SHARP®

1800 WATTS/2200 WATTS-HEAVY DUTY COMMERCIAL MICROWAVE OVEN

MODELS R-CD1800M/CD2200M

OPERATION MANUAL

*** *DRAFT* ***

FOR CUSTOMER ASSISTANCE

To aid in reporting this commercial microwave oven in case of loss or theft, please record below the model number and serial number located on the unit. We also suggest you record all the information listed and retain for future reference.

MODEL NUMBER _____ SERIAL NUMBER _____
DATE OF PURCHASE _____
Dealer _____ Telephone _____
Servicer _____ Telephone _____

TO PHONE:

SERVICE and PARTS
(for your nearest Sharp Authorized Servicer and Parts Distributor)
ADDITIONAL CUSTOMER INFORMATION
    United States 1-877-427-7696
    Canada ....(905)568-7140

TO WRITE:

United States ....Sharp Electronics Corporation
    Customer Assistance Center
    1300 Naperville Drive
    Romeoville, IL 60446-1091

Canada ....SHARP ELECTRONICS OF CANADA LTD.
    335 Britannia Road East Mississauga,
    Ontario L4Z 1W9

Please provide the following information when you write or call: model number, serial number, date of purchase, your complete mailing address (including zip code), your daytime telephone number (including area code) and description of the problem.

TO ACCESS INTERNET:

    United States ....www.sharpusa.com
    Canada ....www.sharp.ca

CONTENTS

PRECAUTIONS TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(a) 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.

(b) Do not place any object between the oven front face and the door or allow soil or cleaner residue to accumulate on sealing surfaces.

(c) 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: (1) door (bent), (2) hinges and latches (broken or loosened), (3) door seals and sealing surfaces.

(d) The oven should not be adjusted or repaired by anyone except properly qualified service personnel.

LIMITED WARRANTY

SHARP ELECTRONICS CORPORATION warrants to the first end-user purchaser that this Sharp brand product (the "Product"), when shipped in its original container, will be free from defective workmanship and materials, and agrees that it will, at its option, either repair the defect or replace the defective Product or part there of with a new or remanufactured equivalent at no charge to the purchaser for parts or labor for the period(s) set forth below.

This warranty does not apply to any appearance items of the Product nor to the additional excluded item(s) set forth below nor to any Product the exterior of which has been damaged or defaced, which has been subjected to improper voltage or other misuse, abnormal service or handling, or which has been altered or modified in design or construction.

In order to enforce the rights under this limited warranty, the purchaser should follow the steps set forth below and provide proof of purchase to the servicer.

To the extent permitted by applicable state law, the warranties set forth herein are in lieu of, and exclusive of, all other warranties, express or implied. Specifically, ALL OTHER WARRANTIES OTHER THAN THOSE SET FORTH ABOVE ARE EXCLUDED. ALL EXPRESS AND IMPLIED WARRANTIES INCLUDING THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR USE, AND FITNESS FOR A PARTICULAR PURPOSE ARE SPECIFICALLY EXCLUDED. If, under applicable state law, implied warranties may not validly be disclaimed or excluded, the duration of such implied warranties is limited to the period(s) from the date of purchase set forth below.

Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described herein, or to extend the duration of any warranties beyond the time period described herein on behalf of Sharp.

The warranties described above shall be the sole and exclusive warranties granted by Sharp and shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described herein, shall constitute complete fulfillment of all liabilities and responsibilities of Sharp to the purchaser with respect to the Product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise. In no event shall Sharp be liable, or in any way responsible, for any damages or defects in the Product which were caused by repairs or attempted repairs performed by anyone other than an authorized servicer. Nor shall Sharp be liable or in any way responsible for any incidental or consequential economic or property damage. Some states do not allow limits on warranties or on remedies for breach in certain transactions; in such states, the limits herein may not apply.

Your Product Model Number & Description: R-CD2200M or R-CD1800M
Commercial Microwave Oven
(Be sure to have this information available when you need service for your oven.)

Warranty Period for this Product: Three (3) years for parts and labor in the end user's place of business.

Additional Item(s) Excluded from Warranty Coverage (if any): Non-functional accessories and light bulb.

Where to Obtain Service: Contract your Sharp Authorized Servicer to obtain on-site service for this Product. The Servicer will come to your location and if it is necessary to remove the Product, the Servicer will reinstall it. Be sure to have Proof of Purchase available.

TO OBTAIN SUPPLY, ACCESSORY OR PRODUCT INFORMATION, CALL 1-800-BE-SHARP.
Save the proof of purchase as it is needed should your oven require warranty service.

IMPORTANT SAFETY INSTRUCTIONS

When using electrical appliances basic safety precautions should be followed, including the following:

WARNING - To reduce the risk of burns, electric shock, fire, injury to persons or exposure to excessive microwave energy:

1. Read all instructions before using the appliance.

2. Read and follow the specific "PRECAUTIONS TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY" on page 1.

3. This appliance must be grounded. Connect only to properly grounded outlet.
   See "GROUNDING INSTRUCTIONS" on page 5.

4. Install or locate this appliance only in accordance with the provided installation instructions.

5. 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.

6. Use this appliance only for its intended use as described in this manual. Do not use corrosive chemicals or vapors in this appliance. This type of oven is specifically designed to heat, cook or dry food. It is not designed for industrial or laboratory use.

7. As with any appliance, close supervision is necessary when used by children.

8. Do not operate this appliance if it has a damaged cord or plug, if it is not working properly or if it has been damaged or dropped.

9. This appliance should be serviced only by qualified service personnel. Contact nearest Sharp Authorized Servicer for examination, repair or adjustment.

10. Do not cover or block any openings on the appliance.

11. Do not store or use this appliance outdoors. Do not use this product near water – for example, near a kitchen sink, in a wet basement, near a swimming pool or similar locations.

12. Do not immerse cord or plug in water.

13. Keep cord away from heated surfaces.

14. Do not let cord hang over edge of table or counter.

15. See door surface cleaning instructions on pages 20 -21.

16. To reduce the risk of fire in the oven cavity:
    a. Do not overcook food. Carefully attend appliance when paper, plastic or other combustible materials are placed inside the oven to facilitate cooking.
    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 purposes. Do not leave paper products, cooking utensils or food in the cavity when not in use.

17. Liquids, such as water, coffee, or tea are able to be overheated beyond the boiling point without appearing to be boiling. 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. Use a wide-mouthed container.
    d. After heating, allow the container to stand in the microwave oven at least for 20 seconds before removing the container.
    e. Use extreme care when inserting a spoon or other utensil into the container.

SAVE THESE INSTRUCTIONS

SERVICE CALL CHECK

Please check the following before calling for service!

1. Plug the power cord into a three-pronged electric-outlet. (See page 5)

2. Place one cup of water in a glass measure in the oven and close the door securely.

    A. Does the oven light come on?   Yes_____ No _____

    B. Does the cooling fan work?   Yes_____ No _____
        (Put your hand over the back ventilating opening.)

    C. If "No", please check wall outlet and circuit breaker.

3. Touch these pads:

        | SELECT TIME | | 1 | 0 | 0 | | START |

    A. Does the "ON" indicator come on?   Yes_____ No _____

    B. At the end of 1 minute, is the water hot?   Yes_____ No _____

IF SERVICE IS NEEDED, PLEASE CONTACT YOUR NEAREST AUTHORIZED SHARP SERVICER.

ERROR MODE

Should any of the error indicators appear in the readout, follow the instructions:

EE Mode	Reason	Action Required.
EE 1, EE 2	Failure of single magnetron	Call for service. ★
EE 3	Both magnetrons failed	Call for service.
EE 4	Voltage too high	If problem is not corrected, call an electrician.
EE 5	Voltage too low	If problem is not corrected, call an electrician.
EE 7	Oven cavity or components temperature too high	Check that nothing is blocking air intake openings on oven back or that oven exterior is very hot. Correct. Wait a few minutes and try again. If problem persists, call for service.
EE 8	Circuite failure	Call for service.
EE 9	Maximum time is exceeded	Check page 11 in the Operation Manual. Press the STOP/CLEAR pad, and reprogram correctly.
EE 0	Cooling fan motor failure	Call for service.

★ EE 1 and EE 2: In case of single magnetron failure, oven can be used until servicing by changing Custom Help settings to allow operation under single magnetron only (see page 19). However, check food carefully as additional cooking time will be needed when operating with a single magnetron.

Any time the EE appears, the servicer should be called. To cancel error indicator, press the Stop/Clear pad.When EE does not appear, check the reason and correct. Service is not necessary.

Flashing of cooking time
When the remaining cooking time in the reabout is flashing, it means the temperature of the food is too high. At that time, please stop the oven and check the food.

MAINTENANCE MODE
Should any of maintenance indicators appear in readout, follow the instruction:

CC Mode	Reason	Action required
CC1 CC2	Operation time of magnetrons exceeds 1,250 hours.	Call for service to replace the parts promptly. Failure to replace parts that have exceeded recommended operation time may cause failure of the microwave oven.
CC4	Operation times of the control unit, relays, switches or cooling fan motor exceed 20,000 times.	
CC3	Operation times of an exhaust motor exceeds 3,000 hours.	Even though CC3 is displayed, your oven can operate for a few minutes repeatedly, however call for service to replace the parts which are out of order.

Note
1. The "CC**" indicator will apear in the display when recommended parts life is exceeded. The CC** indicator can be cleared by pressing the STOP/CLEAR pad. Call for service to replace the parts promptly. Failure to replace parts that have exceeded recommended operation time may cause failure of the microwave oven.
2. When more than one maintenance mode occurs at the same time, the display will show CC and the numbers of the modes separated by a period. For example, when CC2 and CC4 occur at the same time, the display will show "CC2.4."

GROUNDING INSTRUCTIONS

GROUNDING INSTRUCTIONS

This appliance must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This appliance 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 in accordance with the National Electrical Code and local codes and ordinances.

WARNING – Improper use of the grounding plug can result in a risk of electric shock. The electrical requirements are 230/208 Volt, 60 Hz, AC only, and 20 Amp or more fused electrical supply. It is recommended that a separate circuit serving only this appliance be provided. When installing this appliance, observe all applicable codes and ordinances. If it is necessary to use an extension cord, use only a 3-wire extension cord that has a 3-blade grounding plug and a 3-slot receptacle that will accept the plug on the appliance. The marked rating of the extension cord should be AC230/208 Volt 20 Amp. Consult a qualified electrician or serviceman if the grounding instructions are not completely understood or if doubt exists as to whether the appliance is properly grounded.

Plug Configuration	NEMA 6-20P R-CD2200M		NEMA 6-15P R-CD1800M	

Radio or TV Interference
Should there be any interference caused by the microwave oven to your radio or TV, check that the microwave oven is on a different electrical circuit, relocate the radio or TV as far away from the oven as feasible or check position and signal of receiving antenna.
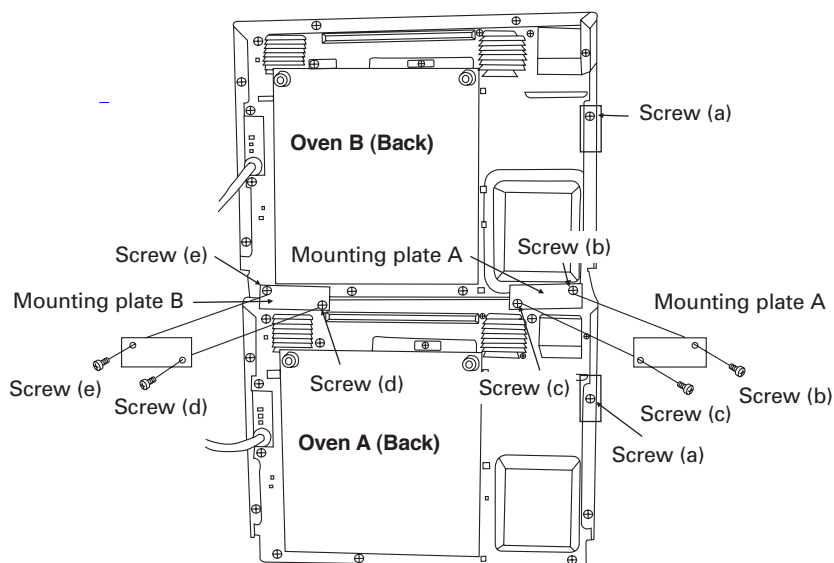
INSTALLATION

INSTALLATION

Because your Sharp Commercial Microwave Oven will be used frequently, place it so that there is easy safe access for all users.

1. Be sure all electrical requirements are met. See page 5.
2. Remove all packing materials from the oven cavity. Check the unit for any damage, such as a misaligned door, damaged door seals around the door or dents inside the oven cavity or on the door. If there is any damage, please do not operate the oven until it has been checked by a SERVICE CENTRE APPROVED BY SHARP and repaired, if necessary.
3. Install the unit where no excessive heat or steam is generated. Do not place next to an oven or cooking surface.
4. The unit can be secured to a countertop or stand. Any surface the unit is placed on must be level.
5. STACKING PROCEDURE FOR TWO MICROWAVE OVENS
   Two units can be installed together by placing one on top of the other. Follow these instructions:
   A. Place oven A in the desired location. Position Oven B on top of Oven A as shown in the figure.
   B. Remove Screws (a) and Mounting plate A and B from the right side of the back of Oven A and B.
   C. Replace Screws (a) removed at step B and tighten them.
   D. Remove Screws (b), (c), (d), and (e) and then install Mounting Plate A and B which were removed at step B to the each lower edge of Oven B as shown in the figure.
   E. Replace Screws (b), (c), (d), and (e) which were removed at step D and tighten them.
6. Followings models can be stacked with only same power source voltage.
   1) Combination of R-CD1800M and R-CD1800M
   2) Combination of R-CD1800M and R-CD2200M

WARNING:

When two ovens are installed together by placing one on top of another:
1. Always use two mounting plates.
2. Make sure that the power supply cords are not caught between the ovens.
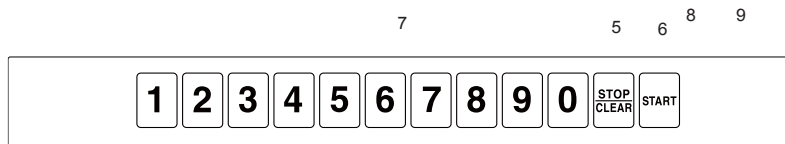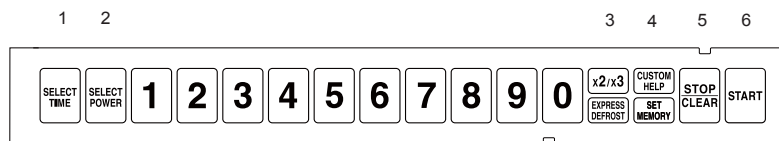3. Do not install more than one oven on top of another.

Oven B (Back)
Screw (a)
Screw (e)
Mounting plate A
Screw (b)
Mounting plate B
Mounting plate A
Screw (e)
Screw (d)
Screw (d)
Screw (c)
Screw (c)
Screw (b)
Screw (a)
Oven A (Back)

PART NAMES
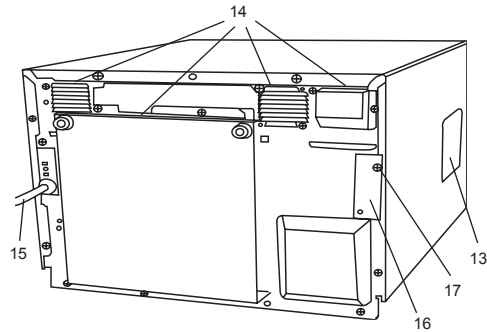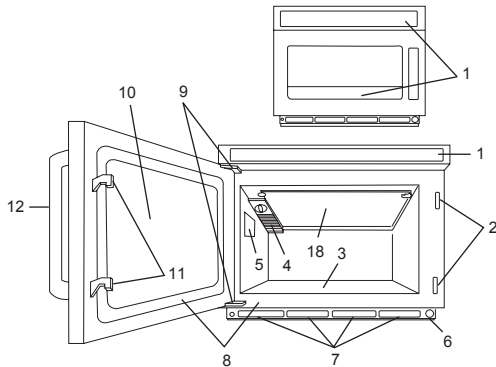
1. Touch control panels
2. Door latch openings
3. Ceramic shelf
4. Splash cover
5. Oven light
6. Air intake filter
7. Air intake openings
8. Door seals and sealings surfaces
9. Door hinges
10. Oven door with see-through window

11. Door latches
12. Door handle
13. Service window for replacing the oven light bulb
14. Ventilation openings
15. Power supply cord
16. Mounting plate
17. Screw for mounting plate
18. Oven Ceiling Cover

1. SELECT TIME pad
2. SELECT POWER pad
3. DOUBLE/TRIPLE QUANTITY pad
4. CUSTOM HELP pad
5. STOP/CLEAR pad

6. START pad
7. Ten number pads
8. EXPRESS DEFROST pad
9. SET MEMORY pad
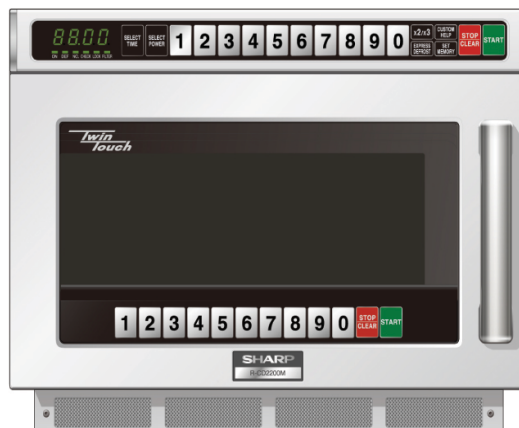
BEFORE OPERATION

* Before operating your new oven, make sure you read and understand this operation manual completely.
1) Plug in the oven.
   *The digital display will then show " . "
2) You can input the pads only when the door is closed.

3) Oven light and fan motor work for 1 minute whenever the door is opened or after cooking.

MEMORY OPERATION

Memory Cooking

* Before Memory cooking, make sure memory is set. See the way of memory program entry on page XX.

* Memory cooking can be set 5 operating ways.

Make sure what operating way is pre-prorammed, before setting the Memory cooking because the way to enter memory number depends on the previous Setting.

* These models have 100 memory banks from 00 to 99 and the memory number from 00 to 29 is common to 5 operating ways (Direct Start has 10 memory banks).

<5 operating ways>

1. Direct Input of Auto Start OFF (memory 00 - 99)
2. Direct Input of Auto Start ON (memory 00 - 99)
3. Repeat Input of Auto Start OFF (memory 0 - 29)
4. Repeat Input of Auto Start ON (memory 0 - 29)
5. Direct Start (memory 0 - 9)

NOTES for MEMORY COOKING

First Procedure :

When " 0 " is not displayed, open the door and close it to set Direct Input of Auto Start ON, Direct Start, or Repeat Input of Auto Start ON.

Cancellation :

1. The cooking data is canceled when key is not input more than 1minute during setting memory cooking.
2. Express Defrost sequence cooking is stopped immediately when the door is opened.The cooking data remains but it will be canceled after 1 minute if you do not operate anything.
3. The cooking is stopped by pressing the STOP/CLEAR pad and the cooking data remain. However it will be canceled after 1 minute if you do not operate anything.

Checking food :

Pressing the STOP/CLEAR pad then open the door, check food, close the door and press the START pad.

the START pad :

When Direct Input of Auto Start ON, Direct Start, Repeat Input of Auto Start ON and Cooking double/triple quantity with the memory of Auto Start ON are pre-prorammed you do not have to press the START pad. You need press the START except them.

1. Direct Input of Auto Start OFF (with the Start pad)
* Suppose you want to cook with memory 2, which was programmed for 1 minute at 100%.

Procedure
0 2
1 Place food in oven. Enter memory number.
START [START]
2 Press the START pad.

2. Direct Input of Auto Start ON (with the Start pad)
* Suppose you want to cook with memory 12, which was programmed for 10 seconds at 100%.

Procedure
1 2
1 Place food in the oven. Enter memory number.

3. Repeat Input of Auto Start OFF (with the Start pad)
*Suppose you want to cook with memory 2, which was programmed for 10 seconds at 100%.

Procedure
2
1 Place food in oven. Enter memory number.
START [START]
2 Press the START pad.

4. Repeat Input of Auto Start ON
* Suppose you want to cook with memory 12, which was programmed for 10 seconds at 100%.

Procedure
2 x 2
1 Place food in oven. Enter memory number.

5. DIRECT START (without the Start pad)
Suppose you want to cook with memory 2, which was programmed for 10 seconds at 50%.

Procedure
2
1 Place food in oven. Enter memory number.

Cooking double/triple quantity with memory

Double (triple) quantity means the best time for cooking two (three) servings or twice (three times) the amount programmed in the memory pad; it is not double (triple) the time.

*Suppose you want to cook 3 servings with memory number 2 pre-programmed Direct start.

Procedure
x2/x3   **x2/x3** x 2
1 Place food in oven. Press the DOUBLE/TRIPLE QUANTITY pad twice.
2
2 Enter memory number.

Note: If your programmed time is over maximum time at Double or Triple Quantity, EE9 will be displayed and you cannot use Double or Triple Quantity for the memory therefore

press the STOP/CLEAR pad to cancel and reduce the multiplication. See page xx.

NOTE for Cooking Double/Triple Quantity with Memory:

When the DOUBLE/TRIPLE pad is pressed once, 2 servings are set and the DOUBLE/TRIPLE pad is pressed twice, 3 servings are set.

Express Defrost with memory

*Suppose you want to cook with memory 0 , which was programmed for 10 minutes at Express Defrost sequence, pre-programmed Direct Start.

Procedure
0
1 Place food in oven. Enter memory number.

Midway through the defrosting cycle, CHECK will light in the display and an audible signal will be heard depending on the setting. You may open the door, turn food over and shield any warm portions. Close the door and press the START pad.

MANUAL OPERATIONS

Time cooking

Your oven can be programmed for up to 4 cooking sequences and has 11 preset microwave power levels.

Total cooking time

Is it possible to write these two sentences in one line? For example
Total cooking time

Microwave 100% - 60%   Maximum of 60 minutes
Microwave 50% - 10%   Maximum of 120 minutes
(Please see page E-20)

Microwave Power Level

Press the SELECT POWER PAD ONCE THEN TOUCH	APPROXIMATE PERCENTAGE OF POWER	Display
SELECT POWER	100%	P – H I
9	90%	P – 90
8	80%	P – 80
7	70%	P – 70
6	60%	P – 60
5	50%	P – 50
4	40%	P – 40
3	30%	P – 30
2	20%	P – 20
1	10%	P – 10
0	0%	P – 0

* Suppose you want to cook for 2 minutes and 30 seconds at 50%.

Procedure
SELECT TIME   SELECT TIME
2 3 0
1 Place food in oven and press the SELEC TIME pad. Enter cooking time.
SELECT POWER   SELECT POWER   5
2 Press the POWER pad and enter power level.
START   START
3 Press the START pad.

NOTES :
Cancellation :
The cooking is stopped immediately when the door is opened.The cooking data remains but it will be canceled after 1 minute if you do not operate anything.
the SELECT POWER pad :
It is not necessary to press the SELECT POWER pad for 100% on single stage, 1st stage and the last stage in Multi Sequence cooking.
Over the maximum time (EE9) :
If the cooking time is over the maximum time, EE9 will be displayed, therefore to cancel it press the STOP/CLEAR pad.

Multiple sequence cooking

* Suppose you want to cook for 1 minute at 70% for 1st stage and then continue to cook for 2 minutes at 50% for 2nd stage and to cook for 3 minutes at 100% for 3rd stage.

Procedure
[SELECT TIME] [SELECT TIME] `1` `0` `0` 1 Place food in oven and press the SELECT TIME pad. Enter cooking time for 1st stage.
[SELECT POWER] [SELECT POWER] `7` 2 Press the SELECT POWER pad. Enter power level for 1st stage.
[SELECT TIME] [SELECT TIME] `2` `0` `0` 3 Press the SELECT TIME pad. Enter cooking time for 2nd stage.
[SELECT POWER] [SELECT POWER] `5` 4 Press the SELECT POWER pad. Enter power level for 2nd stage.
[SELECT TIME] `2` [SELECT TIME] 5 Press the SELECT TIME pad. Enter cooking time for 3rd stage.
[START] [START] 6 Press the Touch START pad.

Express Defrost

Use EXPRESS DEFROST to defrost meat and poultry faster and better. Calculate total defrost time from chart below. Express Defrost can be programmed for a maximum of 90 minutes.

* Suppose you want to defrost one pound of lamb chops for 3 minutes and 30 seconds.

Procedure
[EXPRESS DEFROST] 1 Place food in oven. Press the EXPRESS DEFROST pad.
`3` `3` `0` 2 Enter defrosting time. (Refer to chart below.)
[START] [START] 3 Press the START pad.
Midway through the defrosting cycle, the CHECK indicator will light in the display and an audible signal will be heard depending on the setting. You may open the door, turn food over and shield any warm portions. Close the door.
[START] [START] 4 Press the START pad.

TIPS: Allow foods to stand a few minutes after defrosting to equalize the temperature for better cooking results.

Check food after standing. If additional time is needed, continue to defrost with time cooking.

Foods that are the same thickness throughout defrost better. If foods have varied thickness, it may be necessary to shield the thin edges with small flat pieces of aluminum foil to prevent overdefrosting.

Express Defrost Chart

Food	Thickness	Time (min./lb.)	
		R-CD1800M	R-CD2200M
Beef steak	less than 1"	2–$2\frac{1}{2}$	$1\frac{3}{4}$–$2\frac{1}{4}$
	more than 1"	$2\frac{1}{2}$–$3\frac{1}{2}$	2–3
Lamb chops	1"	2–$3\frac{1}{2}$	$1\frac{3}{4}$–$2\frac{3}{4}$
Pork chops	less than 1"	2–$2\frac{1}{2}$	$1\frac{3}{4}$–$2\frac{1}{4}$
	more than 1"	$2\frac{1}{2}$–$3\frac{1}{2}$	2–3
Boneless chicken breasts	$\frac{1}{2}$"–$\frac{3}{4}$"	2–3	$1\frac{1}{2}$–$2\frac{1}{2}$
	$\frac{3}{4}$"–1"	$2\frac{1}{2}$–$3\frac{1}{2}$	2–3
Fish steak	$\frac{1}{2}$"–$\frac{3}{4}$"	$1\frac{1}{4}$–2	1–$1\frac{3}{4}$
	$\frac{3}{4}$"–1"	$1\frac{3}{4}$–$2\frac{1}{2}$	$1\frac{1}{4}$–2

Program & Customize

Custom Help

You can check your oven setting and customize your oven by changing CUSTOM HELP setting.

The CUSTOM HELP pad has 11 operations.
1. Selecting Memory Input method
2. Selecting Auto Start Operation (for Direct Input and Repeat Input)
3. Program Lock Setting
4. Cooking Completion Sound Volume Setting
5. Cooking Completion Signal Setting
6. Memory Cook Data Check
7. Total used Counter Check/Clear
8. Air Filter Counter
9. Selecting Operation in case of Magnetron Failure
10. Multiplication setting for X2/X3 with memory cooking
11. Express Defrost Setting

To use Custom Help function, press the CUSTOM HELP pad twice within 2 seconds, and desired option pad. And then follow each instruction below.

NOTE : No audible signal will be heard when the CUSTOM HELP pad is first pressed.

1. Selecting Memory Input method
Your oven has 3 ways to select memory number.
    CH11 : Direct Input (100 memory banks) = Factory Setting
    CH12 : Direct Start (10 memory banks)
    CH13 : Repeat Input (30 memory banks)

To set the 3 ways
Press the CUTOM HELP pad twice within 2 seconds then enter the number 1,1 for Direct Input
                            1,2 for Direct Start
                            1,3 for Repeat Input
and then press the START pad and the STOP/CLEAR pad to exit from the Custom Help function.

*Suppose you want to set Repeat Input.

Procedure	
CUSTOM HELP x 2	1 Press the CUSTOM HELP pad twice within 2 seconds.
1 3	2 Enter desired setting. (Ex. Enter 1, 3 for Repeat Input.)
START	3 Press the START pad to save the setting.
STOP CLEAR	4 Press the STOP/CLEAR pad to the STOP CLEAR pad to exit from the Custom Help function.

2. Selecting Auto Start Operation
(for Direct Input and Repeat Input)
Your oven has 2 ways to start memory cooking.
    CH21 : Auto Start OFF = Factory Setting
    CH22 : Auto Start ON
Auto Start allows you to start memory cooking without pressing the START pad.

To set the ways
Press the CUSTOM HELP pad twice within 2 seconds then enter the number 2, 1 for Auto Start OFF
                            2, 2 for Auto Start ON
and then press the START pad and the STOP/CLEAR pad to exit from the Custom Help function.

3. Program Lock Setting
You can select Program Lock ON or OFF
    CH31 : Program Lock OFF = Factory Setting
    CH32 : Program Lock ON

The program Lock keeps your customized setting. In the Program Lock ON, the LOCK indicator appears when you press the CUSTOM HELP pad twice within 2 seconds. And you can not change any setting.

To set the desired Program Lock setting,
Press the CUSTOM HELP pad twice within 2 seconds then enter the number 3, 1 for Program Lock OFF
   3, 2 for Program Lock ON
and then press the START pad and the STOP/CLEAR pad to exit from the Custom Help function.

NOTE : If you select Program Lock OFF, the LOCK indicator disappear when you press the START pad.

Operation when Program Lock ON is set

KEY Operation	Custom Help Title	When Program Lock ON is set
1	Selection Mamory Input Method	no operation
2	Selection Auto Start Operation	no operation
3	Program Lock Setting	operation
4	Volume Setting	no operation
5	Cooking Completion Signal Setting	no operation
6	Memory Cook Data Check	operation
7	Total Used Counter Check/Check	check : operation / clear : no operation
8	Air Intake Filter counter	check,clear : operation / set : no operation
9	Selection operation in case of Magnetr on Failure	no operation
x2/x3	Multiplication setting for x2/x3	check : operation / set : no operation
EXPRESS DEFROST	Express Defrost setting	check : operation / set : no operation
SET MEMORY	Memory cook data setting	no operation

4. Volume Setting

There is a choice of 2 different sound volumes and mute on your oven.

Custom Help41 : High = Factory Setting
Custom Help42 : Medium
Custom Help43 : mute

To set cooking completion sound volume
Press the CUSTOM HELP pad twice within 2 seconds
then enter the number 4, 1 for High
                        4, 2 for medium
                        4, 3 for no sound
and then press the START pad and the STOP/CLEAR pad to exit from the Custom Help function.

NOTE: The oven beeps high sound when an error occurs despite depending on the selected sound volume setting.

5. Cooking Completion Signal Setting
There is a choice of 4 different signals on your oven.
  CH51 : 1beep = Factory setting
  CH52 : Repeat Long beeps
  CH53 : 4 short beeps
  CH54 : Repeat Short beeps

To set the ways
Press the CUSTOM HELP pad twice within 2 seconds
then enter the number 5, 1 for 1 beep
                        5, 2 for repeating Long beeps
                        5, 3 for 4 short beeps
                        5, 4 for repeating Short beeps
and then press the START pad and the STOP/CLEAR pad to exit from the Custom Help function.

6. Memory Cook Data Check
You can check the information programmed into the memory.

* Suppose you want to know the information programmed into the momory 1, programmed for 4 minutes at 60% for the 1st stage and 2 minutes at 30% at the 2nd stage pre-programmed Direct Input.

Procedure	Display
CUSTOM HELP x 2 6	*CH6* NO. CHECK
1 Press the CUSTOM HELP pad twice within 2 seconds and enter 6.	

Procedure	Display
0	*0 _* NO. CHECK
1	
2 Enter memory number.	*01* DEF CHECK
(The Memory setting of each phase is shown for 1.5 seconds per 0.3 second till being pressed the STOP/ CLEAR pad.)	After about 1 sec. *1- 5t* CHECK
	400 CHECK
	P- 60 CHECK
	2- 5t CHECK
	2.00 CHECK
	P- 30 CHECK
STOP CLEAR STOP CLEAR	*0*
3 Press the STOP/CLEAR pad to excit from the Custom Help function.	

NOTE :
1. Press the STOP/CLEAR pad to exit from the Custom Help function.
2. When [*0*] is displayed at step 2 the memory is not set. CHECK
3. You can check the other memory information continuously until you press the STOP/CLEAR pad.
4. The way to enter memory number depends on the pre-programmed setting.
5. When Express Defrost is set in the memory, [*dEF*] and [*30.00*] are displayed repeatedly at step 2.

7. Counter Check / Clear
Set counter to "0" before using oven for the first time. See next column.

Counter check
You can check total number of using times, times of using each memory, times of using manual cooking and times of using EXPRESS DEFROST.

   Total count   Press the CUSTOM HELP pad twice within 2 seconds, then enter 7

To check for each counter, press each pad as indicated below, after total count is appeared.

Total memory count	Press each number pad of memory.
Total manual cooking count	Press the SELECT TIME pad.
Total Express Defrost count	Press the EXPRESS DEFROST pad.

* Suppose you want to know total used count and total used count of each memory. In that case the oven was used 8268 times and the memory 1 pre-programmed Repeat Input was used 513 times.

Procedure	Display
CUSTOM HELP x 2 7 1 Press the CUSTOM HELP pad twice within 2 seconds, then enter 7. Total count will be displyed.	After about 1 sec. *8268* CHECK
0 1 2 Enter memory number 1, for checking used count of memory 1.	*0-* NO. CHECK *01* NO. CHECK After about 1 sec. *513* CHECK

Note: 1. To exit from Counter Check, press the STOP/CLEAR pad.
2. Each counter can count the times to 9999, and then it will return to 0.
3. You can check the used times for other memory and other functions continuously until you press the STOP/CLEAR pad.
4. Only Counter Check follow the Memory Input Method of Direct Input in spite of the settings to enter memory number.

To clear the number of times

Each number of times can be cleared by pressing the START pad during checking mode.

* Suppose you want to clear total used count memory 1 pre-programmed Direct Input.

Procedure	
CUSTOM HELP x 2 7 1 Press the CUSTO HELP pad twice within 2 seconds, then enter 7. Total count will be displayed.	After about 1 sec. *8268* CHECK
2 Enter memory number 1 for checking times of using memory 1.*	0 *0-* NO. CHECK 1 *01* NO. CHECK After about 1 sec. *513* CHECK
START 3 Press the START pad.	*0* CHECK

Note: 1. To exit from Counter Check, press the STOP/CLEAR pad.
2. To clear total manual cooking count, press the SELECT TIME pad in Step 2 instead of the number pad.
3. To clear total Express Defrost count, press the EXPRESS DEFROST pad in Step 2 instead of the number pad.
4. To clear total used times, skip Step 2.

8. Air Intake Filter Counter

You can check the total used air intake filter time, and change the limit time for using the air intake filter. The time appears in hours.
  CH81 : The total used air intake filter time appears.
  CH82 : The limit time for using a filter can be changed.

The limit time for using the air intake filter is preset to 100 hours at the factory. FILTER indicator will start to flash on and off at the point that the total used air intake filter time has just exceeded the limit time, even if in the middle of cooking. Furthermore " FILt " flashes on and off in stead of displaying " . " during standby and at the same time FILTER indicator flashed on and off. Clean the air intake filter (See page E-XX), when the FILTER indicator appears in the display, and then clear the total used air intake filter time and return it to "0" .

* Suppose you want to know the total used time which has been used 99 hours.
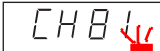
Procedure	**Display**

CUSTOM HELP x 2 [8] [1]

CH 81

After about 1 sec.

99

CHECK

1 Press the CUSTOM HELP pad twice within 2 seconds and enter 8, 1.

NOTE : Press the STOP/CLEAR pad to exit from the Custom Help function.

To Clear the total used air intake filter time
Clear the total used air intake filter time after cleaning the air intake filter.

* Suppose you want to clear the total used air intake filter time. In that case the air intake filter was used 101 hours and the limit time for using the air intake filter is preset to 100.

Procedure	**Display**

CUSTOM HELP x 2 [8] [1]

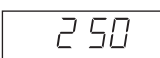*CH 81*

After about 1 sec.

101

CHECK

1 Press the CUSTOM HELP pad twice within 2 seconds and enter 8,1.
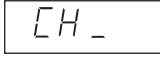
START

0

2 Press the START pad.

NOTE : Press the STOP/CLEAR pad to exit from the Custom Help function.

To change the limit time
You can change the limit time of the Air Filter Counter from 1 hour to 999 hours.

* Suppose you want to set the limit time to 250 hours.

Procedure	**Display**

CUSTOM HELP x 2 [8] [2]

CH 82

After about 1 sec.

100

CHECK

1 Press the CUSTOM HELP pad twice within
2 seconds and enter 8, 2 .

SELECT TIME

0

2 Press the SELECT TIME pad.

[2] [5] [0]

250

3 Enter desired time. (Ex : Enter 2, 5, 0 for 250 hours).

Procedure	**Display**

START

CH _

4 Press the START pad.

NOTE : Press the STOP/CLEAR pad to exit from the Custom Help function.

9. Selecting Operation in case of Magnetron Failure
Your oven has 2 magnetrons.
You can select the operation when one magnetron fails.

CH91 : Your oven does not work when one magnetron fails = Factory setting
CH92 : Your oven works even if one magnetron fails.

To set the ways
Press the CUSTOM HELP pad twice within 2 seconds
then enter the number
9, 1 for stopping the oven operation
9, 2 for allowing the oven to work
and then press the START pad and the STOP/CLEAR pad to exit from the Custom Help function.

10. Multiplication Check/Set for the x2/x3.
The multiplication factors of the double and triple quantities for memory cooking are preset 1.80 and 2.60. You can check or change the multiplication factors.

* Suppose you want to know the multiplication factor for double quantity in memory 1, and change it to 2.00 pre-programmed Direct Input.

Procedure	**Display**

CUSTOM HELP x 2 [x2/x3]

2 _ _

NO. CHECK

1 Press the CUSTOM HELP pad twice within 2 seconds and press the DOUBLE/ TRIPLE QUANTITY pad.

[0]

*2 0_*

NO. CHECK

[1]

2 01

NO. CHECK

After abut 1 sec.

1.80

CHECK

2 Enter memory number.

SELECT TIME

0.00

3 Press the SELECT TIME pad.

Procedure	Display
[2] [0] [0]	2.00
4 Enter desired multiplication. (Ex : Enter 2, 0, 0 for 2.00.)	
START [START]	2 _ _ _ NO. CHECK
5 Press the START pad.	

NOTE :
1. Press the STOP/CLEAR pad to exit from the Custom Help function.
2. The multiplication factors can be set from 0.01 to 9.99 for double quantity and triple quantity.
3. When you want to know the multiplication factor for triple quantity, press the DOUBLE/ TRIPLE QUANTITY twice at step 1 after pressing the CUSTOM HELP pad twice.
4. When you want to change the multiplication factor for double or triple quantity continuously, enter memory number at step 5.

11. Express Defrost Setting
Express Defrosting has 3 stages to defrost foods quickly.
The defrosting sequence is preset as follows, but you can change the setting.

	Defrosting Time	Power Level
STAGE 1	T min. x A1: (0.20*) + B1: (20*) sec.	PL1 (40*) %
STAGE 2	T min. x A2: (0.13*) + B2: (30*) sec.	PL2 (30*) %
STAGE 3	T - STAGE1 - STAGE2	PL3 (20*) %
Pause Timing	See the table for The Pause Timing below (50*)	

T : INPUT TIME (TOTAL COOKING TIME)
* : The numbers in the parentheses are factory setting.

Express Defrost has pause(s) during the sequence. It is preset when 50% of total defrosting time has passed. You change the pause timing as desired.
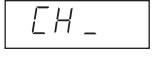
*Suppose you want to change the Express Defrost set factory settings for as follows:

	Defrosting Time	Power Level
STAGE 1	T min. x 0.30 + 10 sec.	50%
STAGE 2	T min. x 0.15 + 20 sec.	20%
STAGE 3	T min - (STAGE1 + STAGE2)	10%
Pause Timing	When 70% of total defrosting time has passed.	

Procedure	Display
[CUSTOM HELP] x 2 [EXPRESS DEFROST]	1-5t DEF CHECK / 2-5t DEF CHECK / 3-5t DEF CHECK ...
1 Press the CUSTOM HELP pad twice within 2 seconds and press the EXPRESS DEFROST pad. (The Express Defrost setting of each phase is shown for 1.5 seconds per 0.3 second unilt pressing the SELECT TIME pad.)	0.20 / 0.13 / 5 20 / 30 / P-20 P-40 / P-30
2 Press the SELECT TIME pad and enter desired multiplication for A1 at Stage 1. (Ex: Enter 3,0 for 0.30.)	[SELECT TIME] 0.00 DEF [3] 0.03 DEF [0] 0.30 DEF
3 Press the SELECT TIME pad and enter desired time for B1 at Stage 1. (Ex: Enter 1 for 10 sec.)	[SELECT TIME] 0 DEF [1] 10 DEF
4 Press the SELECT POWER pad and enter desired power level for PL1 at Stage 1. (Ex: Enter 5 for 50%)	[SELECT POWER] P DEF [5] $P-50$ DEF
5 Press the SELECT TIME pad and enter desired multiplication for A2 at Stage 2. (Ex: Enter 1.5 for 0.15.)	[SELECT TIME] 0.00 DEF [1] 0.01 DEF [5] 0.15 DEF
6 Press the SELECT TIME pad and enter desired time for B2 at Stage 2. (Ex: Press 2 for 20 sec.)	[SELECT TIME] 0 DEF [2] 20 DEF
7 Press the SELECT POWER pad and enter desired power level for PL2 at Stage 2. (Ex: Enter 2 for 20%)	[SELECT POWER] $P-$ DEF [2] $P-20$ DEF
8 Press the SELECT TIME pad and enter the pause timing. (Ex: Enter 7 for when 70% of total defrosting time has passed.)	[SELECT TIME] 0 DEF [7] 7 DEF

Procedure	Display
9 Press the SELECT POWER pad and enter desired power level for Stage 3. (Ex: Enter 1 for 10%) [SELECT POWER]	$P -$ DEF
[1]	$P - 10$ DEF
[START] START 10 Press the START pad.	CH_-

NOTE :
1. To exit from Express Defrost Setting mode, press the STOP/CLEAR pad.
2. See page E-10 for the table for Microwave Power Level. See the table for The Pause Timing
3. You can enter minus numbers for B1 and B2 at step 3 and 6.
   In that case,
   press the SELECT TIME pad twice at step 3 and 6 ($-\quad 0$ is displayed.) and enter desired time for B1 and B2 at Stage 1 and 2.
   One more pressing the SELECT TIME pad before entering the time changes display for plus 0, 0 .

The Pause Timing

KEY	Dis-play	Pause Timing
0	0	There is no pause.
1	1	After 10% of total cooking time is passed.
2	2	After 20% of total cooking time is passed.
3	3	After 30% of total cooking time is passed.
4	4	After 40% of total cooking time is passed.
5	5	After 50% of total cooking time is passed.
6	6	After 60% of total cooking time is passed.
7	7	After 70% of total cooking time is passed.
8	8	After 80% of total cooking time is passed.
9	9	After 90% of total cooking time is passed.
START	A	End of each stage

Memory program entry
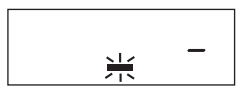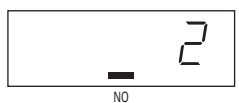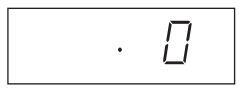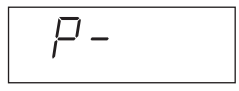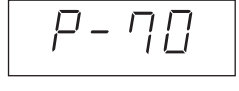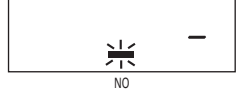
You can set the memory programs for memory banks.

Memory banks
100 memories as Direct input
10 memories as Direct start
30 memories as Repeat input

Max. cooking stages
4 stages

Setting time and power level for Single Stage

<Direct Start>

* Suppose you want to set 1 minute at 70% in the memory 2.

Procedure	Display
[SET MEMORY] X 2 1 Press the SET MEMORY pad twice within 2 sec.	$-$ NO
[2] 2 Enter memory number.	2 NO
[SELECT TIME] 3 Press the SELECT TIME pad.	$\cdot \ 0$
[1] [0] [0] 4 Enter cooking time.	$1 \cdot 00$
[SELECT POWER] 5 Press the SELECT POWER pad.	$P -$
[7] 6 Enter power level.	$P - 70$
[SET MEMORY] 7 Press the SET MEMORY pad.	$-$ NO
[STOP/CLEAR] 8 Press the STOP/ CLEAR pad.	0

Note: 1. If you do not press the SET MEMORY pad within 2 sec. at step 1, the SET MEMORY mode will be invalid.

2. If the cooking time is over the maximum time, the display will show "EE9" therefore to cancel it press the STOP/CLEAR pad.

<Repeat Input>

* Suppose you want to set 1 minute at 70% in the memory 12.

Procedure	Display
SET MEMORY X 2 1 Press the SET MEMORY pad twice within 2 sec.	-- NO
2 2 2 Enter memory number.	12
SELECT TIME 3 Press the SELECT TIME pad.	· 0
1 0 0 4 Enter cooking time.	1·00
SELECT POWER 5 Press the SELECT POWER pad.	P -
7 6 Enter power level.	P - 70
SET MEMORY 7 Press the SET MEMORY pad.	-- NO
STOP/CLEAR 8 Press the STOP/ CLEAR pad.	0

Note: 1. If you do not press the SET MEMORY pad within 2 sec. at step 1, the SET MEMORY mode will be invalid.

2. If the cooking time is over the maximum time, the display will show "EE9" therefore to cancel it press the STOP/CLEAR pad.

<Direct Input>

* Suppose you want to set 4 minutes at 60% in the memory 1 and 2 minutes at 30% in the memory 2.

Procedure	Display
SET MEMORY X 2 1 Press the SET MEMORY pad twice within 2 sec.	-- NO
0 1 2 Enter memory number.	01 NO
SELECT TIME 3 Press the SELECT TIME pad.	· 0
4 0 0 4 Enter cooking time for memory 1.	4·00
SELECT POWER 5 Press the SELECT POWER pad.	P -
6 6 Enter power level for memory 1.	P - 60
SET MEMORY 7 Press the SET MEMORY pad.	-- NO
0 2 8 Enter memory number.	02 NO
SELECT TIME 9 Press the SELECT TIME pad.	· 0
2 0 0 10 Enter cooking time for memory 2.	2·00
SELECT POWER 11 Press the SELECT POWER pad.	P -

Procedure	Display
☐3☐ 12 Enter power level for memory 2.	*P - 30*
SET MEMORY 13 Press the SET MEMORY pad.	☀ – – NO
STOP/CLEAR 14 Press the STOP/ CLEAR pad.	*0*

Note: 1. If you do not press the SET MEMORY pad within 2 sec. at step 1, the SET MEMORY mode will be invalid.

2. If the cooking time is over the maximum time, the display will show "EE9" therefore to cancel it press the STOP/CLEAR pad.

Setting time and power level for multiple stages

* Suppose you want to set 4 minutes at 60% for the 1st stage and 2 minutes at 30% for the 2nd stage in the memory 2 in case of Direct input.

Procedure	Display
SET MEMORY X 2 1 Press the SET MEMORY pad twice within 2 sec.	☀ – – NO
☐0☐ ☐2☐ 2 Enter the memory number.	*_02* NO
SELECT TIME 3 Press the SELECT TIME pad.	*· 0*
☐4☐ ☐0☐ ☐0☐ 4 Enter cooking time for 1st stage.	*4·00*
SELECT POWER X 2 5 Press the SELECT POWER pad.	*P -*
☐6☐ 6 Enter power level for 1st stage.	*P - 60*

Procedure	Display
SELECT TIME 7. Press the SELECT TIME pad.	*· 0*
☐2☐ ☐0☐ ☐0☐ 8 Enter cooking time for 2nd stage.	*2·00*
SELECT POWER 9 Press the SELECT POWER pad.	*P -*
☐3☐ 10 Enter power level for 2nd stage.	*P - 30*
SET MEMORY 11 Press the SET MEMORY pad.	☀ – – NO
STOP/CLEAR 12 Press the STOP/ CLEAR pad.	*0*

Note: 1. If you do not press the SET MEMORY pad within 2 sec. at step 1, the SET MEMORY mode will be invalid.

2. If the cooking time is over the maximum time, the display will show "EE9" therefore to cancel it press the STOP/CLEAR pad.

Setting total cooking time of EXPRESS DEFROST

* Suppose you want to set the total cooking time of EXPRESS DEFROST to 30 minutes in the memory 2 in case of Direct input.

Procedure	Display
SET MEMORY X 2 1 Press the SET MEMORY pad twice within 2 sec.	☀ – – NO
☐0☐ ☐2☐ 2 Enter memory number.	*_02* NO
EXPRESS DEFROST 3 Press the EXPRESS DEFROST pad.	*· 0* DEF

Procedure	Display
`3` `0` `0` `0` 4 Enter cooking time.	30.00 DEF
SET MEMORY 5 Press the SET MEMORY pad.	-- NO
STOP/CLEAR 6 Press the STOP/ CLEAR pad.	0

Note: 1. If you do not press the SET MEMORY pad within 2 sec. at step 1, the SET MEMORY mode will be invalid.

2. If the cooking time is over the maximum time, the display will show "EE9" therefore to cancel it press the STOP/CLEAR pad.

* Suppose you want to set the total cooking time of EXPRESS DEFROST to 30 minutes in the memory 2 in case of Direct start.

Procedure	Display
SET MEMORY X 2 1 Press the SET MEMORY pad twice within 2 sec.	-- NO
`2` 2 Enter memory number.	2 NO

Note: Please follow the page E-18-19 at step 3 to 6.

* Suppose you want to set the total cooking time of EXPRESS DEFROST to 30 minutes in the memory 12 in case of Repeat input.

Procedure	Display
SET MEMORY X 2 1 Press the SET MEMORY pad twice within 2 sec.	-- NO
`2` `2` 2 Enter memory number.	12 NO

Note: Please follow the page E-18-19 at step 3 to 6.

Maximum cooking time

1. In case of 100%~60% power level,

   The total cooking time of all cooking stages is maximum 60 minutes.

2. In case of 50%~10% power level,

   The total cooking time of all cooking stages is maximum 120 minutes.

3. When a multiple sequence cooking has the stages of 100~60% power level and the stages of 50~10% power level, the maximum cooking time is limited by following expression.

   ◎ Expression of maximum cooking time

   > Is it possible to write these two sentences in one line?
   > Link this.
   >
   > $$\text{total cooking time of } 100{\sim}60\% \text{ power level} + \frac{\text{total cooking time of } 50{\sim}10\% \text{ power level}}{2} \leqq 60 \text{ minutes}$$

   * For example, you can cook 5 minutes at 100% for 1st stage, 15 minutes at 80% for 2nd stage, 40 minutes at 30% for 3rd stage and 20 minutes at 10% for 4th stage but actual total cooking time is 80 minutes.
   Because [5min + 15min] + [(40min + 20min)/2] $\leqq$ 60 min.

4. In case of 0% power level,

   Maximum 99 minutes and 99 seconds can be input at one stage (Max. 4 stages).

5. In case of EXPRESS DEFROST

   The maximum defrosting time is 90 minutes.
   And also the maximum defrosting time is limited by the expression of maximum cooking time above.

OTHER CONVENIENT FEATURES

Demonstration Mode

To demonstrate, press the SELECT TIME pad, 0 and then press the START and hold for 3 seconds. Cooking operations can now be demonstrated with no power in the oven. The timer will count down rapidly.

To cancel, press the SELECT TIME pad, then 0 and the STOP/ CLEAR pad.

To set cooking during the Demonstration Mode, press the SELECT TIME pad and enter time and press the START pad. After the cooking, press the STOP/CLEAR pad to show Demonstration again.

Monitor

Monitor function is used to check the power level during cooking.

To check the power level, press the SELECT POWER pad and the power level will be displayed. As long as the SELECT POWER pad is pressed, the power level is displayed. When the SELECT POWER pad is released, the display will return to previous setting.

CARE AND CLEANING

VERY IMPORTANT CAUTIONS

*DO NOT OPERATE the oven without the oven ceiling cover and splash cover in place.

*DO NOT REMOVE the ceramic shelf from the oven.

*DO NOT OPERATE the oven without the air intake filter in place.

*DO NOT USE commercial oven cleaners, abrasive or harsh cleaners or scouring pads on any part of your microwave oven.

Oven Exterior
The outside of your oven can be easily cleaned with mild soap and water. Make sure to rinse thoroughly and dry the exterior with a soft towel.

Control Panel
Care should be taken in cleaning the control panel. Open the door before cleaning to inactivate the control panel pads.
Using a cloth dampened with water only, gently wipe the panel until clean.
Avoid the use of excess water. Do not use chemical or abrasive cleaners because they may cause severe damage to the panel and make programming impossible.

Oven interior
1) For easy cleaning, wipe any spatters or spills

with a soft damp cloth or sponge at the end of each day. For heavier spills, use mild soap and rinse thoroughly with hot water.
2) At least once a week, remove the oven ceiling cover and splash cover and wash in a mild detergent solution. The oven ceiling cover and splash cover are located in the top of the oven and may easily be removed as shown in Figure 1. REMEMBER TO UNPLUG THE POWER CORD.

How to remove the oven ceiling cover:
Turn the two (2) tabs holding the oven ceiling cover to the ceiling of the oven cavity as shown in Figure 2. And release the oven ceiling cover from the ceiling of the oven.

How to remove the splash cover :
Turn the knob holding the splash cover to the ceiling of the oven as shown in Figure 2. And remove it from the ceiling of the oven.

How to install the oven ceiling cover:
Insert the two (2) projections of the oven ceiling coer into the two (2) holes of the oven cavity as shown in Figure 2. And fit the oven ceiling cover to the ceiling of the oven cavity. Then hold it with the two (2) tabs of the ceiling of the oven cavity.

How to install the splash cover :
Insert the knob into the hole of splash cover as shown in Fig.2 and turn it 90°counter-clockwise.
Insert the one (1) projection of the splash cover into the hole of the oven cavity as shown in Figure 2. And insert the knob into the hole of the oven cavity ceiling through the splash cover. Then turn the knob 90°counterclockwise to hold the splash cover.

Fig.-1

Fig.-2

3) Wipe any grease, spills or spatters on the door seal surfaces with a soft damp cloth or sponge so that they do not build up. The door seals must always be free of grease and spatters so that the door closes properly. Such build-up could result in leakage of microwave energy from the oven

Door

Wipe the door and window on both sides frequently with a soft damp cloth or sponge to remove any spills or spatters. Always keep the door seals and seal surfaces clean so that any grease, spills or spatters are not allowed to build up. Build-up could result in leakage of microwave energy from the oven.

Air Intake Filter

Keep the air intake fi lter clean. Clean at least every two weeks which are equivalent to 100 houes (see 8. Air Intake filter Counter on page xx) or more often for heavy use. Loosen the screw holding the air intake filter to the oven and move the air intake filter to the left a little bit to remove the air intake filter from the pin.

Wash the air intake filter in mild soapy water, rinse and dry with a soft cloth. After cleaning re-install the air intake filter.

Note
1. The tiny Knob is very important to fasten in splach cover, therefore don't lose it.
2. The Screw and the Knob cn be loosened and fastened with your hands or a coin.

COOKING GUIDE

Utensils

METAL

1) Frozen Precooked Foods in Foil Containers

When cooking foods in foil containers, the container should be no more than 1/2" deep. The best method to use is, after removing the foil cover, return the metal container to the paper box or package it came in and place this entire unit in the microwave oven. There must be more food than metal, and the metal container must not touch the oven walls.

2) Metal Skewers

Small metal skewers may be used if there is a large proportion of food to the amount of metal. If arcing does begin, stop the oven, remove the food and change to a wooden skewer.

Whenever using metal foil, foil containers or metal skewers, be sure that the metal does not touch the sides of the oven.

GLASS, GLASS-CERAMIC, CERAMIC AND CHINA UTENSILS

Most glass, glass ceramic, ceramic and china utensils are excellent for use in microwave ovens. Heatresistant glassware, unless it has metallic trim or metal portions, can almost always be used in the microwave oven, no matter whether it is clear or opaque. However, you must be careful not to use delicate glassware since it might crack from the heat of the food but not from the microwaves.

Most dinner plates, unless they have metallic trim, are acceptable for heating foods.

Utensils with metallic trim or metal parts, such as screws, bands, handles, etc. must be avoided. Cracked or crazed glazes or chips are also indications that a dish should not be used. Ceramic mugs or cups with glued on handles are also not recommended for use in a microwave oven.

PAPER GOODS

For low heat cooking, such as reheating or very short cooking times and for foods with low fat, sugar or water content, paper is a good utensil for microwave oven use. Napkins, towels, plates, cups, cartons, paper freezer wrap and the paper pulp board that some meats come packed in are also convenient utensils for use in the microwave oven. Cardboard can also be used. Paper is used in the microwave

oven as a moisture insulator. Wax coated paper plates and cups should be avoided since the high temperatures that the foods reach may cause the wax to melt. Plastic coated dishes, however, are fine for use in the microwave oven.

Wax paper and paper towels provide an excellent loose cover for foods and help prevent spatters. Do not use paper towels, plates or other utensils made from recycled paper. Recycled paper products may contain certain impurities which could cause the paper to ignite during microwave heating. Some paper products may contain harmful substances.

PLASTIC AND FOAM UTENSILS

Plastic and foam dishes and containers should not be used for cooking foods with high fat or high sugar content since the heat of the food is too hot for the plastic and may cause it to melt or lose its shape. Cooking pouches designed to withstand boiling and freezing for conventional cooking, work well in the microwave oven. Do not close plastic cooking pouches with the metal tie wraps provided, since they get very hot and will melt the plastic wrap. Any closed pouch or cooking container should be pierced so that steam is allowed to escape. Do not attempt to cook in plastic storage bags as they will not withstand the heat of the food. Plastic wrap may be used to cover foods during cooking.Stretch-type plastic wraps are not suitable for use in the microwave oven because they form too tight a seal. Whenever removing plastic wrap that has been tightly formed around the utensil, just lift the plastic away from you so that the steam can vent and there will be no danger of scalding.Melamine is not recommended for use in the microwave oven.

WICKER, WOOD AND STRAW

Wicker, wood and straw may be used in the oven for short periods of time; however, they should not be used for high fat or high sugar content foods since the heat of the food could possibly char the utensil. Wooden handle scrapers and spatulas may be left in the microwave oven during cooking.

Guidelines for microwave heating

Several factors should be kept in mind when selecting utensils to be used for microwave heating.
1. A plate with a narrow rim of about 1/2-inch is recommended. This keeps the food all at the same level for more even, uniform heating.
2. Casseroles and sauced items should be heated in straight sided containers.
3. Containers should be chosen to be large enough to contain foods as they expand with heating. Milk products are especially subject to boil-overs.
4. Most foods heat better if they are covered. Covering retains the heat that has been created, reduces dehydration and helps keep the oven clean. There should be an opening for steam to escape from the food. Covers should also be non-metallic to allow for proper heating.

Techniques
1. Microwave cooking is ideal for times when you run out of certain items or for preparation during slow periods.
2. Avoid overcooking. Small portions of food should stand 2-3 minutes following cooking; during this standing time foods will complete cooking. Large portions require longer standing times.
3. When a range of times is given in a recipe (2-3 minutes), always cook the shorter amount of time and check for doneness. Foods can always be returned to the microwave for additional cooking. Overcooked foods are tough or dry.
4. Arrange foods with thicker portions or larger pieces toward the outside of the cooking container. Most foods cook more evenly and faster if covered.
5. The microwave oven is quite useful in reducing broiling times for steaks and chops. Partially prepare the meat in microwave oven, then broil for a shorter period of time.
6. Sliced meats should be at least 1/2-inch thick for best heating results. Turning the meat product overonce during the heating process will yield more uniform heating.
7. Stir liquids briskly before heating and allow to stand at least for 20 seconds after heating before stirring or drinking to avoid eruption.

Pastries
1. Placing rolls or muffins on a paper towel or napkin or wrapping in a paper towel eliminates excess moisture and gives best results.
2. Avoid overheating. Baked items will be hotter on the inside than on the outside. Overheating causes baked products to be dry and tough.

Breakfast Items
1. Eggs should be slightly undercooked when preparing them for later reheating in the microwave. Cool quickly and store covered.
2. Arrange foods on platter with easily heated items near center of plate (eggs) and denser items toward outside (sausage).
3. Do not cook eggs in the shell. Pressure will build up inside the shell and it will burst. Do not reheat cooked eggs unless they are scrambled or chopped. Puncture the yolk before cooking eggs.

Sandwiches
1. Pre-toast bread and cool on air rack. Egg and shortening rich bread gives best results.
2. Sandwich meats should be sliced very thin. When assembling sandwich, place thicker portions toward outside edges.
3. Cover sandwiches and refrigerate no longer than three hours. When ready to heat in the microwave, unwrap and place on paper towel or napkin. Most sandwiches should be heated uncovered unless wrapped in paper towel or napkin. The paper absorbs excess moisture, preventing the sandwich from becoming soggy.
4. Avoid overheating. Filling heats rapidly, and overheated sandwiches become dry and tough.

Casseroles
1. Arrange casseroles with larger pieces or bulk of food around the perimeter of the casserole; depress in center.
2. Casseroles should be heated covered with a non-metallic cover or plastic wrap except casseroles with crusts. If tightly covered, puncture plastic wrap or loosen at one corner so steam can escape. Be careful when removing plastic wrap; pull wrap away from you with the tines of a fork.
3. Cover casseroles evenly with sauce or gravy before refrigerating.

Vegetables
1. Arrange vegetables with larger pieces around the perimeter of the dish; depress in center.
2. Small uniform sized vegetables like peas, diced carrots and corn heat easily in the microwave oven. A butter sauce will speed the process.
3. Heat vegetables covered with either a non-metallic cover or plastic wrap. If tightly covered, puncture plastic wrap or loosen at one corner so steam can escape. Be careful when removing plastic wrap; pull wrap away from you with the tines of a fork.
4. Most vegetables should be slightly undercooked when preparing for later reheating in the microwave. Cool quickly and store covered.
5. Microwaved vegetables retain their bright color, flavor and nutrients.

Defrosting
1. See page 12 for EXPRESS DEFROST directions.
2. Avoid over-defrosting. Foods should be removed from the microwave when they are still slightly icy in the center. Allow foods to stand covered for 1 to 2 minutes to complete defrosting.
3. SELECTAPOWER allows you to defrost food at the power level and speed you choose. Generally defrosting is done at 30% or lower. To use SELECTAPOWER for defrosting, first program time followed by touching the SELECTAPOWER pad and the number pad for percentage of power level (for example, 3 represents 30% power). The microwave power will pulse on and off to defrost frozen foods gently without heating. (Not on R-22GV)

Timing guide

Since different foods heat at different rates of speed, there are several influencing factors that should be taken into consideration when heating foods with microwave energy.

1. The lower the initial temperature of a food, the longer it will take to heat in a microwave oven.
2. Since with a microwave oven you are heating with time rather than temperature, it is helpful to know the starting temperatures of the foods. Foods held at room temperature will heat more quickly than refrigerated foods.
3. The different chemical makeups of foods affect the heating times. Highly salted foods heat faster than non-cured items. Animal fats heat more quickly than lean parts of meat. Fats in a colloidal state heat faster than protein (egg yolk cooks before the white).
4. The density of a food is determined by how compact the molecules are arranged within the food. A pound of roast beef is denser than a pound of bread. Even though they weigh the same, the bread contains more air and is therefore less dense. Denser foods require longer heating times.
5. The thicker the food, the longer the heating time. If two foods have the same density, the thinner food will heat before the thicker one.
6. The shape of the food also affects the heating time. Low round foods that are depressed in the center heat faster than highly mounded scooped foods. This has to do again with the density. The denser the mass to be heated, the longer the heating time.
7. The more food placed in the oven cavity at one time, the longer the heating time. This is because there is a constant level of energy coming out of the magnetron tube during the heating process. If there are several food items in the oven, they will each absorb some of the energy thus making the total heating time longer. The time required for heating is not directly proportional to the increased amount of food. The heating time should be increased by about 80% for each additional like food item.

Heating and cooking time guide

Quantity	Item	Approximate Heating Time 100% Power(seconds)		Comment:
		R-CD1800M	R-CD2200M	
Pastries, Rolls and Baked Goods				
2	Biscuit	5-6	4-5	Heat, uncovered, from room temp.
1	Bun	3-4	3-4	Heat, uncovered, from room temp.
1	Danish Pastry	5-6	4-5	Heat, uncovered, from room temp.
1	Dinner, Roll	3-4	3-4	Heat, uncovered, from room temp.
1	Doughnut	3-4	3-4	Heat, uncovered, from room temp.
1	Muffin (small)	3-4	3-4	Heat, uncovered, from room temp.
1 slice	Pie	22	20-22	Heat, uncovered, from refrig.
1	Sweet Roll	5-6	4-5	Heat, uncovered, from room temp.
Breakfast Items				
8 oz.	French Toast & Bacon	35-45	25-35	Heat, uncovered, from refrig.
8 oz.	French Toast & Sausage	35-45	25-35	Heat, uncovered, from refrig.
6 oz.	Pancakes & Bacon	30-35	20-25	Heat, uncovered, from refrig.
6 oz.	Pancakes & Sausage	30-35	20-25	Heat, uncovered, from refrig.
5 oz.	Scrambled Eggs & Bacon	30-35	25-30	Heat, covered, from refrig.
5 oz.	Scrambled Eggs & Sausage	30-35	25-30	Heat, covered, from refrig.
4 strips	Bacon	30-35	25-30	Heat, covered, from refrig.
4 links	Sausage	30-35	25-30	Heat, covered, from refrig.
Sandwiches				
4-5 oz.	Bacon & Tomato	13-18	10-15	Heat, uncovered, from refrig.
4-5 oz.	Beef Barbecue	13-18	10-15	Heat, uncovered, from refrig.
4-5 oz.	Burger	18-23	15-20	Heat, uncovered, from refrig.
4-5 oz.	Cheeseburger	24-29	20-25	Heat, uncovered, from refrig.
4-5 oz.	Corned Beef	13-18	10-15	Heat, uncovered, from refrig.
2 oz.	Frankfurter	21-24	17-20	Heat, uncovered, from refrig.
5 oz.	Jumbo Frankfurter	31-35	27-30	Heat, uncovered, from refrig.
31/2 oz.	Grilled Cheese	13-18	10-15	Heat, uncovered, from refrig.
4 oz.	Ham Sandwich	13-18	10-15	Heat, uncovered, from refrig.
4-5 oz.	Ham & Cheese	13-18	10-15	Heat, uncovered, from refrig.
5 oz.	Italian Sausage	21-25	20-24	Heat, uncovered, from refrig.
4-5 oz.	Pastrami	13-18	10-15	Heat, uncovered, from refrig.
4 oz.	Roast Beef	13-18	10-15	Heat, uncovered, from refrig.
4-5 oz.	Submarine/Hoagie	13-18	13-18	Heat, uncovered, from refrig.
5 oz.	Chili Burger	24-29	20-25	Heat, covered, from refrig.
4 oz.	Chili Dog	13-18	10-15	Heat, covered, from refrig.
4 oz.	Sloppy Joe	13-18	10-15	Heat, covered, from refrig.
Casseroles				
8 oz.	Baked Beans	45-50	40-45	Heat, covered, from refrig. Stir.
8 oz.	Beef Burgundy	55-60	50-55	Heat, covered, from refrig. Stir.
8 oz.	Beef Goulash	45-50	40-45	Heat, covered, from refrig. Stir.
8 oz.	Beef Stew	55-60	50-55	Heat, covered, from refrig. Stir.
8 oz.	Beef Slices with Gravy	45-50	40-45	Heat, covered, from refrig.
8 oz.	Cabbage Rolls	55-60	50-55	Heat, covered, from refrig.
8 oz.	Chicken Fricassee	45-50	40-45	Heat, covered, from refrig.
8 oz.	Chicken a la King	38-43	35-40	Heat, covered, from refrig. Stir.
8 oz.	Chili Con Carne	55-60	50-55	Heat, covered, from refrig. Stir.
8 oz.	Creamed Chicken	40-45	35-40	Heat, covered, from refrig. Stir.
8 oz.	Lasagna	52-58	45-50	Heat, covered, from refrig.
8 oz.	Meat Loaf	43-47	40-45	Heat, covered, from refrig.
8 oz.	Macaroni (beef sauce)	55-60	50-55	Heat, covered, from refrig. Stir.

Heating and Cooking Time Guide Con't

Quantity	Item	Approximate Heating Time 100% Power(seconds)		Comment:
		R-CD1800M	R-CD2200M	
8 oz.	Macaroni (cheese sauce)	40-45	35-40	Heat, covered, from refrig. Stir.
8 oz.	Stuffed Peppers	55-60	50-58	Heat, covered, from refrig.
8 oz.	Pot Pie	48-53	40-45	Heat, covered, from refrig.
8 oz.	Ravioli	48-53	40-45	Heat, covered, from refrig.
8 oz.	Shrimp Creole	35-40	30-35	Heat, covered, from refrig.
8 oz.	Shrimp Newburg	35-40	30-35	Heat, covered, from refrig.
8 oz.	Short Ribs of Beef	55-60	50-55	Heat, covered, from refrig.
8 oz.	Spaghetti	55-60	50-55	Heat, covered, from refrig.
8 oz.	Stew, Chicken	55-60	50-55	Heat, covered, from refrig.
8 oz.	Tuna Casserole	55-60	50-55	Heat, covered, from refrig.
8 oz.	Turkey Slices	40-45	35-40	Heat, covered, from refrig.
Vegetables				
4 oz.	Asparagus	15-20	10-15	Heat, covered, from refrig.
4 oz.	Beans, Green	15-20	10-15	Heat, covered, from refrig.
4 oz.	Broccoli	15-20	10-15	Heat, covered, from refrig.
4 oz.	Carrot Slices	30-35	25-30	Heat, covered, from refrig.
4 oz.	Cauliflower	30-35	25-30	Heat, covered, from refrig.
4 oz.	Corn Niblets	15-20	10-15	Heat, covered, from refrig.
4 oz.	Mushrooms	10-20	8-15	Heat, covered, from refrig.
4 oz.	Peas	10-20	8-15	Heat, covered, from refrig.
4 oz.	Potatoes au Gratin	20-30	15-25	Heat, covered, from refrig.
8 oz.	Potatoes (pre-baked)	47-52	40-45	Heat, uncovered, from refrig.

Quantity	Item	Approximate Heating Time 100% Power		Comment:
		R-CD1800M	R-CD2200M	
Plated Meals				
1 small	Plated Meal	40-60 sec.	35-45 sec.	Heat, covered, from refrig.
1 large	Plated Meal	2-2$^{1/2}$ min.	1$^{1/4}$-1$^{3/4}$ min.	Heat, covered, from refrig.
Primary Cooking				
4 slices	Bacon	1$^{1/4}$-1$^{1/2}$ min.	1-1$^{1/4}$ min.	Cook between paper towels.
1 pound	Bacon (precook to reheat)	3 min.	2$^{1/2}$-3 min.	Cook between paper towels.
2	Scrambled Eggs	30-35 sec.	25-30 sec.	Stir during cooking.
12	Scrambled Eggs (precook to reheat)	3 min.	2-2$^{1/2}$ min.	Stir during cooking.
1 ear	Corn on the Cob	1-1$^{1/2}$ min.	40-50 sec.	Cover, turn over during cooking.
1 medium	Potato	2 min.	1$^{1/2}$-1$^{3/4}$ min.	Wash, dry, prick.
2 medium	Potatoes	4 min.	2$^{1/2}$-3 min.	Wash, dry, prick.
40 oz.	Frozen Broccoli Pieces	8$^{1/2}$-9 min.	7-7$^{1/2}$ min.	Rearrange during cooking.
24 oz.	Frozen Broccoli Spears	3$^{1/2}$ min.	3 min.	Rearrange during cooking.
96 oz.	Refrigerated Lasagna	21 min. at 40 %	15 min. at 40 %	Cover with lid for first half of cooking time. Uncover for second half of cooking time. After cooking, allow to stand, covered, for least 5 minutes to make cutting and serving easier.

REMINDERS

1. Do not operate the oven empty. Either food or water should always be in the oven during operation to absorb microwave energy.
2. Limit use of metal to those specific examples given in this booklet. Generally, metal should not be used in the microwave oven during operation.
3. Do not heat eggs in the shell. Pressure will build up inside the shell and it will explode. Do not reheat cooked eggs unless they are scrambled or chopped. Puncture the yolk before heating eggs.
4. Do not heat oil or fat for deep fat frying.
5. Pierce the "skin" of potatoes, whole squash, apples or any fruit, vegetable or meat with a skin covering before heating.
6. Use only popcorn packaged in special microwavable packages. Pop using 100% power. Listen carefully when popping corn. When popping slows to one or two seconds between pops, remove from oven. Should you ever smell scorching, remove bag from oven immediately. If any unpopped kernels remain, do not try to re-pop; it may cause a fire.
7. Do not use paper towels, plates or other utensils made from recycled paper for microwave heating. Recycled paper products may contain certain impurities which could cause the paper to ignite during microwave heating.
8. Stir liquids briskly before heating and allow to stand at least for 20 seconds after heating before stirring or drinking to avoid eruption.

SPECIFICATIONS

	R-CD1800M	R-CD2200M
AC Line Voltage	Single phase 230/208V, 60Hz, A.C. only	Single phase 230/208V, 60Hz, A.C. only
AC Power Required	2.8kW 230V-12.3A 208V-14A	3.2kW 230V-14A 208V-16A
Output Power Frequency	1800W ★ 2450 MHz (Class B/Group 2) ★★	2200W ★ 2450 MHz (Class B/Group 2) ★★
Outside Dimensions	$17^{1/2}$"(W) x 20 $^{1/2}$"(D) x 13 $^{5/8}$"(H) 445mm(W) x 520mm(D) x 346mm(H) (including feet)	
Cavity Dimensions	14"(W) x 13"(D) x 7 $^{1/8}$"(H) 355mm(W) x 326mm(D) x 177mm(H)	
Weight	Approx. 76 lbs/35 kg	

★ IEC Test Procedure
The International Electrotechnical Commission's standardized method for measuring output wattage. This test method is widely recognized.

★★ This is the classification of ISM (Industrial, Scientific and Medical) equipment described in the International Standard CISPR11.

In Compliance with Standards set by
FCC – Federal Communications Commission Authorized.
DHHS – Complies with Department of Health and Human Services (DHHS) rule, CFR, Title 21 Chapter I, Subchapter J.

Health Canada-Complies with Health Canada, Radiation Emitting Device Regulation for microwave oven.

NSF® – This symbol on the nameplate means the product is certified by NSF International (NSF-4).

cULus – This symbol on the nameplate means the product is listened by Underwriters Laboratories, Inc. for both the UL and CSA (Canadian Standard Association) standards.

SHARP