en
ru

Commercial High Speed Oven TJE17GS7-S00N0A

SERVICE MANUAL

Oven Capacity: 18 Liter
208/240v~ 60hz, 6000w

version xxx

CONTENTS

01 GENERAL INFORMATION

1.1 Purpose of this chapter

This chapter shows you how to identify your Commercial High Speed Oven and provides guidance on using this manual.

1.2 Equipment details Generic

Generic Model Number	TJE17G-S00N0A
Description	Commercial High Speed Oven

1.3 Important Information

Users are cautioned that repairs should be performed by a TJE17G-S00N0A authorized service agent using genuine TJE17G-S00N0A replacement parts. TJE17G-S00N0A will have no obligation with respect to any product that has been improperly installed, adjusted, operated or not repaired in accordance with national and local codes or installation instructions provided with the product, or any product that has its serial number defaced, obliterated or removed, or which has been modified or repaired using unauthorized parts or by unauthorized service agents. For a list of authorized service agents please refer to your distributor.

1.4 Structure of technical documentation

The technical documentation for the microwave oven includes the following documents:

User Manual

Service Manual (this document)

1.5 About this Service Manual

This Service Manual is intended for all people who work with the Commercial High Speed Oven, and provides them with the necessary information for carrying out servicing and repair work properly and safely.

The trained service technicians should read the service manual before all servicing and repair work. If you do not follow the information in this document, you risk potentially fatal injury and property damage.

To guarantee safety, all people who work with the Commercial High Speed Oven must have read and understood the following parts of this document before starting any work: The sections that describe the activity to be carried out.

02 HAZARDS AND SAFETY PRECAUTIONS

2.1 Hazards and safety precautions during installing

2.1.1 Electrical Power

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of electric shock from live parts	• Under covers • Under the operating panel • Along the mains power lead	• Work on the electrical system must only be performed by qualified electricians from an authorized service company. • Professional working
		Ensure that all electrical connections are in perfect condition and fixed securely before putting the appliance into use.
	On the appliance and on adjacent metal parts	Before preparing the appliance for use, make sure that the appliance is connected to an equipotential bonding system (EU).

2.1.2 Mechanical parts of the appliance

Danger	Where or in what situations does the hazard arise?	Preventive action
Trapping fingers ivor bodyiv	When opening or closing the door	When opening or closing the door

2.2 Hazards and safety precautions during servicing and repair

2.2.1 Heat

Danger	Where or in what situations does the hazard arise?	Preventive action
A risk of burns from hot surfaces	Inside the entire cavity, including all parts that are or were inside during cooking, such as • Racks • Containers, baking sheets, shelf grills etc. On the inside of the appliance door	• Before starting cleaning tasks, wait until the cavity has cooled to below 50°C/122°F or use the 'cool down' function to cool the cavity. • Wear specified protective clothing, in particular protective gloves

2.2.2 Electrical power

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of electric shock from live parts	• Under covers • Under the control panel	Work on the electrical system must only be performed by qualified electricians from an authorized customer service company
		Before removing the covers: • Switch off all connections to the power supply • Take protective measures at every power switch to ensure that the power cannot be switched on again. • Wait 15 minutes to allow the DC bus capacitors to discharge. • Make sure that the appliance is de-energized.
		Make sure that the electrical connections are intact and fixed securely before plugging the appliance back into the power supply.
	• On the appliance and on adjacent metal parts. • On the appliance and on adjacent metallic accessories.	Before putting the appliance back into use, make sure that the appliance, including all metallic accessories, is connected to an equipotential bonding system.

2.2.3 Mechanical parts of the appliance

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of cuts from sharp edges	• During servicing work • When handling sheet-metal parts	• Exercise caution when performing this action • Wear personal protective equipment
Risk of body parts being crushed if the appliance tips over or falls off.	When the appliance is being moved e.g. to gain better access to the connections	Always observe the requirements for the supporting surface

2.2.4 Moving heavy weights

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of injury from over-stressing your body	When moving the appliance	• Use a forklift truck or pallet truck to place the appliance in the installation position or to move it to a new position. • Always use the correct number of persons and observe the limits specified for lifting and carrying when ad-joust-ing the appliance position. • Observe the local occupational safety regulations. • Wear personal protective equipment

2.2.5 Moving appliances supported on a wheeled base

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of crushing of body parts Risk of hands and feet being pinched Risk of electric shock from live parts	While appliances are being moved on a wheeled platform.	• Disconnect the appliance from the electrical supply before moving it. • When servicing the appliances, always engage the parking brake on the wheels.

2.2.6 Smoke or fire

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of fire/smoke from defective electrical components or wrong electrical connections.	If one of the electrical components is defect, for example due to a short circuit, or if the internal wiring is refitted incorrectly when servicing/repairing the oven.	• Never use electrical spare components which failed in a dedicated test or which bear visible damages. • Carefully refit electrical connections using the wiring diagrams provided in this manual.

2.3 Hazards and safety precautions when taking the appliance out of service

2.3.1 Electrical power

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of electric shock from live parts	• Under covers • Under the operating panel	• Work on the electrical system must only be performed by qualified electricians from an authorized customer service company. • Professional working

2.3.2 Moving heavy weights

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of injury from over-stressing your body	When moving the appliance onto and off the moving equipment.	• Use a forklift truck or pallet truck. • Do not exceed safety limits for lifting and carrying. • Wear personal protective equipment.

2.3.3 Mechanical parts of the appliance

Danger	Where or in what situations does the hazard arise?	Preventive action
Risk of body parts being crushed if the appliance tips over or falls off.	When the appliance is being moved e.g. to gain better access to the connections.	Always observe the requirements for the supporting surface when taking the appliance out of service.
Risk of slipping on damp kitchen floor.	In front of the appliance.	Ensure that the floor around the appliance is dry at all times.

03 DIAGNOSTICS

This chapter contains information on checking various functions of your Commercial High Speed Oven.

3.1 Checking the condition of your appliance

3.1.1 Servicing procedure

1)Disconnect/isolate the appliance from the power supply.

2)Check the appliance is correctly installed.

3)Visually check the cleanliness/condition of the power supply/cable/gland, casing, cavity and door of the appliance for signs of wear, damage, distortion etc. If required, refer to the “Replacing components" section of this manual.

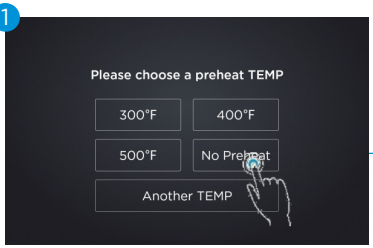
4)Complete an "Earth/Insulation test" (see “Tests" section of user manual) on the appliance before switching on.

5)Check the display for error messages. If an error is shown, refer to the “Diagnostics” section of this manual.

6)If a firmware update is required, follow the instructions under “Firmware Updates” before continuing with the service procedure.

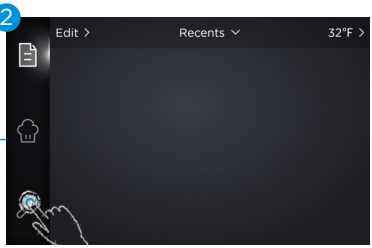
3.1.2 Enter Service Mode

1

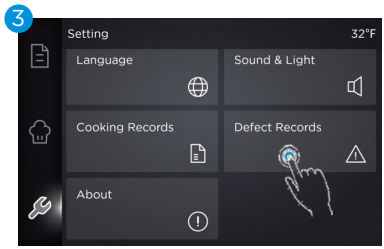


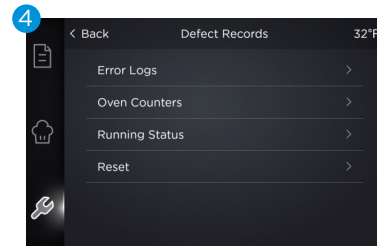
On start up，Click on the“No Preheat” button，Enter the next UI interface.

2



Select the spanner symbol.

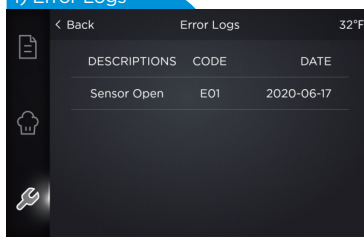




Click “Defect Records” button to display “Error Logs”、“Oven Counters”、“Running Status”、“Reset”.

3.1.3 Functions of the Service Mode

1) Error Logs

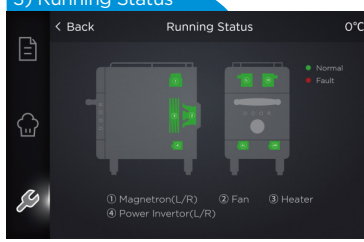


Check the "Error Log" for details of any logged appliance errors and refer to the error codes for more details.

2) Oven Counters

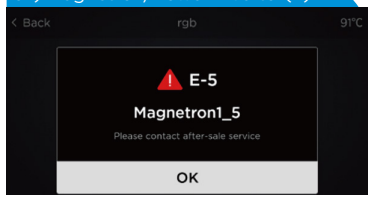
Check the "Oven Counters" to find the usage of components.

3) Running Status



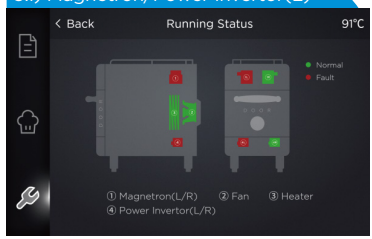
Check the "Running Status" to find the operational performance of the main components.

3.1) Magnetron/Power Invertor(L)



When error code E-1, E-5, E-6 occur and the text description is “Magnetron1_*”, the “1L” and ”4L” symbols get red.

3.1) Magnetron/Power Invertor(L)

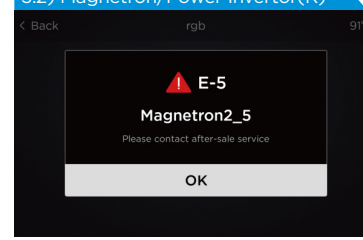


“1L” and”4L” are associated; they turn green or red at the same time.

Clear the error by restarting the cooking.

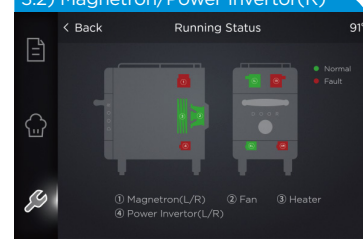
When error code E-1, E-5, E-6 occur and the text description is “Magnetron2_*”, the “1R” and “4R” symbols get red.

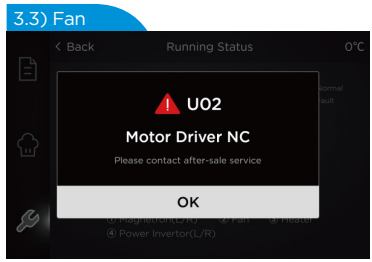
3.2) Magnetron/Power Invertor(R)

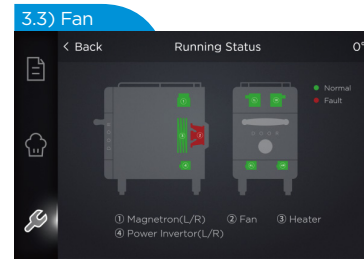


“1R”and”4R” are associated; they turn green or red at the same time. Clear the error by restarting the cooking.

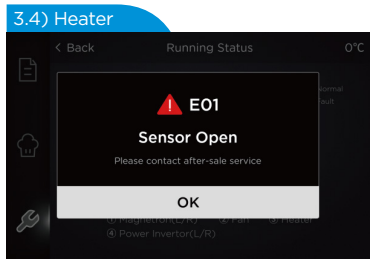
3.2) Magnetron/Power Invertor(R)

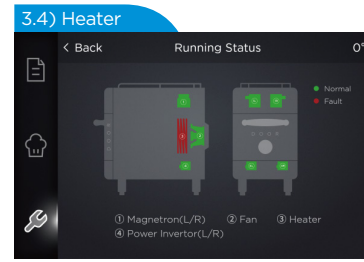






When error codes U02, U21, U22, U23, U25, U26 occur, the Fan symbol get red.





When error code E01, E02, F11 occurs, the Heater symbol gets red.

3.2 Fault finding

3.2.1 Hardware control components

Operations communication:

❶ The oven has 2 main parts being the QTS assembly (Keyboard, Screen, and Logic) and the SRB (Smart Relay Board to switch and monitor the required operation).

❷ The QTS is the master of the oven and instructs the SRB what to do, in turn the SRB communicates information on the operation back to the QTS.

❸ The QTS and SRB have their own Personality Module (PM) fitted with the respective software to be able to communicate and work with each other.

❹ The power provision to the QTS and the communication between QTS and SRB is enabled via ONE cable with XH-4P connectors fitted.

Starting up sequence

- With the oven switch in the OFF position and the mains power ON, the QTS & SRB boards boot up. When the oven switch is turned ON the splash screen briefly displays oven information and the cabinet cooling fan is activated.
- After completing a successful logic test, the safety relay is energized and the oven displays a preheat temperature choice.
- The oven displays the main menu when preheating is complete or when you choose ‘no preheat’.

Shutting down sequence

- When oven switch is turned OFF the screen displays ‘Shutdown & clean’ and the cooling fan operates until the cabinet temperature has been sufficiently reduced (cavity temperature of 60°C / 140°F) or you can choose to long press the switch button (5S) to choose the forced shutdown. The safety relay is de-energized and the QTS & SRB boards remain active.

3.2.2 Exchanging data via USB interface

Shutting down sequence

- Menu loading from the USB memory stick to the appliance (recipes / download).
- Software loading from the USB memory stick to the appliance (firmware / download).
- Menu copying from the appliance to the USB memory stick (upload).

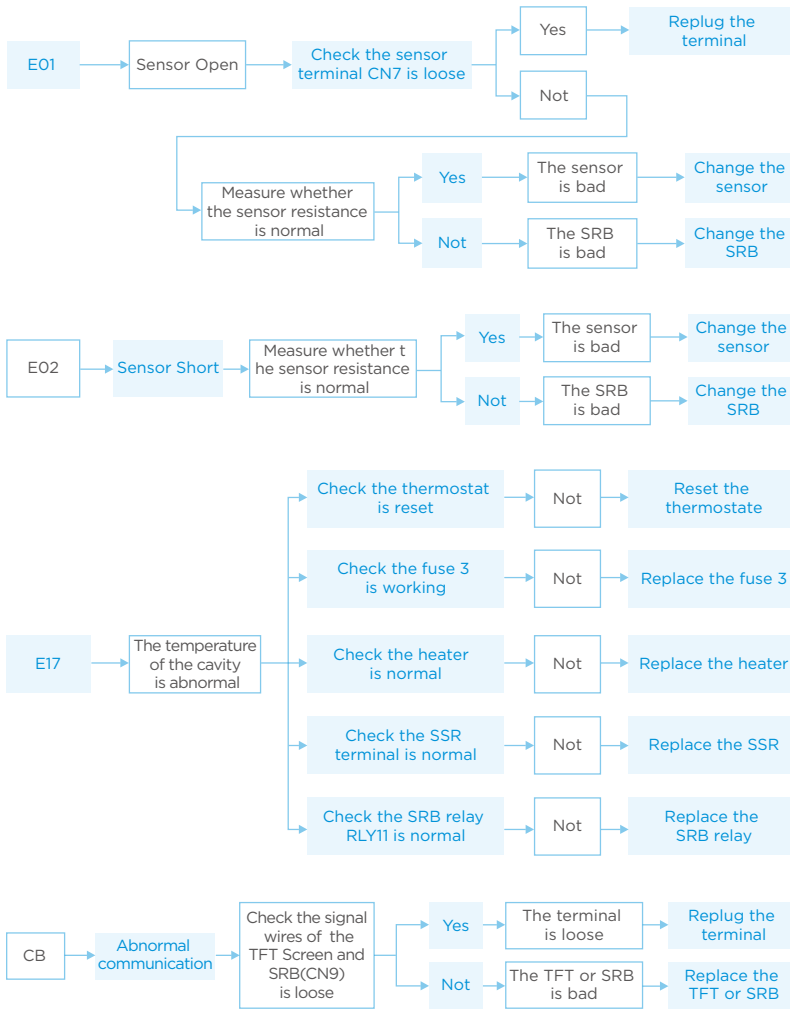
3.2.3 Error Code List

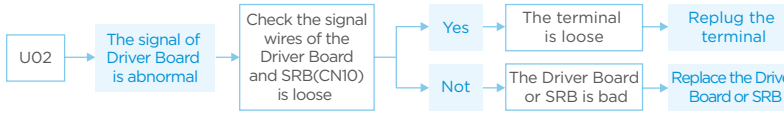
Error Code	Error Condition	Description	Trigger	Possible Causes	System Response
E01	Sensor Open	Cavity sensor broken/ unplugged	The controller is reading an open circuit across the temperature sensor	The sensor is not connected, Or is broken open circuit.	Display error message until system is power cycled.
E02	Sensor Short	Cavity sensor short	The controller is reading a short circuit across the temperature sensor	Shorted temperature sensor on SRB	Display error message until system is power cycled.
E03	Elec Error	Detects if the power supply voltage is outside specification	The power supply to the oven voltage sensor on the SRB measures too high/low	Incorrect mains voltage. Faulty SRB.	Display error message until system is power cycled.
E17	Cavity Sensor Error	No heater current detected when requested	Cavity does not reach 80 C in 10 minutes	Oven heater element failure	Display error message until service call and magnetron cools down or the cavity thermostat is reset.
F11	Over Temp	Cavity temperature is too high	Cavity sensor measures more than 300 C	Cavity sensor positioning next to heater	Display error message until service call and the machine cools down

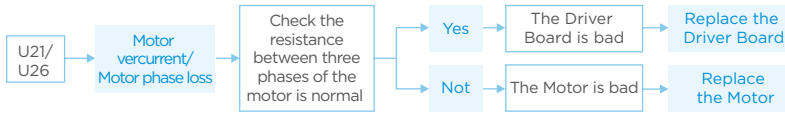
CB	Common Breakdown	No communication can be made between the TFT screen and SRB	Loss of communication between the TFT screen and SRB more than 10 second.	TFT screen/SRB connection cable unplugged or damaged. Faulty TFT screen or SRB	Display error message until communication resumes
U02	Motor Driver NC	No communication can be made between the SRB and Motor driver.	Loss of communication between SRB and Motor driver more than 10 second.	SRB and Motor driver connection cable unplugged or damaged. Faulty SRB or Motor driver	Display error message until communication resumes
U21	Motor Over Current	Motor over current	The motor current measured by Motor Driver was >12A	Motor blocked	Display error message until system is power cycled.
U22	Motor Low Voltage	Detects if the power supply voltage is outside specification	The power supply to the oven voltage sensor on the SRB measures too low	Incorrect mains voltage. Faulty Motor Driver.	Display error message until system is power cycled.
U23	Motor Over Voltage	Detects if the power supply voltage is outside specification	The power supply to the oven voltage sensor on the SRB measures too high	Incorrect mains voltage. Motor Driver.	Display error message until system is power cycled.
U25	Motor Over Temperature	Detects if the driver is	Driver's temperature sensor	Ambient overheat >85℃	Display error message
		operating above temperature	measured >120℃		
U26	Motor Loss Phase	The drive lose motor phase	The drive lose motor phase	The motor is unplugged or damaged	Display error message
D11	zero Error	Detects if SRB cannot receive power supply frequency signal more than 10 second	Loss of power supply frequency	Faulty SRB.	Display error message
E-1	Magnetron 1/2_1	Inverter leakage	Before magnetron start energies, magnetron current was too high.	Faulty Microwave inverter	Display error message
E-5	Magnetron 1/2_5	Magnetron failed to energies	The current measured by the current sensing transformer was none.	Failure of components in the microwave circuit.	Display error message

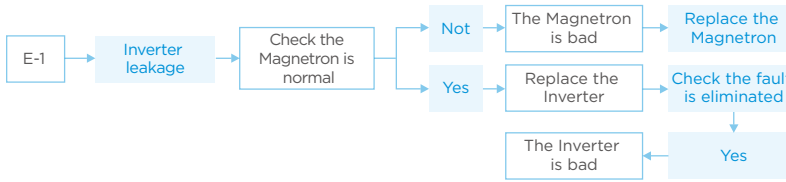
E-6	Magnetron 1/2_6	Magnetron over current	The current measured by the current sensing transformer was outside of tolerance.	Shorted magnetron	Display error message
E-8	Magnetron 1/2_8	Magnetron current is too low	The current measured by the current sensing transformer was outside of tolerance	Microwave Inverter is operating above temperature	Display error message

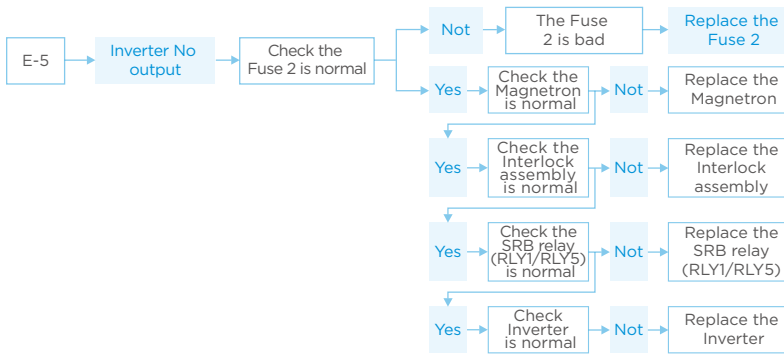
3.2.4 Service Guidance

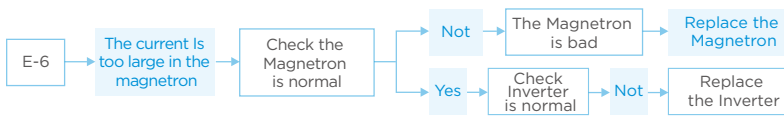


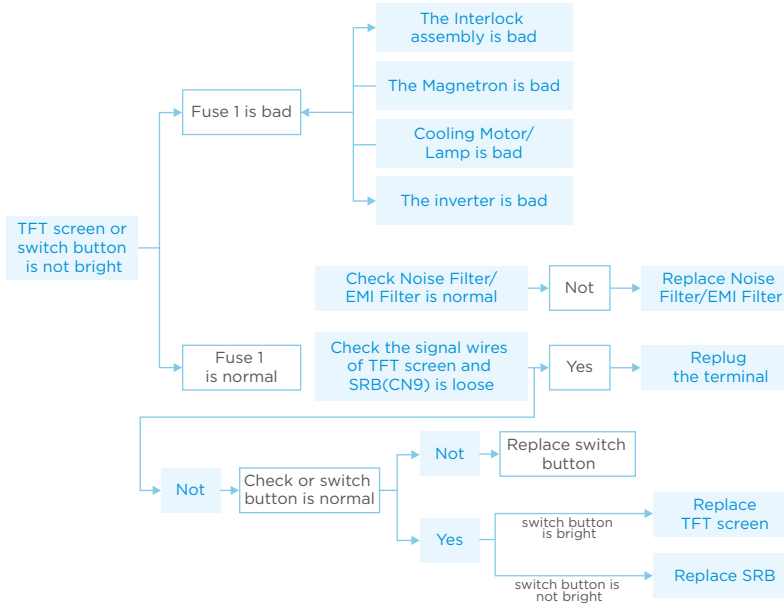

U02
The signal of Driver Board is abnormal
Check the signal wires of the Driver Board and SRB(CN10) is loose
Yes
The terminal is loose
Replug the terminal
Not
The Driver Board or SRB is bad
Replace the Driver Board or SRB


U21/ U26
Motor vercurrent/ Motor phase loss
Check the resistance between three phases of the motor is normal
Yes
The Driver Board is bad
Replace the Driver Board
Not
The Motor is bad
Replace the Motor

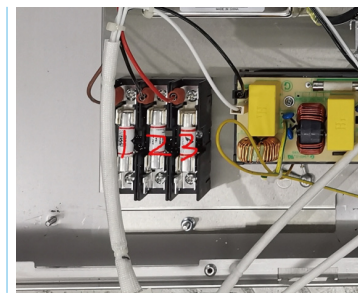

E-1
Inverter leakage
Check the Magnetron is normal
Not
The Magnetron is bad
Replace the Magnetron
Yes
Replace the Inverter
Check the fault is eliminated
Yes
The Inverter is bad

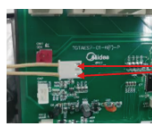

E-5
Inverter No output
Check the Fuse 2 is normal
Not
The Fuse 2 is bad
Replace the Fuse 2
Yes
Check the Magnetron is normal
Not
Replace the Magnetron
Yes
Check the Interlock assembly is normal
Not
Replace the Interlock assembly
Yes
Check the SRB relay (RLY1/RLY5) is normal
Not
Replace the SRB relay (RLY1/RLY5)
Yes
Check Inverter is normal
Not
Replace the Inverter


E-6
The current Is too large in the magnetron
Check the Magnetron is normal
Not
The Magnetron is bad
Replace the Magnetron
Yes
Check Inverter is normal
Not
Replace the Inverter

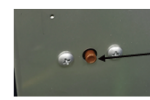


Fuse 1	Interlock Assembly
	Magnetron
	Cooling Motor/Lamp
	Left Inverter
Fuse 2	Interlock Assembly
	Magnetron
	Convection Motor
	Right Inverter
Fuse 3	Heater

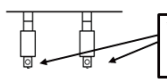




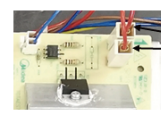
The sensor normal terminal resistance is 1000~1200Ω (20-30℃)



Press button on the back of machine, "ring", reset success. If there is no reaction, the thermostat is in reset position



The heater resistance between the two terminals is 15-25Ω



Under preheating mode, the resistance between terminals is lower 1Ω

Under preheating mode, the resistance of RLY 11 between is lower 1Ω

Unplug the terminals and measured the resistance between any two terminal :
Red-White : 9Ω
Red-Black : 9Ω
Black-White : 9Ω

04 SAFE WORKING WHEN TESTING COMPONENTS

Before starting oven tests, it is essential that you familiarize yourself with the rules and hazard warnings specified and follow the instructions given there. Only qualified personnel from an authorized service company are permitted to test components of the Commercial High Speed Oven.

4.1 Electrically live components

⚠ DANGER Risk of electric shock from live parts

When the appliance is not connected to an equipotential bonding system, there is a risk of electric shock from touching live parts.

- ✓ When the appliance is not connected to an equipotential bonding system, there is a risk of electric shock from touching live parts.
- ✓ Make sure that the electrical connections are intact and connected securely before putting the appliance into use.
- ✓ Before preparing the appliance for use, make sure that the appliance, including all metallic accessories, is connected to an equipotential bonding system.

4.2 Moving heavy loads

⚠ DANGER Risk of injury from lifting incorrectly

When lifting the appliance, the weight of the appliance may lead to injuries, especially in the area of the torso.

- ✓ Use a forklift truck or pallet truck to place the appliance in the installation position or to move it to a new position.
- ✓ When shifting the appliance into the correct position, use enough people for the weight of the appliance when lifting it (value depending on age and gender). Observe the local occupational safety regulations.
- ✓ Wear personal protective equipment.

4.3 Sharp-edged sheet-metal parts

⚠ DANGER Risk of cuts from sharp-edged sheet-metal parts

Working with or behind sharp-edged sheet-metal parts may result in cuts to hands.

- ✓ Exercise caution.

  Wear personal protective equipment.

4.4 Hot surfaces

⚠ DANGER Risk of burns from high temperatures inside the cavity and on the inside of the appliance door

- ✓ You may get burnt if you touch any of the interior parts of the cooking chamber, the inside of the appliance door or any parts that were inside the oven during cooking.
- ✓ Before starting servicing and repair work, wait until the cooking chamber has cooled to below 50°C / 122°F or put a cup of ice cube into the cavity to cool the cooking chamber.
- ✓ Wear personal protective equipment.

4.5 Live components

⚠ DANGER Risk of electric shock from live parts

When the covers of the Commercial High Speed Oven are removed, there is a risk of electric shock from touching live parts.

- ✓ Make sure that any work on the electrical system is performed solely by a qualified electrician from an authorized customer service office.
- ✓ Before removing the covers:
  - Switch the appliance off and disconnect the plug from the wall socket.
  - Turn off the isolator switch to disconnect fixed wired appliances and lock-off.
  - Take protective measures at every power switch to ensure that the power cannot be switched on again.
  - Always discharge the high voltage capacitors before working on the appliance using a suitably insulated 10MΩ resistor.
  - Make sure that the appliance is de-energized.
- ✓ Make sure that the electrical connections are intact and connected securely before you reconnect the appliance to the power supply.
- ✓ Before putting the appliance back into operation, make sure that the appliance, including all metallic accessories, is connected to an equipotential bonding system.

4.6 Microwave emissions

⚠ DANGER Risk of burns from microwave emissions

- ✓ Do not become exposed to emissions from the microwave generator or parts conducting microwave energy.
- ✓ Never operate an appliance that has failed the "Microwave Leakage test".

4.7 Fire / smoke in the appliance

⚠ DANGER Risk of fire and/or smoke

Flames and/or smoke may come out of the oven when switching it on after service/repair. This can be caused by a defective electrical component or electrical connections (wiring) that have been refitted incorrectly.

- ✓ Switch off the oven.
- ✓ Disconnect/isolate the oven from the electrical supply.
- ✓ Keep the oven door closed to stifle any flames.

4.8 Requirements

The equipment required for testing the appliance is as follows.

- Portable Appliance Tester (P.A.T.)
- Digital Multi-Meter (D.M.M.)
- Megger / similar 500 V d. c. resistance meter
- Microwave detection / leakage meter
- Temperature reader
- Continuity meter
- Door Spacer Kit
- Microwave safe 600 ml glass beaker
- Microwave safe 2 litre container

4.9 Testing selected components (casing mounted)

While testing with a Portable Appliance Tester (PAT) is not an automatic requirement for the Commercial High Speed Oven models, the following notice is to advise on this testing in addition to the following instructions as deemed necessary.

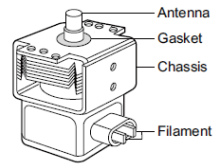
If the customer requires PAT testing of our equipment we suggest this is limited to a) earth continuity and b) insulation resistance (measured at ~ 500 V DC). All Commercial High Speed Ovens are classified as CLASS 1 for the purpose of testing.

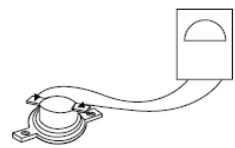
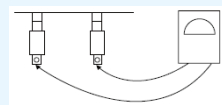
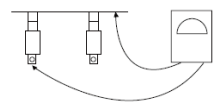
Should it still be deemed necessary by the customer to perform an Earth Leakage test, the following advice should be adhered to. Note that not all PATs are capable of just measuring the leakage or allow you to set a pass limit and therefore may not be appropriate for this test.

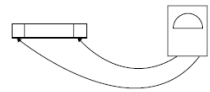
4.10 The key components (casing removed)

Ensure the following requirements have been met before starting the test:

- The appliance has been disconnected from the power supply and protective measures have been taken to ensure the power cannot be switched on again.
- The appliance is cool.
- The components are discharged before commencing work.
- Anti-static precautions have been taken.
- The casing of the appliance has been removed.

<table>
<tr><th>Components</th><th>Test Procedure</th><th colspan="2">Results</th></tr>
<tr><td rowspan="2">Magnetron(Wire leads removed)</td><td> 

1. Measure the resistance. (Ohm-meter scale: Rx1)
• Filament terminal
2. Measure the resistance. (Ohm-meter scale: Rx1000)
• Filament to chassis</td><td colspan="2">Normal: Less than 1 ohm
Normal: Infinite</td></tr>
<tr><td colspan="3">NOTE: When testing the magnetron, be sure to install the magnetron gasket in the correct position and be sure that the gasket is in good condition.</td></tr>
<tr><td rowspan="2">Thermal CUT-OUT</td><td rowspan="2">  </td><td>Below specified temperature
  </td><td>Above specified temperature
  </td></tr>
<tr><td colspan="2">Measure the resistance. (Multi-meter scale: Rx1)
  </td><td>Normal:
*Grill heater
Approx. 38 ohm, depend on heater spec. (at 20-30℃)</td></tr>
<tr><td rowspan="2">Heater Element (Wire leads removed.)</td><td colspan="2">Measure the resistance with 500V-100M ohm insulation resistance meter.
  </td><td>Normal: more than 0.5 Mohm</td></tr>
<tr><td colspan="3">NOTE: Make sure heater is fully cooled when tested.</td></tr>
</table>

Fuse	Check for continuity of the fuse with an multi-meter. 	Normal 	Abnormal 
	NOTE: If the fuse is blown by improper switch operation replace the defective switch and thefuse at the same time. Replace just the fuse if the switches operate normally.		

NOTE :

- A mircorwave leakege test must always be performed when the unit is serviced for any reason.
- Make sure the wire leads are in the correct position.
- When removing the wire leads from the parts, be sure to grasp the connector, not the wires.

4.11 Mains voltage components (casing removed)

1. Convection fan: motor

   The convection fan motor is a 3-phase AC motor having a maximum speed of 5000 rpm controlled by a motor speed controller.

   The windings are thermally protected and in the event of a thermal fault a trip inside the motor will operate and shut down the motor speed controller.

2. Convection fan: motor speed controller

   The convection motor speed controller provides a 3-phase AC switched mode drive to the convection motor and is controlled by a digit signal from the SRB.

   This allows the motor to be adjusted from approximately 1800 rpm to 7000 rpm in steps of 10%.

   Door open, 1800 rpm (7%).

   Door closed (not cooking), 2150 rpm (17%).

   Door closed (cooking), speed as specified by program or setting up to a maximum of 5000 rpm (100%).

3. Convection fan: LED status display

   - Inverter Off / No supply, LED OFF.
   - Power On / Ready, LED ON continuously.
   - Inverter Running, LED ON continuously.
   - Fault Condition, LED flashes ON/OFF 3-9 times per second.

4. Convection fan: motor and motor speed controller tests

Ensure the following requirements have been met before starting the test:

- The appliance has been disconnected from the power supply and protective measures have been taken to ensure the power cannot be switched on again.
- The appliance is cool.
- The high voltage capacitors are discharged before commencing work.
- Anti-static precautions have been taken.
- The casing of the appliance has been removed.

Check the following:

Item	description
1	Electrical supply into motor controller.
2	Three phase connections to convection fan motor.
3	Motor speed controller (convection fan) connections to SRB.
4	Convection fan motor thermal cut-out (short circuit).
5	Convection fan motor rotates freely / not seized.
6	Convection fan motor winding resistances: • Blue-Black 9±5% Ω • Black-Brown 9±5% Ω • Brown-Blue 9±5% Ω • Black or Brown or Blue to Earth (open circuit).

05 REPLACING COMPONENTS

This chapter contains information on how to remove and fit components of the oven.

5.1 Safe working when replacing appliance parts

Before starting service / repair work, it is essential that you familiarize yourself with the rules and hazard warnings specified and follow the instructions given there.

Only qualified personnel from an authorized service company are permitted to remove and fit components of the microwave combination oven. To prevent hazards that arise from the installation site and environment of the appliances, the rules for setting up the appliance safely must always be observed.

1. Electrically live components

   When the appliance is not connected to an equipotential bonding system, there is a risk of electric shock from touching live parts.

   ✓ Make sure that any work on the electrical system is performed solely by a qualified electrician from an authorized service company.

   ✓ Make sure that the electrical connections are intact and connected securely before putting the appliance into use.

   ✓ Before preparing the appliance for use, make sure that the appliance, including all metallic acces-sories, is connected to an equipotential bonding system.

2. Moving heavy loads

   When lifting the appliance, the weight of the appliance may lead to injuries, especially in the area of the torso.

   ✓ Use a forklift truck or pallet truck to place the appliance in the installation position or to move it to a new position.

   ✓ When shifting the appliance into the correct position, use enough people for the weight of the appliance when lifting it (value depending on age and gender). Observe the local occupational safety regulations.

   ✓ Wear personal protective equipment.

3. Sharp-edged sheet-metal parts

   Working with or behind sharp-edged sheet-metal parts may result in cuts to hands.

   ✓ Exercise caution.

   ✓ Wear personal protective equipment.

4. Hot surfaces

✓ You may get burnt if you touch any of the interior parts of the cooking chamber, the inside of the appliance door or any parts that were inside the oven during cooking.

✓ Before starting servicing and repair work, wait until the cooking chamber has cooled to below 50°C / 122°F or use the 'Cool-Down' function to cool the cooking chamber.

✓ Wear personal protective equipment.

5. Live components

When the covers of the microwave combination oven are removed, there is a risk of electric shock from touching live parts.

✓ Make sure that any work on the electrical system is performed solely by a qualified electrician from an authorized customer service office.

Before removing the covers:

- Switch the appliance off and disconnect the plug from the wall socket.
- Turn off the isolator switch to disconnect fixed wired appliances and lock-off.
- Take protective measures at every power switch to ensure that the power cannot be switched on again.
- Always discharge the high voltage capacitors before working on the appliance using a suitably insulated 10MΩ resistor.
- Make sure that the appliance is de-energized.

✓ Make sure that the electrical connections are intact and connected securely before you reconnect the appliance to the power supply.

✓ Before putting the appliance back into operation, make sure that the appliance, including all metallic accessories, is connected to an equipotential bonding system.

6. Microwave emissions

✓ Do not become exposed to emissions from the microwave generator or parts conducting microwave energy.

✓ Never operate an appliance that has failed the "Microwave Leakage test".

7. Fire/smoke in the appliance

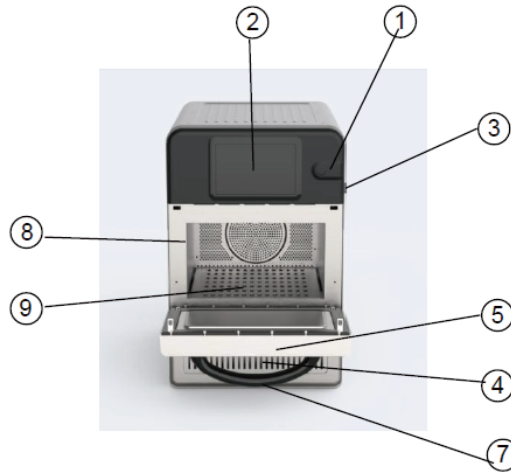
Flames and/or smoke may come out of the oven when switching it on after service/repair. This can be caused by a defective electrical component or electrical connections (wiring) that have been refitted incorrectly.

✓ Switch off the oven.

✓ Disconnect/isolate the oven from the electrical supply.

✓ Keep the oven door closed to stifle any flames.

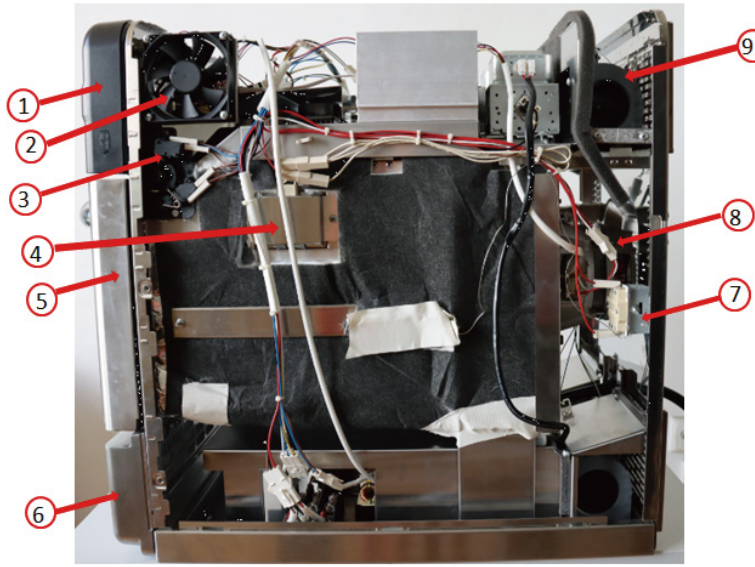
5.2 Parts and their function



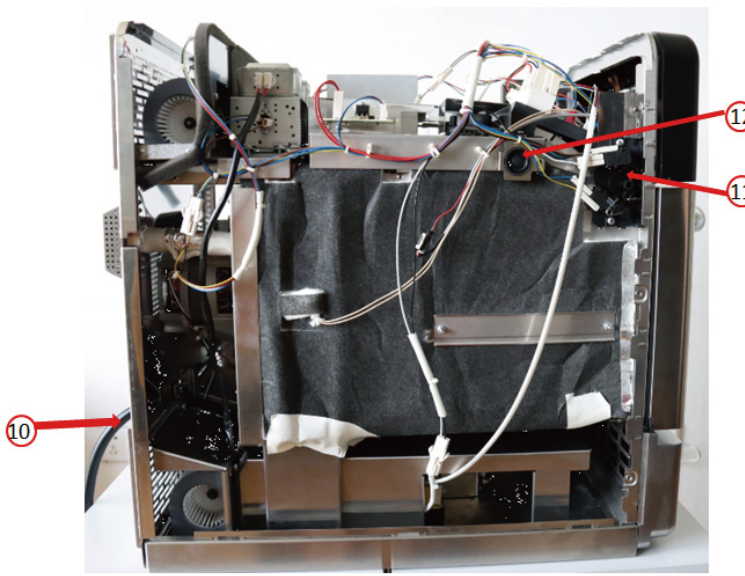
Item	Name	Function
1	ON/OFF appliance switch	Used to turn the Commercial High Speed Oven on and off. Turning this switch off does not isolate the appliance from the electricity supply.
2	control panel 8 inch TFT Screen	When the appliance is switched on the 8 inch TFT Screen illuminates the user interface.
3	USB port	When the appliance is switched on the illuminates the user interface. 8 inch TFT Screen
4	Air outlets	The air filter situated at the lower front of the appliance is part of the ventilation system.
5	Appliance door	The door handle is a rigid bar which is pulled downwards and away from the appliance to open it.
6	Air filter(no picture)	The cavity (cooking chamber) is constructed from stainless steel and used for cooking products.
7	Door handle	The door handle is a rigid bar which is pulled downwards and away from the appliance to open it.
8	Cavity	The cavity (cooking chamber) is constructed from stainless steel and used for cooking products.
9	Lower plate	Carrying accessory function

5.3 Overview

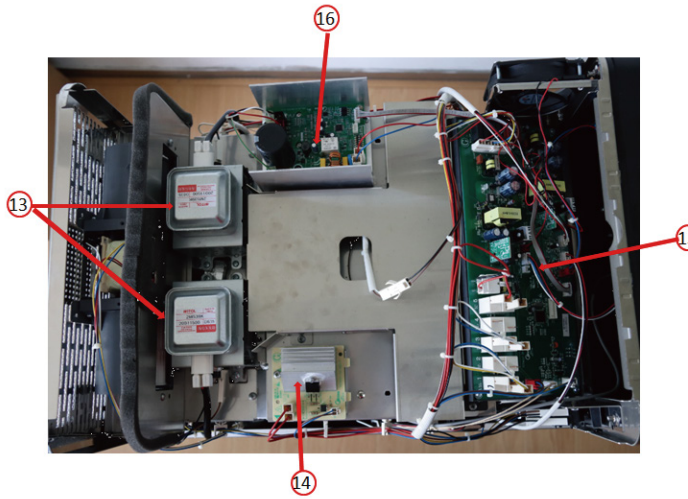
View---right hand side



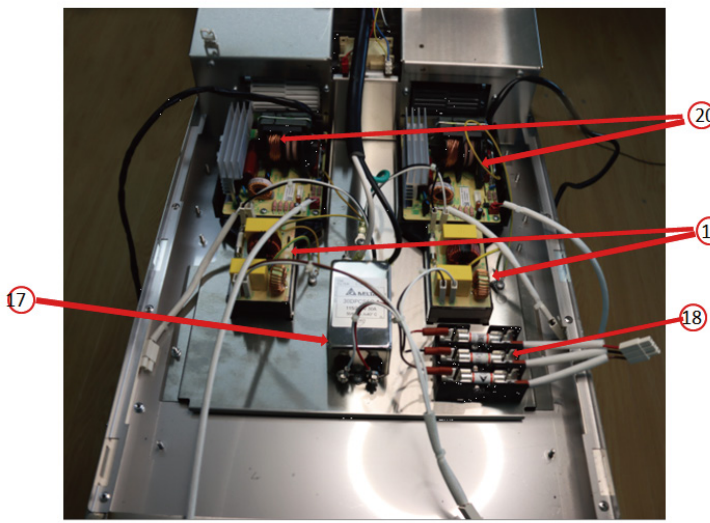
View---left hand side



View---Top side



View---Baseplate side



Component List

Item	Name	Function
1	Front panel	The touchscreen and the QTS assembly.
2	Fan	The fan for cooling down the temperature of PCB.
3	Interlock Assembly (Right)	The Microswitches/interlocks are connected to the door hinges and switch off the magnetron(s) when the oven door is opened.
4	Lamp	The lamp for lighting cavity.
5	Door Assembly	The door assembly can be detached for accessing the door hinge assembly.
6	Metal Base Plate	The metal base plate can be tilted to access the air filter.
7	Inflatable Thermostat	Monitor cavity temperature.
8	Convection Assembly	The convection assembly can provide hot air.
9	Fan Assembly	The cooling fan pulls air through the air filter into the interior of the casing in order to cool the electrical components.
10	Power Cord	The power cord can provide current.
11	Interlock Assembly (Left)	The Microswitches/interlocks are connected to the door hinges and switch off the magnetron(s) when the oven door is opened.
12	Speaker	The speaker produces sound signals (e.g. cooking process completed) and can be deactivated.
13	Magnetron	A magnetron generates microwaves.
14	PCB Assembly (Silicon Controlled Rectifier)	The silicon controlled rectifier completes the magnetron circuit for required high voltage.
15	Main control panel	The main control panel controls all electrical oven components.
16	Driver Board	The drive board controls the motor stop operation and speed
17	Filter	Filter reduces the transfer of electromagnetic noise between the drive and the mains power supply.
18	Fuse	The fuses protect the oven from high voltages/currents.

19	Noise Filter Assembly	Noise filter assembly reduces the transfer of electromagnetic noise between the inverter and the mains power supply.
20	Inverter	The inverter can transform the 50 Hz power frequency into the high frequency output of 10,000 Hz to 30,000 Hz.

Tools required

Sharp-nose pliers

Long cross screwdriver

Slotted screwdriver

M4 hex socket wrench/nut runner

M6 hex socket wrench/nut runner

5.4 Removing / fitting the casing

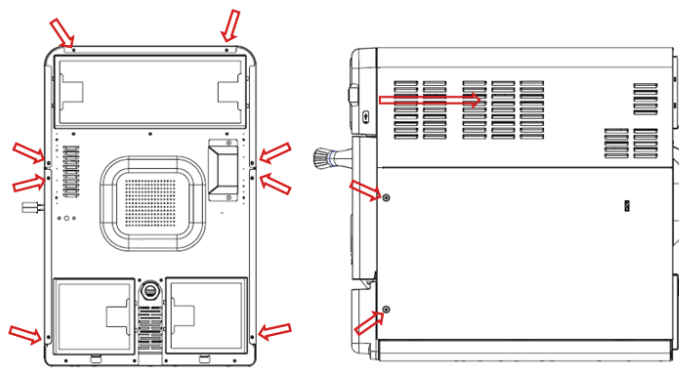
Requirements

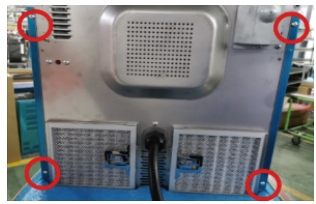
Check that the following requirements have been met:

- ✓ The appliance has been disconnected from the power supply and protective measures have been taken to ensure the power cannot be switched on again.
- ✓ The appliance is cool.
- ✓ The high voltage capacitors are discharged before commencing work.
- ✓ Anti-static precautions have been taken.

Removing the panels of the casing

Overview of all M5.5 hex head flange bolts securing the panels of the casing.



1		Remove top panel first. Unfasten four M4 screws at the back panel of the appliance attaching the top panel to the back panel.
2		Slide the top panel towards the back of the appliance and remove it.
3		Remove the side panels. Unfasten four M4 screws at the back panel of the appliance attaching the side panel to the back panel.
4		Unfasten four M4 screws at the side panel of the appliance. Two screws on one side

Fitting the panels of the casing

Follow the steps in the reverse order to fit the panels of the casing.

5.5 Removing / fitting the door assembly

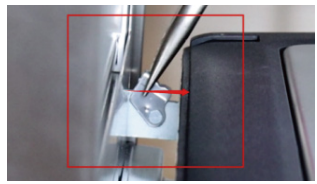
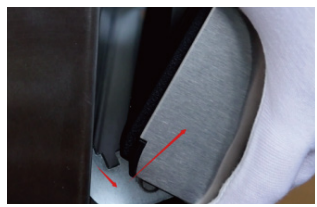
Component

Requirements

Check that the following requirements have been met:

- ✓ The appliance has been disconnected from the power supply and protective measures have been taken to ensure the power cannot be switched on again.
- ✓ The appliance is cool.
- ✓ The high voltage capacitors are discharged before commencing work.
- ✓ Anti-static precautions have been taken.

Removing components of the door assembly

1		Turn the hinged clip over to one end of the door assembly with iron pliers to remove the self-locking state of the hinge.
2		Tilt the oven door to an angle of approx. 30° relative to the ground.
3		Remove the door assembly from the oven performing a rotational movement of lifting the door up and pulling it away from the casing.

Fitting the components of the door assembly

Follow the steps in the reverse order to reassemble the compo-nents of the oven door and to fit it to the oven.

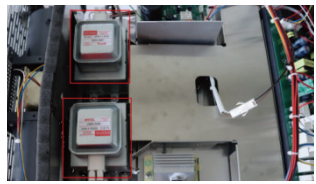
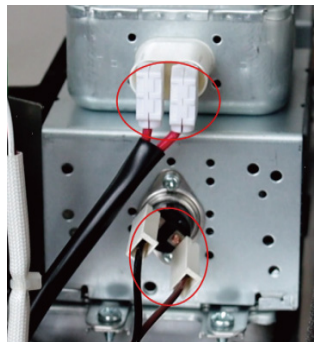
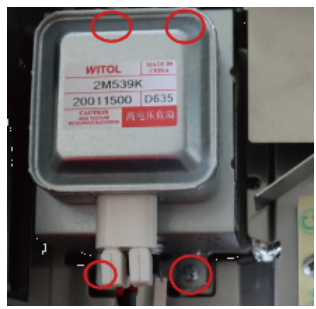
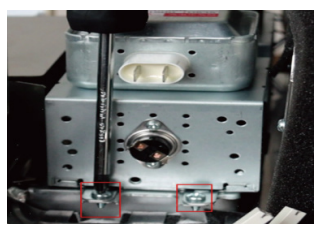
5.6 Replacing a magnetron

Requirements

Check that the following requirements have been met:

- ✓ The appliance has been disconnected from the power supply and protective measures have been taken to ensure the power cannot be switched on again.
- ✓ The appliance is cool.
- ✓ The top, left and right panels of the casing of the appliance have been removed.
- ✓ The high voltage capacitors are discharged before commencing work.

Removing a magnetron

1		The magnetrons are located on top of the cavity.
2		Remove the wire connecting the thermostat and the magnetron.
3	 	Remove the four M4 screws on both side of magnetron.

Fitting a magnetron

Follow the steps in the reverse order to fit a magnetron.

Ensure nothing becomes trapped under the magnetron mounting points (e. g. insulation material) while fitting the magnetron. This can lead to microwave leakage.

NOTICE:

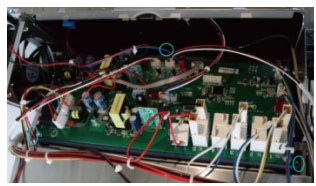
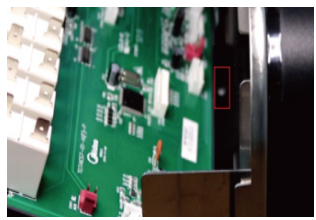
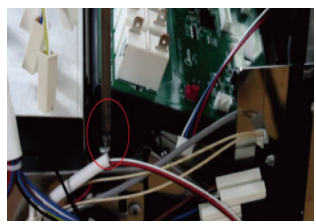
If the electric connections have not been restored properly this may lead to malfunction /damage of the oven.

5.7 Replacing the power panel

Requirements

Check that the following requirements have been met:

- ✓ The appliance has been disconnected from the power supply and protective measures have been taken to ensure the power cannot be switched on again.
- ✓ The appliance is cool.
- ✓ The top, left and right panels of the casing of the appliance have been removed.
- ✓ The high voltage capacitors are discharged before commencing work.

1		Unplug the wire. Note: It is necessary to record the corresponding insertion point of each wire before unplugging.
2	 	Remove the three M4 screws.

Fitting the power panel

Follow the steps in the reverse order to fit the power panel.

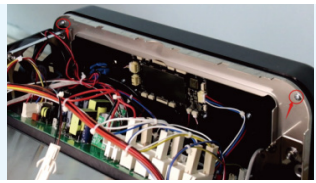
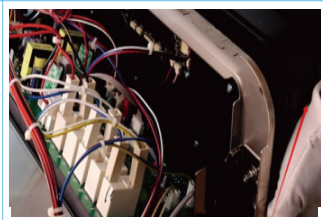
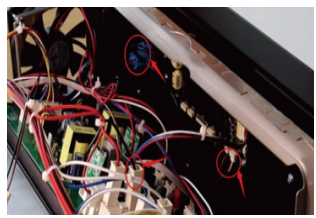
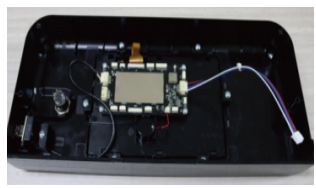
Reconnect all electric connections to the power panel.

5.8 Replacing the control panel.

Requirements

Check that the following requirements have been met:

- ✓ The appliance has been disconnected from the power supply and protective measures have been taken to ensure the power cannot be switched on again.
- ✓ The appliance is cool.
- ✓ The top, left and right panels of the casing of the appliance have been removed.
- ✓ The high voltage capacitors are discharged before commencing work.

1		Remove the two M4 screws.
2		Lift up the control panel.
3		Unplug the three wires.
4	 	

Fitting the control panel

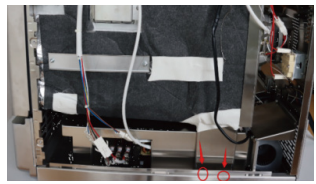
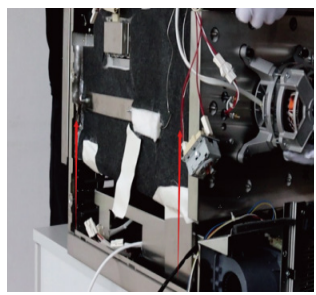
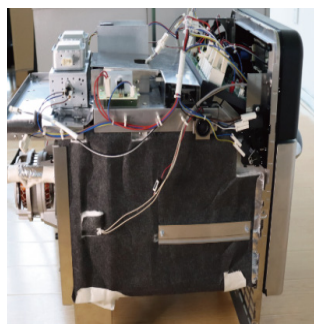
Follow the steps in the reverse order to fit the control panel.

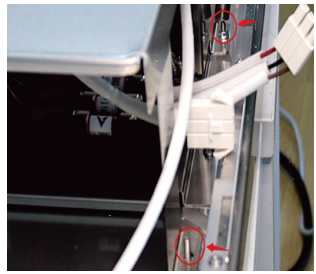
5.8 Replacing the baseplate assembly.

Requirements

Check that the following requirements have been met:

- ✓ The appliance has been disconnected from the power supply and protective measures have been taken to ensure the power cannot be switched on again.
- ✓ The appliance is cool.
- ✓ The top, left and right panels of the casing of the appliance have been removed.
- ✓ The high voltage capacitors are discharged before commencing work.

1	 	Remove the four M6 nut both side of the cavity.
2	 	Lift up the cavity.

3	 	Remove the four M6 nut both side of baseplate assembly.

Fitting the baseplate assembly

Follow the steps in the reverse order to fit the baseplate assembly.

06 CIRCUIT DIAGRAMS AND BOARDS

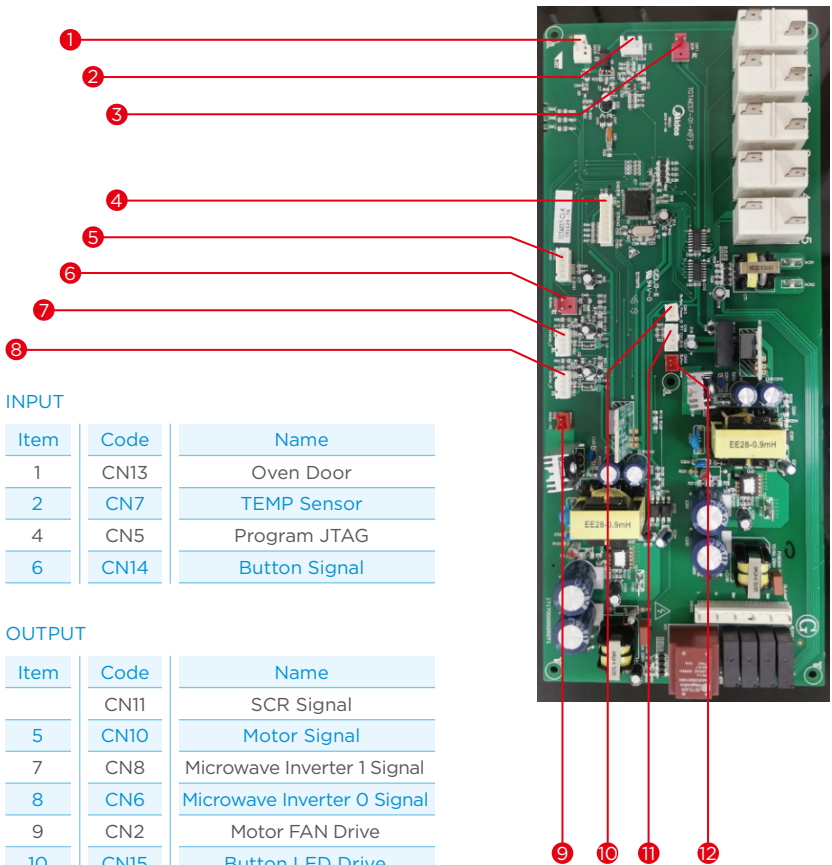
6.1 SRB / QTS circuit boards

1. Weak-current

   Signal - drive signal, including PWM and UART.

   Drive - 12V or 5V.

   JTAG - Program burning interface.



INPUT

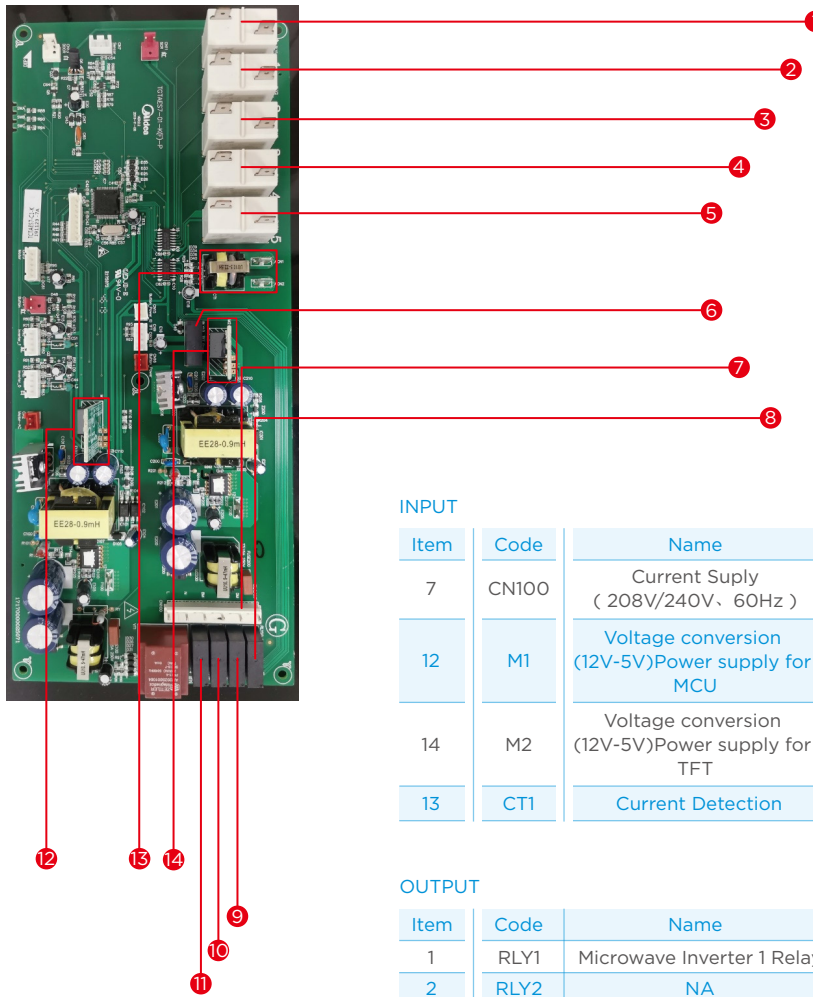
Item	Code	Name
1	CN13	Oven Door
2	CN7	TEMP Sensor
4	CN5	Program JTAG
6	CN14	Button Signal

OUTPUT

Item	Code	Name
	CN11	SCR Signal
5	CN10	Motor Signal
7	CN8	Microwave Inverter 1 Signal
8	CN6	Microwave Inverter 0 Signal
9	CN2	Motor FAN Drive
10	CN15	Button LED Drive
11	CN9	TFT Signal
12	CN16	NA

2. Strong-current

- Relay –12V/ 208V/240V on or off.
- DM – Dial Motor for Microwave.



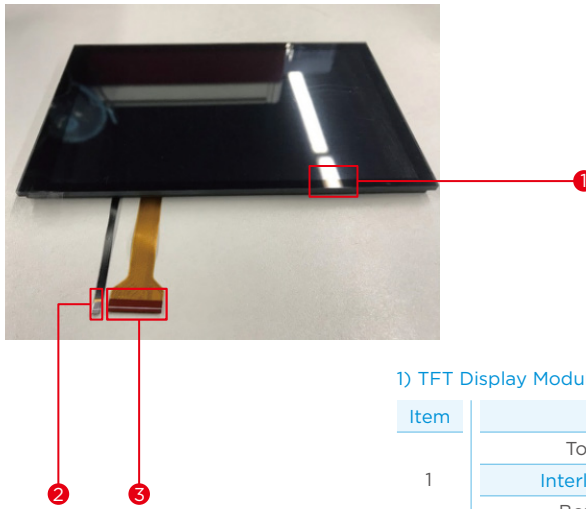
INPUT

Item	Code	Name
7	CN100	Current Suply (208V/240V、60Hz)
12	M1	Voltage conversion (12V-5V)Power supply for MCU
14	M2	Voltage conversion (12V-5V)Power supply for TFT
13	CT1	Current Detection

OUTPUT

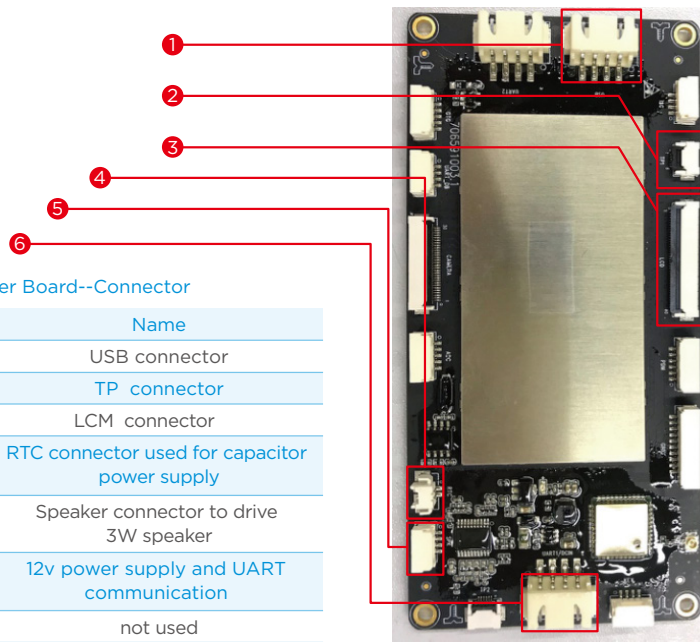
Item	Code	Name
1	RLY1	Microwave Inverter 1 Relay
2	RLY2	NA
3	RLY5	Microwave Inverter 0 Relay
4	RLY4	NA
5	RLY11	GRILL Relay
6	RLY12	TFT Power Relay
8	RLY10	LAMP Relay
9	RLY7	DM Relay
10	RLY8	240V FAN Relay
11	RLY9	208V FAN Relay

6.2 TFT Driver Board



1) TFT Display Module

Item	Name
1	Top glass lens Interlayer touch panel Bottom TFT-LCM
2	TP flexible printed circuit
3	LCM flexible printed circuit

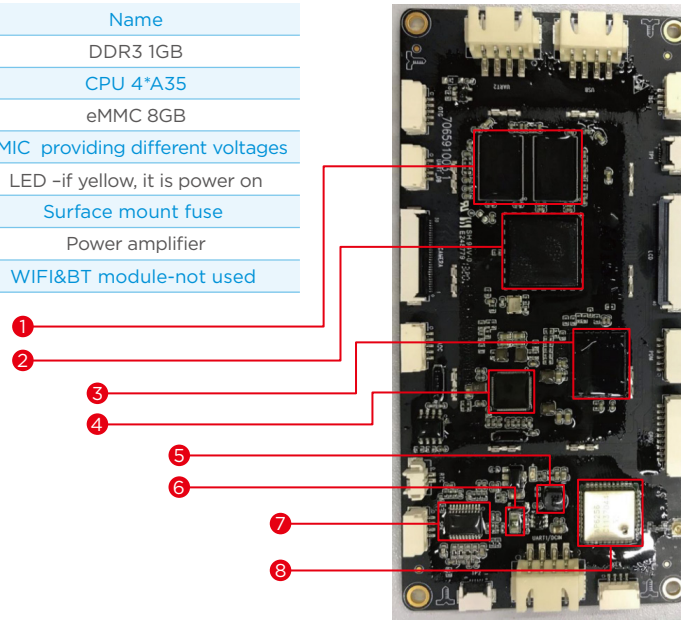


2) TFT Driver Board--Connector

Item	Name
1	USB connector
2	TP connector
3	LCM connector
4	RTC connector used for capacitor power supply
5	Speaker connector to drive 3W speaker
6	12v power supply and UART communication
No mark	not used

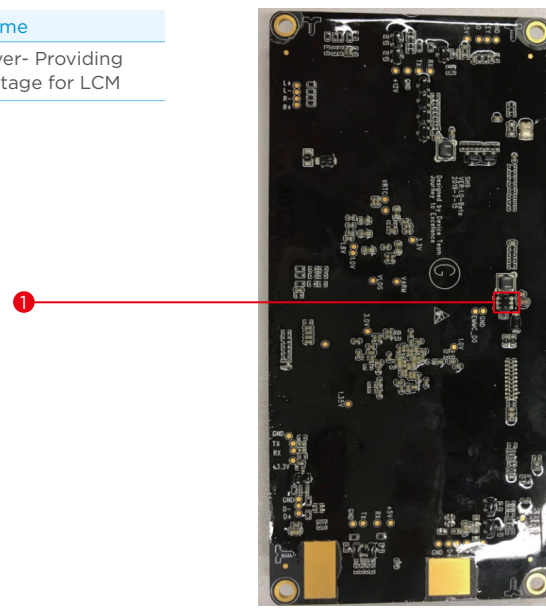
3) TFT Driver Board--Top Components

Item	Name
1	DDR3 1GB
2	CPU 4*A35
3	eMMC 8GB
4	PMIC providing different voltages
5	LED –if yellow, it is power on
6	Surface mount fuse
7	Power amplifier
8	WIFI&BT module-not used



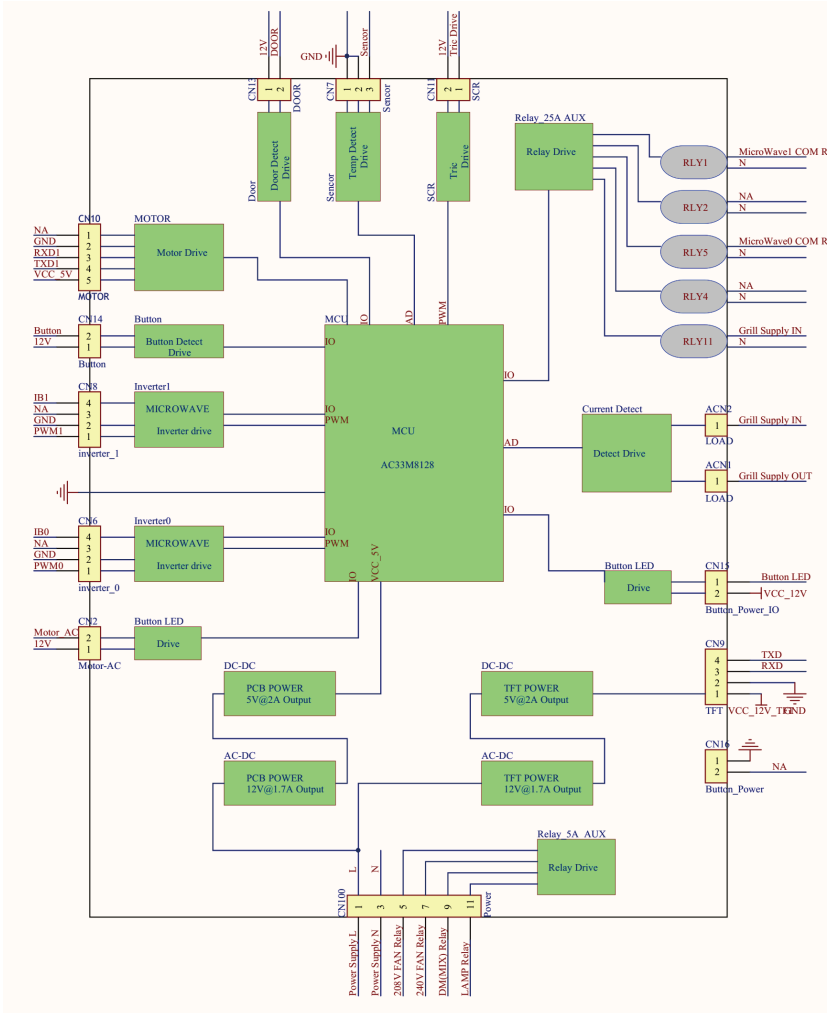
3) TFT Driver Board--Bottom Components

Item	Name
1	Boost led driver- Providing backlight voltage for LCM



6.3 Circuit diagrams

TJE17G-S00N0A wiring diagram 208V/240 60Hz



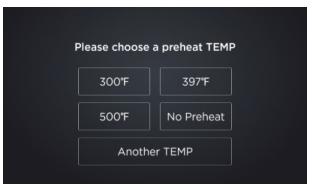
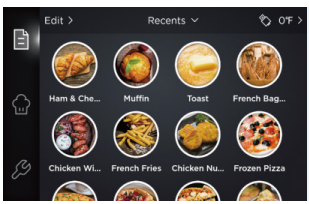
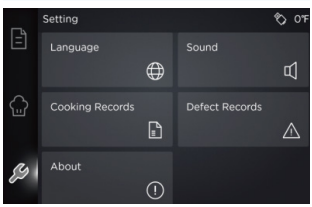
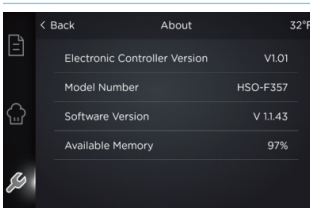
07 COMMISSIONING THE APPLIANCE

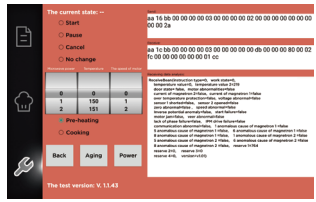
7.1 Recommission Test: Recommissioning the appliance after service/repair

The Recommission Tests are performed following the completion of a service or repair to ensure that the appliance is working correctly before handing back to the customer.

Some of the tests have a countdown timer where failing to carry out a test within the time limit will cause a test failure and the Recommission Test will have to be restarted.

1)Test Menu

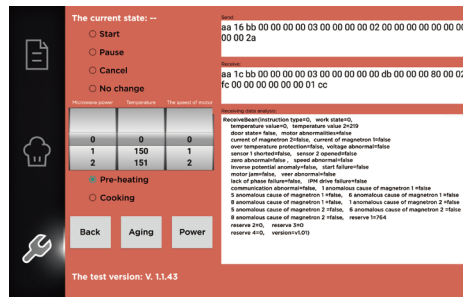
Item	Display interface	Description
1		Touch the “No Preheat”
2		Touch the setting category
3		Touch the “About” in the display
4		Touch the “97%” or “ Available Memory” pad more than 5 times in the display

5		The display will appear to operate the microwave and heater output

2)Microwave Power Test

NOTE:

- The appliance is enough cool
- The power output is also affected by line voltage under load, so this test is an approximation only



a)Fill a microwave safe container (Glass) with 1 liter of water at 20℃ (68F)

b)Place the container into the center of cavity.

c)Select microwave power 100% (scroll the power level pad : “a”)

d)Touch start key (“b”) and operate for 1 minute.

e)Open the door or touch stop key(“c”)

f)Remove the container form cavity.

g)Immediately stir and measure the water temperature by using thermometer

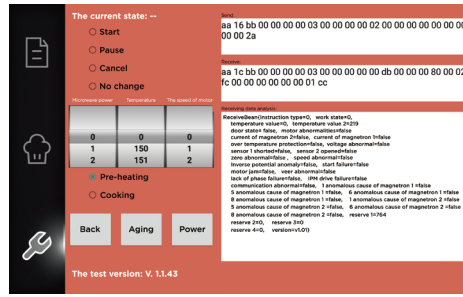
h)Calculate the temperature rise of water (End temperature minus start temperature)

i)The temperature rise should be 20C +/- 10%

3)Microwave Leakage Test

NOTE:

- The test load is a 600 ml Kimax beaker with an inside diameter of approximately 8.5 cm.
- The beaker shall be filled with 275 +/-15 ml of potable water at room ambient temperature.
- The supply voltage 208 / 240VAC.



a)Place the beaker into the center of cavity.

b)Place the water load into the microwave oven on the center of the load bearing surface.

c)Close the oven door.

d)The microwave oven is to be operated at 100 % power （scroll the power level pad : “a”)

e)Press start key (“b”) and operate for 5 minutes.

f)Hold the probe on the grip provided and move at 2.5 cm/second.

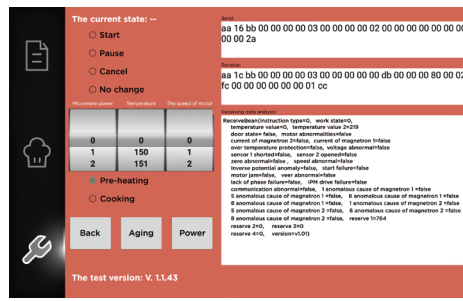
g)Touch stop key (“c”) after finishing the test.

h)The leakage should not exceed 5 mW/cm^2.

4)Convection temperature Test

NOTE:

- The appliance is enough cool.
- The power output is also affected by line voltage under load, so this test is an approximation only



a)Open the door and take out the wire rack and pizza pan and then close door.

b)Select convection temperature 150℃ for 10 minutes (scroll the power level pad : “a”).

c)Check the temperature in the display (“b”).

d)The temperature should be within150 ℃+/- 15 ℃.

make yourself at home