

This Base Manual covers all
Commercial Microwave Ovens.
Refer to individual Technical Sheet
for information on specific models.

Service

Commercial Microwave Oven DEC18M* & MDC18MT Models

DEC18M
DEC18MC
DEC18MU
DEC18MCX
MDC18MT

Service Manual



This manual is to be used by qualified service technicians only. ACP, Inc. does not assume any responsibility for property damage or personal injury for improper service procedures done by an unqualified person.

TABLE OF CONTENTS

Important Safety Instructions.....1-4

Oven Specifications5-6

Quick Start Reference Guide7-9

Component Location.....10-15

Airflow16-17

Component Testing.....18-24

Wiring and Schematic Diagrams.....25-28

Notes Page29



Service Connection

**PRODUCT WARRANTY
PARTS PRICING
PARTS SUBSTITUTIONS
PARTS LOOK - UP
TECHNICAL BULLETINS
SERVICE MANUALS**



1 | Important Safety Information

IMPORTANT SAFETY INSTRUCTIONS



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Important Safety Information. Read before using this oven.
Keep these instructions for future reference.
If the oven changes ownership, be sure this guide accompanies oven.

For additional product documentation or more detailed operating instructions visit:
www.acpsolutions.com

CONTACT INFORMATION

Any questions or to locate an authorized ACP servicer, call ACP ComServ Service Support.

- Inside** the U.S.A. or Canada, call toll-free 866-426-2621.
- Outside** the U.S.A. and Canada, call 319-368-8120.
- Email:** Commercialservice@acpsolutions.com.

Warranty service must be performed by an authorized ACP servicer. ACP also recommends contacting an authorized ACP servicer, or ACP ComServ Service Support if service is required after warranty expires.

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.



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:
 - Do not overheat the liquid.
 - Stir the liquid both before and halfway through heating it.
 - Do not use straight-sided containers with narrow necks.
 - After heating, allow the container to stand in the microwave for a short time before removing it.
- b. 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.

2 | Oven Specifications



CAUTION

All safety information must be followed



WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

Models	DEC18M	DEC18MC	DEC18MU	DEC18MCX	MDC18MT
Power Source					
Voltage AC	230/240V	220/240V	230/240V	220/240V	220V
Amperage (single unit)	16A	16A	13A	16A	20A
Frequency	50HZ	50HZ	50HZ	50HZ	60hz
Single phase, 3 wire grounded	Yes	Yes	Yes	Yes	Yes
Plug					
Power Output					
Nominal microwave energy (IEC705)	1800W	2000W	1800W	2000W	1800W
Minimum temperature rise (ΔT)					
Operating frequency	2450 MHz	2450 MHz	2450 MHz	2450 MHz	2450 MHz
Power Consumption					
Cook condition microwave	2900W	3100W	3100W	3100W	3100W
Dimensions					
Cabinet					
Width	419 cm (16.5 in)	419 cm (16.5 in)	419 cm (16.5 in)	419 cm (16.5 in)	419 cm (16.5 in)
Height	343 cm (13.5 in)	343 cm (13.5 in)	343 cm (13.5 in)	343 cm (13.5 in)	343 cm (13.5 in)
Depth (includes door handle)	549 cm (21.63 in)	549 cm (21.63 in)	549 cm (21.63 in)	549 cm (21.63 in)	549 cm (21.63 in)
Oven Interior					
Width	330 cm (13 in)	330 cm (13 in)	330 cm (13 in)	330 cm (13 in)	330 cm (13 in)
Height	171 cm (6.75 in)	171 cm (6.75 in)	171 cm (6.75 in)	171 cm (6.75 in)	171 cm (6.75 in)
Depth	305 cm (12 in)	305 cm (12 in)	305 cm (12 in)	305 cm (12 in)	305 cm (12 in)
Weight					
Crated	34 kg (74 lbs)	34 kg (74 lbs)	34 kg (74 lbs)	34 kg (74 lbs)	34 kg (74 lbs)
Uncrated	31 kg (68 lbs)	31 kg (68 lbs)	31 kg (68 lbs)	31 kg (68 lbs)	31 kg (68 lbs)

Installation

Unpacking Oven

- Inspect oven for damage such as dents in door or dents inside oven cavity.
- Report any dents or breakage to source of purchase immediately. Do not attempt to use oven if damaged.
- Remove all materials from oven interior.
- If oven has been stored in extremely cold area, wait a few hours before connecting power.

Radio Interference

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

- Clean door and sealing surfaces of oven according to instructions in "Care and Cleaning" section.
- Place radio, television, wireless routers, etc. as far away as possible from oven.
- Use a properly installed antenna on radio, television, etc. to obtain a stronger signal reception.

3 | Quick Start Reference Guide

QUICK START REFERENCE GUIDE

CLEAN FILTER

This oven displays **CLEAN FILTER** at user defined intervals. When the message displays ACP recommends cleaning the air filter thoroughly.

Cleaning the air filter will not shut off the message. The message will stop displaying automatically after 24 hours. Depending on microwave use and environmental conditions, the filter may need to be cleaned more frequently. Once the frequency is determined, set the option for the appropriate time frame.

1

Preprogrammed Pads

To cook food using preprogrammed cooking sequences.

1. Open oven door and place food in oven. Close door.
2. Press desired pad.
3. Oven begins to cook.
4. At end of cooking cycle oven beeps and shuts off.

x2

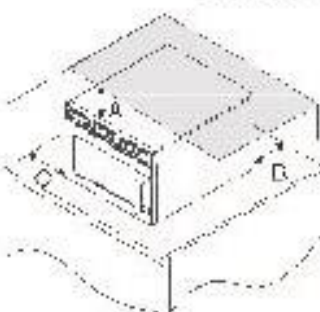
X2 Programming (some models)

To change the cooking factor:

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

Refer to Product Safety Manual for Safety Statements

Complete Owner's Manual available online



Oven Clearances

A—For North American (UL/CSA) models, allow at least 7" (17.8 cm) of clearance around top of oven. For International (50 Hz) models, allow at least 7" (17.8 cm) of clearance around top of oven. Proper air flow around oven cools electrical components. With restricted air flow, oven may not operate properly and life of electrical parts is reduced.

B—Allow at least 2" (5.1 cm) between air discharge on back of oven and back wall.

C—Allow at least 2" (5.1 cm) around sides of oven.

So...how do I use it?



Manual Operation

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

1. Open oven door and place food in oven. Close door.
2. Press TIME ENTRY pad and enter cooking time.
3. Press POWER LEVEL pad to program level of microwave power if desired.
 - For a lower microwave power, press pads 1 (for 10%), through 9 (for 90%), or 0 for no microwave energy.

NOTE: Press POWER LEVEL pad once to return to 100% microwave power.

4. Press START pad.
5. At end of cooking cycle oven beeps and shuts off.

Programming Items

1. Open oven door.
2. Press and hold pad 1 for approximately 5 seconds.
3. Press pad to be reprogrammed.
4. Enter cooking time by using the number pads.
5. Press POWER LEVEL pad to program level of microwave power if desired.
 - For a lower microwave power, press pads 1 (for 10%), through 9 (for 90%), or 0 for no microwave energy.

NOTE: Press POWER LEVEL pad once to return to 100% microwave power.

6. Press TIME ENTRY pad to add up to four additional cooking stages.
 - Total cooking time cannot exceed 60 minutes.
 - Enter cook time and power level as in steps 4 and 5.
7. Press START pad to set new programming changes to the pad.

NOTE: To discard changes, press STOP/RESET pad or close oven door.

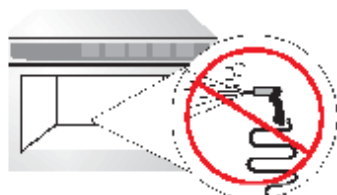
X2 Pad (some models)

1. Open oven door and place food in oven. Close door.
2. Press X2 pad.
3. Press desired preprogrammed pad or pad sequence.
4. Oven begins cooking. Displayed cooking time is the total of original cooking time and added X2 time.

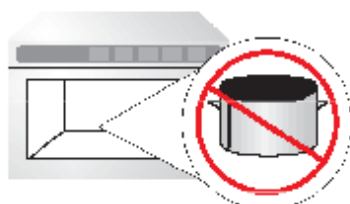
The switching operation of this microwave oven can cause voltage fluctuations on the supply line. The operation of this oven under unfavorable voltage supply conditions can have adverse effects. This device is intended for the connection to a power supply system with a maximum permissible system impedance Z_{max} of 0.31 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.

QUICK START REFERENCE GUIDE

Refer to Product Safety Manual for Safety Statements
Complete Owner's Manual available online



DO NOT power spray



No metal pans



Can I change an option?

Options such as single or double pad programming, beep volume, and maximum cooking time can be changed to suit individual preferences.

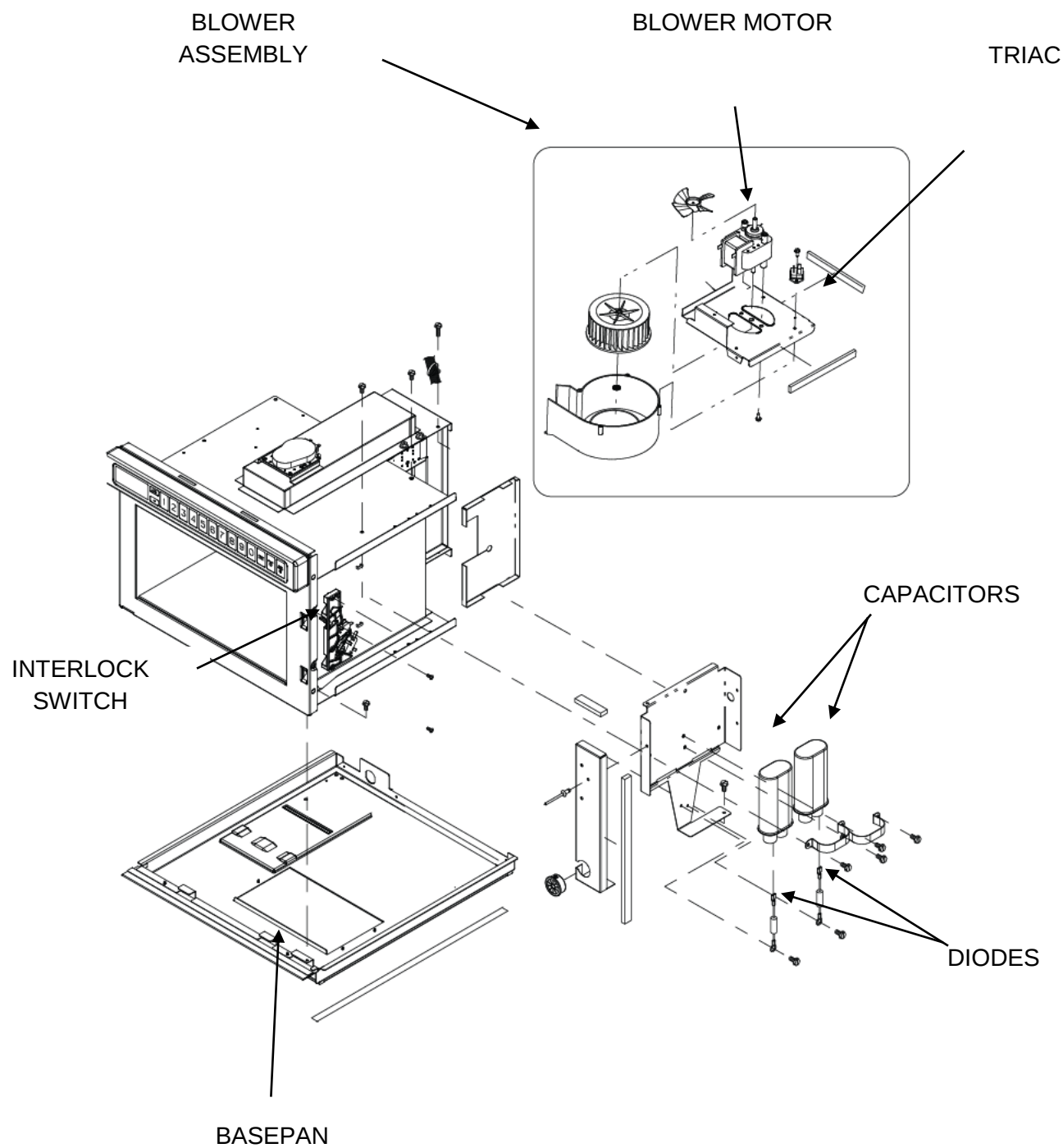
To change options:

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

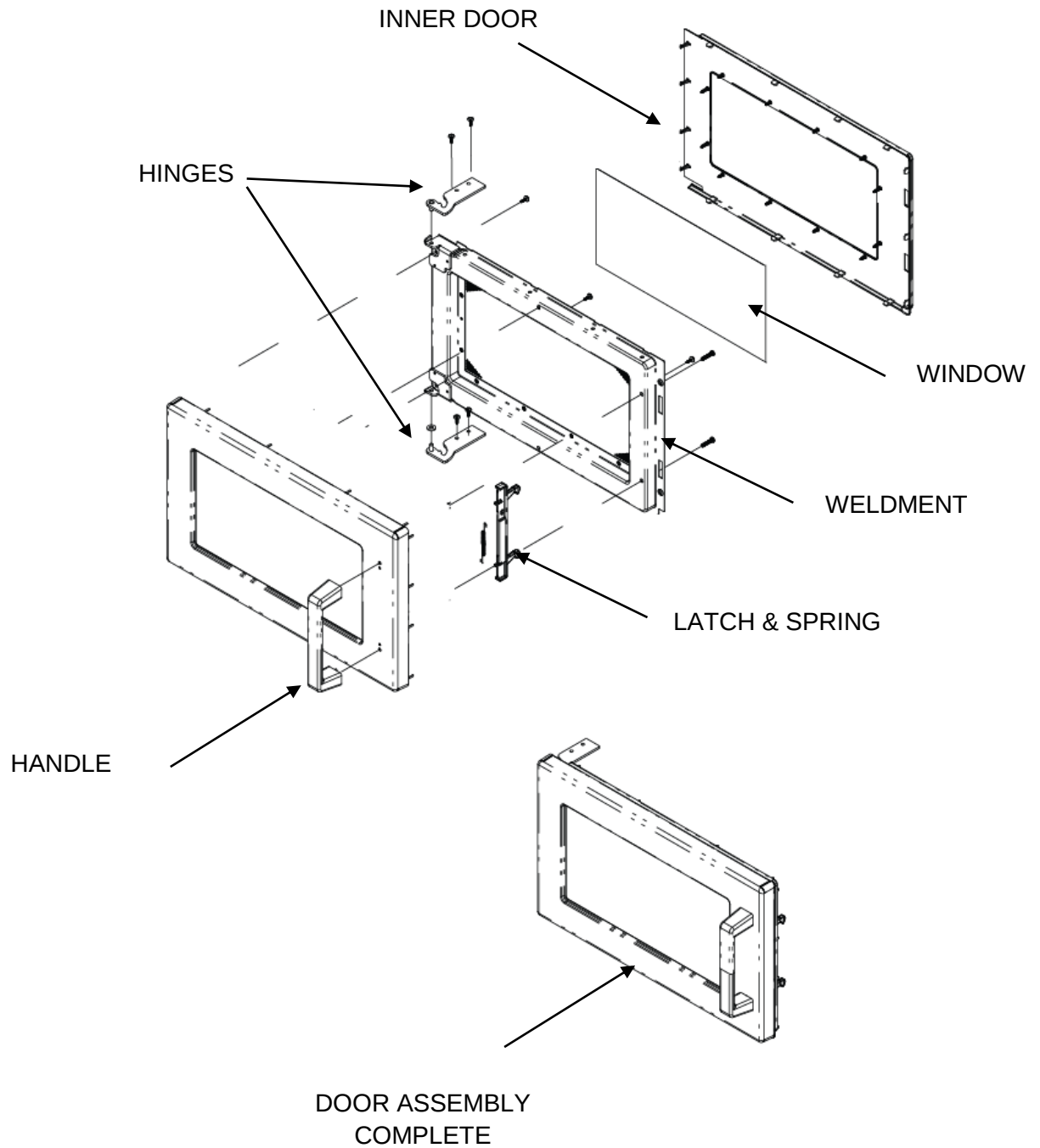
Numbered Pads	Display	Options (Factory Settings in Bold)
1 End of Cycle Beep	OP:10	3 second continuous beep.
	OP:11	Continuous beep until door is opened.
	OP:12	5 beeps bursts until door is opened.
2 Speaker Volume	OP:20	Eliminates beep.
	OP:21	Sets volume to low.
	OP:22	Sets volume to medium.
	OP:23	Sets volume to high.
3 Key Beep	OP:30	Prevents beep when pad is pressed.
	OP:31	Allows beep when pad is pressed.
4 Keyboard Enable Window	OP:40	15 seconds after oven door is opened, keyboard disabled.
	OP:41	30 seconds after oven door is opened, keyboard disabled.
	OP:42	1 minute after oven door is opened, keyboard disabled.
	OP:43	2 minutes after oven door is opened, keyboard disabled.
5 Add Time During Heating	OP:50	Prevents adding heating time while oven is heating.
	OP:51	Allows heating time to be changed while oven is heating when a memory pad is pressed.
6 Reset Door Open	OP:60	Allows oven to resume heating time countdown after door is opened during cycle.
	OP:61	Cancels heating time count down after door is opened during cycle.
7 Maximum Heating Time	OP:70	Allows 60 minutes of heating time.
	OP:71	Allows 10 minutes of heating time.
8 Manual Operation	OP:80	Allows use of preprogrammed pads only.
	OP:81	Allows use of manual time entry and preprogrammed pads.
9 Double Digit Operation	OP:90	Allows 10 (0-9) preprogrammed pads.
	OP:91	Allows 100 (00-99) preprogrammed pads.
0 Clean Filter Message	OP:00	Do not display message.
	OP:01	Display message for 24 hours every 7 days.
	OP:02	Display message for 24 hours every 30 days.
	OP:03	Display message for 24 hours every 90 days.

4 | Components

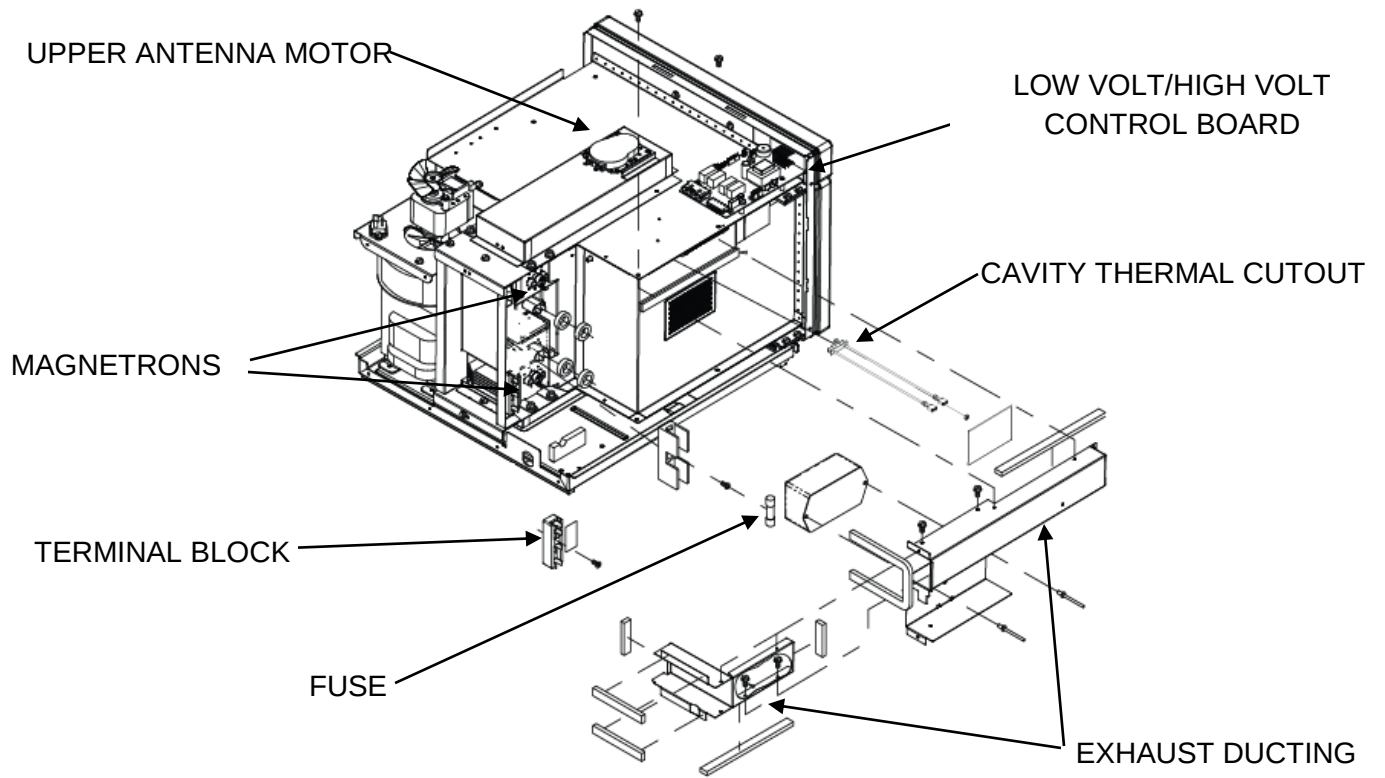
BLOWER, CAPACITOR, DIODE, INTERLOCK



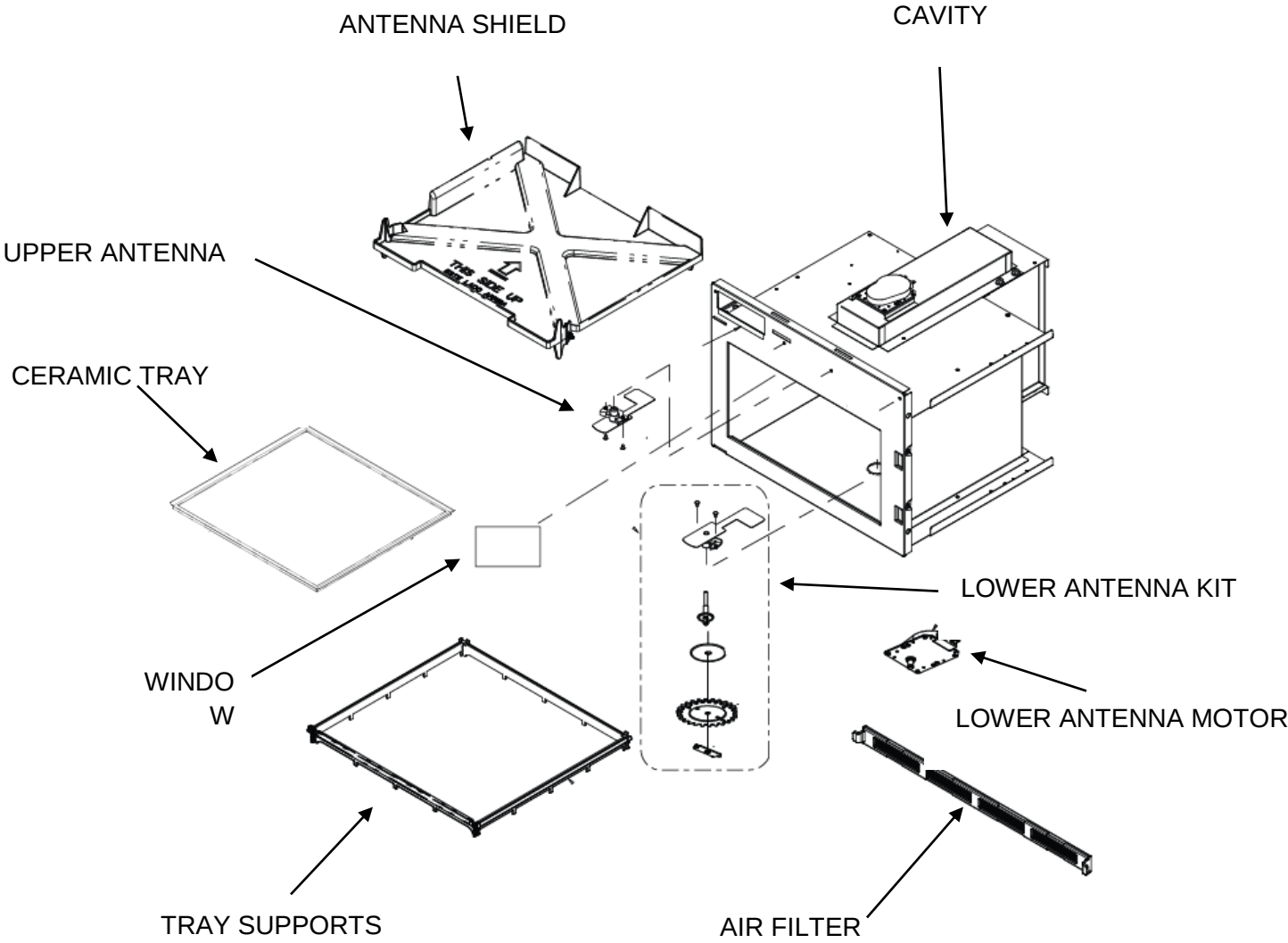
DOOR



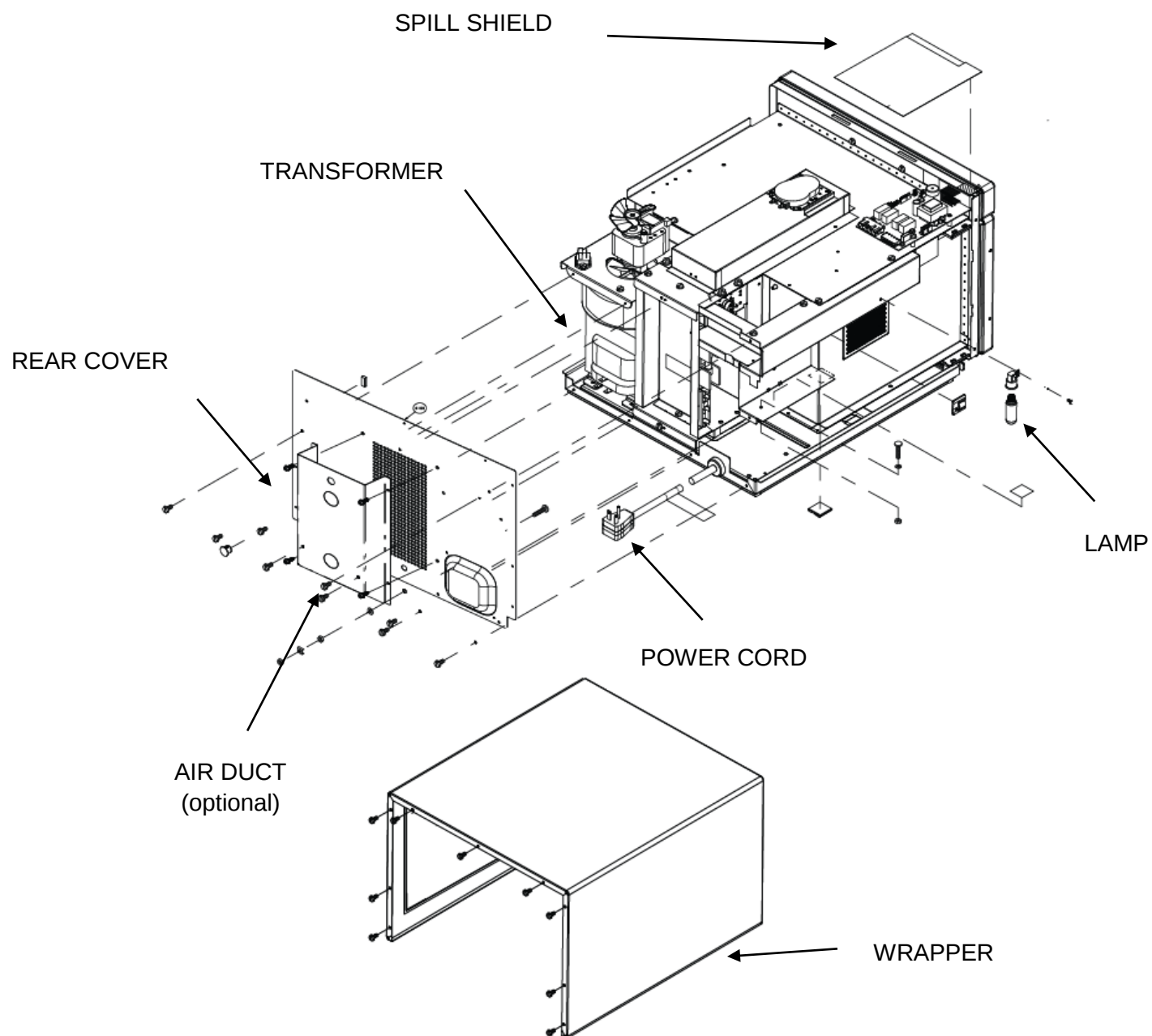
CONTROL BOARD, MAGNETRONS, DUCTS, FUSE



TRAY, CAVITY, ANTENNAS



WRAPPER, REAR COVER, LAMP

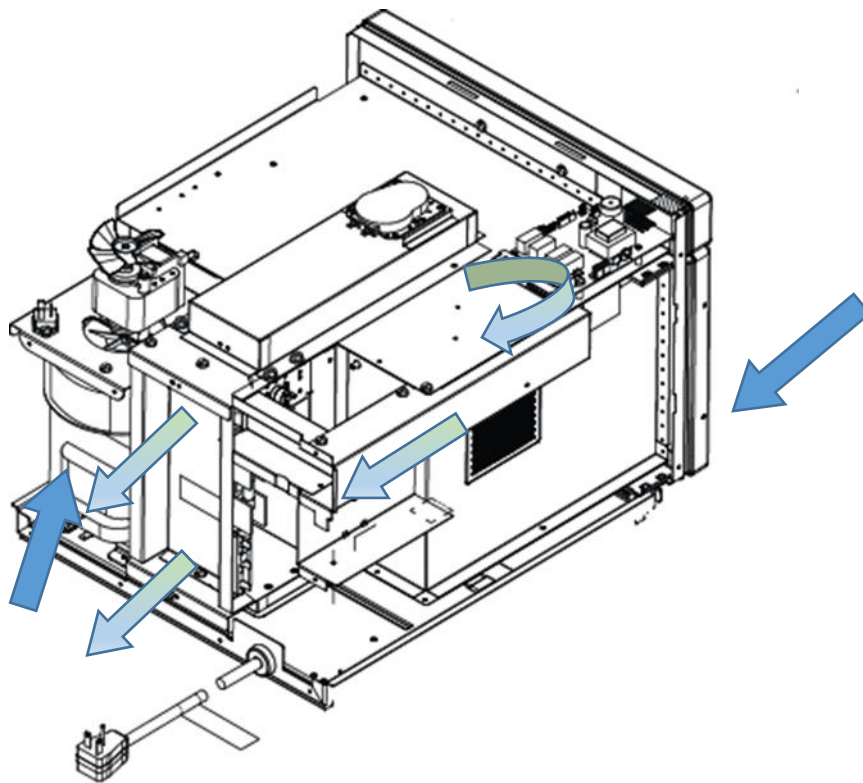


5 | Airflow

AIRFLOW

1. AIR ENTERS THROUGH FRONT FILTER

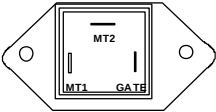
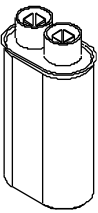
2. AIR IS DRAWN INTO BLOWER

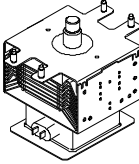
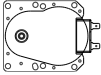
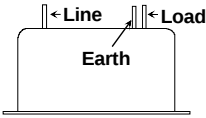


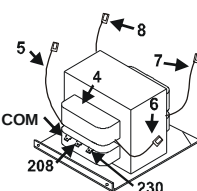
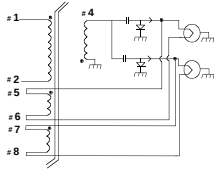
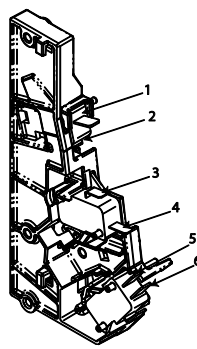
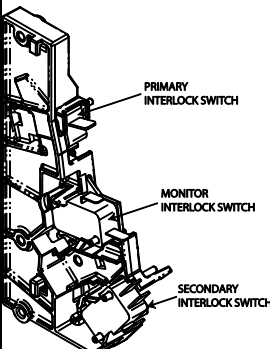
3. AIR PUSHED THROUGH MAGNETRONS

4. AIR PUSHED CAVITY AND EXITS THROUG CAVITY DUCTS

6 | Component Testing

Illustration	Component	Testing	Results
	Thermal Cutout	Disconnect all wires from TCO. Measure resistance across terminals. Cavity Thermal Fuse Magnetron TCO	Open at 104° C (219° F). Open at 138° C (280° F) and closed at 82° C (180° F).
	Diodes	Discharge Capacitors Remove diode lead from capacitor and connect ohmmeter. Reverse leads for second test.	Infinite resistance should be measured in one direction and 50KΩ or more in the opposite direction. NOTE: Analog meter must contain a battery of 6 volts minimum.
	Triac	Disconnect wires to triac. Measure resistance from: MT1 to MT2 MT1 to Gate MT2 to Gate All terminals to ground	Caution - Do not operate oven with wire to terminal MT2 removed. Infinite. Approximately 60 Ω or more. Infinite. Infinite.
	Capacitor	Discharge Capacitors Remove wires from capacitor terminals and connect ohmmeter, set on highest resistance scale to terminals. Also check between each terminal and capacitor case.	Between Terminals: Meter should momentarily deflect towards zero then return to over 5 MΩ. If no deflection occurs, or if continuous deflection occurs, replace capacitor. Terminal to Case: Infinite resistance. ALWAYS USE CORRECT SIZE

	Snubber Assembly	Disconnect wires to snubber. Measure resistance across terminals	Infinite.
	Magnetron	Discharge Capacitors Remove wires from magnetron and connect ohmmeter to terminals. Also check between each terminal and ground.	Between Terminals: Less than 1 Ω . Each terminal to ground measures Infinite resistance. NOTE: This test is not conclusive. If oven does not heat and all other components test good replace the magnetron and retest.
	Blower Motor	Remove all wires from motor. Measure resistance across coil.....	Approximately 30 Ω .
	Stirrer Motor	Remove all wires from motor. Measure resistance across coil.....	Approximately 25k Ω .
	Line Filter	Line to Line Load to Load Line to Load Any terminal to Earth.....	.8 M Ω .8 M Ω Continuity Infinite

	Transformer 	Discharge Capacitor Remove all wires from terminals, and measure resistance from: 230 to Common Terminal 5 to 6 Terminal 7 to 8 Terminal 4 to Earth screw on transformer Terminal 4 to any other terminal	1 Ω. <1 Ω. <1 Ω. 38 Ω. Infinite
	Interlock switch assembly 	Disconnect wires to switch. With door open measure resistance from: Monitor – Terminals 3 - 4 Primary – Terminals 1 - 2 Secondary – Terminals 5 - 6 With door closed measure resistance from: Monitor – Terminals 3 - 4 Primary – Terminals 1 - 2 Secondary – Terminals 5 - 6 After verifying or replacing the module, re-connect wires to switch and check operation of monitor circuit before operating the oven.	Indicates continuity Infinite Ω Infinite Ω Infinite Ω Indicates continuity Indicates continuity

Error Code Table

Error Code	Corrective Action
F1	Replace HV/LV Board
F2	Replace HV/LV Board
F3	Replace HV/LV Board
F4	Replace HV/LV Board
F5	Replace Touch Panel
F6	Replace HV/LV Board

Usage Test

The Usage Test is used to access Magnetron Hours, Magnetron Cycles and Door Cycles. Use the following procedure to access the data:

1. Open door.
2. Press and hold pad **3** for five (5) seconds.
NOTE: After five (5) seconds, SErv illuminates in the display.
3. Press pad **1** for Magnetron Hours.
4. Press pad **2** for Magnetron Cycles.
5. Press pad **3** for Door Cycles.

Power Test

All Amana and MenuMaster microwave oven power outputs are rated using the IEC705 standards. Using the IEC705 test method requires precision measurements and equipment that is not practical to be performed in the field. Using the test shown below will indicate if the oven performance is satisfactory.

Test equipment required:

- 1000 ml test container and thermometer (Amana power test kit Fahrenheit / MenuMaster power test kit Celsius).
- Digital watch / watch with a second hand for use on ovens with electromechanical timers.

Important Notes:

- Low line voltage will cause low temperature rise / power output.
- Ovens must be on a dedicated circuit, properly grounded, and polarized. Other equipment on the same circuit may cause a low temperature rise / power output.
- This test and results are not a true IEC705 test procedure and are only intended to provide servicers with an easy means of determining if the microwave oven cooking output is correct.

Procedure

1. Fill the test container to the 1000 ml line with cool tap water.

NOTE: Water temperature should be approximately 60° F / 16° C.

2. Using the thermometer, stir water for five to ten seconds; measure, and record the temperature (T1).
3. Place test container of water in the center of oven cavity and close door.
4. Heat the water for a 33-second full power cycle.

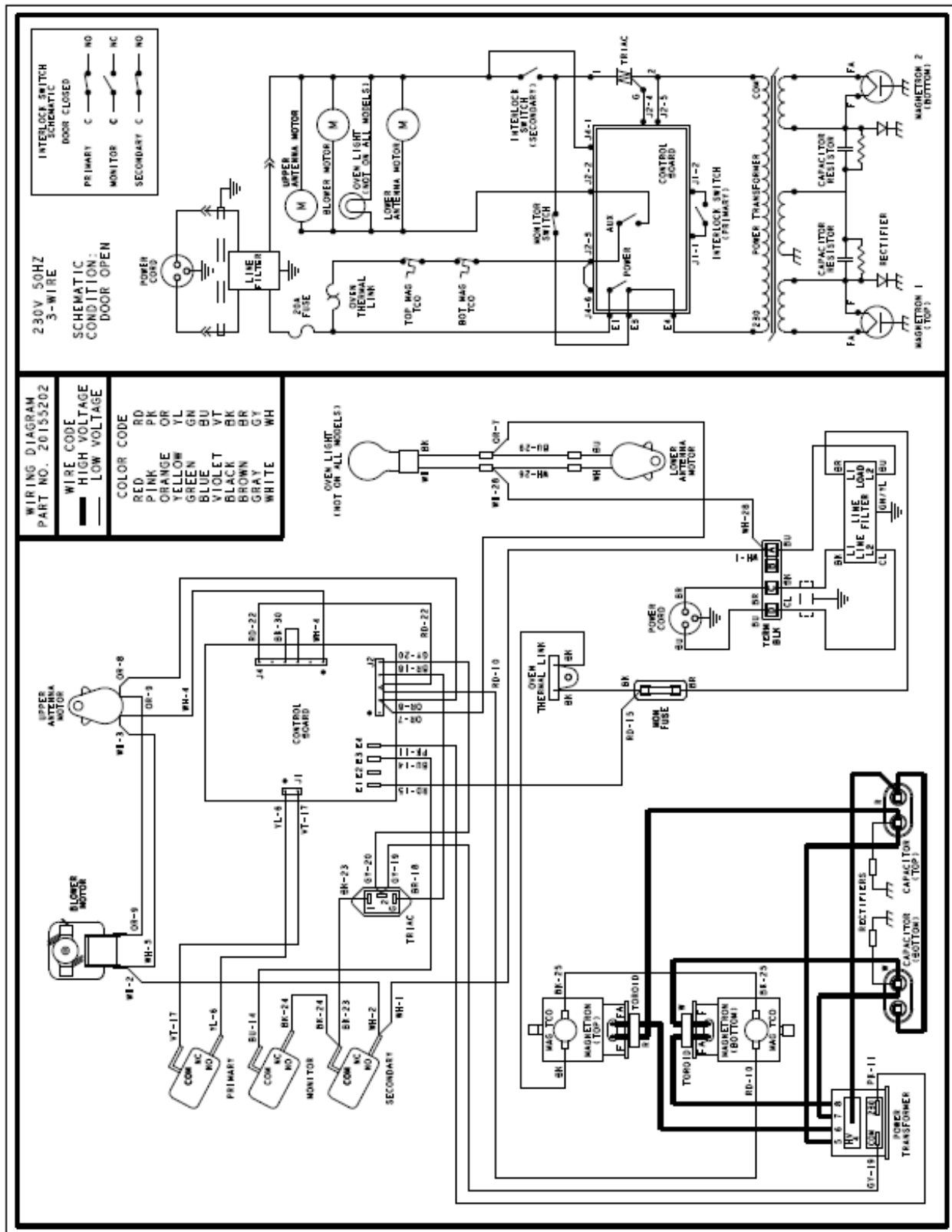
NOTE: Use a digital watch or a watch with a second hand for ovens with electromechanical timers.

1. At end of the cycle, remove test container. Using the thermometer, stir water for five to ten seconds and record temperature (T2).
2. Subtract the starting water temperature (T1), from the ending water temperature (T2) to obtain the temperature rise (ΔT).
3. If the temperature rise (ΔT) meets or exceeds the minimum, the test is complete. If the temperature rise (ΔT) fails to meet the minimum temperature rise, test the line voltage to verify it is correct. Then repeat steps 1-6 making sure to change the water. If the temperature rise (ΔT) fails to meet the minimum temperature rise again the oven will require service.

Minimum Temperature Rise at Thirty-Three (33) Seconds Run Time

ΔT (°F)	Cooking Power Output	ΔT (°F)	Cooking Power Output	ΔT (°C)	Cooking Power Output	ΔT (°C)	Cooking Power Output
10	1000	20	2000	5	1000	11	2000
11	1100	21	2100	5.5	1100	11.5	2100
12	1200	22	2200	6.5	1200	12	2200
14	1400	24	2400	7.5	1400	13	2400
17	1700	25	2500	9.5	1700	13.5	2500
18	1800	27	2700	10	1800	15	2700
19	1900	30	3000	10.5	1900	16.5	3000

7 | Wiring and Schematic Diagrams



DEC18M

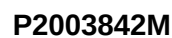
P2003838M

DEC18MC

P2003840M

DEC18MU

P2003839M



NOTES PAGE