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

Service

Commercial Microwave Oven 2001 Models

Service Manual for Amana®
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 personal, 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. OR CALL 1-319-622-5511
AMANA APPLIANCES, INC. and ask for AMANA, IOWA 52204 Consumer Affairs

If outside the United States contact:

AMANA
ATTN: CONSUMER AFFAIRS DEPT
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.
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RS2240003 Rev. 0
Important Product Information

**WARNING**

Precautions to be observed before and during servicing to avoid possible exposure to excessive microwave energy or electrical shock, disconnect power to oven.

- Do not operate or allow oven to be operated with door open.
- 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

Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity, and connections.

Any failed or misadjusted components in the interlock, monitor, door seal, microwave generation, and transmission systems shall be repaired, replaced or adjusted by procedures described in this manual before oven is released to the consumer.

Check microwave leakage to verify compliance with the federal performance standard should be performed on each oven prior to releasing 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, personal injury or death; make sure to follow grounding instructions.

**Grounding Instructions**

- 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 local electrical codes.

Should a two prong adapter plug be required temporarily it is the personal responsibility of the consumer to have it replaced with a properly polarized and 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, which can cause a potential hazard to technicians and consumer.
**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 ovens 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 ovens 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 which are failing, 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 8110B or Holaday HI1501, HI1510, HI1710 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 risk of personal injury or death of fire in the oven cavity:

- **DO NOT** overcook food. Carefully attend equipment if paper, plastic or other combustible materials are placed inside the equipment to facilitate cooking.
- Remove wire twist-ties from paper or plastic bags before placing bag in equipment.
- **KEEP equipment DOOR CLOSED**, turn equipment off, and disconnect the power cord or shut off power at the fuse or circuit breaker panel if materials inside the equipment should ignite. Fire may spread if door is opened.
- **DO NOT** use the cavity for storage purposes. **DO NOT** leave paper products, cooking utensils or food in the cavity when not in use.

**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 equipment or after removal from equipment.
2. Do not deep fat fry in equipment. 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. Pop popcorn in microwave mode only. If equipment is preheated or hot, allow equipment to cool before popping popcorn or bag may ignite.
6. Do not use regular cooking thermometers in equipment when cooking. Most cooking thermometers contain mercury and may cause an electrical arc, malfunction, or damage to equipment.
7. Do not heat baby bottles in equipment.
8. Do not use metal utensils in equipment except when recommended by microwave food manufacturers. Heat food in containers made of glass or china if possible.
9. Never use paper, plastic or other combustible materials that are not intended for cooking. If equipment temperature is high, material may ignite.
10. Do not use paper towels which contain nylon or other synthetic fibers. Heated synthetics could melt and cause paper to ignite.
11. Do not heat sealed containers or plastic bags in equipment. Food or liquid could expand quickly and cause container or bag to break. Pierce or open container or bag before heating.
12. Racks, utensils, and equipment 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.
13. Do not use rack position if rack hook breaks. Replace broken hooks immediately.
14. Do not unplug equipment immediately after use. Internal fan must cool equipment to avoid damage of electrical components.
Product Information

**Antenna**
Distributes microwave energy throughout the cavity.

**Blower/Fan Assembly**
Circulates cooling air throughout the microwave oven compartment and cavity.

**Splatter Shield**
Covers and protects the antenna 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. It is actuated by door hook and guide attached to the door.

Monitoring switch (contacts 7 and 8) is actuated by the door guide.

The secondary interlock switch (contacts 2 and 3) and primary interlock switch (contacts 4 and 5) are actuated by the door hook.

The secondary interlock switch is in series with the interlock monitoring switch in the monitor circuit.

If a malfunction occurs in the secondary 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.

**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 Protectors**
At a predetermined temperature the thermal cut-outs will open or close. The oven will indicate an error code in the display, initiate cooling fan operation, or prevent the generation of microwave energy.

- Magnetron thermal cut-out is mounted directly on the body of the magnetron.
- Oven cavity thermal cutout is mounted inside the exhaust duct.

**Touch Panels**
Allows consumer operation and programming of oven.

**Triacs**
Triacs are controlled by high voltage circuit boards. Triacs control one side of the power line going to the high voltage power transformer.

- Microwave triacs are mounted on back of oven cavity panel.
## Specifications

**ASE7000, ASE9000, RC17S, RC17SD2, RC22S, RC22S3, RC25S, RC27S, RC30S**

<table>
<thead>
<tr>
<th>Nominal Microwave Energy (IEC705)</th>
<th>1700 W</th>
<th>2200 W</th>
<th>2500 W</th>
<th>2700 W</th>
<th>3000 W</th>
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### Power Source

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<th>208/230</th>
<th>208/230</th>
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<th>208/230</th>
<th>208/230</th>
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<tbody>
<tr>
<td>Voltage AC</td>
<td>60 Hz</td>
<td>60 Hz</td>
<td>60 Hz</td>
<td>60 Hz</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Frequency</td>
<td>20 A</td>
<td>20 A</td>
<td>20 A</td>
<td>30 A</td>
<td>30 A</td>
</tr>
<tr>
<td>Amperage</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Single Phase, 3-wire ground</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</table>

### Power

<table>
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<tr>
<th>Frequency</th>
<th>2450 MHz</th>
<th>2450 MHz</th>
<th>2450 MHz</th>
<th>2450 MHz</th>
<th>2450 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>2700 W</td>
<td>3200 W</td>
<td>3700 W</td>
<td>4100 W</td>
<td>4400 W</td>
</tr>
</tbody>
</table>

### Receptacle and Plug

- **NEMA 6-20P**
- **NEMA 6-30P**

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### DQ22HSI

<table>
<thead>
<tr>
<th>Nominal Microwave Energy (IEC705)</th>
<th>2200 W</th>
</tr>
</thead>
</table>

### Power Source

<table>
<thead>
<tr>
<th></th>
<th>208/230</th>
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<tbody>
<tr>
<td>Voltage AC</td>
<td>208/230</td>
</tr>
<tr>
<td>Frequency</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Amperage</td>
<td>20 A</td>
</tr>
<tr>
<td>Single Phase, 3-wire ground</td>
<td>X</td>
</tr>
</tbody>
</table>

### Power

<table>
<thead>
<tr>
<th>Frequency</th>
<th>2450 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>3200 W</td>
</tr>
</tbody>
</table>

### Receptacle and Plug

- **NEMA 6-20P**
## Specifications

**MC23MP, MC23MPT, MC23MPT2**

<table>
<thead>
<tr>
<th>Power Source</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Microwave Energy (IEC705)</td>
<td>2200 W</td>
</tr>
<tr>
<td><strong>Voltage AC</strong></td>
<td>208/230</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>60 Hz</td>
</tr>
<tr>
<td><strong>Amperage</strong></td>
<td>20 A</td>
</tr>
<tr>
<td><strong>Single Phase, 3-wire ground</strong></td>
<td>X</td>
</tr>
</tbody>
</table>

### Power

| Frequency                                         | 2450 MHz |
| Power Consumption                                 | 3200 W   |

**Receptacle and Plug**

- MP
  - 20 Amp Hubbell
  - 320P6WM2
Installation

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]

**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 label. When the oven is on a circuit with other equipment, an increase in cooking times may be required and fuses can be blown.

Unpacking Oven

- Inspect oven for damage such as dents in door or inside oven cavity.
- Report any dents or breakage to source of purchase immediately.
- **Do not attempt to use oven if damaged.**
- Remove all 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 a similar oven. 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 a properly installed antenna on radio, television, etc. to obtain stronger signal reception.

Oven Placement

- Do not install oven next to or above source of heat, such as pizza oven or deep fat fryer. This could cause microwave oven to operate improperly and could shorten life of electrical parts.
- Do not block or obstruct oven filter. Allow access for cleaning.
- Install oven on level countertop surface.
- Place warning label in a conspicuous place close to microwave oven.
- Outlet should be located so that plug is accessible when oven is in place.

Unpacking Oven

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

A—Allow at least 7" (17.8 cm) of clearance around top and sides 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 3/16" (6.5 cm) between air discharge on back of oven and back wall.
Care and Cleaning

Clean oven frequently to maximize oven life, performance, and efficiency. A dirty oven cooks inefficiently because moisture, spills, and grease absorb microwave energy.

**WARNING**

To avoid electrical shock, severe personal injury or death; disconnect power to unit before cleaning.

**CAUTION**

To prevent personal injury; handle utensils, racks, and door with care. Utensils, racks, and door may become hot during operation.

Recommended Maintenance Schedule
Schedule Maintenance Cleaning (Not Covered Under Warranty)

Recommended Cleaning Schedule
Schedule Several Daily Cleanings
- Clean interior, exterior, and door according to instructions.
- If possible, clean spills immediately.
- Clean air filter and air vents regularly to prevent overheating.
- Wipe dry after cleaning.

Clean After Use
- Clean exterior according to Cleaning Oven Exterior instructions.
- Clean oven cavity according to Cleaning Oven Cavity instructions.
- Wipe dry after cleaning.

Cleaning Oven Exterior
Clean door and other exterior surfaces with a clean cloth, sponge or nylon pad using a mild detergent diluted in warm water. Use commercial degreasers if heavily soiled.
- Do not use harsh or abrasive cleaners or cleaners containing ammonia.
- Do not use water pressure type cleaning systems.
- Remove excess water from cloth before wiping oven.

Cleaning Oven Cavity
Rub vigorously with nylon scouring pad to loosen debris. Wipe clean with warm, damp clean cloth.
- Use only a plastic putty knife, nylon scouring pad or equivalent, to aid in removing soil or build-up from the oven interior.
- **Do not use** knife, metal utensil, or steel wool pad to remove baked on material.

Air Filter
Air filter must be cleaned regularly to prevent overheating of oven. The air filter is located directly below the oven door.
1. Remove the filter retaining screws, located on the outside edges of the filter.
2. Remove the air filter.
3. Wash filter in a mild detergent solution made with warm water.
4. Rinse and dry thoroughly.
5. Replace filter and screws.

**NOTE:** Clean air filter regularly to prevent overheating, which may damage oven.

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.
### Component Testing Procedures

<table>
<thead>
<tr>
<th>Illustration</th>
<th>Component</th>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Thermal cutout" /></td>
<td>Thermal cutout</td>
<td>Disconnect all wires from TCO. Measure resistance across terminals. Magnetron TCO. Cavity TCO.</td>
<td>Open at 300°F (149°C) and closed at 257°F (125°C). Opens at 262°F (128°C).</td>
</tr>
<tr>
<td><img src="image" alt="Diode" /></td>
<td>Diode</td>
<td>Discharge Capacitor Remove diode lead from capacitor and connect ohmmeter. Reverse leads for second test.</td>
<td>Infinite resistance should be measured in one direction and 50KΩ or more in the opposite direction. <strong>NOTE:</strong> Ohmmeter must contain a battery of 6 volts minimum.</td>
</tr>
<tr>
<td><img src="image" alt="Triac" /></td>
<td>Triac</td>
<td>Resistance Check Disconnect wires to triac. Measure resistance from: MT1 to MT2. MT1 to Gate. MT2 to Gate. All terminals to ground.</td>
<td>Caution - Do not operate oven with wire to terminal MT2 removed.</td>
</tr>
<tr>
<td><img src="image" alt="Capacitor" /></td>
<td>Capacitor</td>
<td>Discharge Capacitor Remove wires from capacitor terminals and connect ohmmeter, set on highest resistance scale to terminals. Also check between each terminal and capacitor case.</td>
<td>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.</td>
</tr>
<tr>
<td><img src="image" alt="Snubber assembly" /></td>
<td>Snubber assembly</td>
<td>Connect wires to snubber. Measure resistance across terminals</td>
<td>Infinite</td>
</tr>
<tr>
<td><img src="image" alt="Magnetron" /></td>
<td>Magnetron</td>
<td>Discharge Capacitor Remove wires from magnetron and connect ohmmeter to terminals. Also check between each terminal and ground.</td>
<td>Between Terminals: Less than 1 Ω. Each terminal to ground measures Infinite resistance. <strong>Note:</strong> This test is not conclusive. If oven does not heat and all other components test good replace the magnetron and retest.</td>
</tr>
<tr>
<td><img src="image" alt="Blower motor" /></td>
<td>Blower motor</td>
<td>Remove all wires from motor. Measure resistance across coil</td>
<td>Approximately 25 Ω</td>
</tr>
</tbody>
</table>
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 power.

<table>
<thead>
<tr>
<th>Illustration</th>
<th>Component</th>
<th>Discharge Capacitors</th>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Auto Transformer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remove all wires from terminals.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Measure resistance from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>230 V to 0 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>208 V to 0 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 V to 0 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 V to 0 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transformer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remove all wires from terminals.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Measure resistance from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>230 V to COM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>208 V to COM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>230 V to Ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>208 V to Ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terminal 5 to 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terminal 4 to Ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interlock switch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disconnect wires to switch.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>With door open measure resistance from:</td>
<td>Infinite</td>
<td>Indicates continuity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terminal 2 to 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terminal 4 to 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terminal 7 to 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>With door closed measure resistance from:</td>
<td>Infinite</td>
<td>Indicates continuity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terminal 2 to 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terminal 4 to 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lamp receptacle (some models)</td>
<td>Test continuity of receptacle terminals.</td>
<td>Indicates continuity if bulb is good and screwed in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Antenna motor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remove all wires from terminals.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Measure resistance from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terminal to terminal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Power cord</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Measure resistance of wires.</td>
<td>Continuity should be indicated on each wire.</td>
<td>Verify polarity and grounding.</td>
</tr>
</tbody>
</table>
WARNING
To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

<table>
<thead>
<tr>
<th>Illustration</th>
<th>Component</th>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side touch panel</td>
<td>Continuity is indicated as 100 Ω and below.</td>
<td>Pad</td>
<td>Trace</td>
</tr>
<tr>
<td>Top touch panel</td>
<td>Removal of touch panel is required to perform test. Continuity is indicated as 100 Ω and below.</td>
<td>Pad</td>
<td>Trace</td>
</tr>
</tbody>
</table>

Display board

Function | Test Set-Up | Meter Setting | Probe Placement | Results |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Input to Display Board</td>
<td>At Display Board</td>
<td>Volts</td>
<td>Test points A and B</td>
<td>3.0 VAC</td>
</tr>
</tbody>
</table>

If voltage is present and no display is indicated, replace display board.
If no voltage is present, check wire harness connections and H.V. board.
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 power.

### H.V. board

<table>
<thead>
<tr>
<th>Function</th>
<th>Test Set-Up</th>
<th>Meter Setting</th>
<th>Probe Placement</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input to H.V. board</td>
<td>At H.V. board</td>
<td>Volts</td>
<td>J1 pin 1 (Brown wire) &amp; J1 pin 2 (White wire)</td>
<td>Line voltage</td>
</tr>
<tr>
<td>Output to display board</td>
<td>Disconnect J5 connector, blower runs continuously</td>
<td>Volts</td>
<td>J5 pin 28 &amp; J5 pin 50</td>
<td>- 24 VDC</td>
</tr>
</tbody>
</table>

**NOTE:** For the following test, place oven in Service Test Mode (see page 21).

<table>
<thead>
<tr>
<th>Relay</th>
<th>Function</th>
<th>Test Set-Up</th>
<th>Meter Setting</th>
<th>Probe Placement</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1 at 230 VAC line voltage</td>
<td>Blower motor Antenna motor Cavity light</td>
<td>Disconnect J2 connector</td>
<td>Ohms</td>
<td>J1 pin 1 (Brown wire) &amp; J2 pin 4</td>
<td>Test mode 5 off – no continuity Test mode 5 on – &lt; 1 Ω</td>
</tr>
<tr>
<td>K2 at 208 VAC line voltage</td>
<td>Blower motor Antenna motor Cavity light</td>
<td>Disconnect J2 connector</td>
<td>Ohms</td>
<td>J1 pin 1 (Brown wire) &amp; J2 pin 3</td>
<td>Test mode 5 off – no continuity Test mode 5 on – &lt; 1 Ω</td>
</tr>
</tbody>
</table>
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 power.

H.V. Board – Relay Test

### Three Magnetron Models

<table>
<thead>
<tr>
<th>Relay</th>
<th>Function</th>
<th>Test Set-Up</th>
<th>Meter Setting</th>
<th>Probe Placement</th>
<th>Results</th>
</tr>
</thead>
</table>
| K8    | Magnetron 1 (Top rear) at 230 VAC | All wires connected to H.V. board | VAC           | E2 (Black wire) & J4 pin 2 (Red wire) | Test mode 1 off – line voltage  
Test mode 1 on – 0 volts |
| K9    | Magnetron 1 (Top rear) at 208 VAC | All wires connected to H.V. board | VAC           | E2 (Black wire) & J4 pin 1 (White wire) | Test mode 1 off – line voltage  
Test mode 1 on – 0 volts |
| K4    | Magnetron 2 (Top front) at 230 VAC | All wires connected to H.V. board | VAC           | E5 (Red wire) & J3 pin 1 (Gray wire) | Test mode 2 off – line voltage  
Test mode 2 on – 0 volts |
| K5    | Magnetron 2 (Top front) at 208 VAC | All wires connected to H.V. board | VAC           | E5 (Red wire) & J3 pin 3 (Orange wire) | Test mode 2 off – line voltage  
Test mode 2 on – 0 volts |
| K6    | Magnetron 3 (Bottom) at 230 VAC | All wires connected to H.V. board | VAC           | J4 pin 4 (Black wire) & J4 pin 6 (Black wire) | Test mode 3 off – line voltage  
Test mode 3 on – 0 volts |
| K7    | Magnetron 3 (Bottom) at 208 VAC | All wires connected to H.V. board | VAC           | J4 pin 4 (Black wire) & J4 pin 5 (Brown wire) | Test mode 3 off – line voltage  
Test mode 3 on – 0 volts |

### Two Magnetron Models

<table>
<thead>
<tr>
<th>Relay</th>
<th>Function</th>
<th>Test Set-Up</th>
<th>Meter Setting</th>
<th>Probe Placement</th>
<th>Results</th>
</tr>
</thead>
</table>
| K8    | Magnetron 1 (Top rear) at 230 VAC | All wires connected to H.V. board | VAC           | E5 (Red wire) & J4 pin 2 (Red wire) | Test mode 1 off – line voltage  
Test mode 1 on – 0 volts |
| K9    | Magnetron 1 (Top rear) at 208 VAC | All wires connected to H.V. board | VAC           | E5 (Red wire) & J4 pin 1 (White wire) | Test mode 1 off – line voltage  
Test mode 1 on – 0 volts |
| K6    | Magnetron 3 (Bottom) at 230 VAC | All wires connected to H.V. board | VAC           | J4 pin 4 (Black wire) & J4 pin 6 (Black wire) | Test mode 3 off – line voltage  
Test mode 3 on – 0 volts |
| K7    | Magnetron 3 (Bottom) at 208 VAC | All wires connected to H.V. board | VAC           | J4 pin 4 (Black wire) & J4 pin 5 (Brown wire) | Test mode 3 off – line voltage  
Test mode 3 on – 0 volts |
WARNING

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

Three Magnetron Models

<table>
<thead>
<tr>
<th>H.V. System # 1</th>
<th>H.V. System # 2</th>
<th>H.V. System # 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Rear Magnetron</td>
<td>Top Front Magnetron</td>
<td>Bottom Magnetron</td>
</tr>
<tr>
<td>Center Transformer</td>
<td>Left Transformer</td>
<td>Right Transformer</td>
</tr>
<tr>
<td>Bottom Center Capacitor</td>
<td>Top Left Capacitor</td>
<td>Right Capacitor</td>
</tr>
<tr>
<td>Diode</td>
<td>Diode</td>
<td>Diode</td>
</tr>
<tr>
<td>Center Triac</td>
<td>Left Triac</td>
<td>Right Triac</td>
</tr>
</tbody>
</table>
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 power.

Two Magnetron Models

<table>
<thead>
<tr>
<th>H.V. System # 1</th>
<th>H.V. System # 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Rear Magnetron</td>
<td>Bottom Magnetron</td>
</tr>
<tr>
<td>Left Transformer</td>
<td>Right Transformer</td>
</tr>
<tr>
<td>Top Capacitor</td>
<td>Bottom Capacitor</td>
</tr>
<tr>
<td>Diode</td>
<td>Diode</td>
</tr>
<tr>
<td>Left Triac</td>
<td>Right Triac</td>
</tr>
</tbody>
</table>

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Power Testing Procedure

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

Power Test (Traditional Test Method)
Test equipment required is Amana power test kit R0157397 (Fahrenheit), or Menumaster power test kit M95D5 (Celsius).

1. Fill the plastic container to the 1000 ml. line with cool tap water.
2. Using the thermometer; stir the water, measure, and record the water temperature.
   **Initial water temperature should be approximately 60°F (16°C).**
3. Place container on the center of the oven shelf and heat the water for
   **33 seconds for ovens with more than 1550 watts** or **63 seconds for ovens with less than 1550 watts.**

**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 complete.
5. Subtract the starting water temperature (Step 2), from the ending water temperature (Step 4) to obtain the temperature rise ($\Delta T$).
6. See the Traditional Power Test Temperature Chart below.

**NOTES:**
• The IEC-705 test method requires precision measurements and equipment. It is not practical to perform the IEC test in the field. To convert the traditional power test results to the approximate IEC-705 rating, take the traditional power test results and add 150 watts per magnetron for the unit being tested.

**Example:**
- 1400 — watts output using the traditional power test for model RC17S
- + 300 — watts (2 magnetrons X 150 watts)
  - 1700 — Approximate IEC-705 results

• Always perform power test three times for accuracy, changing the water after each test is performed.
• Variation or errors in the test procedure will cause a variance in the temperature rise. Additional power tests should be made if temperature rise appears marginal.
• Low line voltage will cause lower temperature rise.

**Traditional Power Test Temperature Chart**
THIRTY-THREE (33) SECONDS run time chart for units more than 1550 Watts cooking power

<table>
<thead>
<tr>
<th>Fahrenheit</th>
<th>Cooking Power Output</th>
<th>Celsius</th>
<th>Cooking Power Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta T$ (°F)</td>
<td>$\Delta T$ (°F)</td>
<td>$\Delta T$ (°C)</td>
<td>$\Delta T$ (°C)</td>
</tr>
<tr>
<td>16 .......... 1240</td>
<td>27 .......... 2092</td>
<td>9 .......... 1260</td>
<td>15 .......... 2100</td>
</tr>
<tr>
<td>17 .......... 1317</td>
<td>28 .......... 2170</td>
<td>9.5 .......... 1330</td>
<td>15.5 .......... 2170</td>
</tr>
<tr>
<td>18 .......... 1395</td>
<td>29 .......... 2247</td>
<td>10 .......... 1400</td>
<td>16 .......... 2240</td>
</tr>
<tr>
<td>19 .......... 1472</td>
<td>30 .......... 2325</td>
<td>10.5 .......... 1470</td>
<td>16.5 .......... 2310</td>
</tr>
<tr>
<td>20 .......... 1550</td>
<td>31 .......... 2402</td>
<td>11 .......... 1540</td>
<td>17 .......... 2380</td>
</tr>
<tr>
<td>21 .......... 1627</td>
<td>32 .......... 2480</td>
<td>11.5 .......... 1610</td>
<td>17.5 .......... 2450</td>
</tr>
<tr>
<td>22 .......... 1705</td>
<td>33 .......... 2557</td>
<td>12 .......... 1680</td>
<td>18 .......... 2520</td>
</tr>
<tr>
<td>23 .......... 1782</td>
<td>34 .......... 2635</td>
<td>12.5 .......... 1750</td>
<td>18.5 .......... 2590</td>
</tr>
<tr>
<td>14.5 .......... 2030</td>
<td>20.5 .......... 2870</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Display Diagnostics

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

⚠️ CAUTION
All repairs as described in this troubleshooting section are to be performed only after the caution procedures one through eight listed below have been followed.
1. Check grounding before checking for possible causes.
2. Be careful of the high voltage circuit.
3. Discharge high voltage capacitor.
4. When checking the continuity of the switches or the high voltage transformer, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.
5. Do not touch any parts of the circuitry on the P.C. Board circuit since static electric discharge may damage this control panel. Always touch yourself to ground while working on this panel to discharge any static charge in your body.
6. 208/230 VAC is present in the high voltage circuit board, power relay and primary circuit of low voltage transformer.
7. When troubleshooting, be cautious of possible electrical hazard.
8. When testing convection operation, convection fan may start at any time or if oven is hot.

Error Codes
During operation, the display may show the following service codes:

**NOTE:** Before scheduling service for any error codes, instruct customer to unplug oven for 1 minute, reconnect power, and retest. If unit operates properly, no service call is required.

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Err1</td>
<td>Failed H.V. Board</td>
<td>Replace H.V. board.</td>
</tr>
<tr>
<td>Err2</td>
<td>Failed H.V. Board</td>
<td>Replace H.V. board.</td>
</tr>
<tr>
<td></td>
<td>Failed Touch Panel</td>
<td>Replace Touch Panel.</td>
</tr>
<tr>
<td>Err3</td>
<td>Failed H.V. Board</td>
<td>Replace H.V. board.</td>
</tr>
<tr>
<td></td>
<td>Failed Touch Panel</td>
<td>Replace Touch Panel.</td>
</tr>
<tr>
<td>Err4</td>
<td>Failed H.V. Board</td>
<td>Replace H.V. board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Err5    | Failed Touch Panel           | **NOTE:** If Touch Panel is pressed for more than 30 seconds, this error code will appear.  
  1. Disconnect oven from power supply.  
  2. Disconnect side touch panel connector from display board (J5).  
  3. Reconnect oven to power supply.  
  4. If “Err5” reappears after 30 seconds, replace top touch panel.  
  5. If “Err5” does not reappear after 30 seconds, replace side touch panel. |
| Err6    | Failed H.V. Board            | Replace H.V. board.                                                              |
| HOT     |                              | • Open TCO (magnetron).                                                          |
|         |                              | • Blower motor inoperative.                                                      |
|         |                              | • Restricted air filter.                                                         |
|         |                              | • H.V. board inoperative.                                                        |
|         |                              | • High ambient temperature.                                                      |
|         |                              | • Oven operated empty or with light loads.                                        |
|         |                              | • Broken or loose wire.                                                          |
| Door    | Door Interlock Primary Switch| • Verify latch mechanism moves freely on door.                                    |
|         |                              | • Verify J1 connector on display board is properly seated.                       |
|         |                              | • Test interlock switch assembly and perform door adjustment if necessary.        |
|         |                              | • Replace interlock switch assembly.                                             |
To avoid risk of electrical shock, personal injury or death; disconnect power to oven and discharge capacitor before servicing, unless testing requires power.

WARNING

NOTE: Unit must be in OFF condition or INITIAL power up mode.

To Enter Service Test Mode, oven door must be closed.

NOTE: Pads will not beep when accessing Service Test Mode.
To EXIT Service Test Mode press STOP/RESET pad.

High Voltage System # 1

Displays actual Amperage, will vary by model

If no Amperage, check for line voltage at H.V. transformer primary winding.
If no voltage, check:
• Interlock switch (secondary)
• Triac 1
• H.V. board (relay K8 if 230 VAC, K9 if 208 VAC, and triac 1 drive voltage T1 - G)
• Wiring
If voltage is present, check:
• H.V. components and wiring.

High Voltage System # 2

Displays actual Amperage, will vary by model

If no Amperage, check for line voltage at H.V. transformer primary winding.
If no voltage, check:
• Interlock switch (secondary)
• Triac 2
• H.V. board (relay K4 if 208 VAC, K5 if 230 VAC, and triac 2 drive voltage T1 - G)
• Wiring
If voltage is present, check:
• H.V. components and wiring.

High Voltage System # 3

Displays actual Amperage, will vary by model

If no Amperage, check for line voltage at H.V. transformer primary winding.
If no voltage, check:
• Interlock switch (secondary)
• Triac 3
• H.V. board (relay K6 if 230 VAC, K7 if 208 VAC, and triac 3 drive voltage T1 - G)
• Wiring
If voltage is present, check:
• H.V. components and wiring.
# Service Test

<table>
<thead>
<tr>
<th>Press</th>
<th>Display</th>
<th>Component Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td><img src="display1.png" alt="Image" /></td>
<td>This mode is NOT active with these models.</td>
</tr>
</tbody>
</table>
| 5     | ![Image](display2.png) | If no fan operation, check:  
Blower motor and wheel  
Antenna motor  
Cavity light (if applicable)  
H.V. board relay K1 - 230 V  
relay K2 - 208V  
Wiring |
| 6     | ![Image](display3.png) | This mode is NOT active with these models. |
| 7     | ![Image](display4.png) | Displays # of Magnetron Hours. |
| 8     | ![Image](display5.png) | Displays # of Door Cycles with a 1 to 1 ratio rounded to the nearest ten |
| 9     | ![Image](display6.png) | Clears Hours and Cycles (press START to activate) ( Resets to 0). |
| 0     | ![Image](display7.png) | Temperature OFFSET is NOT applicable with these models. |

**NOTE:** This will not appear on later production models.
Microwave Leakage Test

**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.

**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.

**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 assembled oven (before the latch switch (primary) is interrupted) while pulling the door, 4mW/cm² or less.

1. Open the oven door and verify that there is only one rack in place on the bottom rack hooks.
2. 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 rack.
3. Set the radiation monitor to 2450 MHz and use it following the manufacturer’s recommended test procedure to assure correct results.
4. While measuring the leakage, always use the two inch (5 cm) spacer supplied with the probe.
5. 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.
Troubleshooting

Power Up

Plug oven into power source with oven door closed.

Error Code Appears.  

YES  Proceed to DISPLAY DIAGNOSTICS.

NO

YES

POWER UP CONDITION NORMAL

Error Code Appears.

1. No line voltage.
2. Inoperative power cord.
3. Inoperative fuse.
4. Inoperative display board.
5. Inoperative H.V. board.
6. Broken or loose wire connection.
Troubleshooting

Standby Condition

Open oven door.

Oven light is on?

Blower motor operates?

Antenna motor(s) operate?

"Standby Condition" normal - proceed to "Cook Condition".

NO

Yes

NO

1. Inoperative interlock switch assembly (primary).
2. Inoperative H.V. board.
3. Broken or improper wire connections.

NO

1. Inoperative light bulb.
2. Inoperative light socket.
3. Inoperative auto-transformer.
4. Inoperative H.V. board.
5. Broken or improper wire connections.

NO

1. Inoperative blower motor.
2. Inoperative auto-transformer.
3. Inoperative H.V. board.
4. Broken or improper wire connections.

NO

1. Inoperative antenna motor.
2. Binding gears.
3. Inoperative auto-transformer.
4. Inoperative H.V. board.
5. Broken or improper wire connections.
Troubleshooting

Cook Condition

- Place cup of water in oven and close oven door.

1. Beep not programmed into oven.
2. Pad not programmed.
   - Display indicates 00:00 and beeps rapidly.
3. Inoperative touch panel.
4. Inoperative H.V. board.
5. Broken or improper wire connections.

- Push pad number 1.
  - Pad beeps when pushed?

  Yes
  - Display starts counting down.
  
  No
  - Display counting down to "0" and beep sounds.

- Open oven door, water is properly heated?

  Yes
  - Oven is operating properly.

  No
  - Shut down after cook cycle - door closed - factory preset at 60 seconds, but can be changed with user options.
  - Shut down, door open - approximately 2 minutes. Blower shuts down and display indicates door.

Heats very slowly.

NOTE: Verify by performing power test (page 19).

1. One inoperative diode.
2. One inoperative capacitor.
3. One inoperative magnetron.
4. Broken or improper wire connection.

No heat.

1. Inoperative triac.
2. Inoperative diodes.
3. Inoperative capacitors.
4. Inoperative high voltage transformer.
5. Inoperative H.V. board.
6. Inoperative or misadjusted interlock switch assembly (secondary).
7. Broken or improper wire connections.
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 Handle
Remove door handle by removing plastic plugs to gain access to set screws. Loosen set screws (3/32 inch allen screws), one located to the left of the door handle and one located on the bottom of the door handle.

NOTE: When replacing door handle, tighten side set screw first.

NOTE: If set screws are removed, the set screw with the flat end must be used in the bottom of the door handle.

Door
1. Remove latch handle.
2. Remove outer door ring assembly from inner door ring by removing 10 y-drive screws.

NOTE: When reinstalling outer door, tighten screws in pattern as shown above.

Outer Door
The outer door assembly consists of the outer door, outer window, and lens retainer. These components are available only as a complete assembly.

Inner Door Ring Assembly
1. Remove latch handle.
2. Remove outer door assembly.
3. Remove 5 hinge screws securing inner door ring assembly.

The door ring assembly consists of the inner door ring, the inner door panel, and latch assembly. These components are available only as a complete assembly.

Hinge
1. Remove outer case.
2. Remove door latch handle.
3. Remove outer door assembly.
4. Remove nine hinge mounting screws from hinge (five on front, 4 on side).

NOTE: Reinstall foam gasket on side of hinge when reinstalling.
5. When reinstalling hinge mounting screws, keep the side screws loose and the front screws tight, close door, press door against oven on the hinge side and tighten side hinge mounting screws in the sequence shown below.
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.

**Outer Case**
1. Remove screws securing outer case to chassis, see illustration below.
2. Slide outer case back and lift off.
3. Reassemble outer case in reverse order.

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

**Splatter Shield**
1. See “Component Location” Figure 2, for location.
2. Place fingers on front of shield, push forward, and down.
   - When removing and replacing splatter shield, be careful not to bend antenna.
3. Reinstall splatter shield by fitting tabs into slots at top of oven cavity back. Lift and press front of shield until shield snaps into place.

**Top Touch Panel Assembly**
1. See “Component Location” Figure 1, for location.
2. Remove outer case.
3. Disconnect wire connectors at display board.
4. Remove screws securing top touch panel to unit.
5. Remove screws securing display board to top touch panel assembly.
6. Disconnect touch panel connector from display board.
7. Reassemble touch panel in reverse order.

**Side Touch Panel Assembly**
1. See “Component Location” Figure 1, for location.
2. Remove outer case.
3. Disconnect ribbon cable from display board.
4. Remove mounting screws securing side touch panel to unit.
5. Reassemble touch panel in reverse order.

**High Voltage Circuit Board**
1. See “Component Location” Figure 3, for location.
2. Remove outer case.
3. Unplug connectors.
4. Disconnect wires from terminal locations on H.V. board.
5. Release mounting clips and remove board from plastic supports.
6. Reassemble high voltage board in reverse order.

**NOTE:** When reassembling, verify cable connection with illustration of cable locations.
Disassembly

**WARNINGS**

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

---

**Interlock Switch Module**

1. See “Component Location” Figure 1, for location.
2. Remove outer case.
3. Disconnect wiring from interlock switch assembly.
4. Remove mounting screws securing interlock switch.
5. When replacing assembly, all wires must be connected before operating oven.

**NOTE:** When the line fuse is blown interlock switch module must be replaced.

**Top Rear Magnetron**

1. See “Component Location” Figure 2, for location.
2. Remove outer case and back panel.
3. Remove wires from TCO and magnetron.
4. Remove screws securing top rear exhaust duct to cavity top. Do not attempt to remove exhaust duct at this time.
5. Remove magnetron mounting nuts.
6. Remove magnetron and exhaust duct.
7. Remove allen screws securing magnetron thermal cutout bracket to magnetron.
8. When replacing magnetron, verify wire mesh gasket is reinstalled properly.

**NOTE:** Slide exhaust duct on magnetron before reinstalling magnetron.

---

**Top Front Magnetron**

1. See “Component Location” Figure 2, for location.
2. Remove outer case and back panel.
3. Remove wires from TCO and magnetron.
4. Release center flow divider tabs from bottom flow divider and tilt center divider upward.
5. Remove screws securing top front exhaust duct to cavity top. Do not attempt to remove exhaust duct at this time.
6. Remove magnetron mounting nuts.
7. Remove magnetron, exhaust duct, and center flow divider.
8. Remove allen screws securing magnetron thermal cutout bracket to magnetron.
9. When replacing magnetron, verify wire mesh gasket is reinstalled properly.

**NOTE:** Slide exhaust duct and center flow divider on magnetron before reinstalling magnetron.

---

**Bottom Magnetron**

1. See “Component Location” Figure 2, for location.
2. Remove outer case and back panel.
3. Remove wires from TCO and magnetron.
4. Remove screws securing bottom exhaust duct to cavity bottom.
5. Lay oven on it’s left side.
6. Remove bottom access panel.
7. Remove magnetron mounting nuts.
8. Remove magnetron and exhaust duct.
9. When replacing magnetron, verify wire mesh gasket is reinstalled properly.

**NOTE:** Slide exhaust duct on magnetron before reinstalling magnetron.

---

**Adjustment**

1. To adjust interlock switch assembly, close door.
2. Loosen bottom and top screw on the interlock switch assembly, allowing switch assembly to move in or out.
3. With door closed, push forward on interlock assembly to engage door latch. Then pull back on interlock assembly until door is “snug” against front oven cavity and tighten bottom screw first, then top screw.
4. Door will remain latched when proper adjustment is made.

**NOTE:** If door is not properly adjusted display will indicate door when the door is closed.

---

**Display Module**

1. See “Component Location” Figure 1, for location.
2. Remove outer case.
3. Remove top touch panel, see “Top Touch Panel” Assembly procedure.
4. Remove screws securing display module to top touch panel.
5. Reassemble display module 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.

Magnetron Cutout (TCO)
1. See “Component Location” Figure 2, for location.
2. Remove outer case.
3. Remove wiring from selected thermal cutout.
4. Remove screws securing thermal cutout.
5. Reassemble thermal cutout in reverse order.

Cavity Thermal Cutout (TCO)
1. Remove outer case.
2. Remove left side air exhaust panel.
3. Remove wires from TCO.
4. Remove TCO.
5. Reassemble thermal cutout in reverse order.

Triacs
1. See “Component Location” Figure 3, for location.
2. Remove outer case and back panel.
3. Remove wires from terminals of selected triac.
4. Remove screws securing triac to chassis.
5. Reassemble triac in reverse order.

Capacitor
1. See “Component Location” Figure 3, for location.
2. Remove outer case and back panel.
3. Discharge capacitor and remove wires from terminals.
4. Remove capacitor bracket mounting screw.
5. Reassemble capacitor in reverse order.

NOTE: Capacitor bracket must be installed into indented slot located on cavity wall.

Transformer
1. See “Component Location” Figure 3, for location.
2. Remove outer case and back panel.
3. Remove screws securing transformer to chassis.
4. Pry upward and back to release transformer from chassis.
5. Remove wire connections from transformer.

NOTE: When placing transformer back into chassis. Front portion of transformer must slide into base pan tabs.

6. Reassemble transformer in reverse order.

Auto Transformer
1. See “Component Location” Figure 2, for location.
2. Remove outer case and back panel.
3. Remove screw securing auto transformer mounting bracket.
4. Reassemble auto transformer in reverse order.

Microwave Blower Wheel and Motor
1. Remove outer case and back panel.
2. Remove wiring from blower motor terminals.
3. Remove screws securing blower assembly to bracket.
4. Remove assembly from oven.
5. Loosen allen set screw securing blower wheel to motor shaft.
6. Remove blower wheel.
7. Remove screws securing motor to scroll.
8. 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. Pull blade off shaft.
2. When reinstalling blade, push blade on shaft and rotate to insure clearance between fan blade and motor mounting bolt.
**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.

**Top Antennas**
1. See “Component Location” Figure 1, for location.
2. Remove outer case and grease shield.
3. Remove gear retainer from plastic gear.
4. While supporting antenna, carefully pry gear from antenna shaft.
5. Remove nylon washer from antenna shaft.
6. Remove antenna from oven cavity.

**NOTE:** Important items when re-installing antenna:
- Place nylon washer between gear and cavity.
- On 3-tube ovens, top gears must be aligned as shown below.

**Bottom Antenna**
1. Remove oven tray, see “Oven Tray Removal” procedure.
2. Lay oven on it’s left side and open oven door.
3. Remove bottom access cover.
4. Remove gear retainer from plastic gear.
5. While supporting antenna, carefully pry gear from antenna shaft.
6. Remove nylon washer from antenna shaft.
7. Remove antenna from oven cavity.

**NOTE:** Important items when re-installing antenna:
- Place nylon washer between gear and cavity.

**Antenna Motors**
1. Remove outer case from oven.
2. Remove wires connected to antenna motor.
3. Remove screws securing motor assembly to cavity.
4. Remove motor from unit.
5. Reassemble in reverse order

**NOTE:** On 3-tube models, top antenna gears must be aligned as illustrated in “Top Antennas” procedure.

**Oven Tray Removal / Installation**
1. Using a utility knife, cut RTV seal around perimeter of tray.
2. Using a heat gun, apply heat to front lip of tray to release hot melt glue.
3. Pry upward on front lip of tray to remove.
4. Thoroughly remove all traces of old RTV and degrease the tray, cavity bottom, walls, and front flange.
5. Place tray in center of cavity. Do not allow tray to touch side walls.
6. Apply a generous bead of RTV sealant around perimeter of tray.
7. Apply a light water spray to the fresh RTV sealant.
8. Using RTV scraper, Amana part # R0000039, remove excess RTV.

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

### Fuse
1. See “Component Location” Figure 3, for location.
2. Remove outer case.
3. Replace fuse and reassemble in reverse order.

**NOTE:** If fuse needs replaced, interlock assembly must be replace.

### Power Cord
1. Remove outer case and back panel.
2. Disconnect wiring.
3. Remove strain relief by compressing with pliers.
4. Remove power cord.
5. Reassemble power cord in reverse order.

### Light Socket
1. Remove outer case.
2. Remove screws securing lamp cover bracket.
3. Unscrew light bulb from socket.
4. Disconnect wire terminals to light socket.
5. Remove screw securing light socket to light retainer.
6. 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
- Phillips screwdriver
- 40-watt, 120-volt appliance bulb (available from authorized distributor or servicer)

To remove bulb, turn in direction shown.

1. Remove screw from access cover on top left wall of oven exterior. Remove access cover.
2. Remove old bulb and replace with new bulb.
3. Replace access cover and screw by reversing procedure in step 1.
**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

- **Display Module**
- **Touch Panel (Top)**
- **Antennas**
- **Touch Panel (Side)**
- **Interlock Switch Assembly**

*Figure 1*

Top front antenna on 3 tube ovens are blue tipped. All other antennas are plain tipped.
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

- Splatter Shield
- Oven Tray
- Filter
- Magnetrons
- Magnetron TCO's
- Rear Flow Divider
- Top Exhaust Duct
- Top Flow Divider
- Bottom Exhaust Duct
- Bottom Flow Divider
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
This page intentionally left blank.
Appendix A
Display and Features

<table>
<thead>
<tr>
<th>Cooking Display</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>00:00</strong></td>
<td>Displays cooking time. If stage cooking is programmed, total cooking time is displayed.</td>
</tr>
<tr>
<td><strong>COOK LEVEL</strong></td>
<td><strong>COOK LEVEL</strong> displays the current microwave power level. 100% is the highest setting (full power), and 0% is lowest (no microwave energy used).</td>
</tr>
<tr>
<td><strong>ITEM</strong></td>
<td><strong>ITEM</strong> displays the single or double digit entry of a programmed cooking condition when using a programmed pad. <strong>ITEM</strong> also flashes when a cooking condition can be started or programmed.</td>
</tr>
<tr>
<td><strong>STG</strong></td>
<td><strong>STG</strong> displays with a single number. This number is the stage the oven is at in the cooking condition. Up to four stages can be programmed.</td>
</tr>
<tr>
<td><strong>READY</strong></td>
<td><strong>READY</strong> displays when oven is ready to use.</td>
</tr>
<tr>
<td><strong>POWER</strong></td>
<td><strong>POWER</strong> displays during active microwave generation in the oven. <strong>POWER</strong> will not display when power setting is at 0; and <strong>POWER</strong> will turn on and off when microwave energy is set at less than 100% (full power).</td>
</tr>
<tr>
<td><strong>QTY</strong></td>
<td>Displays when the Quantity pad has been used.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Programming Display</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P_{ro9}</strong></td>
<td>Displays when oven is in programming mode for single pad or double pad memory.</td>
</tr>
<tr>
<td><strong>OP: --</strong></td>
<td>Displays when oven is in user option mode. User options can then be set or specified.</td>
</tr>
<tr>
<td><strong>STG</strong></td>
<td>Displays stage number during cooking or when programming a specific cooking stage. Stage number (1 through 4) indicates the stage that is being used.</td>
</tr>
</tbody>
</table>
Display and Features

**Single Pad Programming**
This feature enables each numbered pad to be programmed for a specific use, such as cooking a certain number of potatoes or defrosting and then cooking vegetables or other frozen foods. To use this feature, simply program the pad to the desired length of time and power level. To use this feature, press the pad once and the microwave will begin cooking.

**Start Pad**
The start pad is used to begin a manual time entry cooking cycle.

**Double Pad Programming**
This feature enables 100 programmed entries to be made. Each entry will be assigned a double digit number, for example 01, 05, or 20. When using the double pad programming, two pads must be pressed to start the cooking cycle.

**STOP/RESET pad**
The STOP/RESET pad stops a cooking sequence in progress, clears out any remaining time, and also ends a programming or user option cycle. When the STOP/RESET pad is used to end a programming or option change, the changes are discarded.

**Manual Time Entry**
In addition to programmable pads, this microwave also accepts specific time entry by using the TIME ENTRY pad. Using manual time entry does not affect the programmed buttons.

**Quantity Pad**
The quantity pad increases a preset cooking time by a percentage of the original cooking time. The user specifies the percentage and it can be changed for individual cooking sequences. Quantity can be increased up to 8 times. Once pressed, QTY will display with the number times the cooking time will be extended. This feature is very useful for cooking multiple servings of foods such as potatoes or slices of pizza.

**Stage Cooking**
Stage cooking is a cooking sequence with specific power stage changes. The user can program up to four different power level changes and the specific amount of cooking time at each power level. Each power level/cooking time combination is known as a stage. Up to four stages can be programmed.

**Mid-Cycle Cooking Pause**
The cooking pause is a feature unique to this series of microwaves. This pause enables extra ingredients to be added, cooking progress to be checked, or for food to sit a necessary amount of time between cooking time or power settings. To utilize Cooking Pause, follow programming sequences for programmable pads.

**User Options**
This microwave can be set for specific user preferences. Options such as beep volume, and the number of programmable pads can be changed. To change different options, see User Options in this manual.
Microwave Cooking
Microwave cooking uses high frequency energy waves to heat the food. When cooking, microwave energy causes food molecules to move rapidly. This rapid movement between the food molecules creates heat, which cooks the food. POWER displays when oven is generating microwave energy for the current cycle.

The microwave stopped cooking
This series of microwaves has the added feature of a mid-cycle cooking pause. This feature is designed to stop halfway through a programmed cycle. This pause can be used to rotate food, stir food, or add needed ingredients during the cooking cycle. During a mid-cycle cooking pause, the microwave beeps continuously and PAUS displays until the oven door is opened and again closed. To continue the cooking cycle, simply press the start button.

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

1. Open oven door and place food in oven. Close door.
   • READY displays. Fan and light will turn on.
   • ITEM flashes when keyboard can be set.
2. Press TIME ENTRY pad.
   • 00:00 displays.
   • STG displays with current cooking stage.
   • If pad does not work, open and close oven door and try again.
3. Enter cooking time by using the numbered pads.
4. Press POWER LEVEL pad to change power level.
   • COOK LEVEL displays with the current power setting.
   • If power level is set to high H displays.
   • For a lower microwave power, press pads 1 (for 10%) through 9 (for 90%).
5. If stage cooking is desired, press STAGE and repeat steps 2 through 4.
   • As many as 4 different stages can be programmed.
6. Press START pad.
   • Oven operates and time counts down.
   • POWER, COOK LEVEL and cooking time display.
7. At end of cooking cycle oven beeps and shuts off. Done displays.

Preprogrammed Pads
To cook food using pads preprogrammed with cooking sequences.

1. Open oven door and place food in oven. Close door.
   • READY displays. Fan and light will turn on.
   • ITEM flashes when keyboard can be set.
2. Press desired pad.
   • For single pad entry, press only one pad.
   • For double pad entry, press the two pads, in order, of the double digit number for the desired cooking sequence.
   • To change single or double pad entry option see User Options section in this manual.
3. Oven begins to cook.
   • POWER, COOK LEVEL and total cooking time display as set for that pad.
   • For additional cooking time, press preprogrammed pad again.
4. At end of cooking cycle oven beeps and shuts off. Done displays.

Factory Settings

<table>
<thead>
<tr>
<th>Pad</th>
<th>Time</th>
<th>Pad</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10 sec.</td>
<td>6</td>
<td>1:30 min.</td>
</tr>
<tr>
<td>2</td>
<td>20 sec.</td>
<td>7</td>
<td>2 min.</td>
</tr>
<tr>
<td>3</td>
<td>30 sec.</td>
<td>8</td>
<td>3 min.</td>
</tr>
<tr>
<td>4</td>
<td>45 sec.</td>
<td>9</td>
<td>4 min.</td>
</tr>
<tr>
<td>5</td>
<td>1 min.</td>
<td>0</td>
<td>5 min.</td>
</tr>
</tbody>
</table>
What is stage cooking?
Stage cooking enables several different cooking cycles, or stages, to be used consecutively without repeated input from the user. Stage cooking can be set to to defrost food initially, then cook it, and then keep the food warm until serving time. The total cooking time for all combined stages cannot exceed 60 minutes.

Example of Stage Cooking Conditions

<table>
<thead>
<tr>
<th>Power</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>H (high)</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>2:30</td>
<td>1:30</td>
<td>1:30</td>
</tr>
</tbody>
</table>

What is a quantity cook factor?
Each preprogrammed cooking cycle can be set with a specific cooking factor. The cooking factor is the amount of extra time added as a percentage of the original time. Each time the quantity pad is pressed, the cooking time will be increased by the user-specified percentage. Amana’s default cooking factor is 80%.

Mid-Cycle Pause
To add a pause to a programmed cooking cycle

1. Press HIDDEN PAD after entering time or power level.
2. LMT displays. This indicates the program is set for a mid-cycle pause.
3. Continue programming pad as desired.

When programmed pad is used, pause will occur in the middle of total programmed time. Oven will beep continuously and PAUS displays until door is open and shut. To continue cycle, press START pad.

Programming Multiple Stages
Stage cooking allows consecutive cooking cycles without interruption. Up to four different cooking cycles can be programmed into a memory pad.

To use stage cooking:

1. Follow steps 1 through 5 above.
6. Press STAGE.
   • This will begin programming for the next cooking stage.
   • Display indicates stage to be programmed.
   • Enter cook time and power level as in steps 4 and 5.
   • To enter another cooking stage for that pad, press STAGE pad again.
   • Up to four different stages can be programmed.
   • Total cooking time (all stages totaled) is 60 minutes.
7. Press Quantity pad.
   • CF:80 displays.
   • Enter desired cooking factor by using numeric key pads (1 for 10% through 0 for 100%).
8. Press PROGRAM SAVE to save the program and changes.
9. To discard changes, press STOP/RESET before pressing PROGRAM SAVE.
User Options

Changing user options
Options such as single or double pad programming and beep volume can be changed to suit individual preferences.

To change options READY must display without ITEM:
1. Press hidden pad.
   • Pad is unmarked.
   • Nothing will be displayed when hidden pad is pressed.
2. Press PROGRAM SAVE pad.
   • OP:-- displays. Oven is now in options mode.
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 PROGRAM SAVE pad to save changes.
   • To change additional options, repeat steps 3 and 4.
   • Changes take affect after PROGRAM SAVE pad is pressed.
   • Press STOP/RESET to return to READY, or open and close oven door.

Didn’t like an option?
Factory settings are marked in bold.
To change the oven back to the factory setting, simply select the option that is marked in bold.

My changes weren’t saved.
In order for any changes to be saved, the PROGRAM SAVE pad must be pressed after selecting an option. Pressing the STOP/RESET pad will not save changes.

Didn’t like an option?
Factory settings are marked in bold.
To change the oven back to the factory setting, simply select the option that is marked in bold.

My changes weren’t saved.
In order for any changes to be saved, the PROGRAM SAVE pad must be pressed after selecting an option. Pressing the STOP/RESET pad will not save changes.

<table>
<thead>
<tr>
<th>Numbered Pads</th>
<th>Display</th>
<th>Options (Factory Settings in Bold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Preprogrammed Pads</td>
<td>OP:10</td>
<td>Allows 10 (0-9) preprogrammed pads.</td>
</tr>
<tr>
<td></td>
<td>OP:11</td>
<td>Allows 100 (00-99) preprogrammed pads.</td>
</tr>
<tr>
<td>2 Manual Time Entry</td>
<td>OP:20</td>
<td>Manual time entry/cooking not allowed, reprogramming pads not allowed</td>
</tr>
<tr>
<td></td>
<td>OP:21</td>
<td>Manual time entry/cooking allowed, reprogramming pads allowed</td>
</tr>
<tr>
<td>3 Reset to READY mode</td>
<td>OP:30</td>
<td>Opening oven door does not reset oven back to ready mode</td>
</tr>
<tr>
<td></td>
<td>OP:31</td>
<td>Opening oven door resets the oven back to ready mode</td>
</tr>
<tr>
<td>4 Keybeep</td>
<td>OP:40</td>
<td>Keys do not beep when pressed (keybeep off)</td>
</tr>
<tr>
<td></td>
<td>OP:41</td>
<td>Keys beep when pressed (keybeep on)</td>
</tr>
<tr>
<td>5 Keybeep Volume</td>
<td>OP:50</td>
<td>Keybeep volume OFF</td>
</tr>
<tr>
<td></td>
<td>OP:51</td>
<td>Keybeep volume low</td>
</tr>
<tr>
<td></td>
<td>OP:52</td>
<td>Keybeep volume medium</td>
</tr>
<tr>
<td></td>
<td>OP:53</td>
<td>Keybeep volume high</td>
</tr>
<tr>
<td>6 Food Done Signal</td>
<td>OP:60</td>
<td>Food done signal is a continuous beep until reset by user</td>
</tr>
<tr>
<td></td>
<td>OP:61</td>
<td>Food done signal is a three second beep</td>
</tr>
<tr>
<td></td>
<td>OP:62</td>
<td>Food done signal is four beeps, continuously</td>
</tr>
<tr>
<td></td>
<td>OP:63</td>
<td>Food done signal is four beeps, four times</td>
</tr>
<tr>
<td>7 Keypad Time Entry</td>
<td>OP:70</td>
<td>Keypad time entry window is 15 seconds</td>
</tr>
<tr>
<td></td>
<td>OP:71</td>
<td>Keypad time entry window is 30 seconds</td>
</tr>
<tr>
<td></td>
<td>OP:72</td>
<td>Keypad time entry window is one minute</td>
</tr>
<tr>
<td></td>
<td>OP:73</td>
<td>Keypad time entry window is two minutes</td>
</tr>
</tbody>
</table>
Display and Features

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

<table>
<thead>
<tr>
<th>Cooking Display</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:00</td>
<td>Displays cooking time. If stage cooking is programmed, total cooking time is displayed.</td>
</tr>
<tr>
<td><strong>COOK LEVEL</strong></td>
<td><em>COOK LEVEL</em> displays the current microwave power level. 100 is the highest setting (full power), and 0 is lowest (no microwave energy used).</td>
</tr>
<tr>
<td><strong>ITEM</strong></td>
<td><em>ITEM</em> displays the single or double digit entry of a programmed cooking condition when using a programmed pad. <em>ITEM</em> also flashes when a cooking condition can be started or programmed.</td>
</tr>
<tr>
<td><strong>STG</strong></td>
<td><em>STG</em> displays with a single number. This is the stage the oven is at in the cooking condition.</td>
</tr>
<tr>
<td><strong>READY</strong></td>
<td><em>READY</em> displays when oven is ready to use.</td>
</tr>
<tr>
<td><strong>POWER</strong></td>
<td><em>POWER</em> displays during active microwave generation in the oven. <em>POWER</em> will not display when power setting is at 0; and <em>POWER</em> will turn on and off when microwave energy is set at less than 100% (full power).</td>
</tr>
<tr>
<td><strong>QTY</strong></td>
<td>Displays when the Quantity pad has been used.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Programming Display</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>P</em>&lt;sup&gt;209&lt;/sup&gt;</td>
<td>Displays when oven is in programming mode for single pad or double pad memory.</td>
</tr>
<tr>
<td><strong>OP: --</strong></td>
<td>Displays when oven is in user option mode. User options can then be set or specified.</td>
</tr>
<tr>
<td><strong>STG</strong></td>
<td>Displays stage number during cooking or when programming a specific cooking stage. Stage number (1 through 4) indicates the stage that is being used.</td>
</tr>
</tbody>
</table>
Display and Features

Double Pad Programming
This feature enables 100 programmed entries to be made. Using double pad programming with the menu option increases the number of entries possible to a total of 400. Each entry will be assigned a double digit number, for example 11, 21, or 83. When using the double pad programming, two pads must be pressed to start the cooking cycle.

NOTE: Your Dairy Queen® boosting oven is pre-programmed at the factory for double pad programming. All the necessary codes, except bulk heating times for BBQ, are entered. The BBQ heating times will vary depending on your supplier of BBQ.

Manual Time Entry
In addition to programmable pads, this microwave also accepts specific time entry by using the TIME ENTRY pad. Using manual time entry does not affect the programmed buttons.

Quantity Pad
The quantity pad increases the cooking time depending upon how many items are placed in the oven. The user specifies the amount of items placed in the oven after entering the product code. Once pressed QTY will display along with the number of items in the oven.

Stage Cooking
Stage cooking is a cooking sequence with specific power stage changes. The user can program up to four different power level changes and the specific amount of cooking time at each power level. Each power level/cooking time combination is known as a stage. Up to four stages can be programmed.

User Options
This microwave can be set for specific user preferences. Options such as beep volume, and the number of programmable pads can be changed. To change different options, see User Options in this manual.
Microwave Cooking
Microwave cooking uses high frequency energy waves to heat the food. When cooking, microwave energy causes food molecules to move rapidly. This rapid movement between the food molecules creates heat, which cooks the food. POWER displays when oven is generating microwave energy for the current cycle.

### Manual Time Entry
To cook food using a specific entered time and power level.

1. Open oven door and place food in oven. Close door.
   - READY displays. Fan and light will turn on.
   - ITEM flashes when keyboard can be set.
2. Press TIME ENTRY pad.
   - 0000 displays.
   - STG displays with current cooking stage.
   - If pad does not work, open and close oven door and try again.
3. Enter cooking time by using the numbered pads.
4. Press POWER LEVEL pad to change power level.
   - COOK LEVEL displays with the current power setting.
   - If power level is set to high H displays.
   - For a lower microwave power, press pads 1 (for 10%) through 9 (for 90%).
5. If stage cooking is desired, press STAGE and repeat steps 2 through 4.
   - As many as 4 different stages can be programmed.
6. Press START pad.
   - Oven operates and time counts down.
   - POWER, COOK LEVEL and cooking time display.
7. At end of cooking cycle oven beeps and shuts off. done displays.

### Preprogrammed Pads
To cook food using pads preprogrammed with cooking sequences. All pads come preprogrammed from the Amana factory.

**NOTE:** Your Dairy Queen® boosting oven is pre-programmed at the factory for double pad programming. All the necessary codes, except bulk heating times for BBQ, are entered. The BBQ heating times will vary depending on your supplier of BBQ.

1. Open oven door and place food in oven. Close door.
   - READY displays. Fan and light will turn on.
   - ITEM flashes when keyboard can be set.
2. Press desired pads.
3. QTY displays.
   - Enter quantity to cook.
4. Oven begins to cook.
   - POWER, COOK LEVEL and total cooking time display as set for that pad.
   - For additional cooking time, press preprogrammed pad again.
5. At end of cooking cycle oven beeps and shuts off. done displays.
What is stage cooking?

Stage cooking enables several different cooking cycles, or stages, to be used consecutively without repeated input from the user. Stage cooking can be set to defrost food initially, then cook it, and then keep the food warm until serving time. The total cooking time for all combined stages cannot exceed 60 minutes.

Stage cooking is usually used for bulk heating of products such as BBQ.

Example of Stage Cooking Conditions

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>H (high)</td>
<td>3</td>
</tr>
<tr>
<td>Time</td>
<td>2:30</td>
<td>1:30</td>
</tr>
</tbody>
</table>

Programming Multiple Stages

Stage cooking allows consecutive cooking cycles without interruption. Up to four different cooking cycles can be programmed into a memory pad.

To use stage cooking:

1. Follow steps 1 through 6 above.

7. Press STAGE.
   - This will begin programming for the next cooking stage.
   - Display indicates stage to be programmed.
   - Enter cook time and power level as in steps 4 and 5.
   - To enter another cooking stage for that pad, press STAGE pad again.
   - Up to four different stages can be programmed.
   - Total cooking time (all stages totalled) is 60 minutes.

8. Press PROGRAM SAVE to save the program and changes.

9. To discard changes, press STOP/RESET before pressing PROGRAM SAVE.
User Options

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

To change options READY must display without ITEM:
1. Press hidden pad.
   - Pad is unmarked.
   - Nothing will be displayed when hidden pad is pressed.
2. Press PROGRAM SAVE pad.
   - OP: displays. Oven is now in options mode.
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 PROGRAM SAVE pad to save changes.
   - To change additional options, repeat steps 3 and 4.
   - Changes take affect after PROGRAM SAVE pad is pressed.
   - Press STOP/RESET to return to READY, or open and close oven door.

Didn’t like an option?
Factory settings are marked in bold.
To change the oven back to the factory setting, simply select the option that is marked in bold.

My changes weren’t saved.
In order for any changes to be saved, the PROGRAM SAVE pad must be pressed after selecting an option. Pressing the STOP/RESET pad will not save changes.

<table>
<thead>
<tr>
<th>Numbered Pads</th>
<th>Display</th>
<th>Options (Factory Settings in Bold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Preprogrammed Pads</td>
<td>OP:10</td>
<td>Allows 10 (0-9) preprogrammed pads.</td>
</tr>
<tr>
<td></td>
<td>OP:11</td>
<td>Allows 100 (00-99) preprogrammed pads.</td>
</tr>
<tr>
<td></td>
<td>OP:21</td>
<td>Manual time entry/cooking allowed, reprogramming pads allowed.</td>
</tr>
<tr>
<td>3 Reset to READY mode</td>
<td>OP:30</td>
<td>Opening oven door does not reset oven back to ready mode.</td>
</tr>
<tr>
<td></td>
<td>OP:31</td>
<td>Opening oven door resets the oven back to ready mode.</td>
</tr>
<tr>
<td>4 Keybeep</td>
<td>OP:40</td>
<td>Keys do not beep when pressed (keybeep off).</td>
</tr>
<tr>
<td></td>
<td>OP:41</td>
<td>Keys beep when pressed (keybeep on).</td>
</tr>
<tr>
<td>5 Keybeep Volume</td>
<td>OP:50</td>
<td>Keybeep volume OFF.</td>
</tr>
<tr>
<td></td>
<td>OP:51</td>
<td>Keybeep volume low.</td>
</tr>
<tr>
<td></td>
<td>OP:52</td>
<td>Keybeep volume medium.</td>
</tr>
<tr>
<td></td>
<td>OP:53</td>
<td>Keybeep volume high.</td>
</tr>
<tr>
<td>6 Food Done Signal</td>
<td>OP:60</td>
<td>Food done signal is a continuous beep until reset by user.</td>
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<td>Food done signal is a three second beep.</td>
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<td>OP:62</td>
<td>Food done signal is four beeps, continuous.</td>
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<td>7 Keypad Time Entry</td>
<td>OP:70</td>
<td>Keypad time entry window is 15 seconds.</td>
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<td>Keypad time entry window is 30 seconds.</td>
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<td>Keypad time entry window is one minute.</td>
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<td></td>
<td>OP:73</td>
<td>Keypad time entry window is two minutes.</td>
</tr>
</tbody>
</table>
Equipment Set-Up and Close Procedures

**Introduction**
This Amana oven uses microwave technology to restore heat that is lost during the assembly of menu items. This unit may also be used in preparation of specific ingredients or components of a menu item.

Each unit is equipped with pre-programmed control panel allowing the crew person to begin the heating process based on menu item and quantity.

**Hazard Communication Standard**—The procedure(s) in this chapter may include the use of chemical products. These chemical products will be highlighted with **bold** face letters followed by abbreviation *(HCS)*. See Hazard Communication Standard *(HCS)* Manual for appropriate Material Safety Data Sheets *(MSDS)*.

**Do Not Operate the Unit When Empty**
When operating oven, be sure there is absorbing material (food, water) inside oven. Insufficient or improper food loads may cause magnetron(s) to overheat. Using metal containers may also cause the magnetron to overheat. When magnetrons do overheat, the thermal switch will turn the oven off to allow the magnetron to cool. Several minutes will elapse before the switch resets and allows the oven to operate.

**Do Not Put Excessive Weight on Door**
The oven door is NOT designed to hold excessive weight. Additional weight placed on door can cause it to become misaligned. This will result in improper oven operation.

**Open**
1. Verify all units are plugged into properly grounded and polarized outlets.
2. Open and close door to unit. Blower fan will start and control panel will display active menu item. Press menu pad until m1 displays, indicating the breakfast category.

**Transition**
At transition, be certain to change menu category by pressing desired menu pad. Units will remain in this category until **CLOSE**.

**Close**
1. With clean sanitized towel dipped in McD Sanitizer *(HCS)*, thoroughly wipe inside walls, floor, door and splatter shield at top of oven. Be sure to “wring” sponge or cloth to remove excess water before wiping out unit. Water pressure type cleaning systems should not be used to clean oven interior or exterior. If stubborn splatters exist on walls, one cup of tap water can be boiled in the oven for 1 - 2 minutes. Use your Amana wattage beaker for this procedure. Steam from boiling water will help loosen splatters.
2. Wipe exterior with clean sanitized towel soaked in McD Sanitizer *(HCS)*. Allow oven to air dry.
3. Close door after cleaning, and press appropriate menu pad for breakfast category. Unit is ready for **OPEN**.
### The Control Panel

#### Numbers (1-0)
Select desired menu item and quantity program for preset programs. Numbers are also used to enter cooking times during programming mode. **Press directly on digit to activate number pads.**

#### Menu Pad
Use to scroll through independent cooking programs (1-4).

#### Time Entry
Use to program times not in oven memory. Time entry overrides preset times.

#### Power Level
Selects power level. If no power level is selected, oven operates at 100% power.

#### Stage Pad
Stage cooking is a cooking sequence with specific power stage changes. Each power level/cooking time combination is known as a stage. Up to four stages can be programmed.

#### Program Save
Saves programming changes to permanent memory.

---

### Cooking Display

<table>
<thead>
<tr>
<th>DISPLAYS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:00</td>
<td>Displays cooking time. If stage cooking is programmed, total cooking time is displayed.</td>
</tr>
<tr>
<td>COOK LEVEL</td>
<td><strong>COOK LEVEL</strong> displays the current microwave power level. 100% is the highest setting (full power), and 0% is lowest (no microwave energy used).</td>
</tr>
<tr>
<td>ITEM</td>
<td><strong>ITEM</strong> displays the double digit entry of a programmed menu item when using a programmed pad. <strong>ITEM</strong> also flashes when a menu item can be started or programmed.</td>
</tr>
<tr>
<td>STG</td>
<td><strong>STG</strong> displays with a single number. This is the stage the oven is at in the menu item cycle.</td>
</tr>
<tr>
<td>READY</td>
<td><strong>READY</strong> displays when oven is ready to use.</td>
</tr>
<tr>
<td>POWER</td>
<td><strong>POWER</strong> displays during active microwave generation in the oven. <strong>POWER</strong> will not display when power setting is at 0; and <strong>POWER</strong> will turn on and off when microwave energy is set at less than 100% (full power).</td>
</tr>
<tr>
<td>QTY</td>
<td>Displays when quantity needs to be entered.</td>
</tr>
</tbody>
</table>

### Programming Display

<table>
<thead>
<tr>
<th>DISPLAYS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro9</td>
<td>Displays when oven is in programming mode for single pad or double pad memory.</td>
</tr>
<tr>
<td>OP: --</td>
<td>Displays when oven is in user option mode. User options can then be set or specified.</td>
</tr>
<tr>
<td>STG</td>
<td>Displays stage number during cooking or when programming a specific cooking stage. Stage number (1 through 4) indicates the stage that is being used.</td>
</tr>
</tbody>
</table>
Summary of Manual Override
1. Open oven door and place food in oven.
2. Close oven door.
3. Press TIME ENTRY pad.
4. Enter desired cooking time.

If 100% power is desired, proceed to step 7.
5. Press POWER LEVEL pad.
6. Enter desired power level.
7. Press START pad.
8. At the end of cycle, open oven door and remove food.

Operating Notes
If door is opened during heating process, Q-ing energy ceases. Blower continues to operate. Close door and press START to continue oven operation and countdown timing. If RESET is pressed once while oven is operating Q-ing energy ceases, but countdown time remains in display. Press START to continue oven operation and countdown timing. If RESET is pressed twice, oven stops and current program cancels.

When unit is plugged in or repowered after the loss of electricity, it will take several seconds before dashes and menu indicator display. Once displayed, unit is operational.

Summary of Operating Preprogrammed Items
1. Open oven door and place food in oven.
2. Close oven door.
3. Press desired menu, if different from menu displaying.
4. Press two numbers representing menu item.
5. Press number pad to enter quantity.
6. Allow cooking time to expire.
7. At end of cycle, open oven door and remove food.

Manual Time Entry
To cook food using a specific entered time and power level.
1. Open oven door and place food in oven. Close door.
   - READY displays. Fan and light will turn on.
   - ITEM flashes when keypad accepts entries.
2. Press TIME ENTRY pad.
   - 00:00 displays.
   - STG displays with current cooking stage.
   - If pad does not work, open and close oven door and try again.
3. Enter cooking time by using the numbered pads.
4. Press POWER LEVEL pad to change power level if desired.
   - COOK LEVEL displays with the current power setting.
   - If power level is set to high H displays.
   - For a lower microwave power, press pads 1 (for 10%) through 9 (for 90%).
5. If stage cooking is desired, press STAGE pad and repeat steps 2 through 4.
   - Up to 4 different stages can be programmed.
6. Press START pad.
   - Oven operates and time counts down.
   - POWER, COOK LEVEL and cooking time display.
7. At end of cooking cycle oven beeps and shuts off. Done displays.

Preprogrammed Items
1. Open oven door and place food in oven. Close door.
   - READY displays. Fan and light will turn on.
   - ITEM flashes when keypad accepts entries.
2. Press desired pads.
   - Press the two pads, in order, of the double digit number for the menu item.
3. Press number pad to enter quantity.
4. Oven begins to cook.
   - POWER, COOK LEVEL and total cooking time display as set for that pad.
5. At end of cooking cycle oven beeps and shuts off. Done displays.
Programming Items
To program the amount of time or power level setting for a pad:

1. **ITEM** must flash in display.
   - If **ITEM** is not flashing in display, open and close oven door.
2. Press PROGRAM SAVE pad.
   - Programming mode begins.
   - **Pro9** displays.
3. Press MENU pad until desired menu displays.
4. Press pads representing menu item number to be programmed.
   - Display will change to review all settings for the programmed pad.
   - The menu item number that is being programmed displays below the word **ITEM**.
5. Press number pads to enter quantity.
6. Press TIME ENTRY pad to program amount of cooking time.
   - Enter desired cooking time by using numeric key pads.
   - Maximum cooking time is 60 minutes.
7. Press POWER LEVEL pad to program level of microwave power if desired.
   - Press POWER LEVEL pad again to set to **H** (High).
   - For a lower microwave power, press pads 1 (for 10%) through 9 (for 90%).
8. Press PROGRAM SAVE pad to save the program changes.

**NOTE:** To discard changes, press STOP/RESET pad.

---

Programming Multiple Stages
Stage cooking allows consecutive cooking cycles without interruption.
Up to **four** different cooking cycles can be programmed into a memory pad.

To use stage cooking:

1. Follow steps 1 through 7 above.
2. Press STAGE pad.
   - This will begin programming for the next cooking stage.
   - Display indicates stage to be programmed.
3. Enter cook time and power level as in steps 5 and 6 above.
4. Press STAGE pad again to enter another cooking stage for that pad.
   - Total cooking time (all stages totalled) is 60 minutes.
5. Press PROGRAM SAVE pad to save the program and changes.

**NOTE:** To discard changes, press STOP/RESET pad before pressing PROGRAM SAVE pad.
Changing user options

Options such as single or double pad programming and beep volume can be changed.

To change options READY must display without ITEM:
1. Press menu list.
   • Nothing will be displayed when menu list is pressed.
2. Press PROGRAM SAVE pad.
   • OP: displays. Oven is now in options mode.
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 PROGRAM SAVE pad to save changes.
   • To change additional options, repeat steps 3 and 4.
   • Changes take affect after PROGRAM SAVE pad is pressed.
6. Press STOP/RESET pad or open and close oven door to return to READY condition.

Change an option too soon?
Factory settings are marked in bold.
To change the oven back to the factory setting, simply select the option that is marked in bold.

How do I save changes?
In order for any changes to be saved, the PROGRAM SAVE pad must be pressed after selecting an option.

NOTE: Pressing the STOP/RESET pad will not save changes.

<table>
<thead>
<tr>
<th>Numbered Pads</th>
<th>Display</th>
<th>Options (Factory Settings in Bold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OP:10</td>
<td>Allows 10 (0-9) preprogrammed pads.</td>
</tr>
<tr>
<td></td>
<td>OP:11</td>
<td>Allows 100 (00-99) preprogrammed pads.</td>
</tr>
<tr>
<td>Preprogrammed Pads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>OP:20</td>
<td>Manual time entry/cooking not allowed, reprogramming pads not allowed.</td>
</tr>
<tr>
<td></td>
<td>OP:21</td>
<td>Manual time entry/cooking allowed, reprogramming pads allowed.</td>
</tr>
<tr>
<td>Manual Time Entry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>OP:30</td>
<td>Opening oven door does not reset oven back to ready mode.</td>
</tr>
<tr>
<td></td>
<td>OP:31</td>
<td>Opening oven door resets the oven back to ready mode.</td>
</tr>
<tr>
<td>Reset to READY mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>OP:40</td>
<td>Keys do not beep when pressed (keybeep off).</td>
</tr>
<tr>
<td></td>
<td>OP:41</td>
<td>Keys beep when pressed (keybeep on).</td>
</tr>
<tr>
<td>Keybeep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>OP:50</td>
<td>Keybeep volume OFF.</td>
</tr>
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<td></td>
<td>OP:51</td>
<td>Keybeep volume low.</td>
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<td>Keybeep volume medium.</td>
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<td>OP:53</td>
<td>Keybeep volume high.</td>
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<td>Keybeep Volume</td>
<td></td>
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<tr>
<td>6</td>
<td>OP:60</td>
<td>Food done signal is a continuous beep until reset by user.</td>
</tr>
<tr>
<td></td>
<td>OP:61</td>
<td>Food done signal is a three second beep.</td>
</tr>
<tr>
<td></td>
<td>OP:62</td>
<td>Food done signal is four beeps, one time only.</td>
</tr>
<tr>
<td></td>
<td>OP:63</td>
<td>Food done signal is four beeps, four times.</td>
</tr>
<tr>
<td>Food Done Signal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>OP:70</td>
<td>Keypad time entry window is 15 seconds.</td>
</tr>
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<td></td>
<td>OP:71</td>
<td>Keypad time entry window is 30 seconds.</td>
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<td></td>
<td>OP:73</td>
<td>Keypad time entry window is two minutes.</td>
</tr>
<tr>
<td>Keypad Time Entry</td>
<td></td>
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