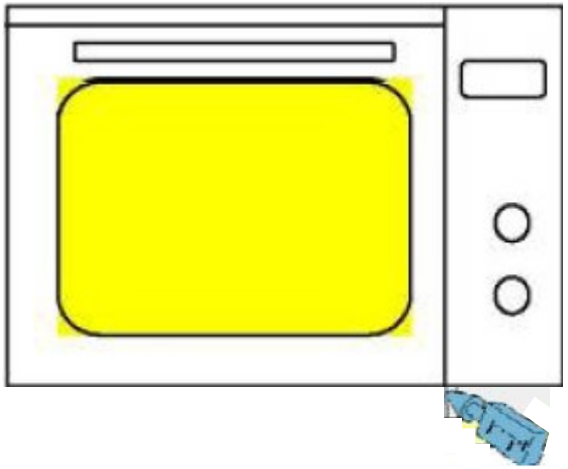
1.3.2 Abnormal operation (no-load operation)

Setting: maximum power setting of the appliance

Load: none (no-load operation)

Permitted limiting value: 10 mW/cm^2

Measurement distance: 5 cm



2 COMPONENTS

2.1 High-voltage diode

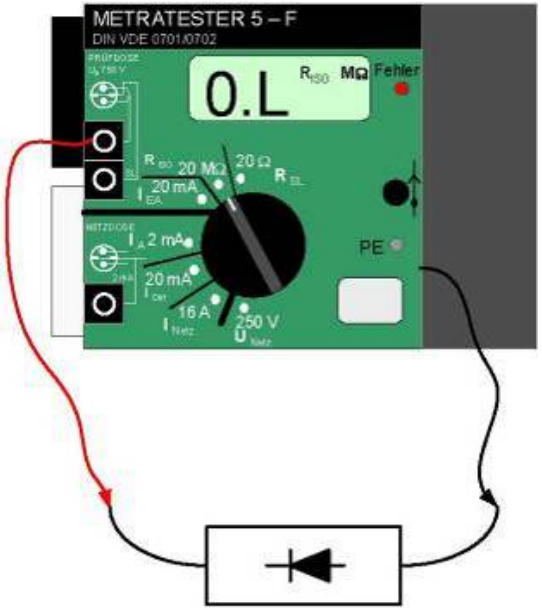
The high-voltage diode can be tested like a standard diode.

Use an EHG tester for this.

- Full continuity in conducting direction.
- Infinite in blocking direction.

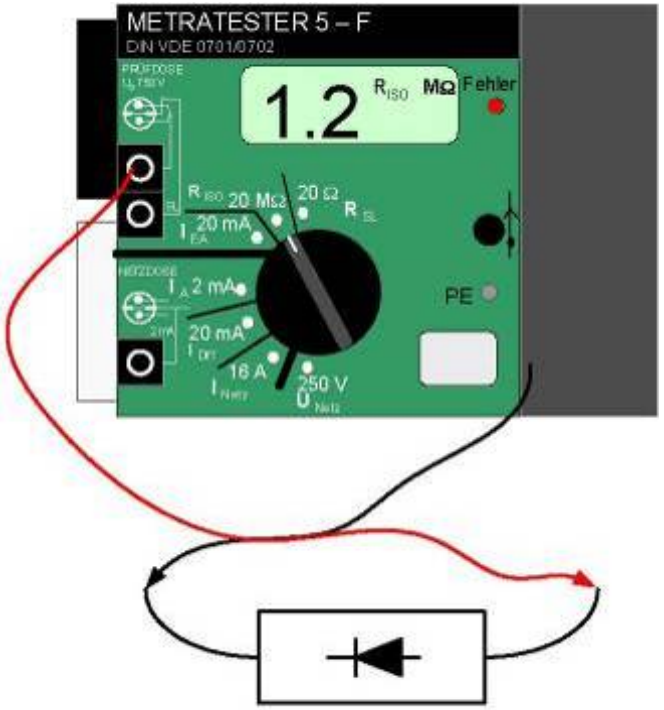
Set to insulation resistance.

Conducting direction = full continuity.



Set to insulation resistance.

Blocking direction = infinite.



2.2 High-voltage capacitor

The high-voltage capacitor can be tested by ‘ohmic’ measurement’ (resistance measurement range 20 MΩ).

A correctly functioning capacitor indicates transient continuity.

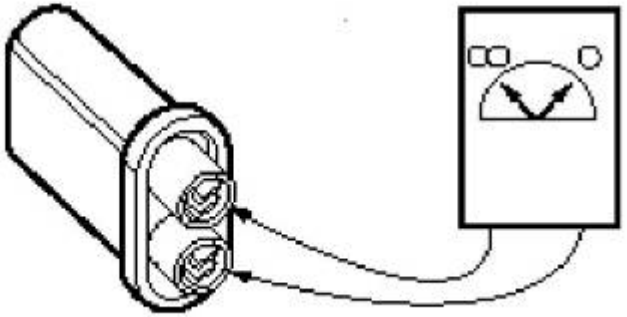
The resistance then increases proportionally with the load.

A defective capacitor (e.g. short-circuit) indicates permanent continuity.

The measuring instrument must indicate infinitely between the connection and housing.

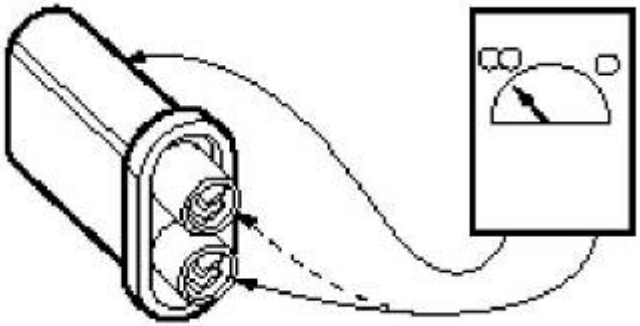
Resistance measurement range 20 MΩ

Briefly continuity.
Then proportional increase of the resistance.



Resistance measurement range 20 MΩ

Between connection and housing = infinite.

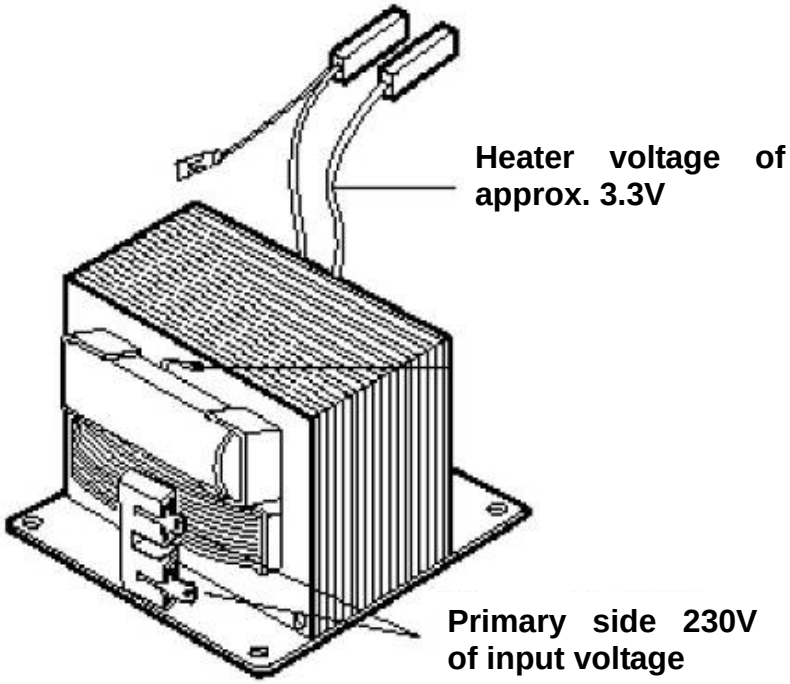


2.3 High-voltage transformer

This transformer supplies the heater voltage for the magnetron and the operating voltage for doubling the voltage.

- Input voltage 230 V
- Heater voltage approx. 3.3 V
- Operating voltage approx. 2300 V

The operating voltage cannot be measured!!



2.4 Magnetron

The magnetron can be tested by ‘ohmic’ measurement´ only.

The volume resistance of the terminals F and FA should be less than 1 Ω.

The insulation resistance between the two terminals and the housing should be infinite.

Measure the resistance with an EHG tester.

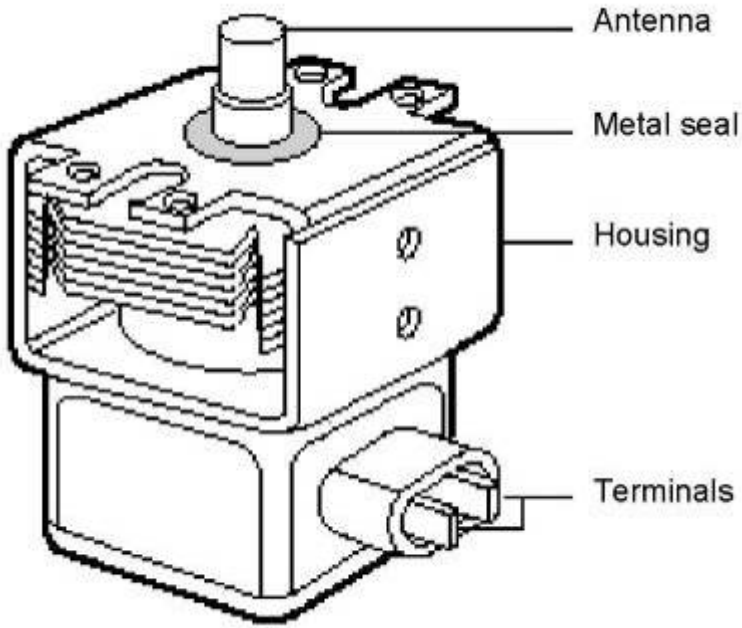
Note:

An internal flashover (short-circuit between cathode and anode) cannot usually be established by taking a measurement.

This is not indicated until the appliance is switched on when high voltage is applied to the magnetron.

It may also be possible to detect the fault by loud humming noises.

Before installing the magnetron, ensure that the metal seal is ok and is seated correctly.



2.5 Safety switches

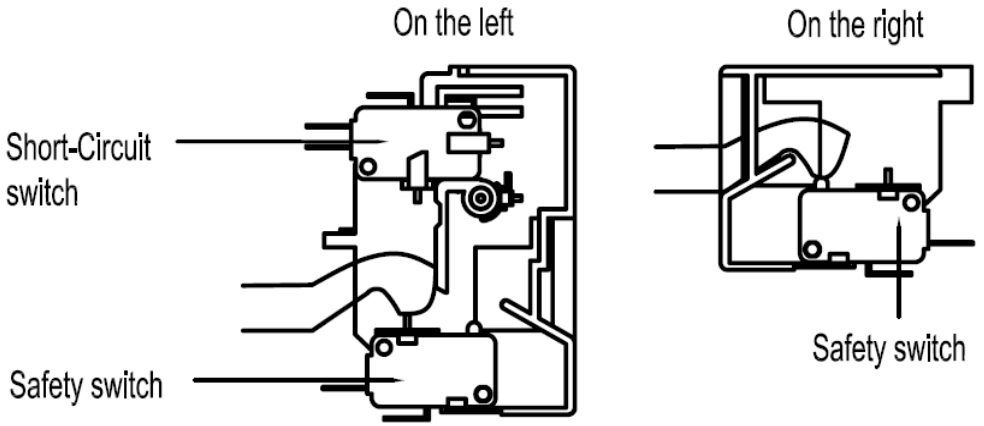
Microwave ovens usually feature at least three safety switches.

These switches are supported by the switch brackets.

The basic function of these switches is to interrupt microwave generation as soon as the door is opened.

One of the three switches is the short-circuit switch. It monitors one of the two other switches and actuates the appliance safety device if the monitored switch does not function.

In this case the appliance is disconnected from the power supply and can no longer be switched on.



4.5.1 Switching sequence

Each door switch independently switches off the power supply for the microwave oven when the door is opened.

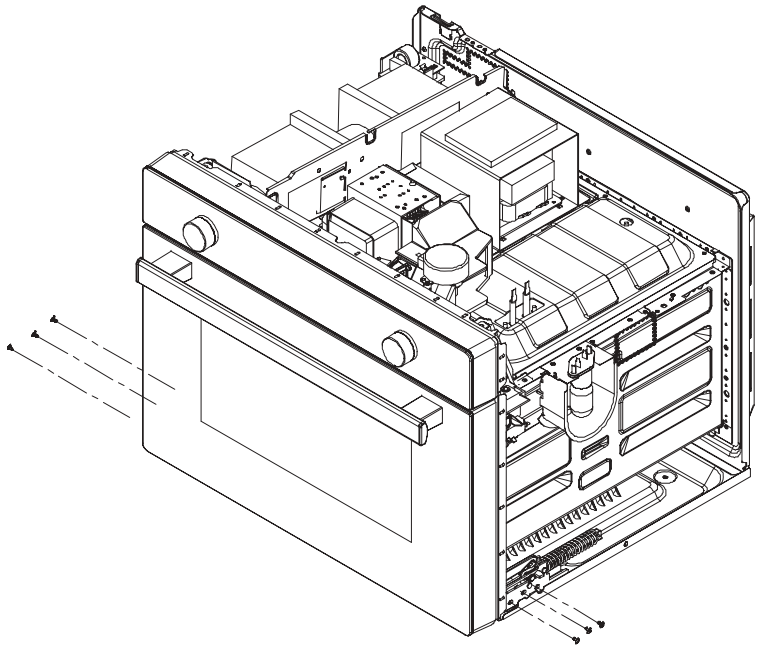
The switching sequence is specified by the arrangement and is as follows.

Switching sequence	Open door	Close door
1.)	Safety switch on right	Short-circuit switch
2.)	Safety switch on left	Safety switch on left
3.)	Short-circuit switch	Safety switch on right

3 REPAIR

3.1 Removing the door

1. Disconnect the power supply cord.
2. Remove the eight screws from the housing, and free the housing from the cavity.
3. Remove the three screws from the left and right hinges.
4. Disconnect the top hinge from front plate.
5. Now, the door is free.



3.3 Removing the turntable motor

1. Take the metal plate out of the appliance.

2. VERY CAREFULLY prise out the turntable shaft with a flat screwdriver.

3. Place the appliance on its back.

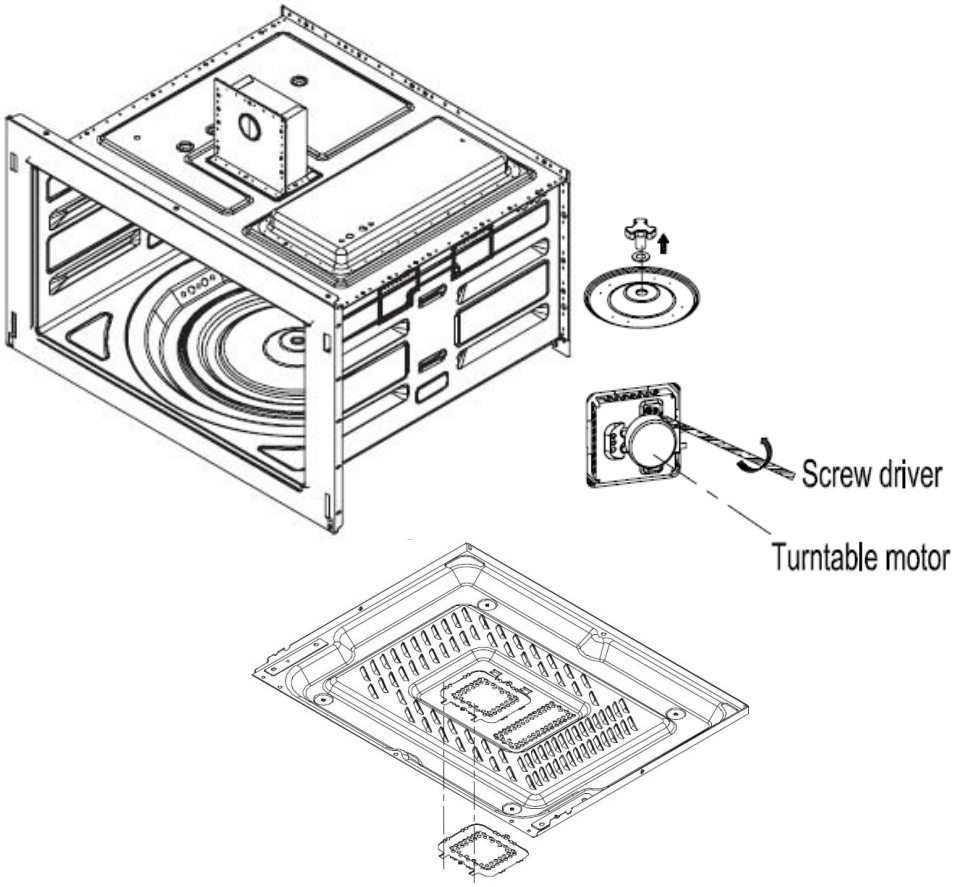
4. Remove the cover from the turntable motor.

This cover has been punched into the base plate. It can easily be removed with side cutters.

5. Disconnect the turntable motor.

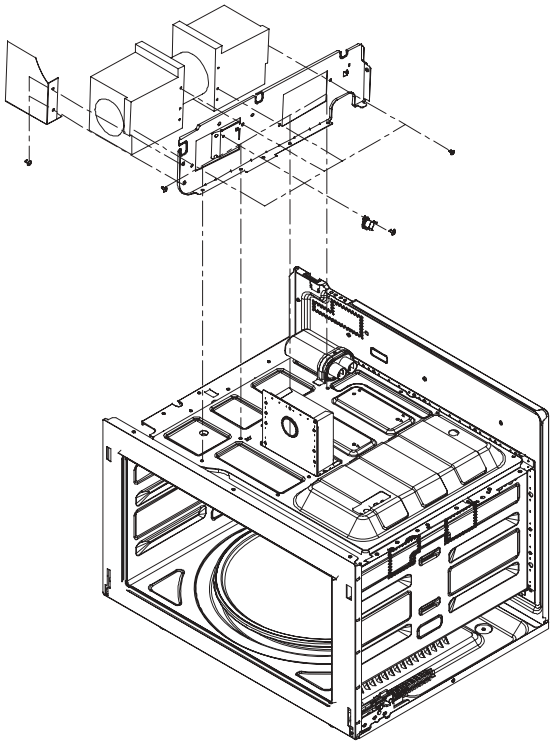
6. Remove the screws which attach the turntable motor to the cooking compartment.

7. After repairing or replacing the motor, screw the cover to the base plate with a screw.



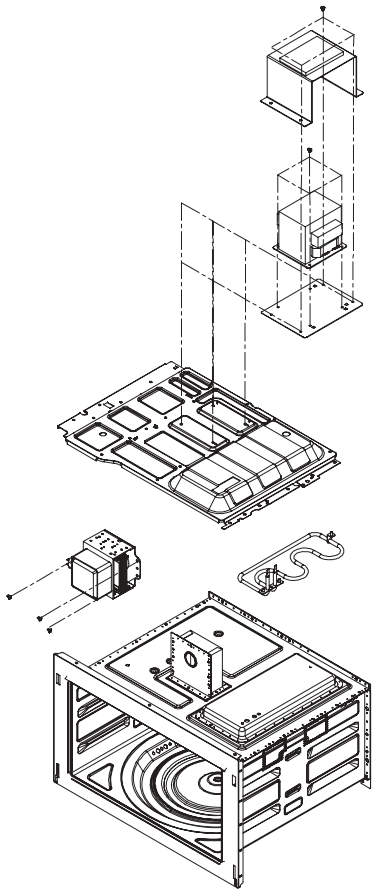
3.4 Removing the cooling fan

1. Remove the housing.
2. Unscrew and remove the cooling fan assembly.
3. Unscrew the fan retaining plate and remove in the direction of the structure.



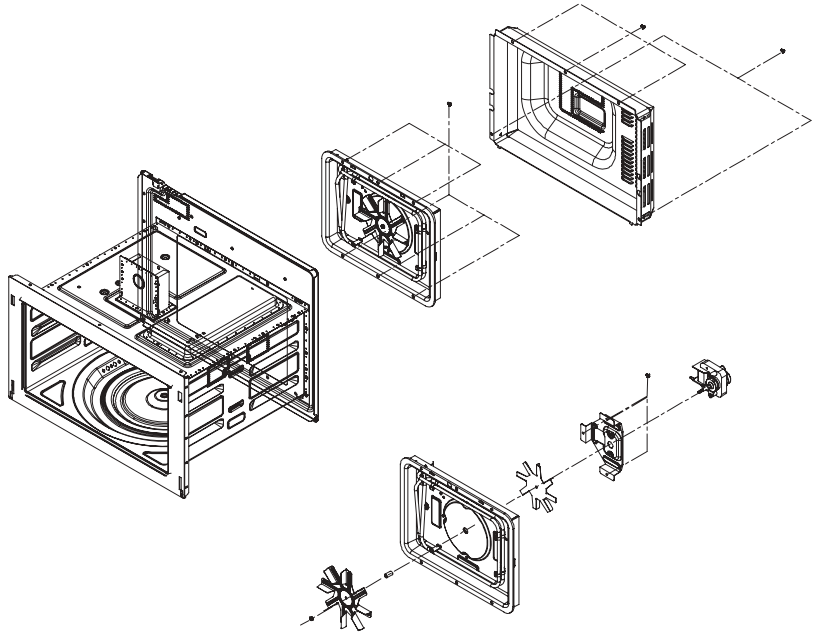
3.5 Removing the upper heating elements

1. Remove the housing.
2. Discharge the HV capacitor.
3. Unscrew the H.V. transformer.
4. Disconnect the heating elements.
5. Remove the nuts on the upper of cavity.
6. Lift out the upper heating elements from the cavity.



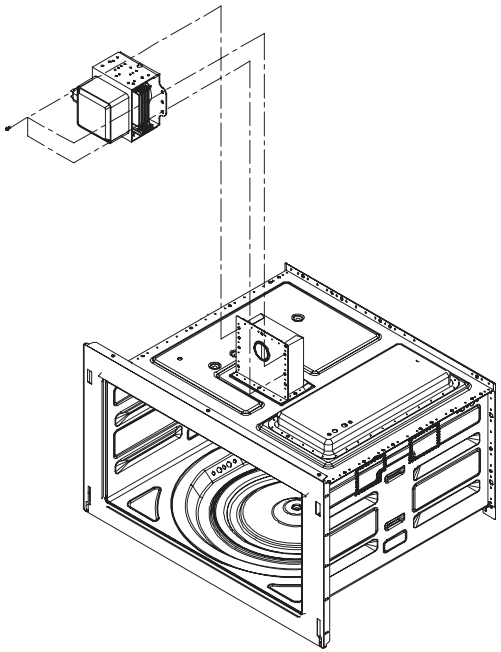
3.6 Removing the hot air motor

1. Remove the housing.
2. Discharge the HV capacitor.
3. Remove the rear cover.
4. Disconnect the Hot air assembly.
5. Remove oven sensor.
6. Unscrew the Hot air assembly and lift out carefully.
7. Disconnect the Hot air motor.
8. Remove the hex nut which attaches the inner fan blade to the shaft of the hot air motor.
9. Pull out the inner fan blade in the hot air chamber.
10. Unscrew the hot air motor bracket.
11. Lift out the hot air motor with the bracket, and remove the outer fan blade.
12. Unscrew the hot air fan motor from the hot air motor bracket.



3.7 Removing the magnetron

1. Remove the housing.
2. Discharge the HV capacitor.
4. Disconnect the magnetron.
5. Unscrew the Control Panel Assembly.
6. Unscrew the magnetron.



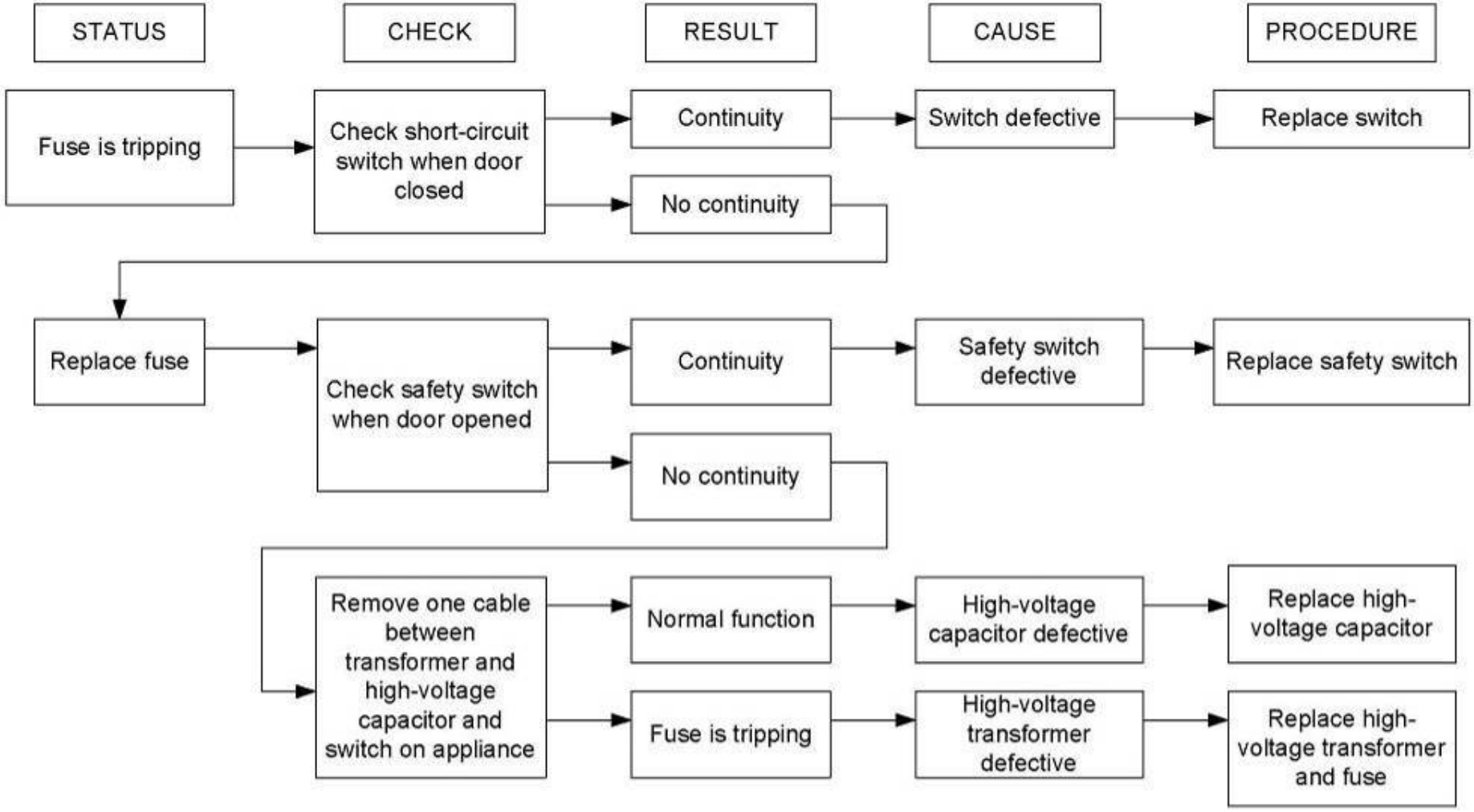
NOTE:

When re-installing the magnetron, ensure that the fastening screws are tightened to prevent microwave energy from escaping. Also ensure that there is no gap between the hollow conductor and magnetron.

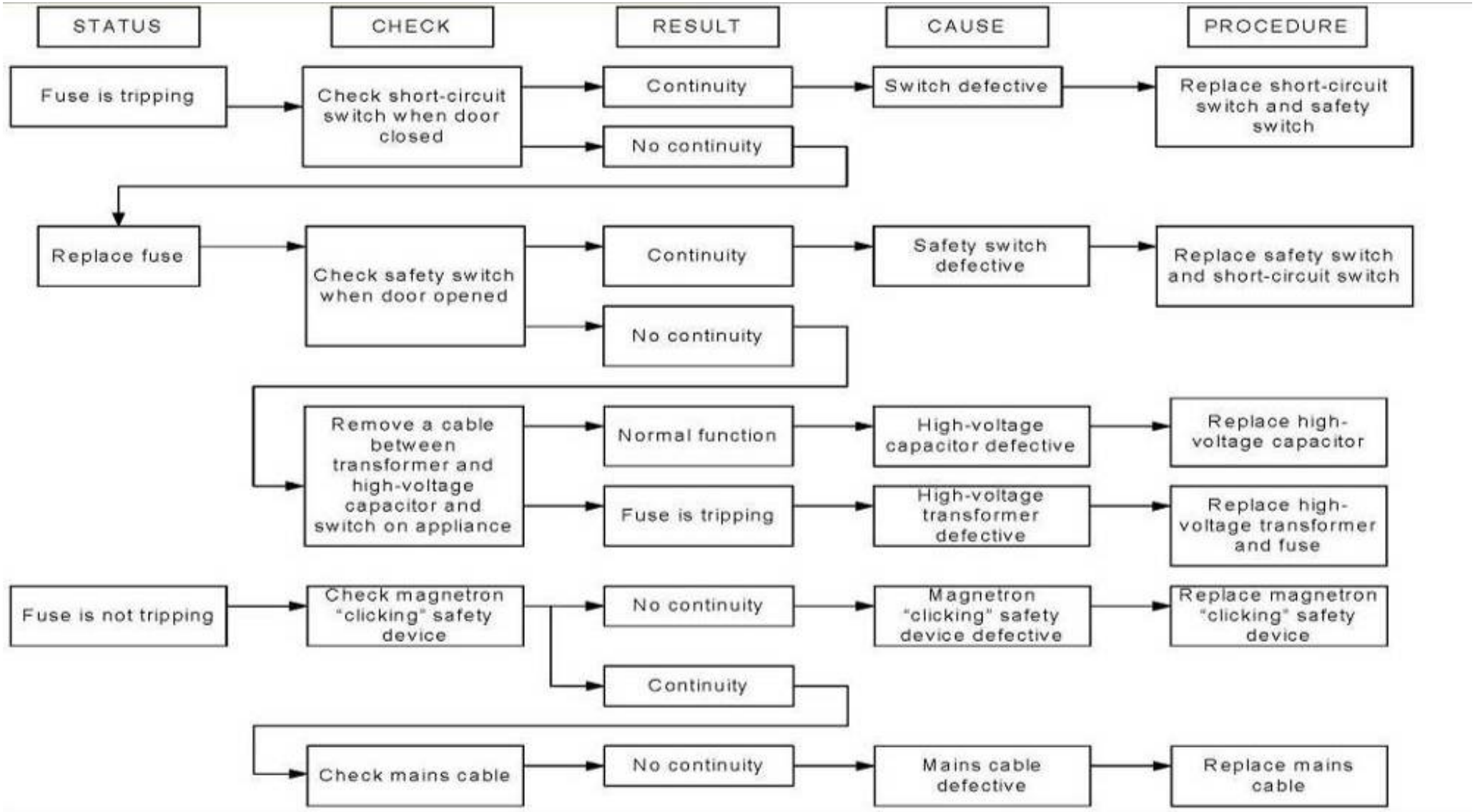
4 FAULT DIAGNOSTICS

4.1 Troubleshooting plan - fuse is tripping

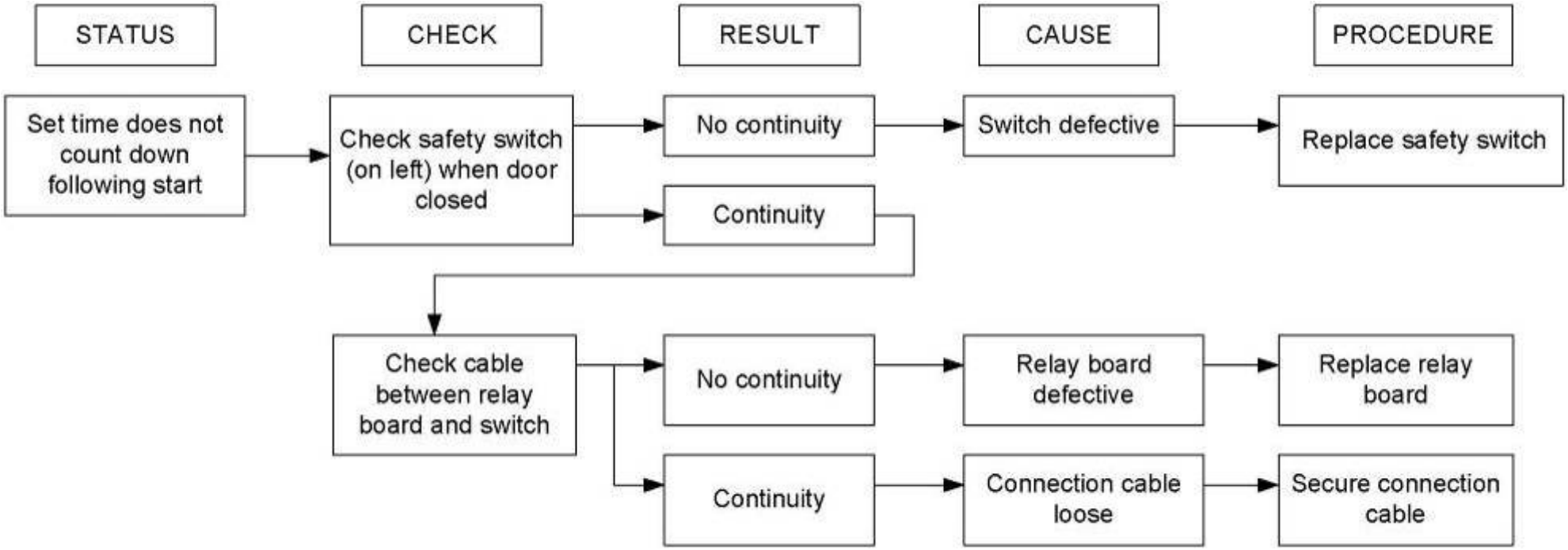
The appliance does not function at all; there are no symbols/numerals on the display and no inputs are accepted.



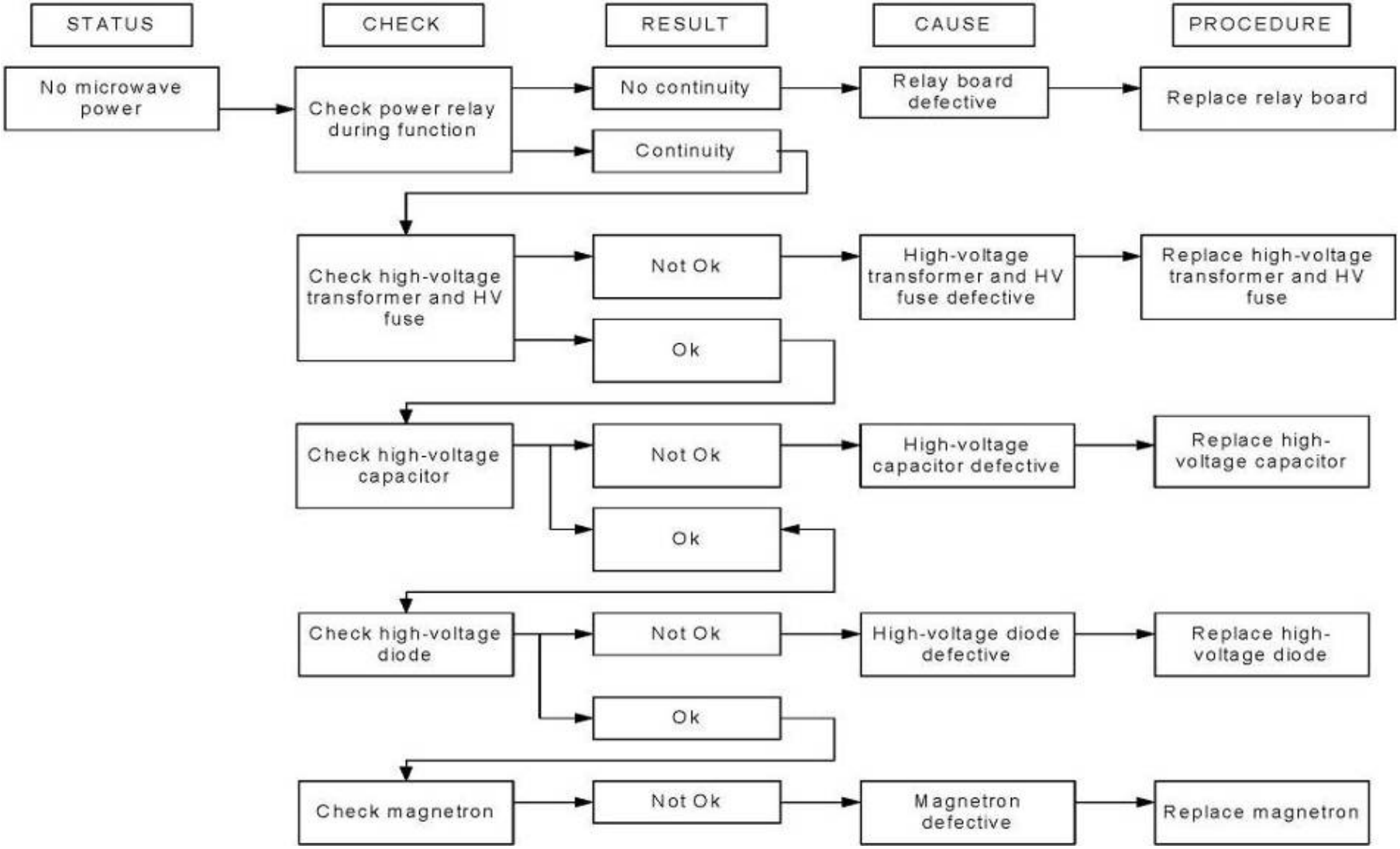
4.2 Troubleshooting plan - appliance does not function at all



4.3 Troubleshooting plan - appliance does not start



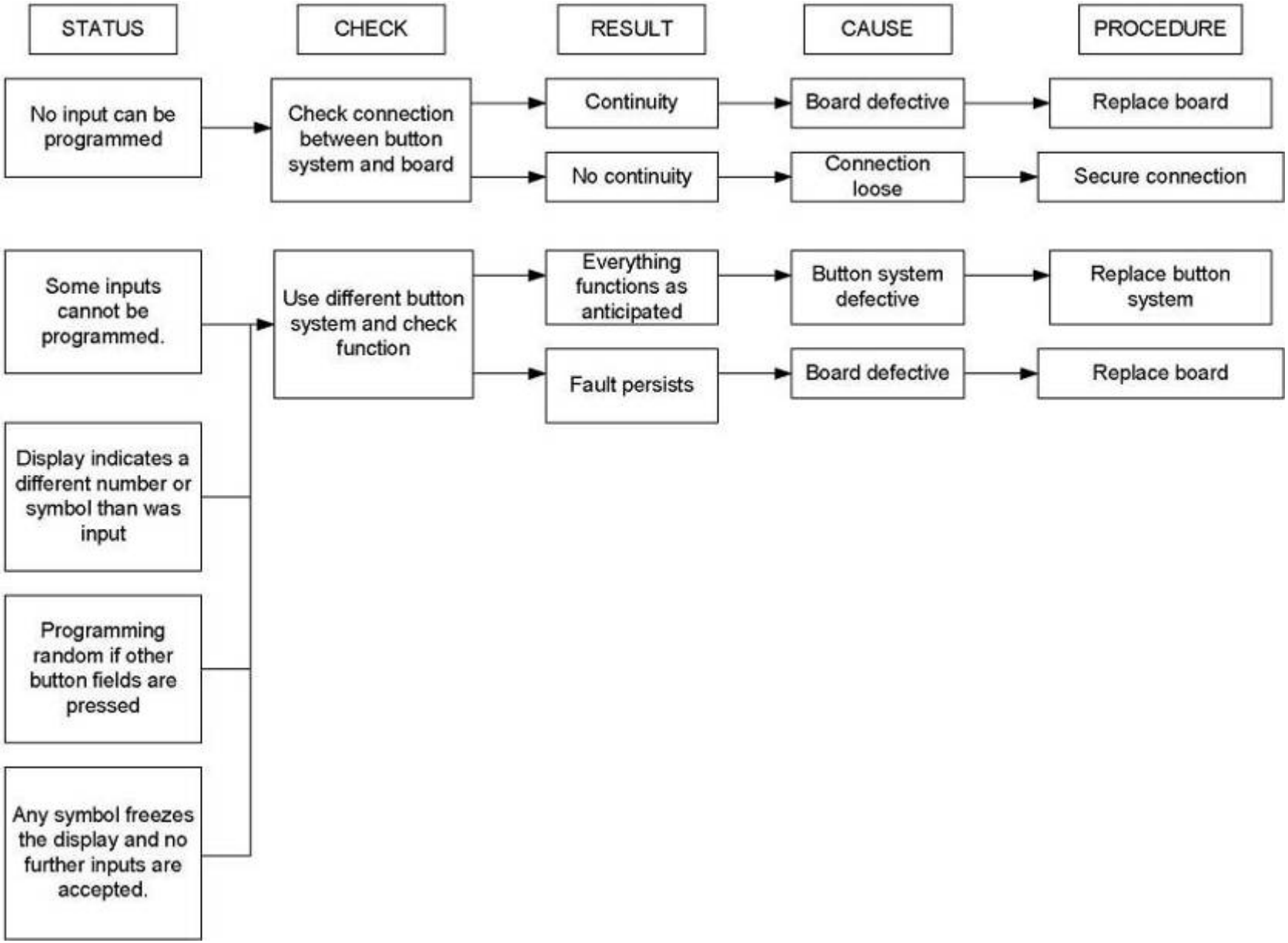
4.4 Troubleshooting plan - no microwave power



4.5 Troubleshooting plan - input module

The following statuses indicate a potentially defective input module.

1. Display segments incomplete.
   - Segment is missing.
   - Partial segment is missing.
   - Character is flickering (note: slight flickering is normal).
2. Comma/decimal point is not displayed or is flashing.
3. Slight brightness variation of one or more of the displayed numerals.
4. One or more displayed characters do not illuminate.
5. Display does not count down while the time is flashing or does not increase in clock mode.
6. Time display jumps visibly during the countdown.
7. Display counts down too quickly during the cooking process.
8. None of the display symbols is indicated after the cooking cycle has been selected.
9. Time is no longer displayed at the end of the cooking process.
10. No acoustic signal can be heard if the correct button is pressed.


STATUS
CHECK
RESULT
CAUSE
PROCEDURE
No input can be programmed
Check connection between button system and board
Continuity
Board defective
Replace board
No continuity
Connection loose
Secure connection
Some inputs cannot be programmed.
Use different button system and check function
Everything functions as anticipated
Button system defective
Replace button system
Fault persists
Board defective
Replace board
Display indicates a different number or symbol than was input
Programming random if other button fields are pressed
Any symbol freezes the display and no further inputs are accepted.

4.7 Determining the microwave output power

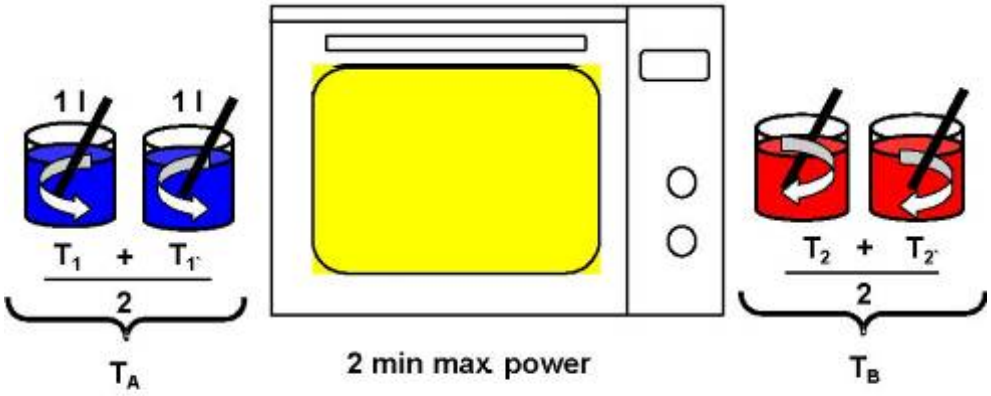
The output power P_{Ab} is determined by heating a specific volume of water (cold tap water).

Required aids:

- 2 microwave-proof utensils, each with a capacity of 1 l.
- 1 thermometer with immersion sensor.

Proceed as follows:

1. Determine the initial temperature (mean value)
2. 2 min cooking time at max. power
3. Determine end temperature (mean value)
4. Calculate temperature difference
5. Calculate output power



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