



Medium-Duty Stainless Steel Commercial Microwaves with Push Button Controls

180MWAS12T	120V • 1200W
180MWAS18T	208/240V • 1800W
180MWAS21T	208/240V • 2100W



Read and keep these instructions. Indoor use only.

Table of Contents

Important Safety Instructions.	3
Grounding	6
Installation	6
Control Panel and Features.	8
Programming Features	9
Displays	10
Using the Oven Controls	11
Programming the Oven Controls. . . .	13
User Options	14
Cooking Guidelines	16
Cooking Instructions	18
Cleaning and Maintenance	19
Troubleshooting.	22

180MWAS12T



180MWAS18T /21T



Important Safety Instructions



WARNING

To reduce the risk of burns, electrical shock, fire, or person injury when using electrical equipment, basic safety precautions should be followed.

1. READ all instructions before using equipment.
2. This equipment **MUST BE GROUNDED**. Connect only to properly GROUNDED outlet. See "GROUNDING/ EARTHING INSTRUCTIONS" on page 4.
3. Install or locate this equipment **ONLY** in accordance with the installation instructions in this manual.
4. Some products such as whole eggs and sealed containers (for example, closed glass jars) are able to explode and **SHOULD NOT BE HEATED** in this oven.
5. Use this equipment **ONLY** for its intended use as described in this manual. **DO NOT** use corrosive chemicals or vapors in this equipment. This type of oven is specifically designed to heat, cook, or dry food. It is not designed for industrial or laboratory use.
6. **HOT CONTENTS CAN CAUSE SEVERE BURNS. DO NOT ALLOW CHILDREN TO USE THE MICROWAVE.** Use caution when removing hot items.
7. **DO NOT** operate this equipment if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
8. This equipment, including power cord, must be serviced **ONLY** by qualified service personnel. Special tools are required to service equipment. Contact nearest authorized service facility for examination, repair, or adjustment.
9. **DO NOT** cover or block filter (if applicable) or other openings on equipment.
10. **DO NOT** store this equipment outdoors. **DO NOT** use this product near water – for example, near a kitchen sink, in a wet basement, a swimming pool, or a similar location.
11. **DO NOT** immerse cord or plug in water.
12. Keep cord **AWAY** from **HEATED** surfaces.
13. **DO NOT** let cord hang over edge of table or counter.
14. Cleaning and user maintenance shall not be made by children without supervision.
15. To avoid risk of fire in the oven cavity:
 - a. **DO NOT** overcook food. Carefully attend oven when paper, plastic, or other combustible materials are placed inside the oven.
 - b. Remove wire twist-ties from paper or plastic bags before placing bag in oven.
 - c. If materials inside the oven ignite, keep oven door **CLOSED**, turn oven off and disconnect the power cord, or shut off power at the fuse or circuit breaker panel.
 - d. **DO NOT** use the cavity for storage. **DO NOT** leave paper products, cooking utensils, or food in the cavity when not in use.
16. For commercial use only.
17. It is hazardous for anyone other than a competent person to carry out any service or repair operation that involves the removal of any cover which gives protection against exposure to microwave energy.
18. If the door or door seals are damaged, the oven must not be operated until it has been repaired by a competent person.
19. Appliance is not to be used by children 8 years and below or persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction.
20. Only use utensils that are suitable for use in microwave oven.
21. When heating food in plastic or paper containers, keep an eye on the oven due to the possibility of ignition.
22. If smoke is observed, switch off or unplug the appliance and keep the door closed in order to stifle any flames.
23. Failure to maintain the oven in a clean condition could lead to deterioration of the surface that could adversely affect the life of the appliance and possibly result in a hazardous situation.

24. The appliance should not be cleaned with a water jet or steam cleaner.
25. Liquids or other foods must not be heated in sealed containers since they are liable to explode.
26. Microwave heating of beverages can result in delayed eruptive boiling, therefore care must be taken when handling the container.

Combination Ovens Only:

27. DO NOT insert oversized foods or oversized utensils in a microwave/convection oven as they may create a fire, an electrical arc, or risk of electrical shock.
28. DO NOT clean with metal scouring pads. Pieces can break off the pad and touch electrical parts involving risk of electrical shock.
29. DO NOT use paper products not intended for high temperature cooking when equipment is operated in convection or combination mode.
30. DO NOT store any materials, other than manufacturer's recommended accessories, in this equipment when not in use.
31. DO NOT cover any part of the oven with metal foil. Airflow restriction will cause overheating of the oven.
32. DO NOT spray oven cleaning solutions toward the rear inner cavity surface. This will contaminate and damage the convection heating assembly.



CAUTION

To avoid risk of personal injury or property damage, observe the following safety instructions:

General Use:

1. DO NOT use regular cooking thermometers in oven. Most cooking thermometers contain mercury and may cause an electrical arc, malfunction, or damage to oven.
2. Never use paper, plastic, or other combustible materials that are not intended for cooking.
3. When cooking with paper, plastic, or other combustible materials, follow manufacturer's recommendations on product use.
4. DO NOT use paper towels which contain nylon or other synthetic fibers. Heated synthetics could melt and cause paper to ignite.
5. To avoid surface deterioration, keep the oven in a clean condition. Infrequent cleaning could adversely affect the life of the appliance and possible result in a hazardous situation.
6. Clean oven regularly and remove any food deposits.

Heating Foods and Liquids:

7. Liquids such as water, coffee, or tea are able to be overheated beyond the boiling point without appearing to be boiling due to surface tension of the liquid. Visible bubbling or boiling when the container is removed from the microwave oven is not always present. **THIS COULD RESULT IN VERY HOT LIQUIDS SUDDENLY BOILING OVER WHEN A SPOON OR OTHER UTENSIL IS INSERTED INTO THE LIQUID.**
To reduce the risk of injury to persons:
 - a. DO NOT overheat the liquid.
 - b. Stir the liquid both before and halfway through heating it.
 - c. DO NOT use straight-sided containers with narrow necks.
 - d. After heating, allow the container to stand in the microwave for a short time before removing it.
 - e. Use extreme care when inserting a spoon or other utensil into the container.
8. DO NOT deep fat fry in oven. Fat could overheat and be hazardous to handle.

9. DO NOT cook or reheat eggs in shell or with an unbroken yolk using microwave energy. Pressure may build up and erupt. Pierce yolk with fork or knife before cooking.
10. Pierce skin of potatoes, tomatoes, and similar foods before cooking with microwave energy. When skin is pierced, steam escapes evenly.
11. DO NOT heat sealed containers or plastic bags in oven. Food or liquid could expand quickly and cause container or bag to break. Pierce or open container or bag before heating.
12. DO NOT heat baby bottles in oven.
13. Baby food jars shall be open when heated and contents stirred or shaken before consumption, in order to avoid burns.
14. Never use oven to heat alcohol or food containing alcohol as it can more easily catch fire if overheated.

Additional Microwave Oven Safety Instructions:

15. DO NOT operate equipment without load or food in oven cavity.
16. Use only popcorn in packages designed and labeled for microwave use. Popping time varies depending on oven wattage. DO NOT continue to heat after popping has stopped. Popcorn will scorch or burn. DO NOT leave oven unattended.
17. DO NOT use metal utensils in oven.
18. An authorized servicer MUST inspect equipment annually. Record all inspections and repairs for future use.

Additional Combination Oven Safety Instructions:

19. DO NOT pop popcorn in this oven.
20. DO NOT use metal utensils in oven except when recommended by microwave food manufacturers or recipe requires metal utensils in convection or combination mode. Heat food in containers made of glass or china if possible.
21. Oven temperature is at least 450°F in convection mode. Verify plastic, paper or other combustible materials are recommended by the manufacturer to withstand the maximum oven temperature.
22. Racks, utensils, rack guides, and oven surfaces may become hot during or after use. Use utensils or protective clothing, like pan grips or dry oven mitts, when necessary to avoid burns.
23. DO NOT unplug oven immediately after use. Internal fan must cool oven to avoid damage of electrical components.
24. Caution: To avoid burns, do not use containers loaded with liquid or kitchen products that become liquid by heating at levels above those that can be easily observed.

Precautions to Avoid Possible Exposure to Excessive Microwave Energy

1. DO NOT attempt to operate this oven with the door open since open door operation can result in harmful exposure to microwave energy. It is important not to defeat or tamper with the safety interlocks.
2. DO NOT place any object between the oven front face and the door or allow soil or cleaner residue to accumulate on sealing surfaces.
3. DO NOT operate the oven if it is damaged. It is particularly important that the oven door close properly and that there is no damage to the:
 - a. Door (bent).
 - b. Hinges and latches (broken or loosened).
 - c. Door seals and sealing surfaces.
4. The oven should not be adjusted or repaired by anyone except properly qualified service personnel.

Grounding



WARNING

To avoid risk of electrical shock or death, this oven must be grounded and plug must not be altered.

- Oven **MUST** be grounded. Grounding reduces risk of electric shock by providing an escape wire for the electric current if an electrical short occurs.
- This oven is equipped with a cord having a grounding wire with a grounding plug. The plug must be plugged into an outlet that is properly installed and grounded. Consult a qualified electrician or servicer if grounding instructions are not completely understood, or if doubt exists as to whether the oven is properly grounded.
- Do **NOT** use an extension cord. If the product power cord is too short, have a qualified electrician install a three-slot receptacle.
- This oven should be plugged into a separate circuit with the electrical rating as provided in product specifications (available on Solwave's website at www.SolwaveOvens.com). and the oven's serial plate / rating label. When the oven is on a circuit with other equipment, an increase in cooking times may be required and fuses can be blown.

External Equipotential Earthing Terminal (Export Only)

- Equipment has secondary earthing terminal. Terminal provides external earthing connection used in addition to earthing prong on plug. Located on outside of oven back, terminal is marked with symbol shown at right.



Installation



WARNING

Excessive Weight Hazard - Use two or more people to move and install oven. Failure to do so can result in back or other injury.

Unpacking the Oven

- Inspect oven for damage such as dents in door or inside oven cavity.
- Report any dents or breakage to source of purchase immediately.
- **DO NOT** attempt to use oven if damaged.
- Remove all packing materials from oven interior.
- If oven has been stored in extremely cold area, wait a few hours before connecting power.
- A protective film is used to prevent scratching of the outer case during transportation. Peel off the film from the exterior of the oven before installation.
- The warning label provided with the oven must be placed in an easily visible location near the oven.

Radio Interference

Microwave operation may cause interference to WiFi network, radio, television, or a similar oven. Reduce or eliminate interference by doing the following:

- Clean door and sealing surfaces of oven according to provided instructions.
- Place WiFi network, radio, television, etc. as far as possible from oven.
- Use a properly installed antenna on radio, television, etc. to obtain stronger signal reception.

Oven Placement

- Do NOT install oven next to or above source of heat, such as pizza oven or deep fat fryer. This could cause oven to operate improperly and could shorten life of electrical parts. Ambient temperatures above 90°F may cause damage to the unit.
- Do NOT block or obstruct oven filters. Allow access for cleaning.
- Install oven on level counter-top surface.
- Outlet should be located so that plug is accessible when oven is in place.
- This oven is required to be sealed to the countertop to establish proper sanitary operation. It is manufactured with a basepan gasket designed to provide this seal.
- Inspect gasket for damage before placing oven on countertop.
- Minimize sliding of oven to prevent damage to gasket.
- When in place, this gasket is intended to prevent liquid spillage on adjacent countertop surfaces from passing under inaccessible portions off the equipment.

Oven Stacking

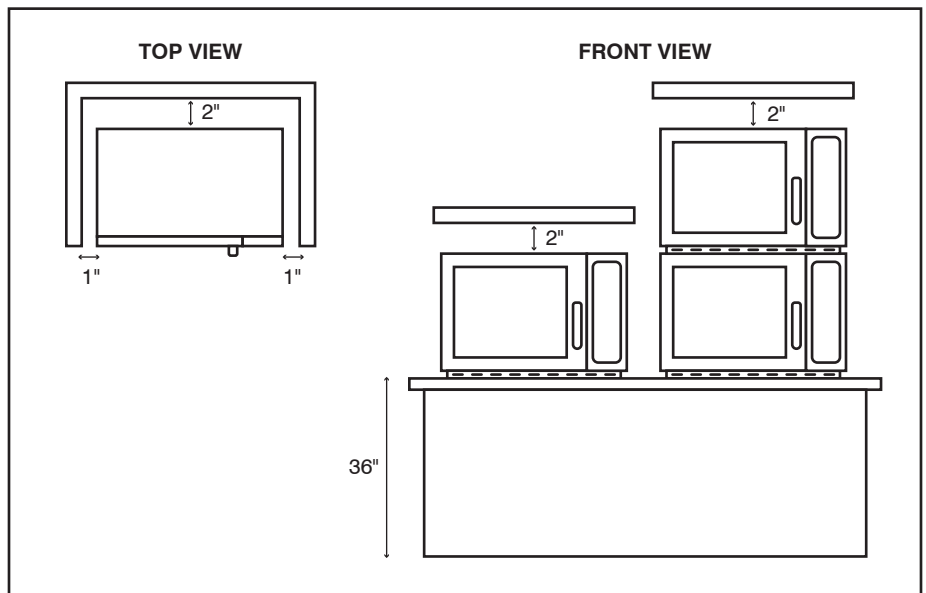
- Oven stacking is allowed using stacking bracket located on the top of the back panel on the hinge side corner.
- Remove screws from stacking brackets on the rear of the ovens and reattach them to the back panel between both ovens, securing them together using back panel screws.

Oven Clearances

- Proper air flow around oven cools electrical components. With restricted air flow, oven may not operate properly and life of electrical parts is reduced.

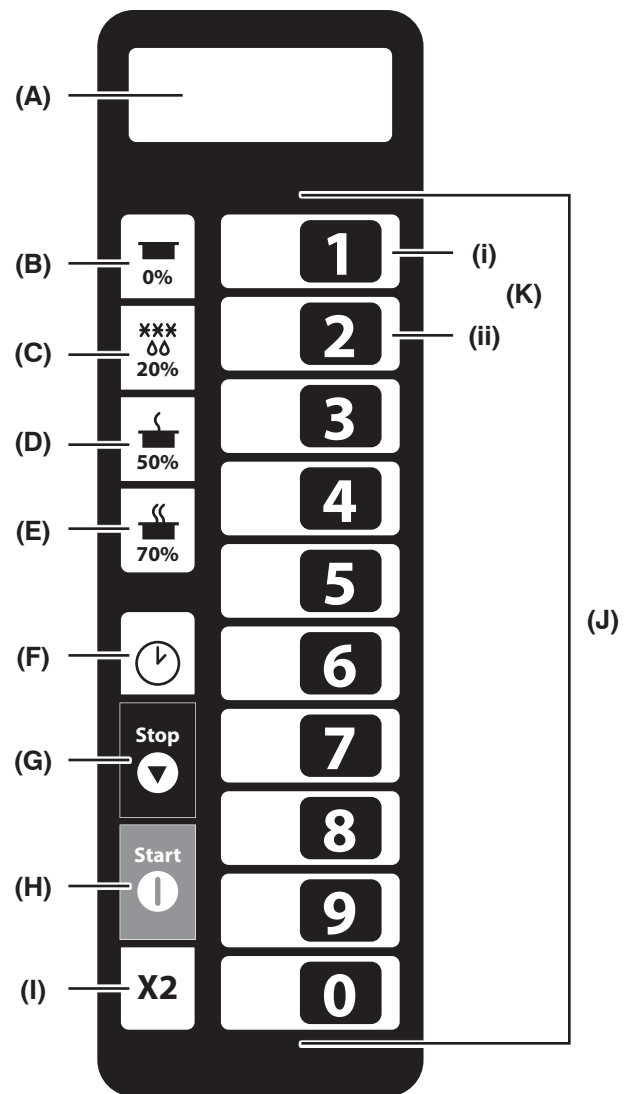
Minimum Clearances (stacked and unstacked units)

- 2" (5.1 cm) above top of oven.
- 2" (5.1 cm) around back of oven.
- 1" (2.54 cm) around sides of oven.
- 36" (91.5 cm) above the floor.



Control Panel

- (A) Display
- (B) Hold Key
- (C) 20% Power/Defrost Key
- (D) 50% Power Key
- (E) 70% Power Key
- (F) Manual Time Entry Key
Allows the operator to heat without changing the preset program keys.
- (G) Stop/Reset Key
Interrupts operation and/or exits modes.
- (H) Start/OK Key
Begins cooking in Manual Time Entry Mode.
Restarts an interrupted cooking cycle.
Used to save setting and entries.
- (I) X2/Double Quantity Cooking Key
Increases a preset cook time by a percentage of the original cook time, also known as a "cook factor."
Used for cooking multiple servings of food.
- (J) Number Keys
Used to operate preset cooking programs, enter settings, and/or activate secondary key functions.
- (K) Secondary Function Keys
To activate, press and hold corresponding number key.
 - (i) Programming Mode (1 Key).
Edit preset programs and/or create new programs for customized cooking.
 - (ii) User Options (2 Key).
Allows the user to customize various oven settings.



The switching operation of this microwave oven can cause voltage fluctuations on the supply line. The operation of this oven under unfavorable voltage supply conditions can have adverse effects. This device is intended for the connection to a power supply system with a maximum permissible system impedance Z_{max} of 0.10 Ohms at the interface point of the user's supply. The user has to ensure that this device is connected only to a power supply system which fulfills the requirement above. If necessary, the user can ask the public power supply company for the system impedance at the interface point.

Programming Features

Stage Cooking

Allows operator to use up to four different cooking cycles or stages consecutively without repeated input from the operator. For example, stage cooking could be set to defrost food initially, then cook it, and then keep the food warm until serving time.

Preset Program Keys

The oven can store up to 100 cooking programs in memory.

Single Digit Keypad Cooking

From the factory, the oven is programmed to store 10 cooking programs (0-9). Each key begins a cooking program.

Double Digit Keypad Cooking

The oven control can be changed to store up to 100 cooking programs (00-99). Each entry will be assigned a double digit number, for example 01, 05, or 20. When using the double keypad programming, two keypads must be pressed to start the cooking cycle.

Note: To set control to Double Digit Entry, see "User Options" section in this manual

Methods of Cooking & Programming

Cooking with Preset Program Keys

Allows operator to quickly activate saved cooking sequences using 1-2 keypad strokes.

Manual Time Entry Cooking

Allows operator to heat without changing the preset program keys.

Manual Key Programming

Allows operator to use keys to edit preset programs and/or create new programs for customized cooking.

Cooking Displays

DISPLAY	DESCRIPTION
READY	Displays when oven control will accept entries.
00:00	Displays cooking time. If stage cooking is programmed, total cooking time is displayed.
HOLD 0% DEFR 20% MED 50% HI 70%	Displays the current microwave power level. If no display is shown, the oven is running at full power (100%).
POWER	Displays while the oven is generating microwave energy during a cooking cycle.

Programming Displays

DISPLAY	DESCRIPTION
P:0	Displays when oven enters programming mode for single digit key memory only.
P	Displays when oven enters programming mode for double digit key memory. 2 keys must be pressed to enter a program.
OP:--	Displays when oven is in user option mode. User options can then be set or specified.
CF:	Displays with a numerical Cooking Factor when X2 key is pressed. Cooking Factor is the percentage by which cooking time increase when using X2 key to cook multiple portions (1=10%, 2=20%, 3=30%, etc.).
P:--1	Displays briefly when programming a specific cooking stage. Number (1-4) indicates the stage that is being programmed.

The display is used for many different models of microwaves. Depending on the model, certain words or symbols may never be highlighted or become visible.

Oven Controls

Interrupting Operation

Open the oven door or press STOP/RESET key to interrupt operation. The display will continue to show the countdown time. Close door and press START key to resume oven operation.

Manual Time Entry

To cook food using a specific entered time and power level.

1. Open oven door and place food in oven. Close door.
 - READY displays. Fan and light will turn on.
2. Press TIME ENTRY key.
 - READY and 0000 display.
 - If pad does not work, open and close oven door and try again.
3. Enter cooking time by using the numbered keys.
4. Press a power level key to change power level if desired.
 - POWER LEVEL displays with the power setting.
 - 00 indicates 0% microwave power, 20 indicates 20%, 50 indicates 50% and 70 indicates 70% microwave power. If a number is not displayed with POWER LEVEL the microwave is set to full power.
5. If stage cooking is desired, press TIME ENTRY key and repeat steps 3 through 4.
 - Display changes to cook time and power level for the next stage.
6. Enter cook time and power level as in steps 3 and 4.
 - To add another cooking stage press TIME ENTRY key again.
 - Up to four different stages can be programmed.
7. Press START key.
 - Oven operates and time counts down.
 - POWER, COOK LEVEL, and cooking time display.
8. At end of cooking cycle oven beeps and shuts off.

Programmed Keys

To cook food using a specific entered time and power level.

1. Open oven door and place food in oven. Close door.
 - READY displays. Fan and light will turn on.
2. Press desired key.
 - For single key entry, press only one key.
 - For double key entry, press the two keys, in order, of the double digit number for the desired cooking sequence.
 - To change single or double key entry option, see User Options section in this manual.
3. Oven begins to cook.
 - POWER, power level and total cooking time display. If power level does not display, microwave is cooking at full power.
 - For additional cooking time, press preprogrammed key again to begin cooking sequence again.
4. At end of cooking cycle oven beeps and shuts off.

Factory Preset Programs

KEY	TIME	POWER
1	00:10	100%
2	00:20	
3	00:30	
4	00:45	
5	01:00	
6	01:30	
7	02:00	
8	03:00	
9	04:00	
0	05:00	

Multiple Servings

To increase cooking time by a specific cooking factor when cooking more than one serving. The cooking factor is a percentage of the original cooking time (from 10 to 100%).

1. Open oven door and place food in oven. Close door.
 - READY displays. Fan and light will turn on.
2. Press X2 key.
 - Amount of time added is a percentage of the original preprogrammed cooking time.
 - The percentage can be changed. See Programming the Oven Control section in this manual.
3. Press desired preprogrammed key or key sequence.
4. Oven begins cooking. Displayed cooking time is the total of original cooking time plus the added X2 time.

Programming the Oven Controls

Programming Keys

Oven is shipped from the factory for single key programming. To change the oven default to allow double key programming, see User Option section. To change the amount of time or the power level for a preset key:

1. Open oven door.
 - READY displays.
 - If door is closed or STOP key is pressed before programming is complete, changes are discarded and microwave exits programming mode.
2. Press and hold key 1 for approximately 5 seconds.
 - This begins programming mode.
 - Microwave will beep and PROGRAM displays.
 - Oven is in programming mode.
3. Press key to be reprogrammed.
 - Press two keys if reprogramming a double pad program.
 - Power level and cooking time display.
 - If power level does not display, microwave is set to full power.
4. Enter cooking time by using the number keys.
5. Press a power level key to change power level if desired.
6. Press START key to save new programming changes to the key.
 - PROGRAM displays.
 - If START is not pressed, changes will not be saved.
7. Press STOP/RESET key or close oven door to exit programming mode.

Canceling Mistakes

- If oven is not cooking, press STOP/RESET key to clear display.
- If oven is cooking, press STOP/RESET key once to stop oven, then again to clear display.
- If oven door is open and time shows in display, close oven door and press STOP/RESET key to clear display.

Programming Multiple Stages

Stage cooking allows consecutive cooking cycles without interruption. Up to four different cooking cycles can be programmed into a memory key. To use stage cooking:

1. Follow steps 1 through 5 above.
2. Press TIME ENTRY key.
 - Display briefly shows the key number that is being programmed and the stage number to the upper right.
 - Display changes to cook time and power level for the next stage.
3. Enter cook time and power level as in steps 4 and 5 above.
 - To enter another cooking stage for that key, press TIME ENTRY key again.
 - Up to four different stages can be programmed.
4. Press START key to save new programming changes to the key.
5. Press STOP/RESET key or close oven door to exit programming mode.

QTY X2 Programming

This feature allows a preset percentage of original cook time, called a cooking factor, to be added to a cook sequence. To change the cooking factor:

1. Open oven door.
2. Press and hold key 1 for approximately 5 seconds.
3. Press key to be reprogrammed.
4. Press the QTY X2 key.
5. Press a numbered key to change the cooking factor.
 - Cooking factor can be set from 10% to 100%.
 - Default is 80%.
 - Key 5 would change the cooking factor to 50%.
 - Key 3 would change the cooking factor to 30%.
6. Press START key to save changes.

User Options

Saving Changes

- In order for any changes to be saved, the START key must be pressed after selecting an option.
- Shutting the oven door or pressing the STOP/RESET key will not save changes.

Changing User Options

Options such as single or double key programming, beep volume, and maximum cooking time can be changed to suit individual preferences. To change options:

1. Open oven door.
 - If door is closed or STOP/RESET key is pressed before programming is complete, changes are discarded and microwave exits programming mode.
2. Press and hold key 2 for approximately 5 seconds.
 - This begins options mode.
 - Microwave will beep and OP: -- displays. Microwave is now in programming mode.
3. Press number key that controls option to be changed.
 - See table below for options.
 - Current option will display.
4. Press number key again to change the option.
 - Each time key is pressed, option will change.
 - Match number code displayed with descriptions for desired option.
5. Press START key to save changes.
 - OP: -- shows in display.
 - To change additional options, repeat steps 3 and 4.
 - Changes appear after door is closed or STOP/RESET pad is pressed.

User Option Codes

- Default values marked in **bold**.

NUMBER PAD	DISPLAY	OPTIONS
1: End of Cycle Beep	OP:10 OP:11 OP:12	3 second continuous beep. Continuous beep until door is opened. 5 beep bursts until door is opened.
2: Speaker Volume	OP:20 OP:21 OP:22 OP:23	Eliminates beep. Sets volume to low. Sets volume to medium. Sets volume to high.
3: Key Beep	OP:30 OP:31	Prevents beep when pad is pressed. Allows beep when pad is pressed.
4: Keyboard Enable Window	OP:40 OP:41 OP:42 OP:43	15 seconds after door is opened, keyboard disabled. 30 seconds after door is opened, keyboard disabled. 1 minute after door is opened, keyboard disabled. 2 minutes after door is opened, keyboard disabled.
5: Add Time During Heating	OP:50 OP:51	Prevents adding heating time while oven is heating. Allows heating time to be changed while oven is heating when a memory key is pressed.
6: Reset to Ready Mode	OP:60 OP:61	Opening door does not reset oven back to ready mode. Opening door resets oven back to ready mode.
7: Maximum Heating Time	OP:70 OP:71	Allows 60 minutes of heating time. Allows 10 minutes of heating time.
8: Manual Operation	OP:80 OP:81	Allows use of pre-programmed keys only. Allows use of manual time entry and pre-programmed keys.
9: Double Digit Operation	OP:90 OP:91	Allows 10 (0-9) pre-programmed keys. Allows 100 (00-99) pre-programmed keys.
0: Clean Filter Message	OP:00 OP:01 OP:02 OP:03	Do not display message. Display message for 24 hours every 7 days. Display message for 24 hours every 30 days. Display message for 24 hours every 90 days.

Cooking Guidelines

The Solwave Microwave Oven can make your job easier. You'll cook ahead and pre-portion more. You'll also spend less time preparing special-order dishes. To be sure of consistently good results, you'll want to remember a few simple guidelines.

Food Variables

Microwave cooking can be directly affected by different food variables:

The shape of foods can greatly affect the amount of cooking time. Foods that are flat and thin heat faster than foods which are chunky. For example, a casserole will cook faster in a flat dish, rather than if heaped in a small dish. Foods cut into small pieces will cook faster than large-shaped foods. Pieces should be of a uniform size and shape for more uniform cooking, or the smaller pieces will cook faster. The greatest amount of cooking takes place within 3/4" (1.9 cm) of the food's surface. The interior of large food items, or dense foods, is heated by the heat conducted from the outer food layer. The most uniform cooking occurs in flat, doughnut shaped foods. For best results, cook foods together which have similar sizes and shapes.

The quantity or volume of a food can affect the amount of cooking time. As the volume of the food is increased, the time required to cook or heat the item increases almost proportionately. If twice the amount of food is placed in the oven, it will take almost twice as long to cook. To determine the time for larger quantities, multiply the individual serving time by the increased amount, then reduce the total cooking time by about 20%.

The density of foods can greatly affect the amount of cooking time. Porous foods, such as breads, cakes or pastries, will heat much more quickly than dense meats of the same size. Porous foods absorb microwaves quickly throughout. Meats absorb microwaves mostly at the exterior surface, and the interior is heated by conduction, increasing the cooking time. Meats can be cooked in a sauce, if desired. Due to the moisture content, a sauce will heat rapidly. The heat will transfer to the meat, so the meat will heat faster due to heat by conduction as well as by microwaves.

The starting temperature of foods affects the amount of cooking time. Each temperature degree that the food item is to raise must be supplied with a definite amount of energy. Lower initial starting temperatures require more energy and more time to cook. Therefore, refrigerator temperature foods require a longer cooking time than do room temperature foods. Foods already slightly warm will heat very quickly in the oven.

The moisture content of foods affects the amount of cooking time. The higher the moisture content is in a food the longer the amount of cooking time.

The salt, fat, and sugar content of foods affects the amount of cooking time. Foods containing high salt, fat, and sugar levels heat very quickly and may reach much higher temperatures than foods having low salt, fat, and sugar levels. Foods having lower salt, fat, and sugar levels require longer cooking times.

The arrangement of food within a microwave oven cavity affects the way in which the food cooks. A "round" arrangement is best. Use round utensils whenever possible. Also, arrange foods such as baked potatoes in a circle, rather than in rows, for cooking. When only one food item is being cooked, place it in the center of the oven glass shelf for cooking.

Manipulation of Foods

Sometimes recipes suggest manipulating or moving food during cooking. There are several forms of manipulation:

Stirring is required less often in microwave cooking than in conventional cooking. In conventional cooking, you use a spoon to move food up from the bottom of a pan to evenly distribute the heat. In microwave cooking, you still stir to redistribute the heat within some foods, but you need to stir from the outside of a dish toward the inside or center. If a recipe states to stir once or twice during cooking, stir at approximately even intervals. For example, in a 12-minute cooking period, if a recipe states to stir twice, stir after 4 minutes of cooking and again, after 8 minutes of cooking. However, it is not necessary to be precise. Stir only when necessary. When using lower power levels or settings, less stirring is required. Some examples of foods which may require stirring are puddings, some casseroles, some sauces, some soups, and some egg dishes. Some foods can't be stirred. These foods are rearranged or turned.

Some foods can't be stirred and should be **repositioned or rearranged** during cooking. Some examples include baked potatoes, cupcakes (in custard cups), chicken pieces, and others. Rearranging allows for more even cooking of foods. Foods which are cooked, covered, or which are cooked using lower power levels, usually require little rearranging.

There are actually **two types of turning**. Turning is done when foods cannot be stirred. Foods which are cooked, covered, or which are cooked at lower power levels usually require little turning.

Turning foods over: Turning foods over is done to distribute heat. Meat and poultry are two types of foods which are sometimes "turned over." Examples include roasts, turkeys and whole chickens. Small meat items such as poultry pieces may need to be turned over when in casseroles, or when in a browning skillet.

Rotating or turning dishes: There are a few foods which cannot be stirred, rearranged or turned over. Therefore, the actual cooking dish is turned or rotated. A half-turn means to grasp the dish and turn the portion of the dish that faces the oven door around, until it faces the back of the oven. Examples of foods which are sometimes turned or rotated in a cooking dish include cakes, quiches, or soufflés. When cooking foods at lower power levels or Settings, less turning of the cooking dishes is required.

Microwave Utensils

Never use cooking containers or covers with any metal content. This includes all metal and enameled metal-core ware, foil, and metal-trimmed containers. Suitable cooking containers include those made of paper products, glass, china, cloth, and wicker baskets.

Recommended:

- Glass/Ceramic
- Natural Fiber Cloth
- Non-Recycled Paper
- Plastic
- Wood

NOT Recommended:

- Aluminum Foil
- Grocery Bags
- Recycled Paper
- Lead Crystal
- Newspapers
- Metal
- Metallic Trimmed China

Utensil Check Test

Use the following test to check utensils for safety:

1. Place glass measuring cup of water next to empty dish to be tested in microwave oven.
2. Heat on full power for one minute.
3. Check temperature of dish and water.
 - If dish remains cool and water is hot, dish is microwave safe.
 - If dish is slightly warm, use for short term cooking.
 - If dish is hot and water is cool, do not use. Dish remains cool if not absorbing microwaves and microwaves are being absorbed.

Cooking Instructions

Cooking Tips

1. Cover foods for faster, more even cooking. Glass lids, plastic wrap, plate covers, or other paper products may be used. DO NOT seal. Instead, allow for steam-venting at all times.
2. Pierce pouches, plastic wrap covers, and all foods with a thin skin or membrane (potatoes, squash, tomatoes, eggs, etc.). This prevents an eruption in the oven and allows for expansion and/or the escape of steam.
3. Foods should be carefully plated. For best results, arrange food such as vegetables or casserole-type items evenly around the edge of the plate with slightly less depth in the center. The edges of food items should not overlap or overhang the rim of the container. Cover meats with gravy or au jus and moisten all dry foods other than bread or pastry items.
4. DO NOT stack food or plated dishes in your oven. Instead, when cooking more than one serving or platters, all plates should be placed at the same level in the oven, with space between all containers.

Steaming Tips

1. **Cooking Vessels**
 - a. Always heat or cook food items in covered containers to accomplish:
 - Retention of steam for efficient cooking and to keep foods moist
 - Even cooking results and temperatures
 - A cleaner oven interior and prevention of food splatters
 - b. Ceramic, paper, china, styrofoam, glass and plastic are suitable materials for use in microwave ovens. A high temperature resistant amber pan is recommended for ALL items, especially those high in fat or sugar content, as these ingredients get hot very quickly.
2. **Food Temperature**
 - a. To reach a mandatory serving temperature, frozen foods require a longer cook time than refrigerated items.
 - b. Refrigerated items:
 - Items stored at 40°F (4°C) in the refrigerator should be covered while heated; except breads, pastries or any products with a breaded coating, which should be heated uncovered to avoid softening.
 - c. Room temperature items:
 - Foods held at room temperature, such as canned items or vegetables, will require less time to heat than refrigerated items.
 - d. Conventionally prepared foods should be slightly undercooked to prevent overcooking when rethermed by microwave steaming.
 - e. After a steaming cycle has been completed, internal food temperatures continue to slightly rise due to the presence of steam.
3. **Structure of Food**
 - a. Food items that are high in fat, sugar, salt and moisture attract and quickly absorb microwave energy, allowing for a shorter cook time.
 - b. Items high in protein or fiber require a longer cook time, due to a slower absorption of microwave energy.
4. **Quantity**
 - a. As the mass of food increases, so will the necessary cook time.

Refer to and comply with all USDA/FDA Food Code guidelines when cooking or heating food items.

Cleaning and Maintenance

Microwave energy is attracted to any food source in the oven. Food splatters or spills can affect heating performance, and can also cause oven damage. To prevent damage to oven, keep the microwave oven clean and remove any food debris. Follow the recommendations below for proper maintenance of oven.



WARNING

To avoid electrical shock which can cause severe personal injury or death, unplug power cord or open circuit breaker to oven before cleaning.

Wear protective gloves and protective glasses when cleaning the oven.

Failure to maintain the oven in a clean condition could lead to deterioration of the surface that could adversely affect the life of the appliance and possibly result in a hazardous situation.



WARNING

Not following approved oven cleaning instructions may void your warranty.

- **ALWAYS UNPLUG THE OVEN BEFORE CLEANING.**
- DO NOT use abrasive cleaners or cleaners containing ammonia, citrus, phosphates, chlorine, sodium, or potassium hydroxide (lye). The use of caustic cleaning products can damage critical oven parts. Use of unapproved cleaning agents will void the terms of the warranty.
- DO NOT pour water into microwave oven bottom.
- DO NOT use water pressure type cleaning systems.
- DO NOT operate oven without the antenna shield and air filter in place.
- DO NOT turn on or operate oven during cleaning procedure.
- DO NOT clean appliance with water jet or steam cleaner.

Daily Care and Cleaning

Interior, Exterior, and Door

1. Remove any food debris.
2. Clean microwave oven with mild detergent in warm water using soft sponge or cloth. Wring sponge or cloth to remove excess water before wiping equipment (Fig. 1 & 2).
3. If desired, boil a cup of water in oven to loosen soil before cleaning.

Control Panel

1. Open oven door to deactivate oven timer.
2. Clean with mild detergent in warm water using soft sponge or cloth. Wring sponge or cloth to remove excess water before wiping equipment (Fig. 3).



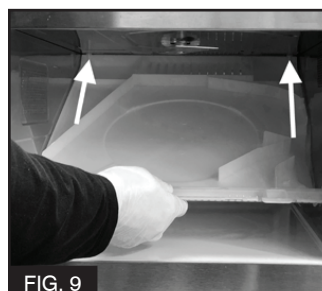
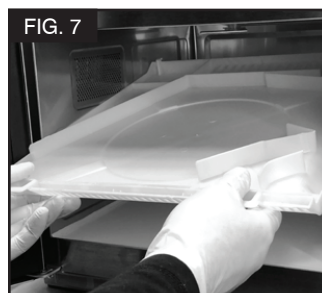
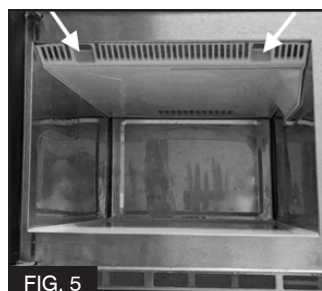
Antenna/Splatter Shield

1. The antenna shield (or splatter/grease shield) is a vital part of the oven's design. It is located on the ceiling of the interior of the unit and should be cleaned in place to prevent food splatter/debris from building up.
2. Clean antenna shield with mild detergent in warm water using soft sponge or cloth. Wring sponge or cloth to remove excess water before wiping equipment (Fig. 4).



For Stubborn Antenna/Splatter Shield Debris

1. Remove antenna shield.
 - a. Press the front 2 tabs and pull down (Fig. 5).
 - b. Remove the shield by inclining at a 45° angle (Fig. 6 & 7).
2. Clean shield in warm water with mild detergent (Fig. 8).
3. Rinse with water.
4. Dry thoroughly.
5. Reinstall shield.
 - a. Insert shield into cavity at an angle (Fig. 9).
 - b. Insert the back 2 pins, then lift the front up into position (Fig. 10).
 - c. Push the 2 front tabs in and snap under the lip in the top of the front of the oven (Fig. 6).
6. Check for proper installation.
 - a. After assembly, the 2 back pins need to be inserted through the holes, and the 2 front tabs need to be secure under the lip in the top of the front of the oven.
 - b. Using a finger, pull downward on shield to assure all pins are engaged in cavity holes and shield is securely installed.
7. Reconnect power to the oven.



Weekly Care and Cleaning



CAUTION

To avoid overheating and oven damage, filter should be cleaned regularly.
DO NOT operate oven without filter in place.

Air Filters

1. Locate the air filter below the oven door (Fig. 11).
2. Turn the thumbscrew counterclockwise until the filter is released (Fig. 12).
3. Wash filter in hot water and mild detergent. Scrub with a soft brush or clean cloth.
4. Rinse and dry thoroughly.
5. To reinstall, place the filter in position and turn the thumbscrew clockwise to tighten (Fig. 13).

FIG. 11

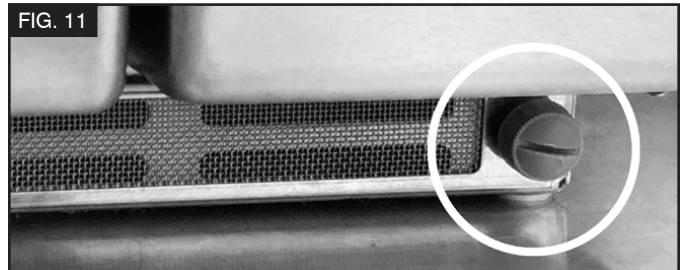
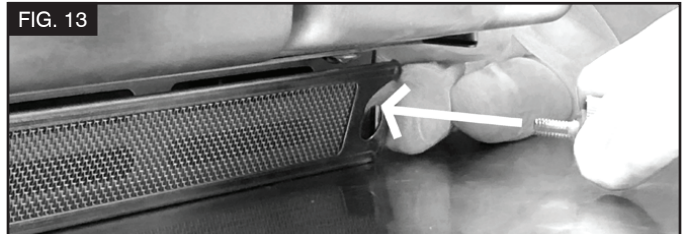


FIG. 12



FIG. 13



Monthly Care and Cleaning

Discharge Air Vents

1. Check monthly for a buildup of cooking vapors along intake and discharge louvers on bottom and back of oven.
2. Clean air vents with a damp cloth to ensure proper airflow.
3. Dry thoroughly.

Troubleshooting



WARNING

To avoid electrical shock which can cause severe personal injury or death, DO NOT remove outer case at any time.

Only an authorized servicer should remove outer case.

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Oven fan runs and light remains on after cook cycle has completed.	Normal operation.	The fan cools oven components, it is normal for the fan to run for 60 seconds after cook cycle is complete.
Oven fan runs while oven is not cooking.		
Oven does not operate.	Oven is unplugged.	Confirm oven is plugged in to appropriate outlet.
	Fuse has blown.	Check fuse and/or circuit breaker.
	Oven is plugged in to unqualified outlet.	Confirm oven is plugged in to dedicated, grounded circuit that matches information on serial plate. Contact electrician to confirm.
Oven does not accept entries when keypad is pressed.	Oven is turned off.	Confirm oven is plugged in and turned on.
	Oven door is ajar or was not closed properly.	Open and close oven door, try pressing keypad again.
Oven malfunctions or shows "F" with a number.	Self-diagnostic system has detected an error or problem.	Record the number shown. Unplug the oven and wait for 1 minute before plugging back in. If failure continues, call for service.
Oven operates intermittently.	Possible blockage of airflow.	Check air filters and discharge area for obstructions, clean as directed in Cleaning and Maintenance section.
Oven operates, but does not heat food.	Possible oven failure.	Place one cup of cool water in oven. Heat for 1 minute. If temperature does not rise, oven is operating incorrectly and servicer should be called.
"Clean Filter" displays.	Normal operation.	Standard alert that will appear for 24 hours as a notification that it is time to clean the filter.