

Service

Compact Commercial Microwave Oven

This manual replaces RS2230003 Rev. 1

Service Manual for
Amana®
MenuMaster®

This Base Manual covers Commercial Microwave Ovens with 120/230 V, 60 Hz. Refer to individual Technical Sheet for information on specific models. This manual includes, but is not limited to the following:

CRC21T2
CRC18T2
CRC18T2SD
CRC12T2
CRC12T
CRC10T2
CRC10T
FSC18VP
FSC12VP
FSC10VP

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

RS2230003
Revision 2
December 1998

Important Product Information



WARNING

Precautions to be observed before and during servicing to avoid possible exposure to excessive microwave energy.

- (A) Do not operate or allow oven to be operated with the door open.
- (B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
 - Interlock operation
 - Proper door closing
 - Seal and sealing surfaces (arcing, wear, and other damage)
 - Damage to or loosening of hinges and latches
 - Evidence of dropping or abuse
- (C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
- (D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before oven is released to the consumer.
- (E) Check microwave leakage to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the consumer.

WIRING

Good service practice is to never route wiring over terminals and/or sharp edges. This applies to any wiring without regard to the circuit voltage. Wire insulation material and thickness is designed and regulated for electrical spacing purpose only, but cannot always be relied upon because of possible cuts and/or abrasions, which can occur during servicing.



WARNING

To avoid risk of electrical shock, injury, or death, make sure these grounding instructions are followed.

Grounding Instructions



WARNING

Do not remove grounding prong when installing grounded appliance in a home or business that does not have three wire grounding receptacle, under no condition is grounding prong to be cut off or removed. It is the personal responsibility of the consumer to contact a qualified electrician and have properly grounded three prong wall receptacle installed in accordance with appropriate electrical codes

Should a two prong adapter plug be required temporarily it is the personal responsibility of the consumer to have it replaced with properly grounded three prong receptacle or the two prong adapter properly grounded by a qualified electrician in accordance with appropriate electrical codes.

Servicing of Grounded Products

The standard accepted color coding for grounding wires is GREEN or GREEN WITH YELLOW STRIPE. These ground leads are NOT to be used as current carrying conductors. It is extremely important that the technician replace any and all grounds prior to completion of the service call. Under no condition should ground wire be left off causing a potential hazard to technicians and consumer.

Table of Contents

Important Product Information	2	User Options	18
Table of Contents	3	Component Testing Procedures	19
Important Information	4	Microwave Power Test	22
Important Safety Information	5	Radiation Leakage Testing	
Product Information		Equipment	23
Antenna Blade	8	Procedure for Measuring Radiation Leakage	23
Blower/Fan Assembly	8	Measurement with Outer Case Removed	23
Grease Shield	8	Measurement with a Fully Assembled Oven	23
Door Interlock and Monitoring Switch	8	Record Keeping and Notification	
Auto Transformer	8	After Measurement	23
Transformer High Voltage	8	Troubleshooting	
High Voltage Capacitor	8	Initial Power Up	24
High Voltage Diode (Rectifier)	8	Standby Condition	25
Magnetron	8	Cook Condition	26
Thermal Protectors	8	Disassembly	
Touch Panels	8	Door Removal	27
Triac	8	Inner Door Window Disassembly	27
Stirrer Motor	8	Door Disassembly	27
Installation		Door Handle	27
Unpacking Oven	9	Hinge	27
Oven Placement	9	Outer Case	27
Radio Interference	9	Door/Interlock Switch Adjustment/Replacements ..	28
Grounding Instructions	9	Back Panel	29
Care and Cleaning		Top Antenna Assembly (some models)	29
Changing Oven Light Bulb	10	Bottom Antenna Assembly (some models)	29
Cleaning Interior, Exterior, and Door	10	Oven Tray Removal	29
Cleaning Splatter Shield	10	Stirrer Motor (some models top)	29
Cleaning Air Intake Filter	11	Touch Panel Assembly	29
Cleaning Discharge Air Vents	11	Controller Board	29
Control Pads	12	Interlock Switch Assembly	29
Displays	13	Magnetron Cutout (TCO)	30
Quick Reference Instructions	14	Triac	30
Operation		Diodes	30
Power-up Display	15	Magnetron	30
Interrupting Operation	15	Cavity Thermal Fuse Replacement	30
Canceling Mistakes	15	Fuse	31
Preprogrammed Times and Cook Level	15	Blower Wheel and Motor	31
Operating Preprogrammed Pads	15	Fan Blade	31
Programming Instructions		Auto Transformer	31
Reviewing Preprogrammed Pads	16	Transformer	31
Manual Time Entry	16	Capacitor	31
Preprogrammed Number Pads	16	Power Cord	31
Multiple Heating Stages	17	Light Socket	32
Deactivating Preprogrammed Pad	17	Replacing Oven Light Bulb	32
Reactivating Preprogrammed Pad	17	Component Location	
Deactivating Control Panel	17	Figure 1	33
Reactivating Control Panel	17	Figure 2	34
		Figure 3	35

Important Information

Pride and workmanship go into every product to provide our customers with quality products. It is possible, however, that during its lifetime a product may require service. Products should be serviced only by a qualified service technician who is familiar with the safety procedures required in the repair and who is equipped with the proper tools, parts, testing instruments and the appropriate service manual. **REVIEW ALL SERVICE INFORMATION IN THE APPROPRIATE SERVICE MANUAL BEFORE BEGINNING REPAIRS.**

Important Notices for Consumers and Servicers

WARNING

To avoid risk of serious injury or death, repairs should not be attempted by an unauthorized personnel, dangerous conditions (such as exposure to electrical shock) may result.

CAUTION

Amana will not be responsible for any injury or property damage from improper service procedures. If performing service on your own product, assume responsibility for any personal injury or property damage which may result.

To locate an authorized servicer, please consult your telephone book or the dealer from whom you purchased this product. For further assistance, please contact:

CONSUMER AFFAIRS DEPT.
AMANA REFRIGERATION, INC.
AMANA, IOWA 52204

**OR
CALL**

1-319-622-5511
and ask for
Consumer Affairs

If outside the United States contact:

AMANA
ATTN: CONSUMER AFFAIRS DEPT
2800 220th Trail
AMANA, IOWA 52204, USA
Telephone: (319) 622-5511
Facsimile: (319) 622-2180
TELEX: 4330076 AMANA
CABLE: "AMANA", AMANA, IOWA, USA

Recognize Safety Symbols, Words, and Labels

DANGER

DANGER - Immediate hazards which **WILL** result in severe personal injury or death.

WARNING

WARNING - Hazards or unsafe practices which **COULD** result in severe personal injury or death.

CAUTION

CAUTION - Hazards or unsafe practices which **COULD** result in minor personal injury or product or property damage.

Important Safety Information



CAUTION

Do not become exposed to radiation from the microwave generator or other parts conducting microwave energy.

Basic design of this microwave oven makes it an inherently safe device to both use and service. However, there are some precautions which should be followed when servicing microwave oven to maintain this safety. These are as follows:

1. Always operate unit from an adequately grounded outlet. Do not operate on a two-wire extension cord.
2. Before servicing unit (if unit is operable) perform microwave leakage test.
3. Oven should never be operated if door does not fit properly against seal, hinge/hinge bearings are damaged or broken; choke is damaged, (pieces missing, etc.); or any other visible damage can be noted. Check choke area to ensure that this area is clean and free of all foreign matter. If any above problems occur take the following steps:
 - Tell the user not to operate the oven.
 - Contact Amana immediately.
4. If oven operates with door open and produces microwave energy, take the following steps:
 - Tell the user not to operate the oven.
 - Contact Amana immediately.
5. Always have oven disconnected when outer case is removed except when making "live" tests called for in the service manual. Do not reach into equipment area while unit is energized. Make all connections for the test and check them for tightness before plugging cord into outlet.
6. Always ground capacitors on magnetron filter box and H.V. capacitor with an insulated-handle screwdriver before working in high voltage area of equipment compartment. Some types of failures will leave a charge in capacitors and the discharge could cause a reflex action which could make you injure yourself.
7. In the area of the transformer, capacitor, diode, and magnetron there is HIGH VOLTAGE. When unit is operating, keep area clean and free of anything which could possibly cause an arc or ground, etc.
8. **DO NOT** for any reason defeat interlock switches, there is no valid reason for this action at any time; nor will it be condoned by Amana.
9. Microwave oven should never be operated with:
 - Any components removed and/or bypassed
 - Any of the safety interlocks are found to be defective
 - Any of the seal surfaces are defective, missing, or damaged
10. To ensure that unit does not emit excessive microwave leakage and to meet Department of Health and Human Services guidelines check oven for microwave leakage using Narda Model 8100, 8200, Holaday HI1500, HI1501, or Simpson 380M leakage monitor as outlined in instructions. Maximum leakage level allowed is 4mw/cm².
11. If servicer encounters an emission reading over 4mw/cm², servicer is to cease repair and contact Amana Service Department immediately for further direction. Amana will contact the proper government agency upon verification of test results.
12. Install or locate this equipment **ONLY** in accordance with the installation instructions in this manual.
13. Some products such as whole eggs and sealed containers – for example, closed glass jars – may explode and **SHOULD NOT** be **HEATED** in this equipment.
14. Use this equipment **ONLY** for its intended use as described in this manual. Do not use corrosive chemicals or vapors in this equipment. This type of equipment is specifically designed to heat or cook. It is not designed for industrial or laboratory use.
15. As with any equipment, **CLOSE SUPERVISION** is necessary when used by **CHILDREN**.
16. **DO NOT** operate this equipment if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
17. This equipment, including power cord, must be serviced **ONLY** by qualified service personnel. Special tools are required to service equipment. Contact nearest authorized service facility for examination, repair, or adjustment.
18. **DO NOT** cover or block any openings on the equipment.
19. **DO NOT** store this equipment outdoors. **DO NOT** use this product near water – for example, near a kitchen sink, in a wet basement, or near a swimming pool, and the like.
20. **DO NOT** immerse cord or plug in water.
21. Keep cord **AWAY** from **HEATED** surfaces.
22. **DO NOT** let cord hang over edge of table or counter.

Important Safety Information

CAUTION

To avoid personal injury or property damage, observe the following:

1. Briskly stir or pour liquids before heating with microwave energy to prevent spontaneous boiling or eruption. Do not overheat. If air is not mixed into a liquid, liquid can erupt in oven or after removal from oven.
2. Do not deep fat fry in oven. Fat could overheat and be hazardous to handle.
3. 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.
4. Pierce skin of potatoes, tomatoes, and similar foods before cooking with microwave energy. When skin is pierced, steam escapes evenly.
5. Do not operate equipment without load or food in oven cavity.
6. 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.
7. Do not use regular cooking thermometers in oven. Most cooking thermometers contain mercury and may cause an electrical arc, malfunction, or damage to oven.
8. Do not heat baby bottles in oven.
9. Do not use metal utensils in oven.
10. Never use paper, plastic, or other combustible materials that are not intended for cooking.
11. When cooking with paper, plastic, or other combustible materials, follow manufacturer's recommendations on product use.
12. Do not use paper towels which contain nylon or other synthetic fibers. Heated synthetics could melt and cause paper to ignite.
13. 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.
14. To avoid pacemaker malfunction, consult physician or pacemaker manufacture about effects of microwave energy on pacemaker.

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 seal and sealing surface.
- d. The oven should **NOT** be adjusted or repaired by anyone except properly qualified service personnel.

Important Safety Information



Recognize this symbol as a SAFETY message



WARNING

When using electrical equipment, basic safety precautions should be followed to reduce the risk of burns, electrical shock, fire, or injury to persons.

1. **READ** all instructions before using equipment.
2. **READ AND FOLLOW** the specific “**PRECAUTIONS TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY**”.
3. This equipment **MUST BE GROUNDED**. Connect only to properly **GROUNDED** outlet. See “**GROUNDED INSTRUCTIONS**”.
4. Install or locate this equipment **ONLY** in accordance with the installation instructions in this manual.
5. Some products such as whole eggs and sealed containers – for example, closed glass jars – may explode and **SHOULD NOT** be **HEATED** in this oven.
6. Use this equipment **ONLY** for its intended use as described in this manual. Do not use corrosive chemicals or vapors in this equipment. This type of oven is specifically designed to heat or cook. It is not designed for industrial or laboratory use.
7. As with any equipment, **CLOSE SUPERVISION** is necessary when used by **CHILDREN**.
8. **DO NOT** operate this equipment if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
9. This equipment, including power cord, must be serviced **ONLY** by qualified service personnel. Special tools are required to service equipment. Contact nearest authorized service facility for examination, repair, or adjustment.
10. **DO NOT** cover or block filter or other openings on equipment.
11. **DO NOT** store this equipment outdoors. **DO NOT** use this product near water – for example, near a kitchen sink, in a wet basement, or near a swimming pool, and the like.
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 cleaning instructions in “Care and Cleaning” section.
16. **For commercial use only.**



CAUTION

To reduce the risk of fire in the oven cavity:

- a. **DO NOT** overcook food. Carefully attend equipment if 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. **KEEP** oven **DOOR CLOSED**, turn oven off, and disconnect the power cord, or shut off power at the fuse or circuit breaker panel, if materials inside the oven should ignite. Fire may spread if door is opened.
- d. **DO NOT** use the cavity for storage. **DO NOT** leave paper products, cooking utensils, or food in the cavity when not in use.

Product Information

Antenna Blade

Distributes microwave energy throughout the cavity.

Blower/Fan Assembly

Circulates cooling air throughout the microwave oven compartment and cavity.

Grease Shield

Covers and protects the antenna blade assembly.

Door Interlock and Monitoring Switch

NOTE: When the line fuse is blown the Interlock Switch Assembly must be replaced.

Interlock switch assembly mounts behind oven cavity front bulkhead. Switches are actuated by the door hooks.

Monitoring switch (contacts COM and NC) is actuated by the top door hook.

The primary interlock switch (contacts COM and NO) is actuated by the top door hook.

The logic switch (contacts COM and NO) is actuated by the bottom door hook.

The secondary interlock switch (contacts COM and NO) is actuated by the bottom door hook.

If a malfunction occurs in the primary interlock when door opens, current will flow through the monitor switch causing the oven fuse to open.

If a faulty door interlock switch has allowed current through the monitor switch, the switch assembly must be replaced (see interlock switch testing) before replacing fuse.



DANGER

To avoid severe personal injury or death avoid contacting any high voltage parts. The capacitors are at high voltage (4000 volt) potential and it is extremely important that they be grounded before handling.

Auto Transformer

Auto transformer in this unit provides a voltage of 120, 208, or 230 VAC.

Transformer High Voltage

High voltage transformer is used in this unit, which supplies high voltage A.C. for operation of the magnetron tube.

High Voltage Capacitor

Doubles the A.C. output voltage from the high voltage transformer.

High Voltage Diode (Rectifier)

Is connected at the output side of the high voltage capacitor. It changes voltage from A.C. to D.C. It passes current in one direction and blocks it in the other. Also called a rectifier.

Magnetron

With filament voltage and high D.C. voltage from the output of the H.V. capacitor, diode junction, the magnetron will put out an electromagnetic radio frequency of 2450 MHz to heat the food load in the oven.

Thermal Cutout Protectors

At a predetermined temperature, the thermal cut-outs will open.

- Magnetron thermal cut-outs are mounted directly on the body of the magnetron.
- Cavity thermal cut-out is mounted directly on the left side of cavity exterior.

Touch Panels

Allows consumer operation and programming of oven.

Triac

Triac is controlled by control board. Triac controls one side of the power line going to the high voltage power transformer.

- Triac is mounted inside oven chassis behind oven cavity front bulkhead, towards rear of unit in front of blower motor, underneath insulator.

Stirrer Motor

Stirrer motor rotates top antenna assembly.

Installation

Unpacking Oven

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

Oven Placement

- Do not install oven next to or above source of heat, such as pizza oven or deep fat fryer. Excessive heat may cause oven to operate improperly and shorten life of electrical parts.
- Restricted air flow may cause oven to operate improperly and shorten life of electrical parts.
- Install according to all local building codes and ordinances.

Radio Interference

Microwave operation may cause interference to radio, television, or similar equipment. 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, etc. as far as possible from oven.
- Use properly installed antenna on radio, television, etc. to obtain stronger signal reception.

Grounding Instructions

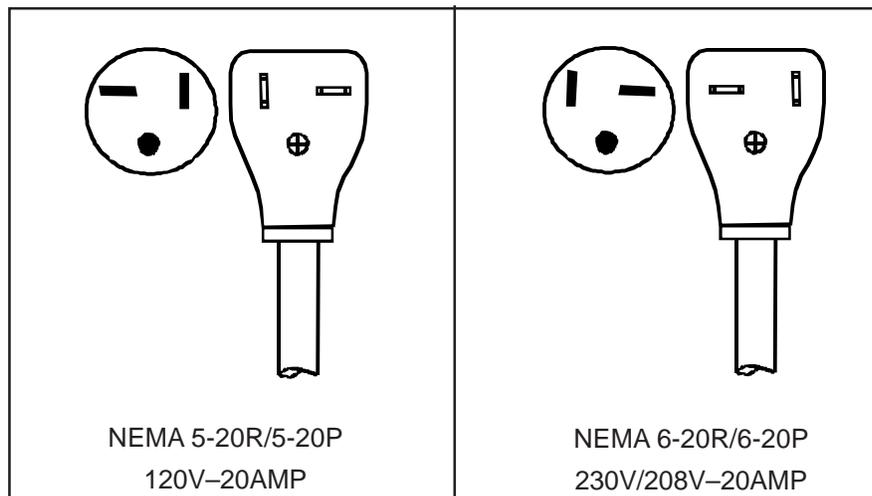
NOTE: Do not under any circumstances cut or remove grounding prong from the plug or bend power prongs to fit receptacle other than one shown for your equipment. Such abuse of the plug can result in electrical shock or overheating.

 WARNING
Improper use of grounding plug can result in a risk of electrical shock or death.

This equipment **MUST** be grounded. In the event of an electrical short circuit, grounding reduces risk of electric shock by providing an escape wire for electric current. This oven is equipped with a cord having grounding wire with a grounding plug. Plug must be plugged into an outlet that is properly installed and grounded. **DO NOT** use a two-prong adapter.

Consult a qualified electrician or servicer if grounding instructions are not completely understood, or if doubt exists as to whether the equipment is properly grounded.

Do not use an extension cord. If product power cord is too short, have a qualified electrician install an appropriate receptacle. This equipment should be plugged into a separate 60 Hz circuit with the appropriate electrical rating as shown in the drawings. When an oven is on a circuit with other equipment, an increase in cooking times may be required and fuses can be blown.



Care and Cleaning

Changing Oven Light Bulb

CAUTION

To avoid electrical shock hazard unplug power cord or open circuit breaker to microwave oven before replacing light bulb. After replacing light bulb, reconnect power.

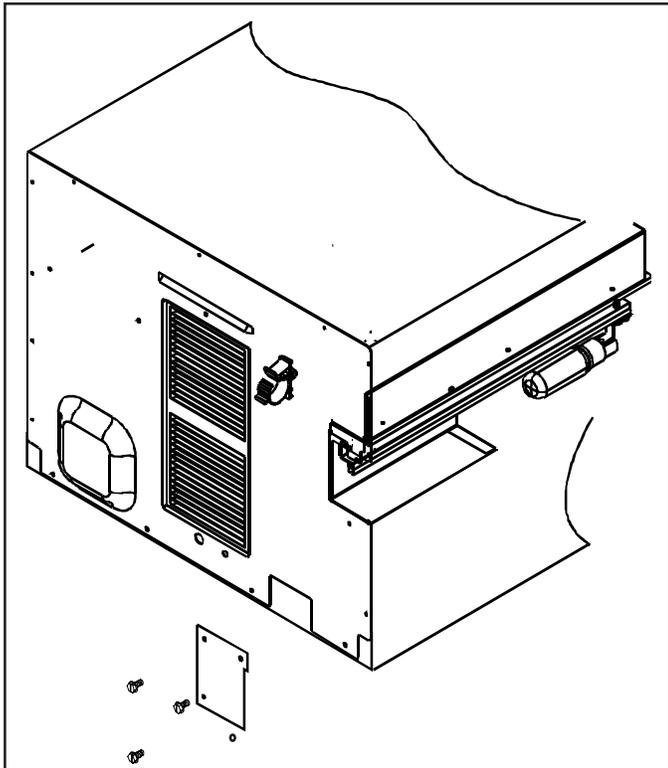
CAUTION

To avoid burns and cuts, wear gloves to protect hands should bulb break. If hot, allow bulb to cool.

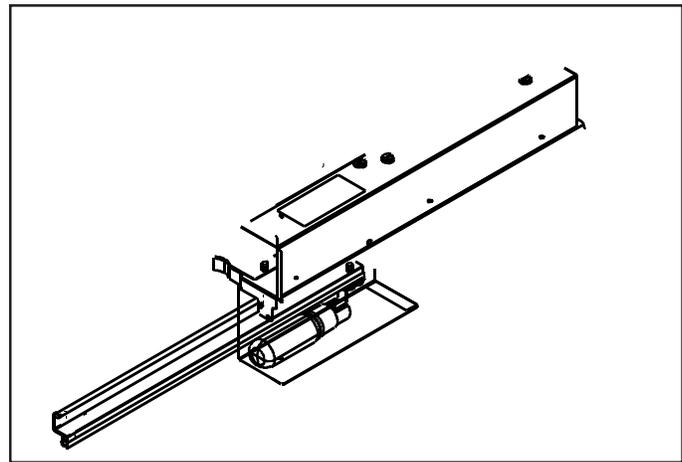
Tools and Bulb

- Protective gloves
- Standard screwdriver or ¼ inch socket
- Light bulb rated 120 volt, 25 watt

1. Unplug oven.
2. Remove screws from back of oven and remove access cover.
 - See figure below.



3. Slide rail out oven from oven cavity.
 - See figure below.



4. Remove bulb by turning counterclockwise, being careful not to burn fingers or break bulb.
 - Replace with bulb rated 120 volt, 25 watt.
5. Slide rail into oven cavity, replace access cover and screws. When installing screws attach rail to access cover first, for easier installation.
6. Plug in oven.

Cleaning Interior, Exterior, and Door

WARNING

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

Clean microwave oven with mild detergent in warm water using soft sponge or cloth. Wring sponge or cloth to remove excess water before wiping equipment. If desired, boil a cup of water in microwave oven to loosen soil before cleaning.

- Do not use abrasive cleansers or cleaners containing ammonia. These could damage finish.
- Never pour water into microwave oven bottom.
- Do not use water pressure type cleaning systems.

Cleaning Splatter Shield

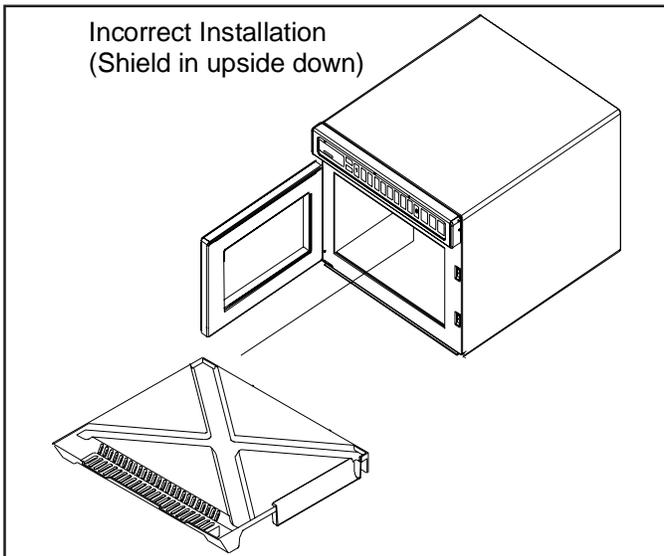
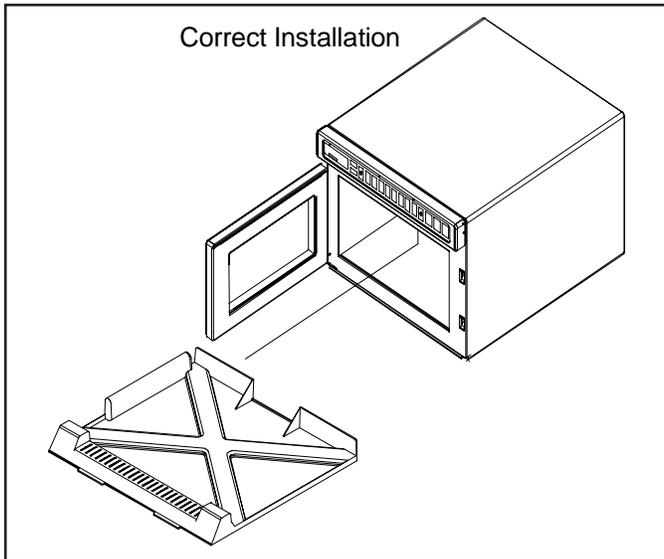
Splatter shield keeps top of microwave oven cavity and antenna from becoming soiled. Clean soil from shield with damp cloth or clean with mild detergent and water.

Remove splatter shield for easy cleaning.

1. Unplug oven before removing splatter shield to stop antenna from rotating.
2. Place fingers behind shield, pull forward, and down.
 - When removing and replacing splatter shield, be careful not to bend antenna.

Care and Cleaning

3. Wash shield in hot, soapy water. Rinse and dry thoroughly.
 - Do not wash splatter shield in dishwasher.
 - Do not use abrasive cleaners.
4. Reinstall splatter shield by placing front portion of the shield in first. Lift until shield slides into holes located in back of oven.



NOTE: If splatter shield is installed upside down, shield will interfere with antenna movement.

Cleaning Air Intake Filter

CAUTION

To avoid overheating and oven damage, clean air filter regularly.

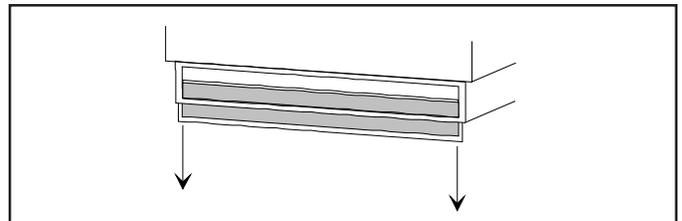
CAUTION

To avoid oven door damage, do not lift oven by oven door.

Filter is located below oven door. Clean air intake filter weekly for proper air flow. Wash filter in hot water and mild detergent. Do not use oven without filter in place. Remove filter to clean.

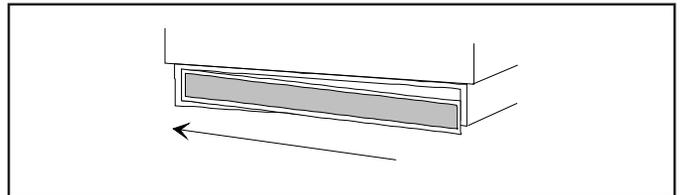
Method 1

1. Open oven door and lift front of oven by pushing up on front of oven cavity ceiling.
2. Slide filter down and out of oven frame.
 - Pull down on corners of filter.
3. Reverse procedure to reinstall.



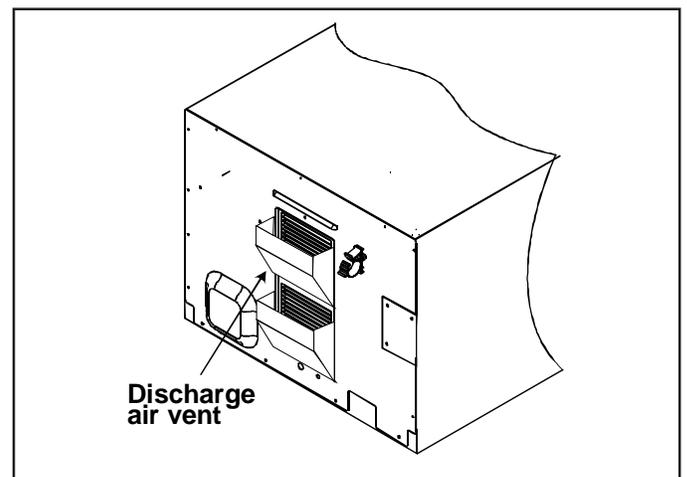
Method 2

1. Slide filter to left or right until side of filter frame clears oven frame.
2. Pull side of filter frame out of oven frame and slide right or left until clear of oven.
3. Reverse procedure to reinstall.



Cleaning Discharge Air Vents

Check for a buildup of cooking vapors along discharge louvers in back of oven. Clean air vent with damp cloth to ensure proper airflow. Dry thoroughly.



Control Pads

Amana Units



MenuMaster Units



TIME ENTRY

- Use to enter heating time without changing preprogrammed number pads.
- Used to view preprogrammed pads.
- Deactivating control panel.

MENU b/d

- Use to switch between 2 independent preprogrammed menus, containing 10 preprogrammed pads for a total of 20 preprogrammed pads. Pads are programmed to heat for specific time and power level.
- Used to program multiple heating stages.
- Deactivating preprogrammed pads.
- Reactivating preprogrammed pads.

Pads 1-0

- Use to begin heating with preprogrammed times and power levels or to enter times for “Manual Time Entry” cooking.

POWER LEVEL

- Use to select power level. Oven can heat at full or reduced power. If oven power level is set to 0% oven does not heat for programmed time. Adjust power in increments of 10%. If no power level is selected, oven operates at 100% power.
- Used to program or change user options.

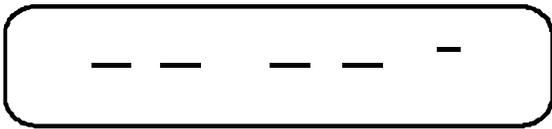
START

- Use to start “Manual Time Entry” program or restart interrupted cooking cycle. Use to advance to next user option, (see page 18). Use to save times and power levels when programming pads.

STOP/RESET

- Use to exit programming mode and stop cooking during cooking cycle.

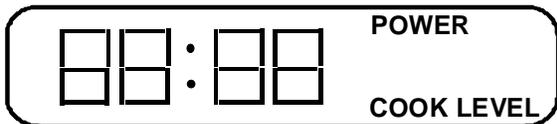
Displays



- Shows after oven is plugged in. Open oven door to clear.



- “b” or “d”—Shows active menu.
- “READY”—Indicates pads will accept entry. Shows when oven is paused or ready for next entry.



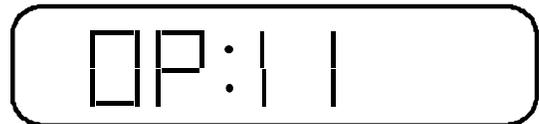
- “88:88”—Shows heating time.
- “POWER”—Shows when oven generates microwave energy.
- “COOK LEVEL”—Shows when viewing stage with reduced power or hold. Power level digit or blank space shows above “COOK LEVEL” in display. Blank space indicates full power.



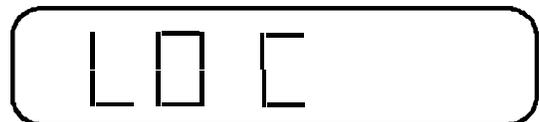
- “Pb” or “Pd”—Indicates programming mode and current menu. See “Programming” section of manual for programming procedure.



- “bP1”—Indicates menu “b” in programming mode, and stage 1. The smaller “1” indicates pad 1 is being programmed.



- “OP:11”—Indicates programming user options mode. See “User Options” section of manual for programming procedure.



- “LOC”—Indicates control panel is locked and will not accept entries. See “Deactivating Control Panel” section of manual for activating and deactivating procedure.

Quick Reference Instructions

Read "Important Safety Information" before using "Quick Reference Instructions". If there are unanswered questions, see detailed sections of this manual.

Instructions are written for factory programmed ovens. Ovens that are reprogrammed can respond differently than described below.

Operating Preprogrammed Pads

1. Open oven door, place food in oven, and close oven door.
2. Press *MENU b/d* pad to select preprogrammed menu.
3. Press desired number pad.
4. Oven stops heating and oven signal sounds when heating time elapses.

Reviewing Preprogrammed Pads

1. Open oven door.
2. Press and hold *TIME ENTRY* pad for approximately 5 seconds.
3. Press *MENU b/d* pad to select preprogrammed menu if necessary.
4. Press desired number pad.
5. Press *TIME ENTRY* pad to review heating stages for pad.
6. Press *START* pad after reviewing preprogrammed pad.
7. Press *RESET* pad or close oven door to exit programming mode.

Manual Time Entry

1. Open oven door, place food in oven, and close oven door.
2. Press *TIME ENTRY* pad.
3. Press number pads to enter desired cooking time.
4. Press *POWER LEVEL* pad if power level other than 100 percent is required.
5. Press number pad to enter desired power level.
6. Press *START* pad.
7. Oven stops heating and oven signal sounds when heating timing elapses.

Programming Number Pads

1. Open oven door.
2. Press and hold pad *1* for approximately 5 seconds.
3. Press *MENU b/d* pad to select preprogrammed menu if necessary.
4. Press desired number pad.
5. Press number pads to enter desired cooking time.
6. Press *POWER LEVEL* pad if power level other than 100 percent is required.
7. Press number pad to enter desired power level.
8. Press *START* pad to save new heating time and power level in oven memory.
9. Press *RESET* pad or close oven door to exit programming mode.

Programming Multiple Heating Stages

1. Open oven door.
2. Press pad *1* for approximately 5 seconds.
3. Press *MENU b/d* pad to select preprogrammed menu if necessary.
4. Press desired number pad.
5. Press number pads to enter desired cooking time.
6. Press *POWER LEVEL* pad if power level other than 100 percent is required.
7. Press number pad to enter desired power level.
8. Press *TIME ENTRY* pad.
9. Press *START* pad to save new heating time and power level in oven memory.
10. Press *RESET* pad or close oven door to exit programming mode.
11. Repeat for 3rd and 4th stages.

Deactivating Preprogrammed Pad

1. Open oven door.
2. Press and hold pad *1* for approximately 5 seconds.
3. Press desired number pad.
4. Press *MENU b/d* pad.
5. Press *START* pad to save in oven memory.
6. Press *RESET* pad or close oven door to exit programming mode.

Reactivating Preprogrammed Pad

1. Open oven door.
2. Press and hold pad *1* for approximately 5 seconds.
3. Press desired number pad.
4. Press *MENU b/d* pad.
5. Program pad according to "Preprogrammed Number Pads" section step 5-8.
6. Press *START* pad to save in oven memory.
7. Press *RESET* pad or close oven door to exit programming mode.

Deactivating Control Panel

1. Open oven door, and close oven door.
2. Press *TIME ENTRY* pad.
3. Press *1,3,5*, and *7* pad in sequence.
4. Press *TIME ENTRY* pad.

Reactivating Control Panel

- Reactivate control panel by repeating steps 1-4 of "Deactivating Control Panel".

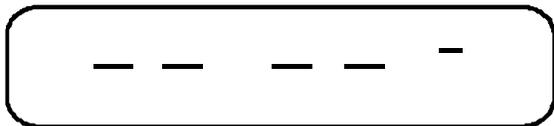
User Options

1. Open oven door. Display shows "MENU b OR d – READY".
2. Press and hold pad *1* for approximately 5 seconds.
3. Press *POWER LEVEL* pad.
4. Press *START* pad to advance to next option. See table for options.
5. Press number pad (0,1-3) to change option.
6. Press *START* pad to save changes.
7. Press *RESET* pad or close oven door to exit programming mode.

Operation

Power-up Display

After equipment is plugged in, display shows 4 large dashes and 1 small dash. Open and close oven door to clear display and activate pads.



Interrupting Operation

- Open oven door to interrupt operation. Oven fan continues to operate. Close door and press *START* pad to resume oven operation.
- Press *STOP/RESET* pad to interrupt operation. Display continues to show countdown time. Press *START* pad to resume oven operation and countdown timing.

Canceling Mistakes

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

Preprogrammed Times and Cook Level

All preprogrammed pads arrive set at full power. Menus “b” and “d” are programmed identically at factory.

Pads	Heating Times
1	10 seconds
2	20 seconds
3	30 seconds
4	45 seconds
5	1 minute
6	1 minute 30 seconds
7	2 minutes
8	3 minutes
9	4 minutes
0	5 minutes

Operating Preprogrammed Pads

Equipment has 2 menus with 10 preprogrammed number pads.

1. Open oven door, place food in oven, and close oven door.
 - Display shows “b” or “d” and “READY”.
 - Fan and light operate.
 - If pad is not pressed in 30 seconds, open and close oven door again.
2. Press *MENU b/d* pad to select preprogrammed menu.
 - “b” or “d” shows in display.
3. Press desired number pad.
 - Oven operates and time counts down.
 - Display shows heating time, “POWER”, “COOK LEVEL”.
 - Display shows “POWER” only when microwave energy is present.
 - If power level other than 100 percent power was programmed, display shows “COOK LEVEL” and power level. Display counts down cooking time.
 - If additional heating time is required, press preprogrammed pads before or after heating cycle ends.
4. Oven stops heating and oven signal sounds when heating timing elapses.

Programming Instructions

Reviewing Preprogrammed Pads

1. Open oven door.
 - Display shows “b” or “d” and “READY”.
 - Fan and light operate.
 - If door is closed or *RESET* pad is pressed before finishing programming sequence, oven exits programming mode.
2. Press and hold *TIME ENTRY* pad for approximately 5 seconds.
 - After 5 seconds, signal sounds. Display shows “Pb” or “Pd” indicating “b” or “d” menu.
3. Press *MENU b/d* pad to select preprogrammed menu if necessary.
4. Press desired number pad.
 - Display shows heating time, “COOK LEVEL” and power level if other than 100 percent power.
5. Press *TIME ENTRY* pad to review heating stages for pad.
 - “(bP or dP)” and stage show briefly, then heating time, “COOK LEVEL” and power level if other than 100 percent power show in display.
6. Press *START* pad after reviewing preprogrammed pad.
 - Display shows “Pb” or “Pd” indicating “b” or “d” menu.
 - Repeat steps 3-6 to review another preprogrammed pad.
7. Press *RESET* pad or close oven door to exit programming mode.

Manual Time Entry

1. Open oven door, place food in oven, and close oven door.
 - Display shows “b” or “d” and “READY”.
 - Fan and light operate.
 - If pad is not pressed in 30 seconds, open and close oven door again.
2. Press *TIME ENTRY* pad.
 - Display shows “0000” and “READY”.
3. Press number pads to enter desired cooking time.
 - For example, to heat for 2 minutes 30 seconds, press 2, 3, and 0 pads.
4. Press *POWER LEVEL* pad if power level other than 100 percent is required.
 - Display shows “COOK LEVEL” and current power level if other than 100 percent power.
5. Press number pad to enter desired power level.
 - For example, pressing 2 pad is 20 percent power.

6. Press *START* pad.
 - Oven operates and time counts down.
 - Display shows heating time, “POWER”, “COOK LEVEL”.
 - Display shows “POWER” only when microwave energy is present.
 - If power level other than 100 percent power was programmed, display shows “COOK LEVEL” and power level. Display counts down cooking time.
7. Oven stops heating and oven signal sounds when heating timing elapses.

Preprogrammed Number Pads

1. Open oven door.
 - Display shows “b” or “d” and “READY”.
 - Fan and light operate.
 - If door is closed or *RESET* pad is pressed before finishing programming sequence, oven exits programming mode.
2. Press and hold pad 1 for approximately 5 seconds.
 - After 5 seconds, signal sounds. Display shows “Pb” or “Pd” indicating “b” or “d” menu.
3. Press *MENU b/d* pad to select preprogrammed menu if necessary.
4. Press desired number pad.
 - Display shows heating time, “COOK LEVEL” and power level if other than 100 percent power.
5. Press number pads to enter desired cooking time.
 - For example, to heat for 2 minutes 30 seconds, press 2, 3, and 0 pads.
6. Press *POWER LEVEL* pad if power level other than 100 percent is required.
 - Display shows “COOK LEVEL” and current power level if other than 100 percent power.
7. Press number pad to enter desired power level.
 - For example, pressing 2 pad is 20 percent power.
8. Press *START* pad to save new heating time and power level in oven memory.
 - Display shows “Pb” or “Pd” indicating “b” or “d” menu.
 - Repeat step 3-8 to program additional pads.
9. Press *RESET* pad or close oven door to exit programming mode.

Programming Instructions

Multiple Heating Stages

Oven can be programmed to perform 4 independent heating cycles without interruption.

1. Open oven door.
 - Display shows “b” or “d” and “READY”.
 - Fan and light operate.
 - If door is closed or *RESET* pad is pressed before finishing programming sequence, oven exits programming mode.
2. Press pad 1 for approximately 5 seconds.
 - After 5 seconds, signal sounds. Display shows “Pb” or “Pd” indicating “b” or “d” menu.
3. Press *MENU b/d* pad to select preprogrammed menu if necessary.
4. Press desired number pad.
 - Display shows heating time, “COOK LEVEL” and power level if other than 100 percent power.
5. Press number pads to enter desired cooking time.
 - For example, to heat for 2 minutes 30 seconds, press 2, 3, and 0 pads.
6. Press *POWER LEVEL* pad if power level other than 100 percent is required.
 - Display shows “COOK LEVEL” and current power level if other than 100 percent power.
7. Press number pad to enter desired power level.
 - For example, pressing 2 pad is 20 percent power.
8. Press *TIME ENTRY* pad.
 - Display briefly shows “bP1^(1-9,0)” or “dP1^(1-9,0)” indicating menu, programming, stage, and pad. Then cook time and power level for stage show in display.
 - Repeat steps 5-8 to create additional stages.
9. Press *START* pad to save new heating time and power level in oven memory.
10. Press *RESET* pad or close oven door to exit programming mode.

Deactivating Preprogrammed Pad

1. Open oven door.
 - Display shows “b” or “d” and “READY”.
 - Fan and light operate.
 - If door is closed or *RESET* pad is pressed before finishing programming sequence, oven exits programming mode.
2. Press and hold pad 1 for approximately 5 seconds.
 - After 5 seconds, signal sounds. Display shows “Pb” or “Pd” indicating “b” or “d” menu.
3. Press desired number pad.
 - Display shows heating time, “COOK LEVEL” and power level if other than 100 percent power.

4. Press *MENU b/d* pad.
 - “ddd” and pad number show in display.
5. Press *START* pad to save in oven memory.
 - To reactivate pad, repeat steps.
6. Press *RESET* pad or close oven door to exit programming mode.

Reactivating Preprogrammed Pad

1. Open oven door.
 - Display shows “b” or “d” and “READY”.
 - Fan and light operate.
 - If door is closed or *RESET* pad is pressed before finishing programming sequence, oven exits programming mode.
2. Press and hold pad 1 for approximately 5 seconds.
 - After 5 seconds, signal sounds. Display shows “Pb” or “Pd” indicating “b” or “d” menu.
3. Press desired number pad.
 - Display shows heating time, “COOK LEVEL” and power level if other than 100 percent power.
4. Press *MENU b/d* pad.
 - Display shows “0000” and “READY”.
5. Program pad according to “Preprogrammed Number Pads” section step 5-8.
6. Press *START* pad to save in oven memory.
 - To reactivate pad, repeat steps.
7. Press *RESET* pad or close oven door to exit programming mode.

Deactivating Control Panel

1. Open oven door, and close oven door.
 - Display shows “b” or “d” and “READY”.
 - Fan and light operate.
 - If pad is not pressed in 30 seconds, open and close oven door again.
2. Press *TIME ENTRY* pad.
 - Display shows “0000” and “READY”.
3. Press 1,3,5, and 7 pad in sequence.
4. Press *TIME ENTRY* pad.
 - “LOC” shows in display.
 - All pads except *TIME ENTRY* are disabled.
 - To reactivate control repeat steps 1-4.

Reactivating Control Panel

- Reactivate control panel by repeating steps 1-4 of “Deactivating Control Panel”.

Programming Instructions

User Options

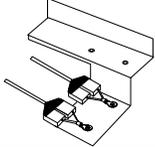
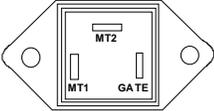
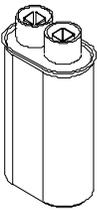
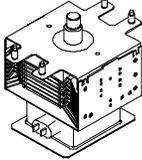
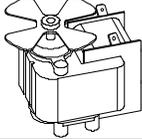
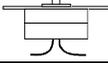
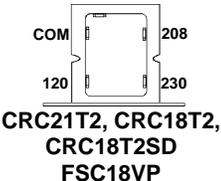
1. Open oven door. Display shows "MENU b OR d – READY".
 - If door is closed or *RESET* pad is pressed before finishing programming sequence, oven exits programming mode.
2. Press and hold pad 1 for approximately 5 seconds.
 - After 5 seconds, signal sounds. Display shows "Pb" or "Pd" indicating "b" or "d" menu.
3. Press *POWER LEVEL* pad.
 - Displays shows "OP:1(0,1-3)".
 - "OP" represents optional program mode, first number represents option number and second number represents functions currently selected for option.
4. Press *START* pad to advance to next option. See table for options.
5. Press number pad (0,1-3) to change option.
6. Press *START* pad to save changes.
 - Repeat steps 4-6 to change additional options.
7. Press *RESET* pad or close oven door to exit programming mode.

Numbered Pads	Display	Options () = Factory Setting
1	OP:10 OP:11	Prevents adding heating time while oven is heating. (Allows adding heating time while oven is heating.)
2	OP:20 OP:21	Sounds 3 second signal at end of heating cycle. (Sounds 4 short signals at end of heating cycle.)
3	OP:30 OP:31	(Allows 99 minutes 99 seconds of heating time.) Allows 10 minutes of heating time.
4	OP:40 OP:41	Prevents signal when pad is pressed. (Allows signal when pad is pressed.)
5	OP:50 OP:51	(Allows oven to resume heating time countdown after door is opened during cycle.) Cancels heating time count down after door is opened during cycle.
6	OP:60 OP:61	(Allows use of power levels.) Prevents use of power levels.
7	OP:70 OP:71 OP:72 OP:73	Eliminates end of heating cycle signal. Sets end of heating cycle signal volume to low. Sets end of heating cycle signal volume to medium. (Sets end of heating cycle signal volume to high.)
8	OP:80 OP:81	Sets oven to standard operation. Blower starts when oven starts. (Sets oven to instant-on operation. Blower starts when oven door is opened.)
9	OP:90 OP:91	(Allows use of variable time entry and preprogrammed pads.) Allows use of preprogrammed pads only.
0	OP:00 OP:01	(Allows lockout to be programmed.) Prevents lockout from being programmed.

Component Testing Procedures

⚠ WARNING

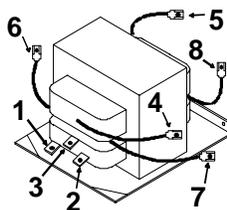
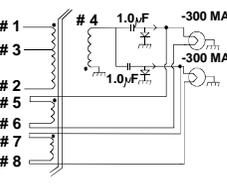
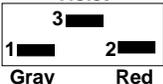
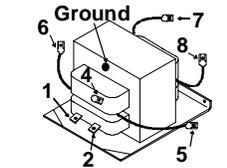
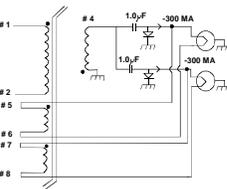
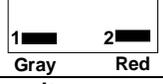
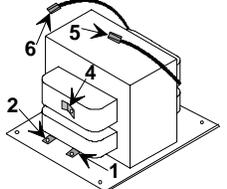
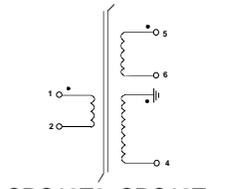
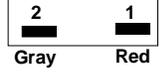
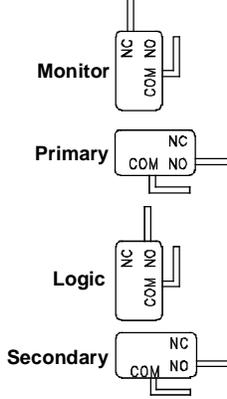
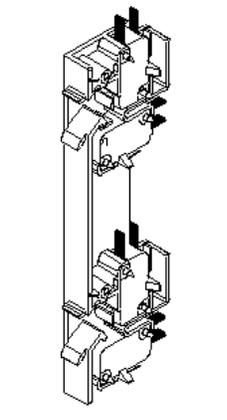
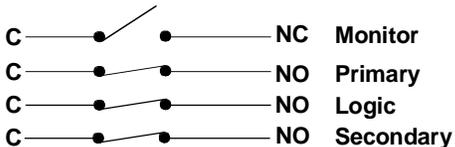
To avoid risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitor before servicing, unless testing requires it.

Illustration	Component	Testing	Results
	Thermal Cutout	Disconnect all wires from TCO. Measure resistance across terminals. Cavity Thermal Fuse Magnetron TCO	Open at 219°F (104°C) Open at 280°F and closed at 180°F
	Diode Assembly	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 40 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
	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 terminals.	Approximately 3400 Ω
Wire Harness		Test continuity of wires.	Indicates continuity
 COM 208 120 230 CRC21T2, CRC18T2, CRC18T2SD, FSC18VP	Auto Transformer 230 208 120 0	Discharge Capacitors Remove all wires from terminals. Measure resistance from: 230 to 0 208 to 0 120 to 0	42.4 Ω 38.6 Ω 21.5 Ω

Component Testing Procedures

⚠ WARNING

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

Illustration	Component	Testing	Results
 <p>Terminal 1– Common Terminal 2– 230 V Terminal 3–208 V</p>	<p>Transformer</p>  <p>CRC21T2, CRC18T2, CRC18T2SD FSC18VP</p>	<p>Discharge Capacitors Remove all wires from terminals. Measure resistance from:</p> <ul style="list-style-type: none"> Terminal 1 to 2 Terminal 1 to 3 Terminal 5 to 6 Terminal 7 to 8 Terminal 4 to Ground screw on transformer Terminal 4 to any other terminal <p style="text-align: center;">Violet</p> 	<ul style="list-style-type: none"> 1.0 Ω Less than 1 Ω Less than 1 Ω Less than 1 Ω 30 Ω Infinite resistance should be indicated, if not replace transformer.
 <p>Terminal 1– Common Terminal 2–120 V</p>	<p>Transformer</p>  <p>CRC12T2, CRC12T, FSC12VP</p>	<p>Discharge Capacitor Remove all wires from terminals, and measure resistance from:</p> <ul style="list-style-type: none"> Terminal 1 to 2 Terminal 5 to 6 Terminal 7 to 8 Terminal 4 to Ground screw on transformer Terminal 4 to any other terminal 	<ul style="list-style-type: none"> Less than 1 Ω Less than 1 Ω Less than 1 Ω 40 Ω Infinite resistance should be indicated, if not replace transformer.
 <p>Terminal 1– 120 V Terminal 2– Common</p>	<p>Transformer</p>  <p>CRC10T2, CRC10T, FSC10VP</p>	<p>Discharge Capacitor Remove all wires from terminals, and measure resistance from:</p> <ul style="list-style-type: none"> Terminal 1 to 2 Terminal 5 to 6 Terminal 4 to Ground screw on transformer Terminal 4 to any other terminal 	<ul style="list-style-type: none"> Less than 1 Ω Less than 1 Ω 78 Ω Infinite resistance should be indicated, if not replace transformer.
	<p>Interlock switch assembly *</p> 	<p>Disconnect wires to switch.</p> <p>With door open measure resistance from:</p> <ul style="list-style-type: none"> Terminal C to NC Monitor Terminal C to NO Primary Terminal C to NO Logic Terminal C to NO Secondary <p>With door closed measure resistance from:</p> <ul style="list-style-type: none"> Terminal C to NC Monitor Terminal C to NO Primary Terminal C to NO Logic Terminal C to NO Secondary <p style="text-align: center;">Door Closed</p> 	<ul style="list-style-type: none"> Indicates continuity Infinite Infinite Infinite Infinite Indicates continuity Indicates continuity Indicates continuity

* **NOTE:** The two lower switches on the switch assembly (logic and secondary) may be reversed. Both switch configurations are acceptable.

Component Testing Procedures

⚠ WARNING

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

Illustration	Component	Testing	Results																																															
	Controller board 	A—Not used B—Normally open terminal on primary switch C—Output to high voltage transformer D—Output to oven light, antenna and blower motors E—Not used F—Triac MT1 terminal G—Triac MT2 terminal H—Triac gate terminal K—Oven TCO protector J1 connector Pin 3—K Pin 3—D 240 VAC 208 VAC Pin 1—Pin 3 With J1 connector disconnected Pin 6—Pin 7 Pin6—PIN 7 J2 connector used for touch panel ribbon	B to C—Line voltage * (Standby Condition) B to C—0 volts * (Cook Condition) D to K— Line voltage * (Idle Condition) D to K—0 volts * (Standby and Cook Conditions) F to H—.75 volts AC approximately * (Cook Condition) J1 connector Line voltage * (All Condition) Line Voltage 0 VAC * (Cook Conditons) Line Voltage * (All Conditons) Continuity test Door closed—continuity Door open—open circuit																																															
	Touch Panel Assembly	Continuity is indicated as 100 Ω and below. 	<table border="1"> <thead> <tr> <th>Pad</th> <th>Trace</th> <th>Measurement</th> </tr> </thead> <tbody> <tr><td>1</td><td>7 & 4</td><td>Continuity</td></tr> <tr><td>2</td><td>7 & 6</td><td>Continuity</td></tr> <tr><td>3</td><td>6 & 5</td><td>Continuity</td></tr> <tr><td>4</td><td>5 & 4</td><td>Continuity</td></tr> <tr><td>5</td><td>5 & 3</td><td>Continuity</td></tr> <tr><td>6</td><td>6 & 3</td><td>Continuity</td></tr> <tr><td>7</td><td>9 & 6</td><td>Continuity</td></tr> <tr><td>8</td><td>7 & 3</td><td>Continuity</td></tr> <tr><td>9</td><td>8 & 7</td><td>Continuity</td></tr> <tr><td>Time Entry</td><td>9 & 4</td><td>Continuity</td></tr> <tr><td>Power Level</td><td>9 & 7</td><td>Continuity</td></tr> <tr><td>Menu b/d</td><td>9 & 8</td><td>Continuity</td></tr> <tr><td>Start</td><td>10 & 4</td><td>Continuity</td></tr> <tr><td>Stop/Reset</td><td>10 & 9</td><td>Continuity</td></tr> </tbody> </table>	Pad	Trace	Measurement	1	7 & 4	Continuity	2	7 & 6	Continuity	3	6 & 5	Continuity	4	5 & 4	Continuity	5	5 & 3	Continuity	6	6 & 3	Continuity	7	9 & 6	Continuity	8	7 & 3	Continuity	9	8 & 7	Continuity	Time Entry	9 & 4	Continuity	Power Level	9 & 7	Continuity	Menu b/d	9 & 8	Continuity	Start	10 & 4	Continuity	Stop/Reset	10 & 9	Continuity		
Pad	Trace	Measurement																																																
1	7 & 4	Continuity																																																
2	7 & 6	Continuity																																																
3	6 & 5	Continuity																																																
4	5 & 4	Continuity																																																
5	5 & 3	Continuity																																																
6	6 & 3	Continuity																																																
7	9 & 6	Continuity																																																
8	7 & 3	Continuity																																																
9	8 & 7	Continuity																																																
Time Entry	9 & 4	Continuity																																																
Power Level	9 & 7	Continuity																																																
Menu b/d	9 & 8	Continuity																																																
Start	10 & 4	Continuity																																																
Stop/Reset	10 & 9	Continuity																																																

Conditions

- Idle Condition:** Oven plugged in, display blank (no other components operating).
- Initial Power Up Condition:** Apply power to oven with door closed—see, “Troubleshooting” section.
- Standby Condition:** Open oven door, light and motors operate—see, “Troubleshooting” section.
- Cook Condition:** Food load in oven, cook cycle initiated—see, “Troubleshooting” section.

Test Modes

Microwave Power Test

(TRADITIONAL TEST METHOD)

Test Equipment Needed:

- Amana power test kit R0157397 (Fahrenheit) or
 - Menumaster power test kit M95D5 (Centigrade)
1. Fill the plastic container to the bottom of the 1000 ml. lines with cool tap water.
 2. Using the thermometer; Fahrenheit or Centigrade, stir the water, measure and record the water temperature. **IMPORTANT:** Initial water temperature should be approximately 60°F (20°C).
 3. Place the container on the center of the oven shelf and heat the water for 63 seconds for ovens rated less than 1550 watts or 33 seconds for ovens with more than 1550 watts of power.

NOTE: Use a watch second hand, not the oven timer.

4. Stir the water, measure and record the temperature of the water after heating time is completed.
5. Subtract the starting water temperature (Step 2) from the ending water temperature (Step 4) to obtain the temperature rise.
6. Refer to the Temperature Chart.

NOTE: Variation or errors in the test procedure will cause a variance in the temperature rise indication. Additional power tests should be made if temperature rise appears marginal.

NOTE: Low line voltage may cause lower power output (temperature rise).

NOTE: Always perform 3 tests for accuracy. Change water after each test

Temperature Chart

ONE MINUTE, THREE SECONDS run time chart for units less than 1550 watts cooking power.

ΔT (°F)	Cooking Power Output	ΔT (°F)	Cooking Power Output
12	464	27	1046
13	504	28	1085
14	542	29	1124
15	581	30	1162
16	620	31	1201
17	659	32	1240
18	697	33	1279
19	736	34	1317
20	775	35	1359
21	814	36	1395
22	852	37	1434
23	891	38	1472
24	930	39	1511
25	969	40	1550
26	1007		

ΔT (°C)	Cooking Power Output	ΔT (°C)	Cooking Power Output
7	490	15	1050
8	560	16	1120
9	630	17	1190
10	700	18	1260
11	770	19	1330
12	840	20	1400
13	910	21	1470
14	980	22	1540

THIRTY THREE SECONDS run time chart for units more than 1550 watts cooking power.

ΔT (°F)	Cooking Power Output	ΔT (°F)	Cooking Power Output
20	1550	28	2170
21	1627	29	2247
22	1705	30	2325
23	1782	31	2402
24	1860	32	2480
25	1937	33	2557
26	2015	34	2635
27	2092	35	2712

ΔT (°C)	Cooking Power Output	ΔT (°C)	Cooking Power Output
11	1540	15.5	2170
11.5	1610	16	2240
12	1680	16.5	2310
12.5	1750	17	2380
13	1820	17.5	2450
13.5	1890	18	2520
14	1960	18.5	2590
14.5	2030	19	2660
15	2100	19.5	2730

Microwave Energy Leakage Testing

WARNING

Check for radiation leakage after servicing. Should the leakage be more than 4mW/cm² inform Amana immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S. and HEW regulations. This requirement must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while at the customer's location.

Equipment

- Electromagnetic radiation monitor
- 600 cc glass beaker

Procedure For Measuring Radiation Leakage

Note before measuring -

- Do not exceed meter full scale deflection. Leak monitor should initially be set to the highest scale.
- To prevent false readings the test probe should be held by the grip portion of the handle only.
- The scan speed is equal to one inch per antenna revolution or one inch per second if antenna speed is unknown.
- Areas to be checked are all door seal areas and any venting parts.
- Leakage with the outer panel removed, 4mW/cm² or less.
- Leakage for fully assembled oven with door normally closed, 4mW/cm² or less.
- Leakage for a fully assembly oven (before the latch switch (primary) is interrupted) while pulling the door, 4mW/cm² or less.

1. Pour 275 ± 15 cc (9 oz ± 1/2 oz) of 20 ± 5°C. (68± 9°F.) water in a glass beaker which is graduated to 600 cc and place the beaker in the center of shelf.
2. Set the radiation monitor to 2450 MHz and use it following the manufacturer's recommended test procedure to assure correct results.
3. While measuring the leakage, always use the two inch (5 cm) spacer supplied with the probe.
4. Press the start pad or turn on the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

Measurement With the Outer Case Removed

DANGER

To avoid risk of personal injury or death avoid contacting any high voltage components.

Whenever you replace the magnetron, measure for radiation leakage before the outer case is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.

Measurement With a Fully Assembled Oven

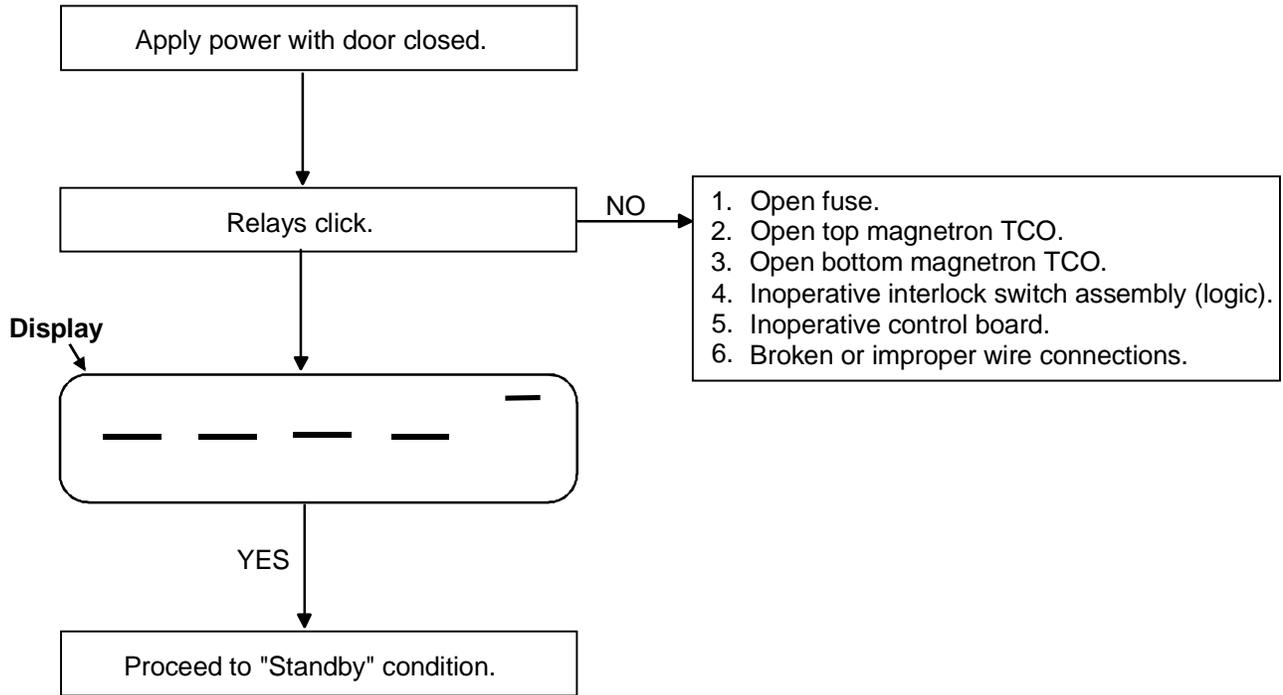
After all components, including the outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening, and air inlet openings.

Record Keeping and Notification After Measurement

1. After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.
2. A copy of the repair ticket and the microwave leakage reading should be kept by the repair facility.

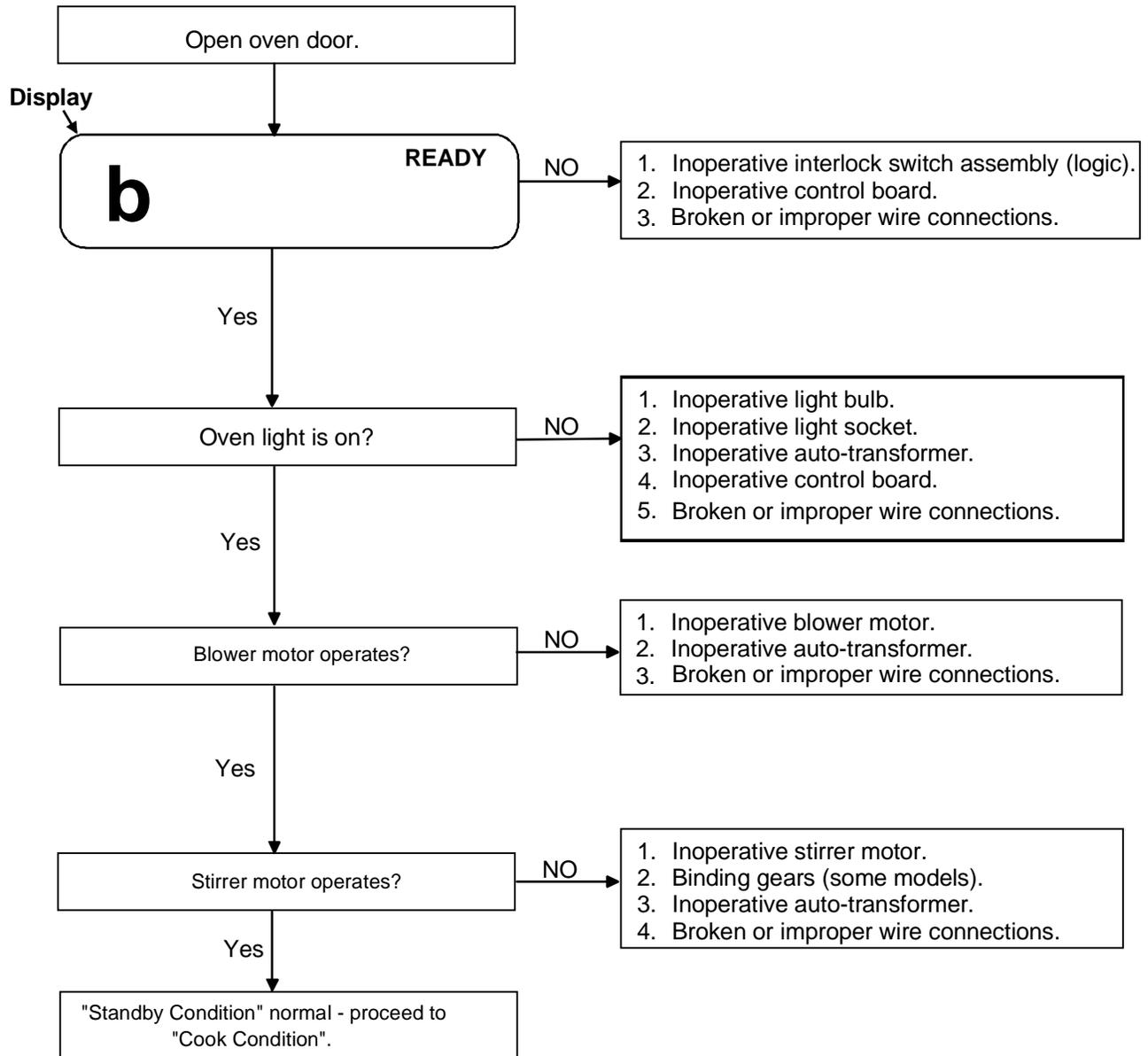
Troubleshooting

Initial Power Up



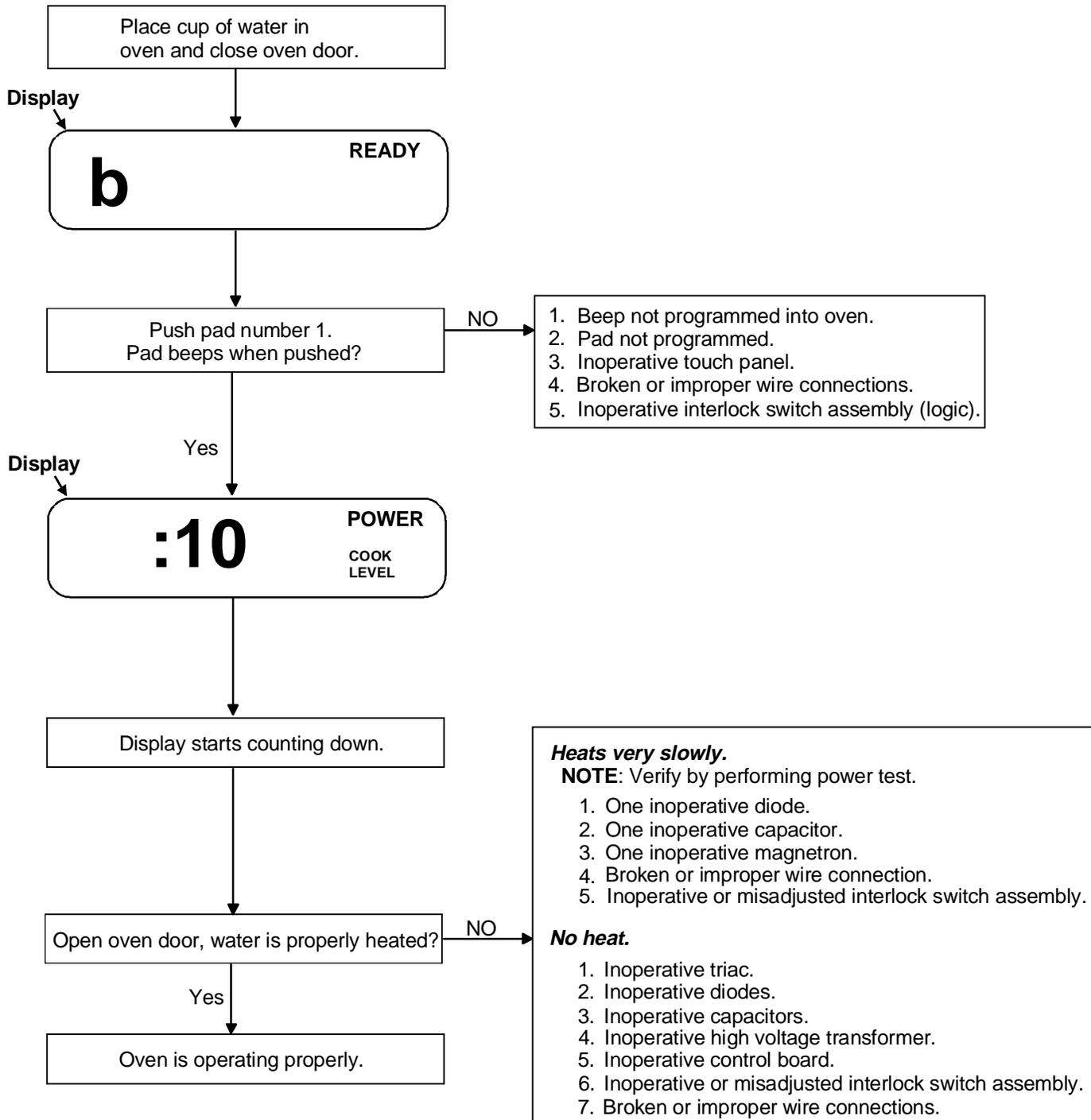
Troubleshooting

Standby Condition



Troubleshooting

Cook Condition



NOTE: Shut down after cook cycle - door closed - 25 seconds.
 Shut down, door open - approximately 5 minutes.
 After shut down, display goes blank.

Disassembly

WARNING

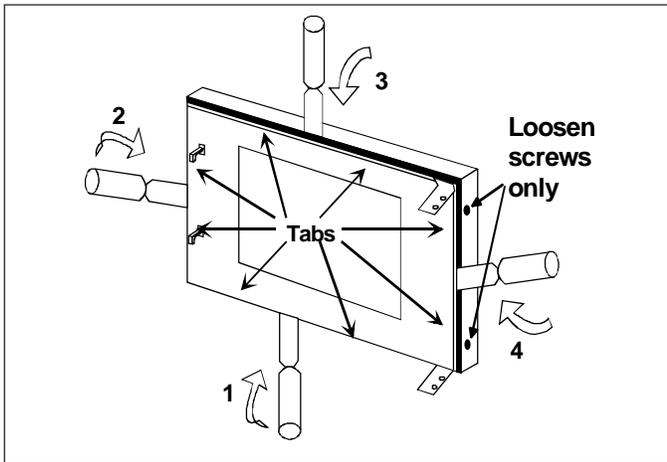
To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.

Door Removal

1. Unplug power cord from power source.
2. Remove outer case cover.
3. Remove screws securing door hinges.
4. Remove door from unit, and lay door on padded surface.

Inner Door Window Disassembly

1. Open oven door.
2. Loosen screws on hingeside, 3 - 4 turns. **Do not remove screws.**
3. Beginning at the bottom, carefully insert 1" putty knife between inner and outer door. Pry up on inner door to release tabs, (2 clips per side). Work in a clockwise direction to release all tabs, see illustration below.



Door Disassembly

1. Remove door from oven, see "Door Removal" procedure.
2. Perform "Inner Door Window Disassembly" procedures, step 1 through step 3 above.
3. Remove door latch linkage plate from latch assembly.
4. Remove screws securing door ring weld.
5. Maneuver door ring weld from door.
6. Remove lens retainer and outer window from door.
7. Remove screws securing handle/door latch bracket to gain access to latch spring.
8. Reassemble in reverse order.
9. Proceed to "Door/Interlock Switch Adjustment" procedure.

CAUTION

When glass retainer is removed, be careful glass does not fall out of frame.

Door Handle

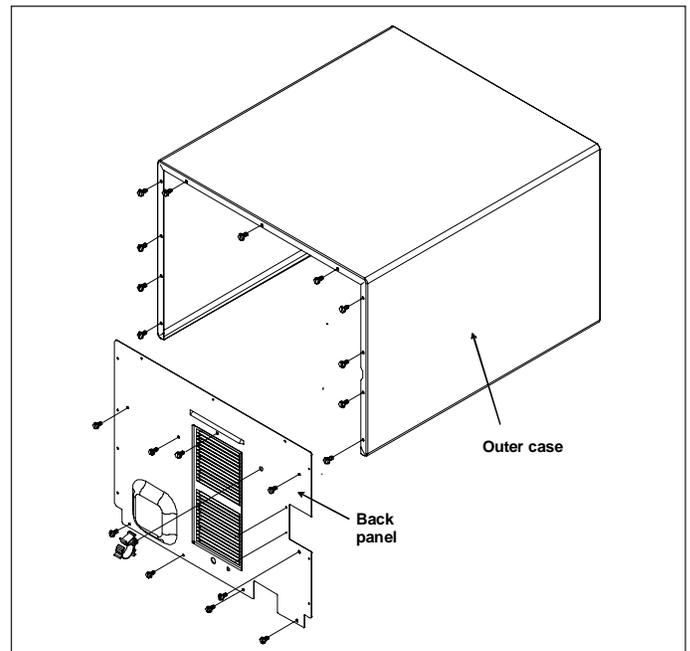
1. Follow "Door Disassembly" procedure through step 6.
2. Remove screws securing latch assembly to outer door.
3. Reassemble in reverse order.

Hinge

1. Follow Door Disassembly procedure through step 6.
2. Replace hinge on door ring weld.
3. Reassemble in reverse order.

Outer Case

1. See "Component Location" Figure 1, for location.
2. Remove screws securing outer case to chassis.
3. Slide outer case back and lift off.
4. Reassemble outer case in reverse order.



Disassembly



WARNING

To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.

Door / Interlock Switch Adjustment / Replacement

1. Remove outer case wrapper with **caution** not to damage components on circuit board.
2. Remove the 4 bolts securing hinges to oven cavity.
3. Remove door from oven.
4. Position new door on oven.
5. Loosely install 4 door hinge bolts.
6. With .060" shim on hinge side and .030 (.76 mm) shim on latch side, (taped as shown) close the door and apply light pressure on the hinge side of the door toward the oven cavity and tighten 4 door hinge bolts.
7. Remove shim on hinge side of door only.
8. Open and close door, observing switch activation. Door is properly adjusted when primary and secondary switch plungers are fully depressed with the door closed.
9. If switch requires adjustment:
 - Open oven door
 - Loosen switch mounting screws
 - Position interlock switch assembly all the way towards the front of the oven
 - Tighten interlock switch mounting screws
 - Close door and verify all switches are activated
10. Remove shim from latch side of inner door.
11. Re-check switch activation.
12. Reinstall outer case wrapper with **caution** not to damage components on circuit board.
13. Perform RF leakage test.

Component Board

Hinge Bolts

Shims

Mounting Screws

Switch Plungers

Disassembly



WARNING

To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.

Back Panel

1. Remove outer case.
2. Remove screws securing back panel.
3. Reassemble back panel in reverse order.

Top Antenna Assembly (some models)

1. See "Component Location" Figure 1, for location.
2. Unplug power cord from power source.
3. Remove outer case.
4. Remove cotter pin from spur gear, remove gear.
5. Open oven door.
6. Remove shield, place fingers between shield and back wall of cavity, pull forward and down to release tabs from back wall.
7. Pull downward on antenna assembly while removing nylon spacer and flat washer from antenna shaft.
8. Reassemble in reverse order.

Bottom Antenna Assembly (some models)

1. See "Component Location" Figure 1, for location.
2. Unplug power cord from power source.
3. Remove oven tray, see "Oven Tray Removal" procedure.
4. Remove bottom antenna from cradle.
5. Reassemble in reverse order.

NOTE: Verify cradle is properly positioned in cavity bottom.

Oven Tray Removal

1. Using a razor blade or sharp edge knife cut RTV around the outer edges of the tray.
2. Using a heat gun, heat front edge of tray while at the same time applying upward pressure to release tray from oven cavity.
3. Remove excess RTV.
4. Using mineral spirit or nonflammable degreasing solvent, clean oven cavity where new RTV will make contact.
5. Install tray and apply RTV to all edges of the tray, remove excess RTV.

NOTE: Allow RTV to set for 1 hour before using.

Stirrer Motor (some models top)

1. See "Component Location" Figure 2, for location.
2. Unplug power cord from power source.
3. Remove outer case.
4. Remove cotter pin from spur gear.
5. Remove pop rivets, and remove stirrer motor.
6. Reassemble in reverse order.

Touch Panel Assembly

1. See "Component Location" Figure 1, for location.
2. Unplug power cord from power source.
3. Remove outer case.
4. Remove ribbon cable from controller board.
5. Remove screws securing top touch panel to unit.
6. Reassemble touch panel in reverse order.

Controller Board

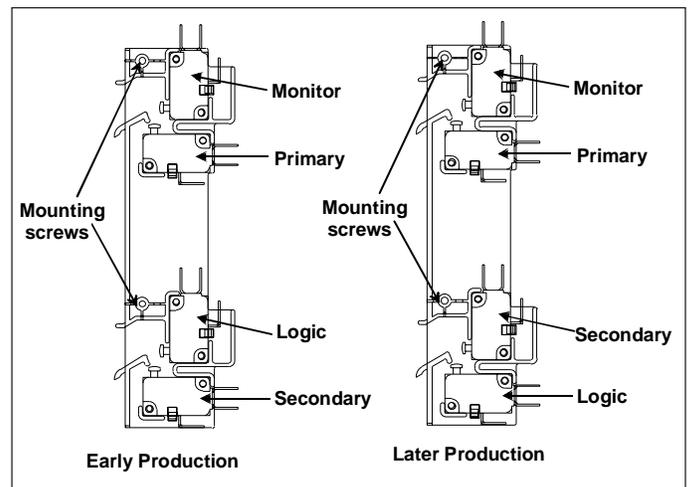
1. See "Component Location" Figure 3, for location.
2. Remove outer case.
3. Disconnect ribbon cable, connectors, and label connections.
4. Remove screws securing controller board to unit and lift board out.
5. Remove spacers from failed board and place on new board.
6. Reassemble in reverse order.

NOTE: Spacers may vary in size, be sure to install in correct location.

Interlock Switch Assembly

1. See "Component Location" Figure 1, for location.
2. Unplug power cord from power source.
3. Remove outer case cover.
4. Disconnect wiring.
5. Remove screws securing switch assembly to unit.
6. Install new switch assembly.
7. Install screws but do not tighten.
8. Proceed to "Door/Interlock Switch Adjustment" procedure.

NOTE: When the line fuse is blown replace interlock switch assembly.



Disassembly



WARNING

To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.



WARNING

To avoid radiation leakage perform microwave energy leakage test.

Magnetron Cutout (TCO)

1. See "Component Location" Figure 3, for location.
2. Unplug power cord from power source.
3. Remove outer case.
4. Remove wiring from selected cutout.
5. Remove screws securing cutout.
6. Reassemble cutout in reverse order.

Triac

1. See "Component Location" Figure 2, for location.
2. Unplug power cord from power source.
3. Remove outer case cover.
4. Remove insulator covering triac.
5. Remove wires from terminals of triac.
6. Remove screws securing triac to chassis.
7. Reassemble triac in reverse order.

Diodes

1. See "Component Location" Figure 1, for location.
2. Unplug power cord from power source.
3. Remove outer case.
4. Remove screw securing diode bracket to chassis.
5. Remove screws securing diodes to bracket.
6. Replace diodes and reassemble in reverse order.

Magnetron

1. See "Component Location" Figure 2, for location.
2. Unplug power cord from power source.
3. Remove outer case cover and back panel.
4. Remove screws securing exhaust duct cover and slide to the right, (see # 1 below).
5. Remove screws securing blower mounting bracket and slide blower assembly to the left, (see # 2 below).
6. Remove screws securing rear duct assembly and remove duct, (see # 3 below).
7. Remove flow divider to gain access to magnetron.
8. Remove wires from magnetron being removed.
9. Remove nuts securing magnetron and remove magnetron.

NOTE: When replacing magnetron, verify wire mesh gasket is reinstalled properly.

Cavity Thermal Cutout Replacement

1. See "Component Location" Figure 3, for location.
2. Remove outer case.
3. Remove control board mounting screws.
4. Slide controller towards center of oven. **Do not remove.**
5. Remove exhaust duct mounting screws.
6. Remove thermal fuse mounting screw.
7. Replace thermal fuse, and reassemble in reverse order.

Disassembly



To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.

Fuse

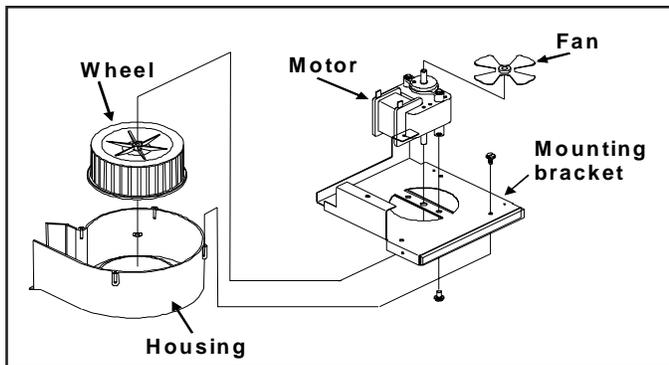
1. See "Component Location" Figure 3, for location.
2. Unplug power cord from power source.
3. Remove outer case.
4. Replace fuse and reassemble in reverse order.

NOTE: When replacing fuse, interlock switch assembly must be replaced.

Blower Wheel and Motor

1. Unplug power cord from power source.
2. Remove outer case and back panel.
3. Remove wiring from blower motor terminals.
4. Remove screws securing blower mounting bracket.
5. Remove blower assembly and bracket from oven.
6. Remove screws securing scroll to mounting bracket.
7. Loosen allen set screw securing blower wheel to motor shaft.
8. Remove blower wheel.
9. Remove screws securing motor to mounting bracket.
10. Reassemble blower wheel and motor in reverse order.

NOTE: When reinstalling blower wheel, push blower wheel on shaft, tighten, and rotate to insure clearance between blower wheel, and blower housing.



Fan Blade

1. See prior illustration for location.
2. Pull blade off shaft.
3. When reinstalling blade, push blade on shaft and rotate to insure clearance between fan blade and wire terminals.

Auto Transformer

1. See "Component Location" Figure 2, for location.
2. Unplug power cord from power source.
3. Remove outer case and back panel.
4. Remove screws securing auto transformer to chassis.
5. Remove wire connections from auto transformer.
6. Reassemble auto transformer in reverse order.

Transformer

1. See "Component Location" Figure 3, for location.
2. Unplug power cord from power source.
3. Remove outer case and back panel.
4. Remove screws securing transformer to chassis.
5. Pry upward and back to release transformer from chassis.
6. Remove wire connections from transformer.
7. Reassemble transformer in reverse order.

Capacitor

1. See "Component Location" Figure 3, for location.
2. Unplug power cord from power source.
3. Remove outer case and back panel.
4. Remove screws securing auto transformer to chassis.
5. Discharge capacitor and remove wires from terminals.
6. Remove capacitor bracket mounting screw.
7. Reassemble capacitor in reverse order.

Power Cord

1. See "Component Location" Figure 3, for location.
2. Unplug power cord from power source.
3. Remove outer case and back panel.
4. Disconnect wiring.
5. Remove strain relief by compressing with pliers.
6. Remove power cord.
7. Reassemble power cord in reverse order.

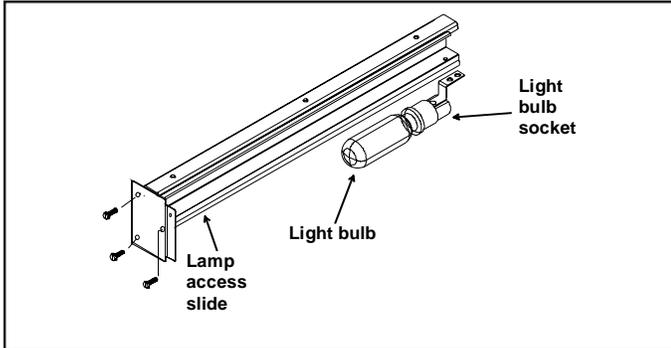
Disassembly

WARNING

To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.

Light Socket

1. Unplug power cord remove outer case.
2. Unscrew light bulb from socket.
3. Disconnect wire terminals to light socket.
4. Remove screw securing light socket to light retainer.
5. Reassemble light socket in reverse order.



Replacing Oven Light Bulb

WARNING

To avoid electrical shock which can cause severe personal injury or death, unplug power cord or open circuit breaker to oven before replacing light bulb. After replacing light bulb, restore power.

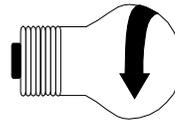
CAUTION

To avoid personal injury or property damage, observe the following:

- Allow oven and light bulb to cool.
- Wear gloves when replacing light bulb.

Tools Needed

- Protective gloves
- Screwdriver
- 25-watt, 120-volt appliance bulb (available from authorized distributor or servicer)



To remove bulb, turn in direction shown.

1. Remove screws from access cover on back panel of oven exterior. Slide access bracket out.
2. Remove old bulb and replace with new bulb.
3. Replace access cover and screw by reversing procedure in step 1.

Disassembly

 WARNING	To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.
--	---

Component Location



Disassembly



WARNING

To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.

Figure 2

Disassembly

 **WARNING**

To avoid the risk of electrical shock, personal injury, or death, disconnect power to oven and discharge capacitors before following any disassembly procedure.



Figure 3