KAC-45

KitchenAid

TECHNICAL EDUCATION

Built-In Microwave Oven

Model: KBMS1454R

JOB AID 4317377

FORWARD

This KitchenAid Job Aid, “Built-In Microwave Oven,” (Part No. 4317377), provides the technician with information on the installation, operation, and service of the Built-In Microwave Oven. For specific information on the model being serviced, refer to the “Use and Care Guide,” or “Wiring Diagram” provided with the Built-In Microwave Oven.

The Wiring Diagrams and Strip Circuits used in this Job Aid are typical and should be used for training purposes only. Always use the Wiring Diagram supplied with the product when servicing the unit.

GOALS AND OBJECTIVES

The goal of this Job Aid is to provide information that will enable the service technician to properly diagnose malfunctions and repair the Built-In Microwave Oven.

The objectives of this Job Aid are to:

- Understand and follow proper safety precautions.
- Successfully troubleshoot and diagnose malfunctions.
- Successfully perform necessary repairs.
- Successfully return the Microwave Oven to its proper operational status.

WHIRLPOOL CORPORATION assumes no responsibility for any repairs made on our products by anyone other than Authorized Service Technicians.

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GENERAL

SAFETY FIRST

Your safety and the safety of others is very important.

We have provided many important safety messages in this Job Aid and on the appliance. Always read and obey all safety messages.

This is the safety alert symbol.
This symbol alerts you to hazards that can kill or hurt you and others.
All safety messages will follow the safety alert symbol and either the word "DANGER" or "WARNING." These words mean:

⚠ DANGER — **You can be killed or seriously injured if you don't <u>immediately</u> follow instructions.**

⚠ WARNING — **You can be killed or seriously injured if you don't follow instructions.**

All safety messages will tell you what the potential hazard is, tell you how to reduce the chance of injury, and tell you what can happen if the instructions are not followed.

WARNING TO SERVICE TECHNICIANS

To avoid possible exposure to microwave radiation or energy, visually check the oven for damage to the door and door seal before operating any oven. Use a microwave survey meter to check the amount of leakage before servicing. In the event the R.F. leakage exceeds 4 mw/cm^2 at 5 cm, appropriate repair must be made before continuing to service the unit. Check interlock function by operating the door latch. The oven cook cycle should cut off before the door can be opened.

The door and latching assembly contains the radio frequency energy within the oven. The door is protected by three safety interlock switches. Do not attempt to defeat them.

Under no circumstances should you try to operate the oven with the door open.

- Proper operation of microwave ovens requires that the magnetron be properly assembled to the waveguide and cavity. Never operate the magnetron unless it is properly installed.
- Be sure the “RF” seal is not damaged and is assembled around the magnetron dome properly when installing the magnetron.
- Routine service safety procedures should be exercised at all times.
- Untrained personnel should not attempt service without a thorough review of test procedures and safety information contained in this Job Aid.

KitchenAid microwave ovens have a monitoring system designed to assure proper operation of the safety interlock systems.

The monitor switch will immediately cause the oven fuse to blow if the door is opened and the primary door interlock switch and/or the secondary interlock switch contacts fail in a closed position.

CAUTION: Replace a blown fuse with a 20 ampere class H fuse only.

Test the upper and lower door interlock switches, cook relay, and monitor switch (middle switch) for proper operation as described in the component test procedures, before replacing the blown oven fuse.

Do not attempt to repair sticking contacts of any interlock switch, safety switch, or Cook (Latch) relay. The components must be replaced.

Any indication of sticking contacts during component tests requires replacement of that component to assure reliability of the safety interlock system.

If the fuse is blown, the Monitor switch, and the Primary, and Secondary interlock switches must be replaced. Be sure they are properly connected.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

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

B. Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:

   1) Interlock Operation
   2) Proper Door Closing
   3) Seal and Sealing Surfaces (Arcing, Wear, and Other Damage)
   4) Damage to or Loosening of Hinges and Latches
   5) Evidence of Dropping or Abuse

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

D. Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted, using procedures described in this Job Aid, before the oven is released to the owner.

E. A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

F. Do not attempt to operate the oven if the door glass is broken.

R.F. LEAKAGE TEST

EQUIPMENT

- Electromagnetic energy leakage monitor (NARDA 8100B, HOLADAY H 1501).
- 275 ±15 ML glass beaker.

TEST

On every service call, checks for microwave energy emission must be made according to the following manner.

1. Remove the cooking rack from the oven cavity, if the microwave oven is so equipped.
2. Place a 275 ±15 ML (9.3 oz.) glass of water in the center of the oven bottom.
3. Select "HIGH" cook power, turn the microwave oven on, and test for R.F. leakage at the following locations:

   a) Around the cabinet at the front.
   b) Around the door.
   c) Across the console panel.
   d) Horizontally across the door.
   e) Vertically across the door.
   f) Diagonally across the door.
   g) Across the air vents.
   h) Across the rear air vent.
   i) All lockseams.
   j) Weld at bottom.
   k) Bottom plate.
   l) Oven feet.

4. The scan speed is one inch per second.

When checking for R.F. leakage, use an approved R.F. measuring device to assure less than 4 mw/cm^2 emission at 5 cm distance with a maximum scan rate of 2.54 cm/second, in compliance with U.S. Government Department of Health, Education and Welfare 21CFR1030, Performance Standard for Microwave Ovens.

A properly operating door and seal assembly will normally register small emissions, but they must be no greater than 4 mw/cm^2 to allow for measurement uncertainty.

NOTE: Enter leakage readings in space BEFORE and AFTER on the service document.

All microwave ovens exceeding the emission level of 4 mw/cm^2 must be reported to Dept. of Service for Microwave Ovens immediately and the owner should be told not to use the microwave oven until it has been repaired completely.

If a microwave oven is found to operate with the door open, report to Dept. of Service, the manufacturer and CDRH* immediately. Also tell the owner not to use the oven.

The monitor switch acts as the final safety switch protecting the customer from microwave radiation. If the monitor switch operated to blow the fuse when the interlocks failed, you must replace all interlock switches with new ones, because the contacts of those interlock switches may be melted and welded together.

If safety interlock/monitor switch replacement, or adjustment, is required, you must reconnect the circuit, and perform a continuity check on the monitor circuit.

All repairs must be performed in such a manner that microwave energy emissions are minimal.

Address for CDRH is:

Office of Compliance (HFZ-312) Center for Devices and Radiological Health
1390 Piccard Drive
Rockville, MD 20850

* CDRH: Center for Devices and Radiological Health, Food and Drug Administration.

PRECAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

The microwave oven is a high voltage, high current appliance. It is free from danger during ordinary use, but extreme care should be taken during repair.

CAUTION

Service technicians should remove their watches whenever working close to or replacing the magnetron.

WARNING

DISCHARGING HIGH VOLTAGE CAPACITORS

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitors in the inverter power supply circuit board.

When replacing or checking parts, remove the power plug from the outlet. Use a screwdriver with an insulated handle, and short the inverter output of the magnetron filament terminals to discharge it. Be sure to touch the chassis ground side first, and then touch the output terminals.

WARNING

There is high voltage present, with high current capabilities in the circuits of the primary and secondary windings, the choke coil, and the heat sink of the inverter. It is extremely dangerous to work on or near these circuits with the microwave oven energized. DO NOT measure the voltage in the high voltage circuit, including the filament voltage of the magnetron.

WARNING

Never touch any circuit wiring with your hand, or with an insulated tool during operation.

WARNING

Before touching any oven components or wiring, always unplug the oven from its power source, and discharge the line and high voltage capacitors.

MODEL & SERIAL NUMBER DESIGNATIONS

MODEL NUMBER

MODEL NUMBER	K	BM	S	14	5	4	R	SS	0

PRODUCT GROUP
K = KITCHENAID BRAND

PRODUCT IDENTIFICATION
BH = BUILT-IN HIGH SPEED OVEN
BM = BUILT-IN MICROWAVE
CM = COUNTERTOP MICROWAVE
HM = MICROWAVE HOOD
HS = HIGH SPEED

MERCHANDISING SCHEME
S = SENSOR
C = MICRO-CONVECTION

CAPACITY / SIZE / SERIES / CONFIGURATION

05 = 0.5 CU FT	16 = 1.6 CU FT
08 = 0.8 CU FT	17 = 1.7 CU FT
10 = 1.0 CU FT	18 = 1.8 CU FT
13 = 1.3 CU FT	20 = 2.0 CU FT
14 = 1.4 CU FT	22 = 2.2 CU FT
15 = 1.5 CU FT	

FEATURES
2 = PLUS FEATURES
5 = DELUXE FEATURES
6 = MICRO-CONVECTION
7 = MICRO-CONVECTION WITH SENSOR
9 = MULTIMODE - HI SPEED - CONVECTION
S = CARRY-IN WARRANTY (EFFECTIVE 02/96)
X = IN-HOME WARRANTY (EFFECTIVE 02/96)

PRODUCT SIZE

0 = 30" WIDE	7 = 27" WIDE
2 = 22" WIDE	8 = 18" WIDE
4 = 24" WIDE	9 = 19" WIDE
6 = 36" WIDE	

YEAR OF INTRODUCTION
R = 2005, S = 2006

COLOR CODE
WH = WHITE, BL = BLACK, BT = BISCUIT, SS = STAINLESS STEEL

ENGINEERING CHANGE (0, 1, 2, ETC.)

SERIAL NUMBER

SERIAL NUMBER	XN	S	38	10006

DIVISION RESPONSIBILITY
XN = NORRKOPING, SWEDEN

YEAR OF PRODUCTION
S = 2005

WEEK OF PRODUCTION
38TH WEEK

PRODUCT SEQUENCE NUMBER

MODEL & SERIAL NUMBER LABEL AND TECH SHEET LOCATIONS

The Model/Serial Number label and Tech Sheet locations are shown below.

SPECIFICATIONS

MODEL	KBMS1454RBL/WH/BT/SS
Brand	KitchenAid
Country Sold In	US
Size-Configuration	1.4 cu ft
Feature Level/Series	Sensor, Built-in kit
DIMENSIONS / SPECIFICATIONS	
Outside Dimensions (inches)	24" = 23-3/4" W X 21-1/4"D X 17-15/16" H (front) 17-1/2" H (case)
Cutout Dimensions (inches)	Height 17-5/8", Depth 21-3/4" (flush receptacle), 26-1/4" (non-flush receptacle), Width 24" = 22-1/4" (22" min. 22-1/2" max)
CONTROL SYSTEM	
Timer	Yes
Type	Electronic
Limits	90 Min.
Display	4 digit 7 segment, White LED transparent green
Microwave Cooking Cycles	
Cook Time	Yes
Cook Power	1000 Watts (IEC-705 Test Procedure)
Variable Power	Yes - 10 levels
Auto Cook	Yes - Seven Categories - by amount
Auto Reheat	Yes - Six Categories - by amount
Auto Defrost (Non-Sensor)	Yes - Four Categories by Weight
Sensor One Touch	YES, - Popcorn (Regular / snack size), Baked Potato, Meal Reheat
Warm Hold / Keep Warm	Yes - 10%power for 60 minutes
Add Minute	Yes - Instant Start
OTHER FEATURES	
Stoppable Turntable	No
Pause	Door Open
Clock	Yes - 12 Hr.
Sales Demonstration Mode	Yes
Child Lock	Yes - Cancel Key for 5 seconds
Instant Start	Yes-Add a minute
Off/Cancel	Yes
Start / Enter	Yes
Options	Yes, - Weight-Oz / Lbs. Amount - Pcs / Cups / Servings, Clock - On / Off
Variable Power	Yes
Ventilation	Forced Air
Weight / Amount Indication	Yes-display lbs. oz. pcs. servings. cups
Clock Set	Yes, clock can be set by pressing and holding "select" for 5 seconds
End-Of-Cooking Reminder	Yes-"end" plus tone
Power Failure Indication	Yes-"colon flashing"
Invalid Data Entry	Yes-tone only
Technical Error Indication	Yes
Diagnostic System	No
Audible Signals	Yes
Type	Buzzer
INTERIOR	
Size	17-3/4" W x 8-1/4" H x 16-1/2" D
Capacity	1.4 Cubic Feet
Finish	Stainless
Cooking Power	1000 Watts (IEC-705 Rating)
Ventilation	Forced Air
Shelf	No
Bi-Level Rack	No
Light	Yes-Automatic turns on when oven door is open or oven is operating
	Halogen 10 watt
Turntable Diameter	15-3/4"
Stoppable Turntable	No
Recessed Turntable	No
Turntable Roller	Yes
Temp Probe	No

MODEL	KBMS1454RBL/WH/BT/SS
EXTERIOR	
Stamped Steel	Yes - with tempered cover
Window	Tempered Glass
Window Size (inches)	23-3/4" x 12-7/8"
Drop Down Door	Yes
Seals	Two Stage (Capacitive & Reflective)
Color	Matte textured white, Matte textured black, Matte textured biscuit, Brushed stainless
EXTERIOR FEATURES	
Cabinet Finish	Galvanized
Control Frames	Painted steel-colors/Stainless-stainless
Door Frames	colors-painted glass/stainless-stainless
Power Cord Length	40 Inches
TRIM FEATURES	
Trim dimensions (inches)	27" = 1-3/4" W x 3/4" D x 17-13/16" H 30" = 2-7/8" W x 3/4" D x 17-13/16" H
Trim features	Side Strip 27"/ Side Strip 30"
MISCELLANEOUS	
MICROWAVE SYSTEM	
Distribution	Top Feed
Magnetron	Standard
SAFETY FEATURES	
Interlock	Three Door/Latch Operated Switches:
	1 Primary, 1 Monitor, 1 Secondary
OTHER SPECIFICATIONS	
Electrical	120V, Single Phase, 60 Hz,
	1500 Watts, For Use With
	15 Amp Circuit
Domestic Use Only	Yes
Agency Approvals	FCC, CDRH (DHHS), U.L. Listed, CSA Listed
Approx. Shipping Weight	101 lbs
Approx. Net Weight	90 lbs
UPC #'s	White: / Black: /Biscuit/ STS:
LITERATURE	
Use & Care Guide	8205301
Cooking Guide	8205305
Installation Instructions for Built-in	8205303
Quick reference guide	8205302
Built-in Cabinet Template	8205527
Job Aid	4317377
Tech Sheet	8205304
Warranty / Registration Card	In Use & Care Packet
Warranty	One Year Full Warranty Carry-In - Parts & Labor on Entire Product 2nd-5th yr Carry-In Warranty parts only only on the Magnetron Tube
Model / Serial Plate Location	Front Frame
Cooking Guide Location	Door Frame
ACCESSORIES	
Hardware for Installation	Yes

KITCHENAID BUILT-IN MICROWAVE OVEN WARRANTY

ONE-YEAR FULL WARRANTY

For one year from the date of purchase, when this appliance is operated and maintained according to instructions attached to or furnished with the product, KitchenAid will pay for factory specified parts and repair labor costs to correct defects in materials or workmanship. Service must be provided by a KitchenAid designated service company.

SECOND THROUGH FIFTH YEAR LIMITED WARRANTY ON MAGNETRON TUBE, ELECTRIC OVEN ELEMENT AND SOLID STATE TOUCH CONTROL SYSTEM

In the second through fifth years from the date of purchase, when this appliance has been operated and maintained according to instructions attached to or furnished with this product, KitchenAid will pay for factory specified parts for the microwave magnetron tube, any electric oven element and the solid state touch control system to correct defects in materials or workmanship.

SECOND THROUGH TENTH YEAR LIMITED WARRANTY ON STAINLESS STEEL OVEN CAVITY/INNER DOOR

In the second through tenth years from date of purchase, when this appliance is operated and maintained according to instructions attached to or furnished with this product, KitchenAid will pay for factory specified parts for the stainless steel oven cavity/inner door if the part rusts through due to defects in materials or workmanship.

KitchenAid will not pay for:

1. Service calls to correct the installation of your appliance, to instruct you how to use your appliance, to replace house fuses or correct house wiring, or to replace owner-accessible light bulbs.
2. Repairs when your appliance is used in other than normal, single-family household use.
3. Pickup and delivery. Your appliance is designed to be repaired in the home.
4. Damage resulting from accident, alteration, misuse, abuse, fire, flood, improper installation, acts of God or use of products not approved by KitchenAid.
5. Repairs to parts or systems resulting from unauthorized modifications made to the appliance.
6. Replacement parts or repair labor costs for units operated outside the United States.
7. Any labor costs during the limited warranty periods.

KITCHENAID SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion or limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Outside the 50 United States, this warranty does not apply. Contact your authorized KitchenAid dealer to determine if another warranty applies.

If you need service, first see the “Troubleshooting” section of the “Use and Care Guide.” After checking “Troubleshooting,” additional help can be found by checking the “Assistance or Service” section or by calling the KitchenAid Customer eXperience Center, **1-800-422-1230** (toll-free), from anywhere in the U.S.A.

INSTALLATION INFORMATION

INSTALLATION REQUIREMENTS

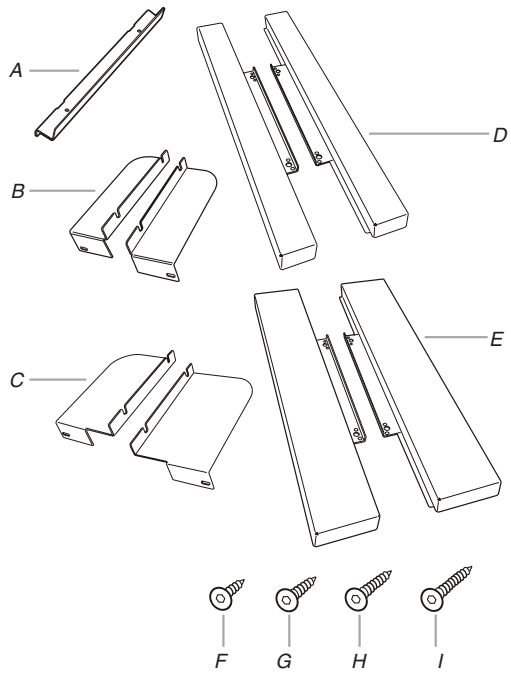
TOOLS AND PARTS

Tools Needed

Gather the required tools and parts before starting installation. Read and follow the instructions provided with any tools listed here.

- Measuring tape
- Pencil
- Masking tape or thumb tacks
- Scissors
- Torx T-10 screwdriver
- Electric drill
- 5/64″ (2 mm) drill bit

Parts Supplied



A. Z-brackets (2)
B. 1-1/2" (3.8 cm) side brackets (L,R)
C. 3" (7.6 cm) side brackets (L,R)
D. 1-11/32" (3.4 cm) side trim panels (L,R)
E. 2 -13/16" (7.2 cm) side trim panels (L,R)
F. 3/8" T-10 screws (2)
G. 1/2" T-10 screws (8)
H. 3/4" T-10 screws (4)
I. 1" T-10 screws (4)

Part not shown:
Floor template (for cutout opening)

LOCATION REQUIREMENTS

The microwave oven may be located in a cabinet, above a built-in oven, below the counter and/or below a cooktop. Check the opening where the microwave oven will be installed. The location must provide:

- Wood cabinetry.
- Cutout floor that is solid, level and flush with bottom of cabinet cutout.
- Support for weight of at least 150 lbs (68 kg), which includes microwave oven and items placed inside.
- Grounded electrical outlet inside cutout opening (see “Electrical Requirements” section).
- Minimum installation clearances for installation location (see “Minimum Dimensions” section).

We recommend:

- Complete enclosure around the recessed portion of the microwave oven.

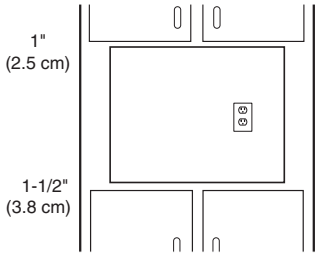
MINIMUM DIMENSIONS

The width of the microwave oven cutout can vary, depending on location, cabinetry and/or size of the lower built-in oven (if installing microwave oven over existing built-in oven).

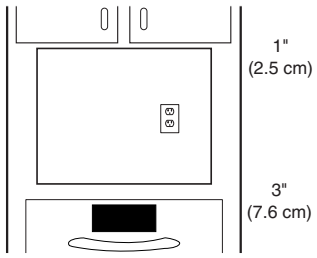
Minimum Installation Clearances

For proper installation, the following minimum clearances must exist above and below the cutout opening.

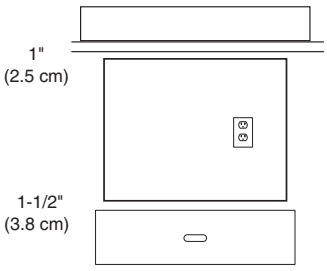
Above Cabinet/Storage Drawer Installation



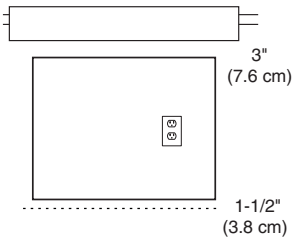
Above Oven/Warming Drawer Installation



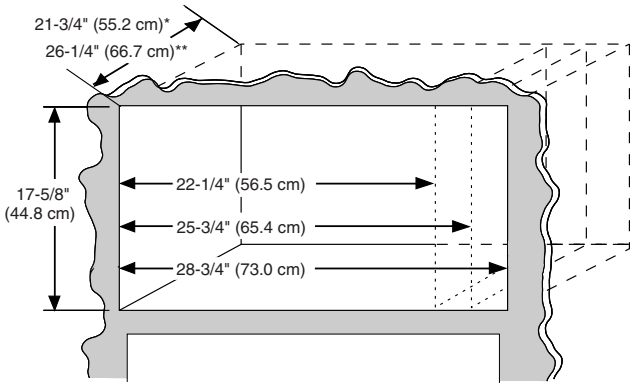
Below Counter/Cooktop Installation



Below Built-in Cooktop Installation



Minimum Cutout Dimensions

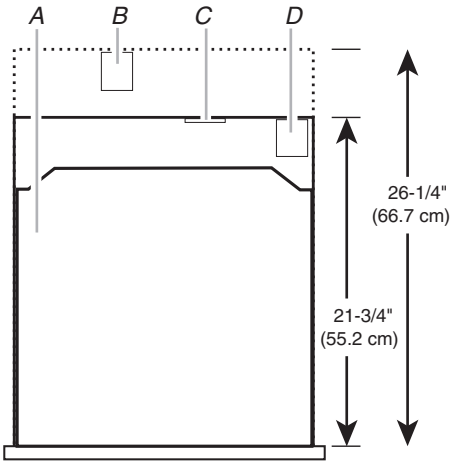


*With flush receptacle, or with non-flush receptacle located in far corner of cutout.

**Without flush receptacle

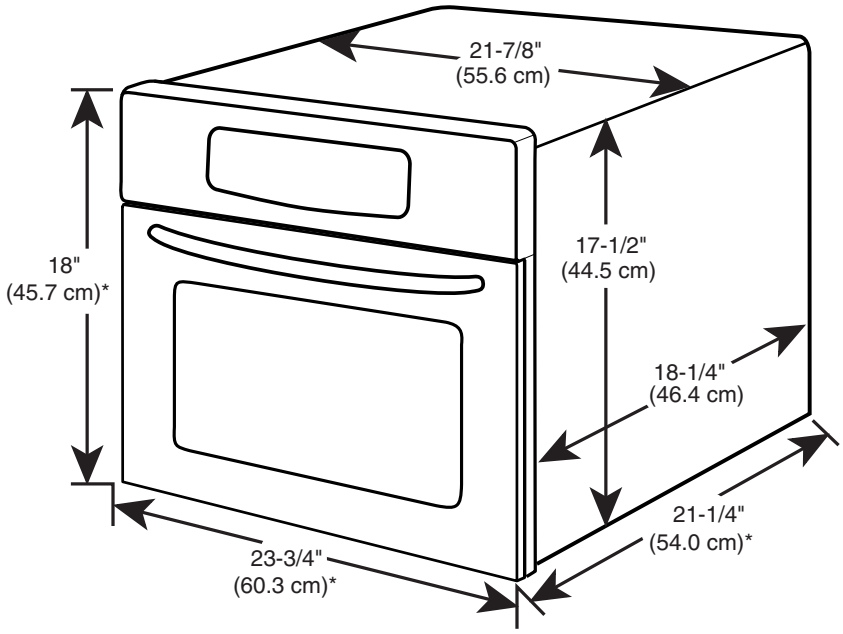
DIM.	24" (61.0 CM) INSTALLATION	27" (68.6 CM) INSTALLATION	30" (76.2 CM) INSTALLATION
Width	22-1/4" (56.5 m) ± 3/16" (4.8 mm)	25-3/4" (65.4 cm) ± 3/16" (4.8 mm)	28-3/4" (73.0 cm) ± 3/16" (4.8 mm)
Height	17-5/8" (44.8 cm) for all installations		
Depth	21-3/4" (55.2 cm) with flush receptacle, or with non-flush receptacle located in far corner; 26-1/4" (66.7 cm) without flush receptacle		

Cutout Top View:



A. Microwave oven
B. Non-flush receptacle
C. Flush receptacle
D. Non-flush receptacle located in far corner

PRODUCT DIMENSIONS



*Measurements include front facing of microwave oven.
Depth measurement also includes door handle.

ELECTRICAL REQUIREMENTS

⚠WARNING

Electrical Shock Hazard

Plug into a grounded 3 prong outlet.

Do not remove ground prong.

Do not use an adapter.

Do not use an extension cord.

Failure to follow these instructions can result in death, fire, or electrical shock.

Observe all governing codes and ordinances. A 120-Volt, 60-Hz, AC-only, 15- or 20-amp fused electrical supply (or circuit breaker) is required. (A time-delay fuse or circuit breaker is recommended.) It is recommended that a separate circuit serving only this appliance be provided.

GROUNDING INSTRUCTIONS

- **For all cord connected appliances**

  The microwave oven must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. The microwave oven is equipped with a cord having a grounding wire with a grounding plug. The plug must be plugged into an outlet that is properly installed and grounded.

WARNING: Improper use of the grounding plug can result in a risk of electric shock. Consult a qualified electrician or serviceman if the grounding instructions are not completely understood, or if doubt exists as to whether the microwave oven is properly grounded.

Do not use an extension cord. If the power supply cord is too short, have a qualified electrician or serviceman install an outlet near the microwave oven.

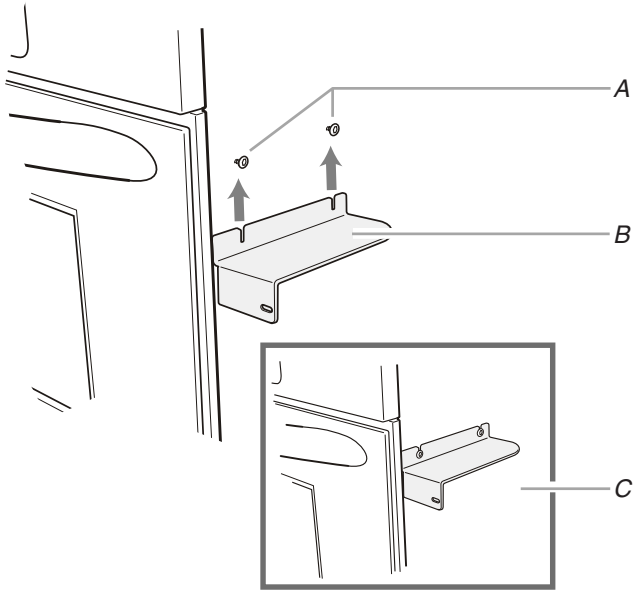
INSTALLATION INSTRUCTIONS

PREPARE THE MICROWAVE OVEN

1. Empty the microwave oven of any loose contents.

For 27″ (68.6 cm) and 30″ (76.2 cm) Installation Only:

2. Loosen 2 existing screws on each side of microwave oven. The screws are located at the same height as the door handle, and they are the 2 screws closest to the front of the microwave oven on each side.



A. Existing screws
B. Right side bracket
C.Proper side bracket placement

3. Slide the left and right side brackets under the existing screw heads, as shown, and then tighten the screws. Use the 1-1/2″ (3.8 cm) side brackets for 27″ (68.6 cm) opening, or 3″ (7.6 cm) side brackets for 30″ (76.2 cm) opening.

INSTALL THE MICROWAVE OVEN

⚠WARNING

Excessive Weight Hazard

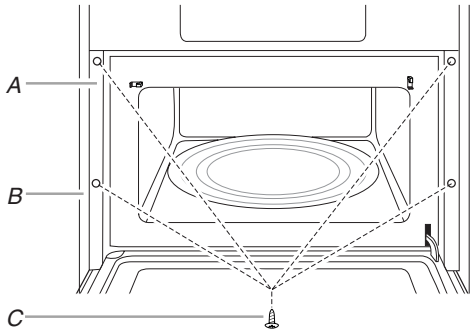
Use two or more people to move and install microwave oven.

Failure to do so can result in back or other injury.

NOTE: Do not use any portion of the front frame or trim for lifting. The door handle may be used for lifting.

24″ (61.0 cm) Installation Only

1. The microwave oven should be centered in the opening. Open the microwave oven door.

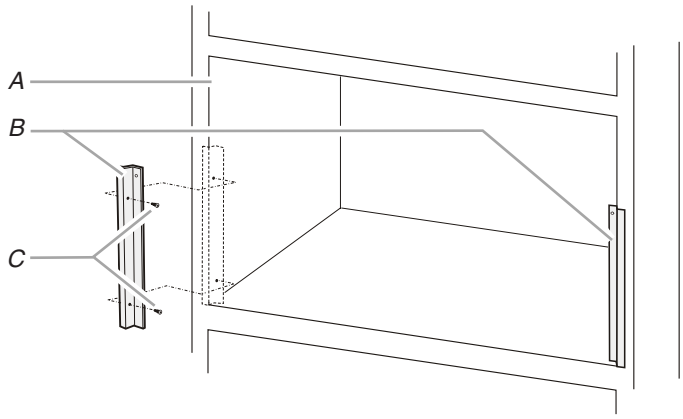


A. Microwave oven door facing frame
B. Cabinet
C. 1" T-10 screws (4)

2. Mark 4 holes (2 on each side) in the door facing frame of the microwave oven.
3. Close the door and remove the microwave oven.
4. Drill the 4 holes using 5/64″ (2 mm) drill.
5. With the microwave oven near the opening, plug the microwave oven into the grounded 3-prong outlet.
6. Replace microwave oven in cutout opening.
7. Open the microwave oven door. The holes in the door facing frame should align with the holes just drilled into the cabinet. Fasten the microwave oven door facing to the cabinet using four 1″ T-10 screws.

27″ (68.6 cm) or 30″ (76.2 cm) Installation

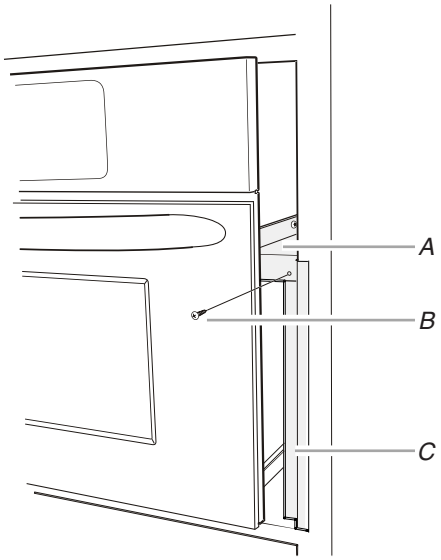
1. Hold Z-brackets against the outside edges of cutout opening, and mark holes. Make sure bottom ends of brackets rest on the cutout floor, as shown.



A. Cutout opening
B. Z-brackets (2)
C. 1/2" T-10 screws (4)

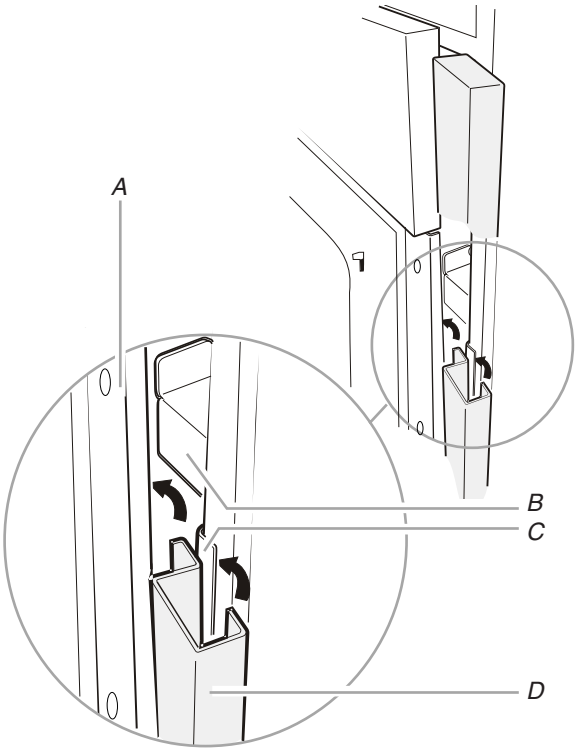
2. Drill holes into the inside edges of cutout opening using 5/64″ (2 mm) drill bit.
3. Attach Z-brackets to side edges of cutout opening using four 1/2″ T-10 screws.
4. With the microwave oven near the opening, plug the microwave oven into the grounded 3-prong outlet.
5. Slide microwave oven all the way into the opening.

NOTE: The flat portion of the side brackets should slide over the tops of the Z-brackets, and the vertical portion of the side brackets should rest against the front surface of the recessed portion of the Z-bracket.



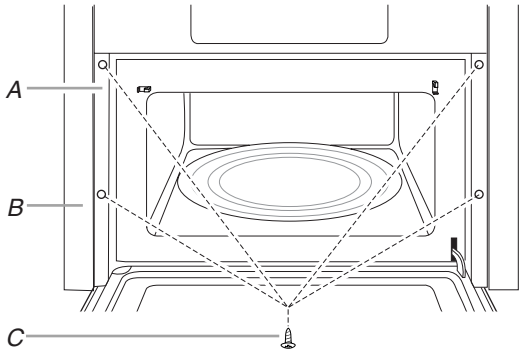
A. Side bracket
B. 3/8" T-10 screw
C. Z-bracket

6. Fasten side brackets to Z-brackets using two 3/8″ T-10 screws.
7. Open microwave oven door.



A. Door facing frame
B. Side bracket
C. Z-bracket
D. Side trim panel

8. Position the tabular portion of the side trim panel behind the door facing frame, then push the outside edge of the trim behind the Z-bracket, as shown.
9. Attach the side trim panel to the door facing frame using two 3/4″ T-10 screws.



A. Door facing frame
B. Trim panel
C. 3/4" T-10 screws (4)

10. Repeat steps 8 and 9 on other side.

COMPLETE THE INSTALLATION

1. Install the turntable in the microwave oven.

⚠WARNING

Electrical Shock Hazard

Plug into a grounded 3 prong outlet.

Do not remove ground prong.

Do not use an adapter.

Do not use an extension cord.

Failure to follow these instructions can result in death, fire, or electrical shock.

2. Reconnect the power supply to the outlet.
3. Check the operation of microwave oven by placing 1 cup (250 mL) of water on the turntable and programming cook time of 1 minute at 100% power.

The Installation is complete.

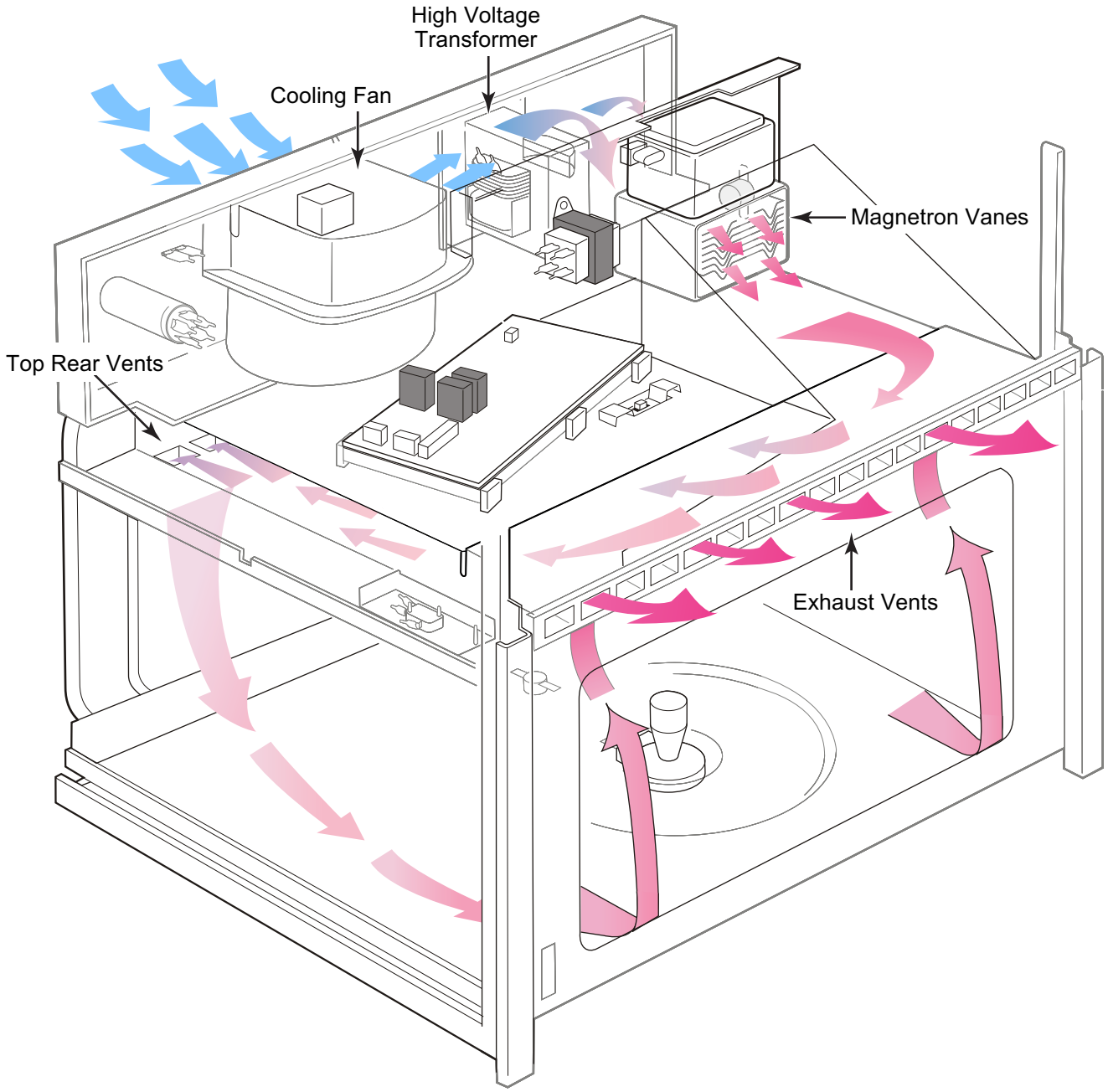
PRODUCT OPERATION

THEORY OF OPERATION

AIRFLOW

Airflow begins at the cooling fan. The air is forced around the high voltage transformer, and through the vanes of the magnetron. From there, it travels down through the vent opening, and down into the oven cavity.

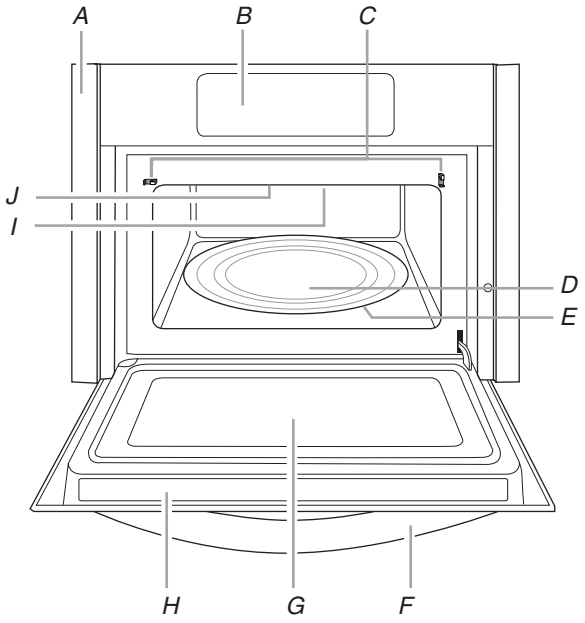
The airflow enters the oven cavity through the top rear vents, and travels down the back and along the floor towards the front door. The air travels up the door and into the top front vents in the cavity ceiling, where it exits the microwave oven through the exhaust vents.



MICROWAVE OVEN CONTROL

PARTS AND FEATURES

COMPONENT LOCATIONS

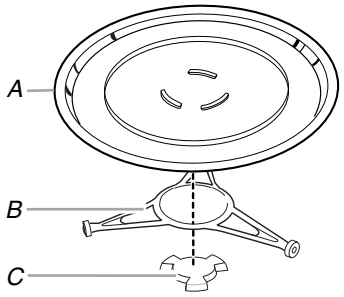


A. Frame
B. Control panel
C. Door safety lock system
D. Glass turntable
E. Turntable support, rollers and hub
F. Door handle
G. Metal shielded window
H. Cooking guide label
I. Microwave oven light (inaccessible - in ceiling)
J. Microwave inlet cover

TURNTABLE

The turntable rotates in both directions to help cook food more evenly. Do not operate the microwave oven without having the turntable in place. See “Assistance or Service” in the Use and Care Guide to reorder any of the parts.

To install: The support and hub are preassembled and installed in the microwave oven. Place the turntable on the support. Fit the raised, curved lines in the center of the turntable bottom between the three spokes of the hub. The rollers on the support should fit inside the turntable bottom ridge.



A. Turntable
B. Support
C. Hub

TROUBLESHOOTING

Nothing will operate

- **Has a household fuse blown, or has a circuit breaker tripped?** Replace the fuse or reset the circuit.
- **Is the appliance wired properly?** See Installation Instructions provided with the microwave oven.

Oven will not operate

- **Is the door completely closed?** Firmly close door.
- **Is a spacer (on some models) attached to the inside of the door?** Remove spacer, then firmly close door.
- **Is the electronic oven control set correctly?** See "Microwave Oven Control" section in the "Use and Care Guide."
- **On some models, is the Control Lock set?** See "Control Lock" section in the "Use and Care Guide."
- **Is the magnetron working properly?** Try to heat 1 cup (250 mL) of cold water for 2 minutes at 100% cooking power.

Oven makes humming noise

- This is normal and occurs when the power supply switches the magnetron on and off.

Oven door looks wavy

- This is normal and will not affect performance.

Turntable will not operate

- **Is the turntable properly in place?** Make sure turntable is correct side up and is sitting securely on the turntable support.
- **Is the turntable support operating properly?** Remove turntable. Remove and replace turntable support. Replace turntable. Place 1 cup (250 mL) of water on the turntable, then restart oven. Do not operate the oven without turntable and turntable support working properly.

Turntable alternates directions

- This is normal and depends on motor rotation at beginning of cycle.

Display shows messages

- **Is the display showing an "Oven Status" screen, with a letter/number code and instruction to inform KitchenAid?** The oven has detected an internal problem. It has run a self-checking program and displayed the error.

Display shows time countdown, but is not operating

- **On some models, is the Timer in use?** See "Timer" section in the "Use and Care Guide."
- **On some models, is the Demo Mode in use?** See "Demo Mode" section in the "Use and Care Guide."

Tones are not sounding

- **On some models, are tones turned off?** See "Tones" section in the "Use and Care Guide."

Steam is coming from the vent grille

- Some steam is normal.

Fan running slower than usual

- **Has the oven been stored in a cold area?** The fan will run slower until the oven warms up to normal room temperature.

Cooking times seem too long

- **Is the cooking power set properly?** See "Cooking Power" section in the "Use and Care Guide."
- **Are large amounts of food being heated?** Larger amounts of food need longer cooking times.
- **Is the incoming voltage less than specified in "Microwave Oven Safety?"** Have a qualified electrician check the electrical system in the home.

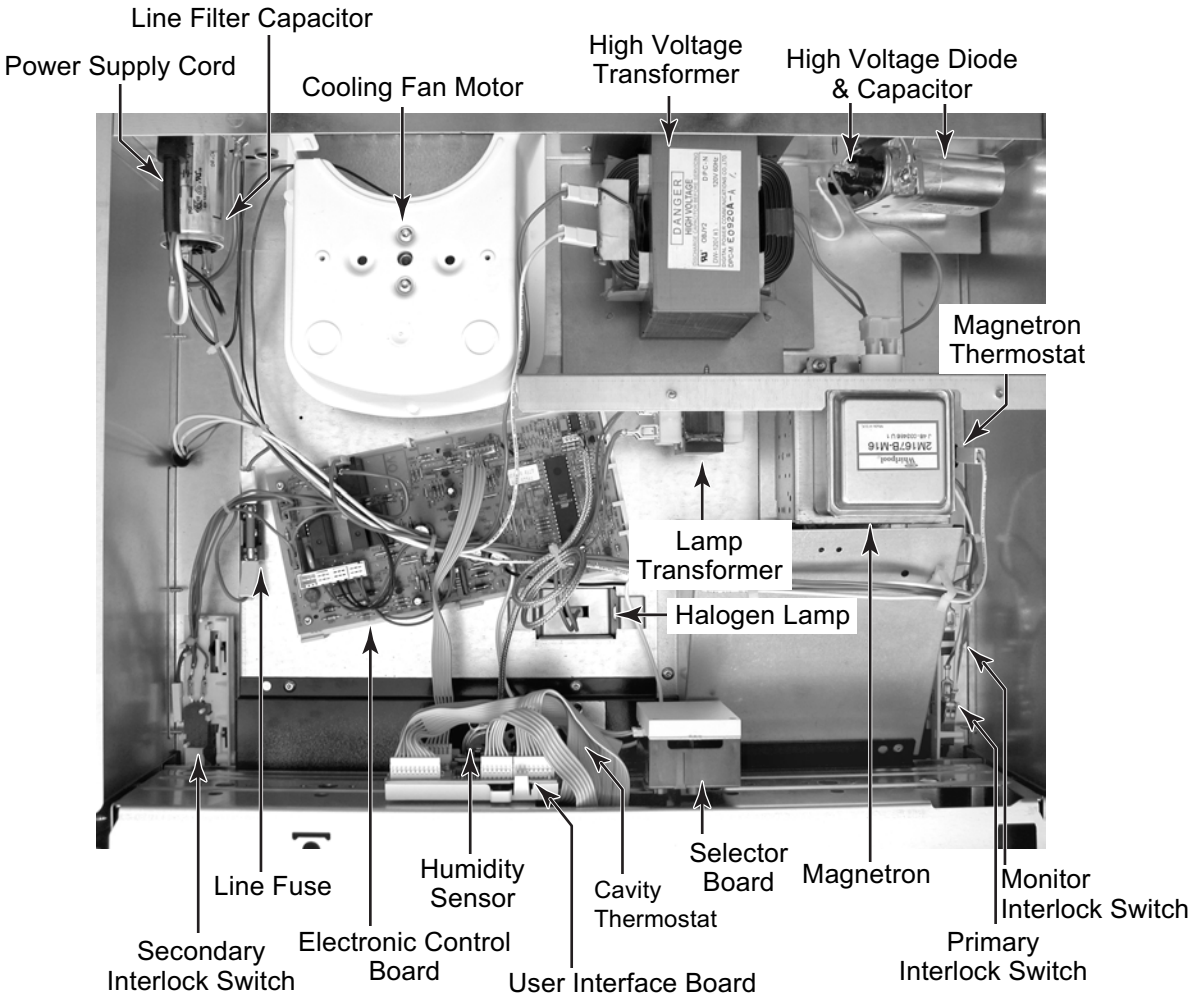
Radio or TV interference

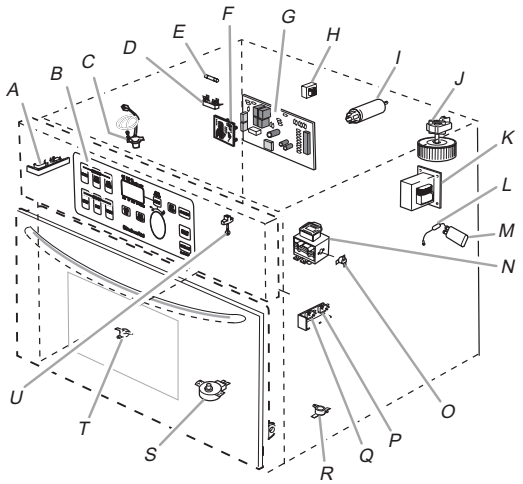
- **Is the microwave oven plugged into the same outlet?** Try a different outlet.
- **Is the radio or TV receiver near the microwave oven?** Move the receiver away from the microwave oven, or adjust the radio or TV antenna.
- **Are the microwave oven door and sealing surfaces clean?** Make sure these areas are clean.

COMPONENT ACCESS

This section instructs you on how to service each component inside the Built-In Microwave Oven. The components and their locations are shown below.

COMPONENT LOCATIONS





A. Secondary interlock switch
B. Touch panel (membrane switch)
C. Humidity sensor
D. Fuse holder
E. Line fuse (20 amp)
F. User interface board
G. Electronic control
H. L.V. light transformer
I. Line filter
J. Cooling fan motor
K. H.V. transformer
L. H.V. diode

M. H.V. capacitor
N. Magnetron
O. Magnetron thermostat – opens at 293°F (145°C), closes at 250°F (121°C)
P. Monitor interlock switch
Q. Primary interlock switch
R. No load cavity thermostat assembly – opens at 257°F (125°C), closes at 185°F (85°C)
S. Turntable motor
T. Cavity thermostat assembly – opens at 239°F (115°C), closes at -31°F (-35°C)
U. Cavity lamp

REMOVING THE USER INTERFACE BOARD

⚠WARNING

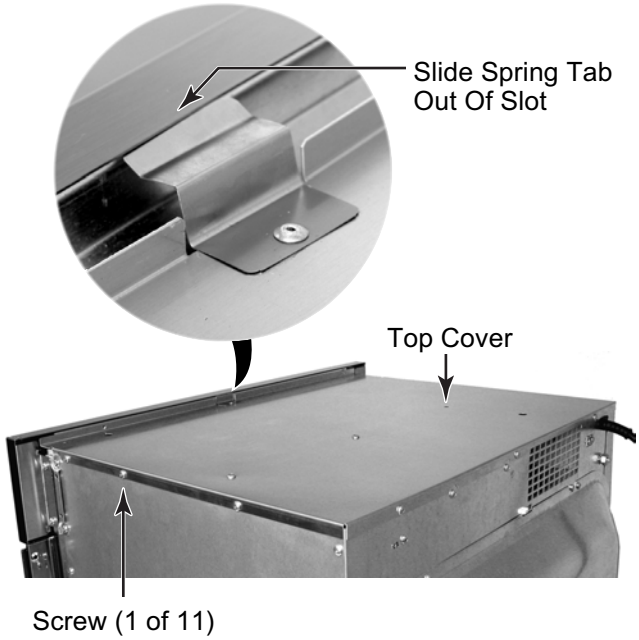
Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

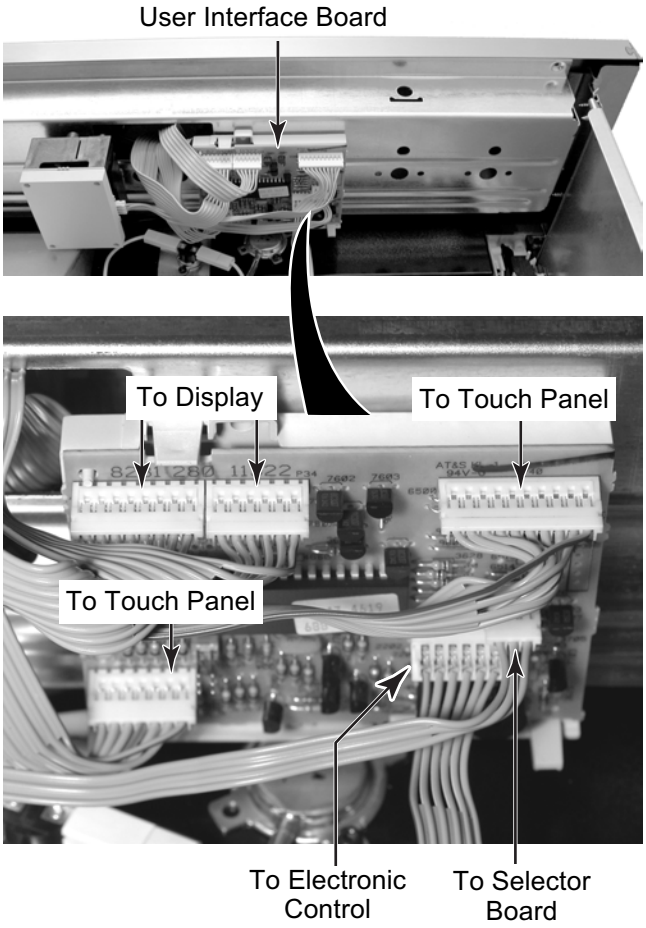
Failure to do so can result in death or electrical shock.

1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the eleven T10 Torx screws from the top cover of the microwave.
4. Lift the back of the cover, slide the spring tab out of the control panel slot, and remove the cover.

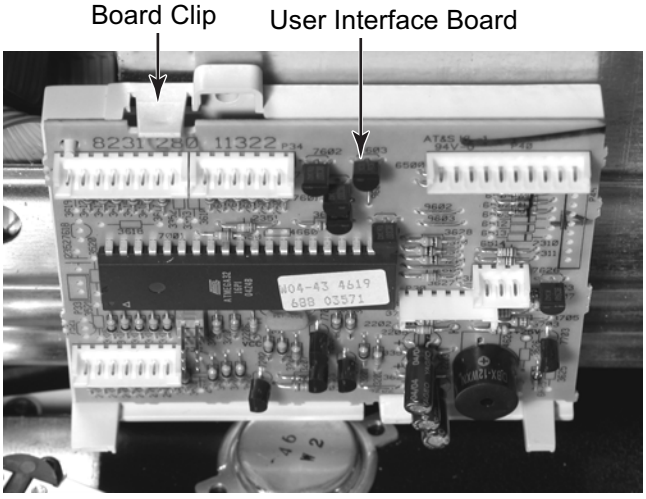


5. **CAUTION: Discharge the high voltage capacitor (see page 4-17) using a 20,000 Ω resistor from the terminals to chassis ground.**

6. Disconnect the six ribbon cables from the user interface board connectors.



7. Unclip the user interface board from the holder and remove it from the unit.



REMOVING THE DISPLAY, TOUCH PANEL BOARD, & SELECTOR BOARD

⚠WARNING

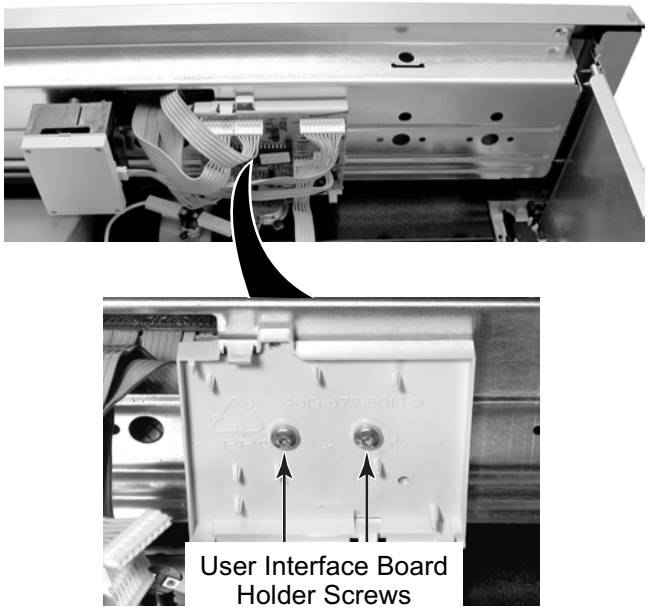
Electrical Shock Hazard

Disconnect power before servicing.

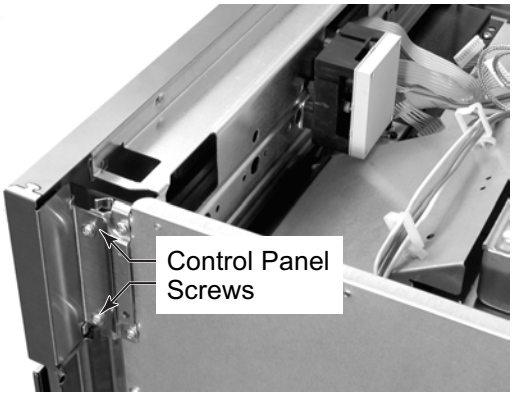
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

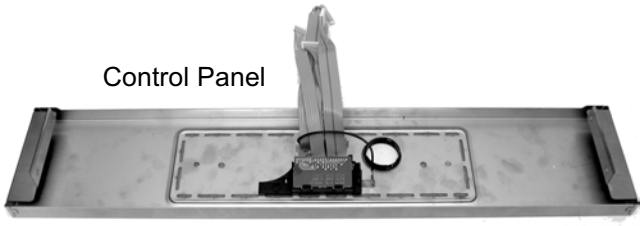
1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the user interface board from its holder (see page 4-2 for the procedure).
4. Remove the two T20 Torx screws from the user interface board holder and remove the holder from the subpanel.



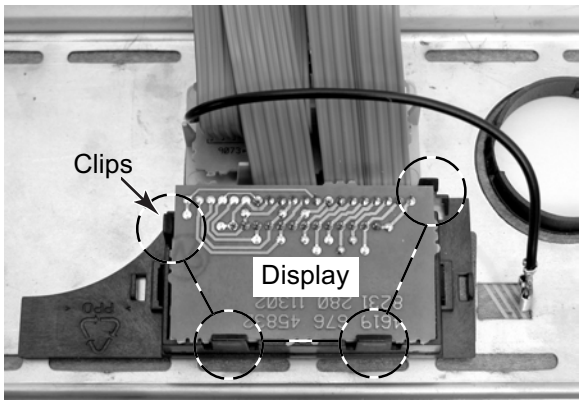
5. Remove the four T20 Torx screws (two on each side) from the control panel assembly and remove the assembly from the unit.



6. Place the control panel on a padded work surface.



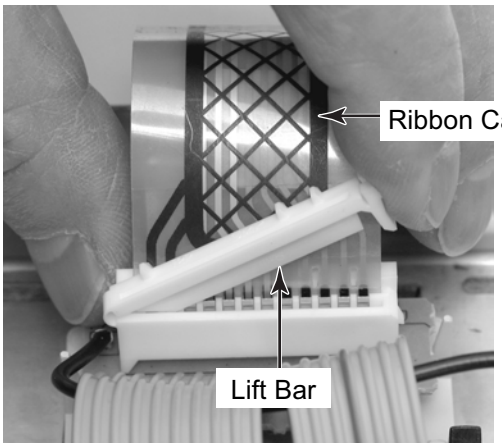
7. **To remove the display,** press out on the four holder clips, and pull the display out of the holder.



Continued on the next page.

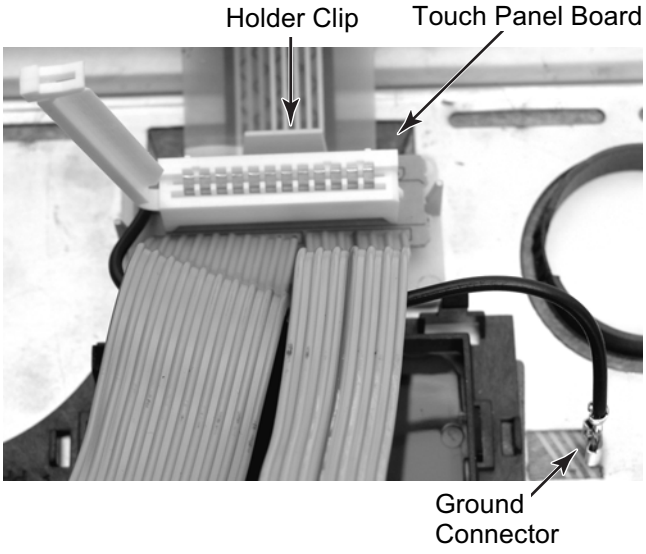
8. **To remove the touch panel board:**

a) Lift the ribbon cable retaining bar and pull the cable from its holder.



b) Press out on the holder clip, and remove the touch panel board from the holder.

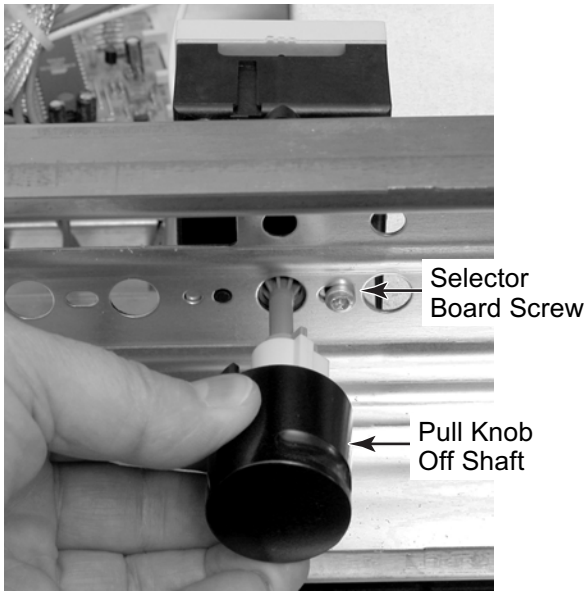
c) Disconnect the touch panel board ground wire from its panel terminal.



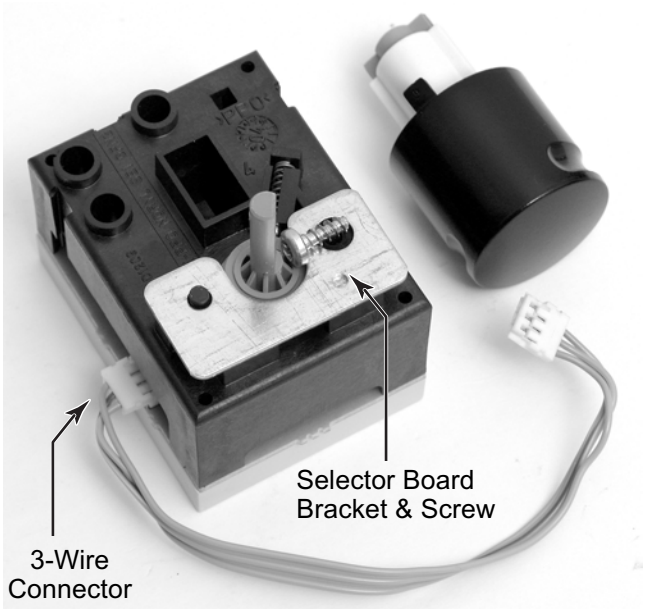
9. **To remove the selector board:**

a) Pull the knob off the selector board control shaft.

b) Remove the T10 Torx screw from the selector board and remove the board and its mounting bracket.



c) Disconnect the 3-wire connector from the selector board.



REMOVING THE HUMIDITY SENSOR & THE CAVITY THERMOSTAT

⚠WARNING

Electrical Shock Hazard

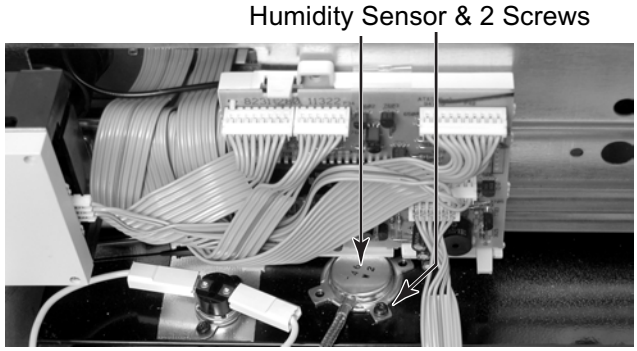
Disconnect power before servicing.

Replace all parts and panels before operating.

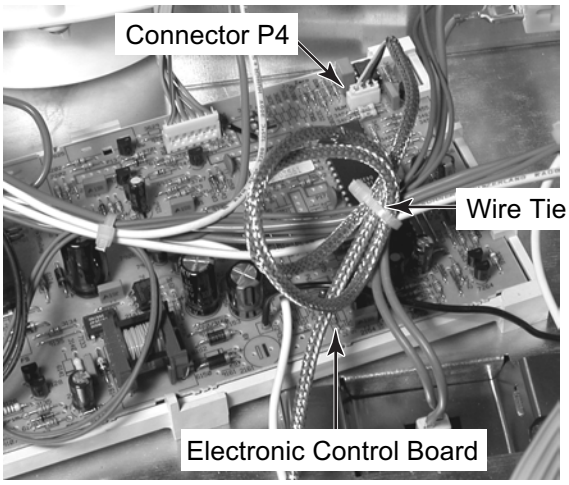
Failure to do so can result in death or electrical shock.

1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the top cover from the microwave (see steps 3 and 4 on page 4-2 for the procedure).
4. Remove the user interface board from its holder (see page 4-2 for the procedure).
5. Remove the user interface board holder (see step 4 on page 4-3 for the procedure).
6. **To remove the humidity sensor:**
   a) Remove the lower T20 Torx screw from the left and right sides of the subpanel.

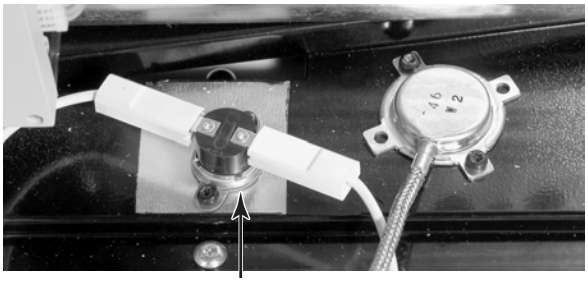
   b) Remove the two screws from the humidity sensor. Rotate the subpanel out at the bottom just far enough to access the back screw.



   c) Cut the humidity sensor wire tie.
   d) Disconnect the humidity sensor connector from electronic control board connector P4.



7. **To remove the cavity thermostat:**
   a) Disconnect the two wire connectors from the terminals.
   b) Remove the two T10 Torx screws.



Cavity Thermostat & Screws

REMOVING THE INTERLOCK SWITCHES

⚠WARNING

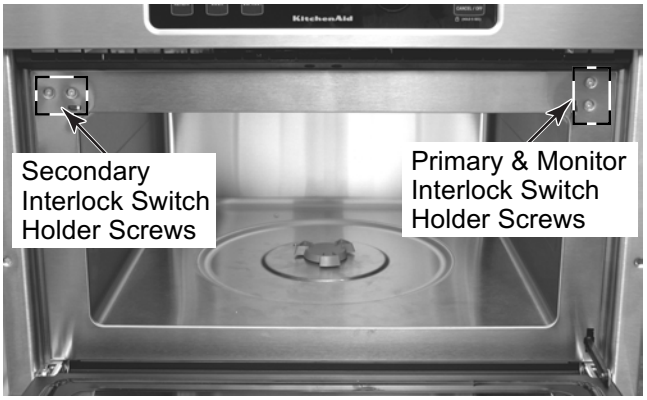
Electrical Shock Hazard

Disconnect power before servicing.

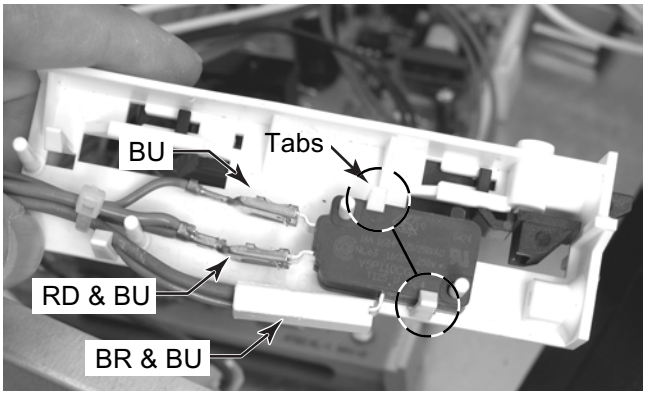
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

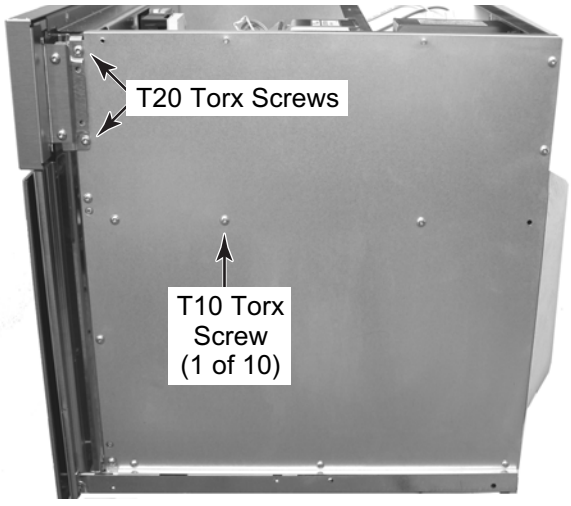
1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the top cover from the microwave (see steps 3 and 4 on page 4-2 for the procedure).
4. **CAUTION: Discharge the high voltage capacitor (see page 4-17) using a 20,000 Ω resistor from the terminals to chassis ground.**
5. Open the oven door and remove the two interlock switch holder T10 Torx screws for the interlock switch you are servicing.



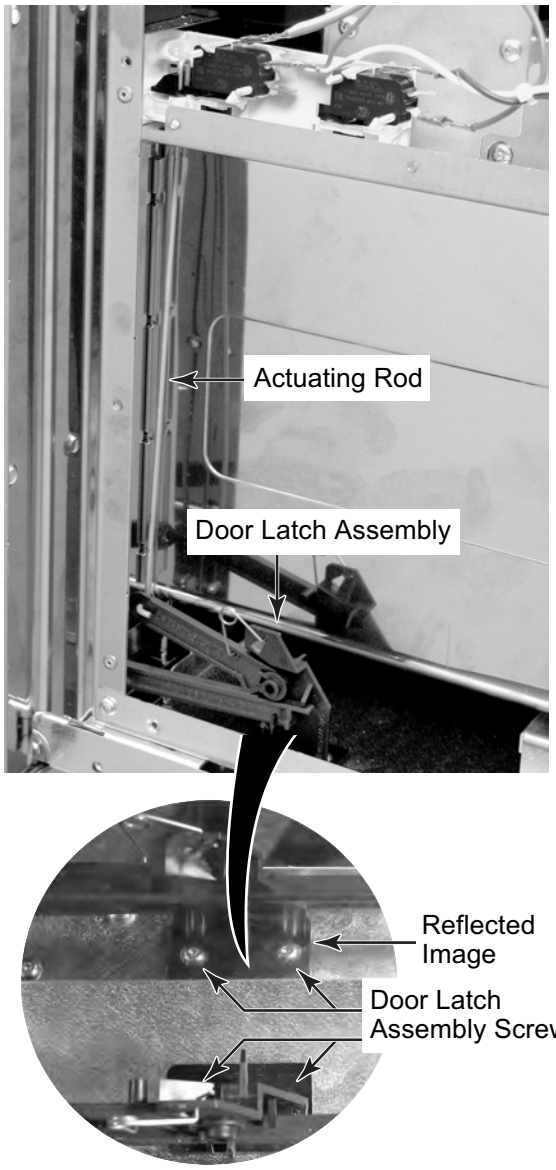
6. **To remove the secondary interlock switch:**
   a) Push the locking tabs and unlock them from the interlock switch, then push up on the switch, and remove it from the holder.
   b) Disconnect the wires from the interlock switch terminals.



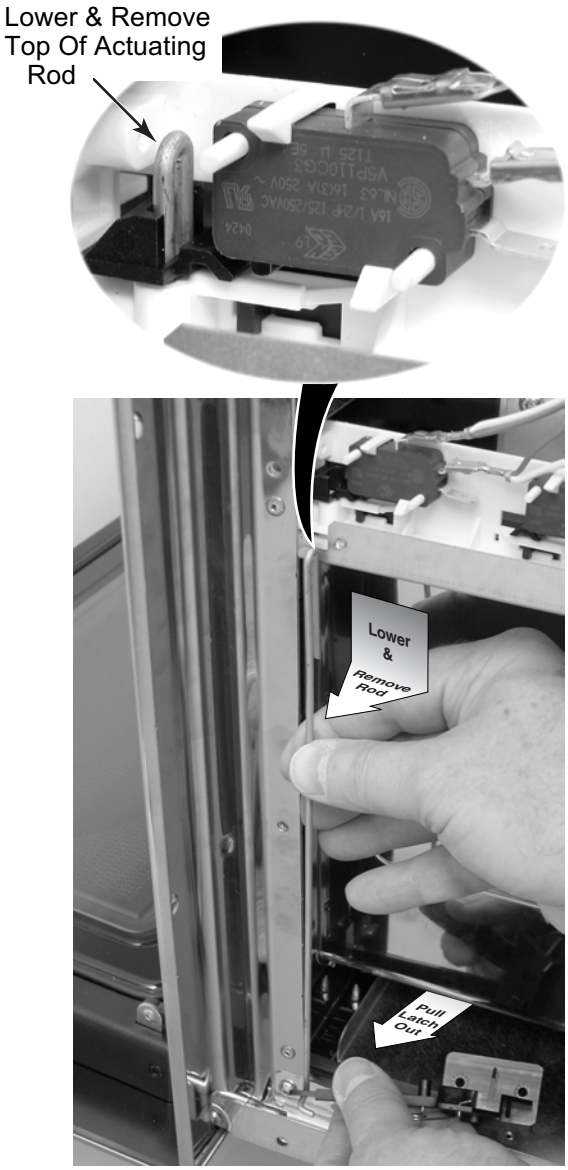
7. **To remove a primary or monitor interlock switch:**
   a) Remove the ten T10 and two T20 Torx screws from the right side panel and remove the panel from the unit.



b) Remove the two T10 Torx screws from the door latch assembly (bottom inset).

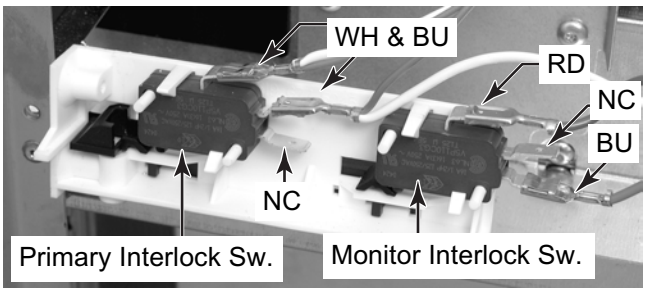


c) Carefully move the door latch assembly away from the unit just far enough to release the actuating rod from the primary and monitor interlock switch holder (see the top right photo).



d) Push the locking tabs and unlock them from the interlock switch you are servicing, then push up on the switch, and remove it from the holder.

e) Disconnect the wires from the interlock switch terminals.



REMOVING THE HALOGEN LAMP & THE LAMP TRANSFORMER

⚠WARNING

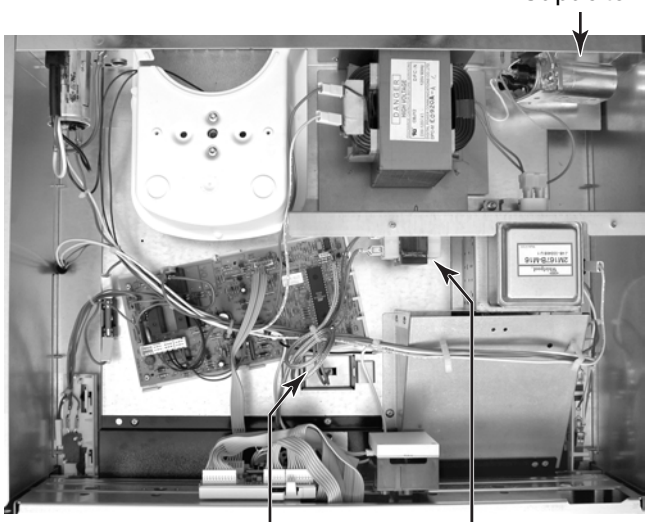
Electrical Shock Hazard

Disconnect power before servicing.

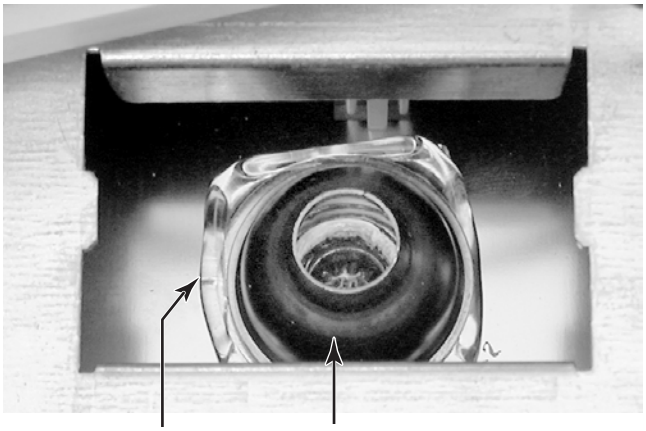
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

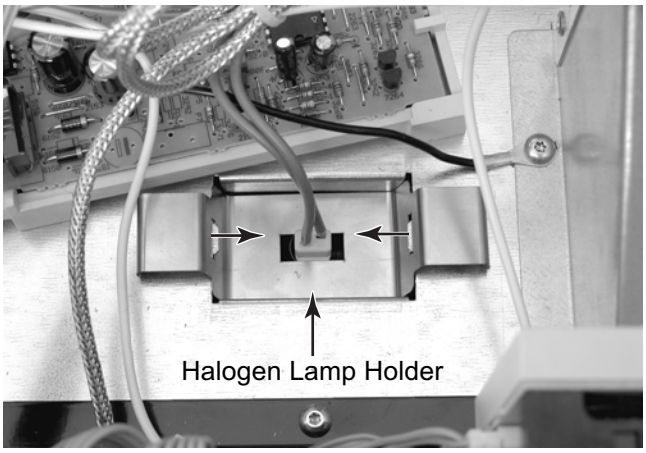
1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the top cover from the microwave (see steps 3 and 4 on page 4-2 for the procedure).
4. **CAUTION: Discharge the high voltage capacitor using a 20,000 Ω resistor from the terminals to chassis ground.**



IMPORTANT NOTE: When you remove and replace the halogen lamp, be very careful not to allow the reflector and lens (shown below), to slide under the top floor of the microwave oven (these two items are loose once the halogen bulb is removed). If they are allowed to slide under the top floor, they may be difficult to locate.

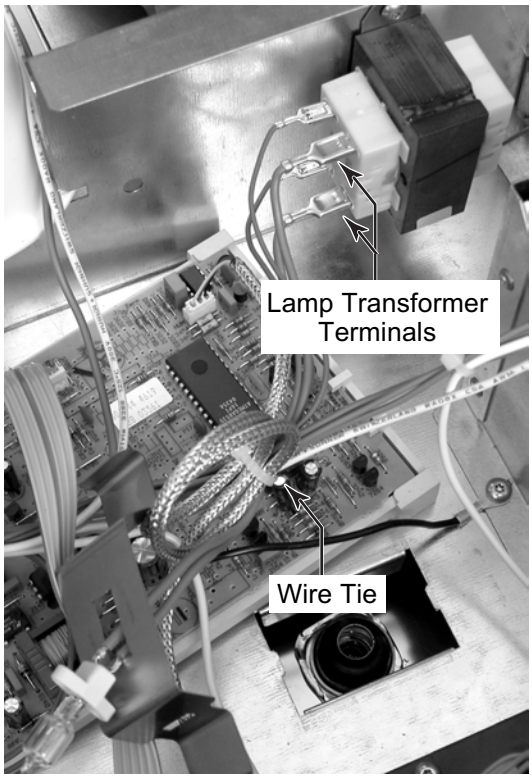


5. **To remove the halogen lamp:**
   a) Squeeze the ends of the halogen lamp holder and unclip the slots from the tabs, then lift the clip, and the halogen lamp straight up off the reflector and lens.



b) Cut the wire tie around the lamp wires.

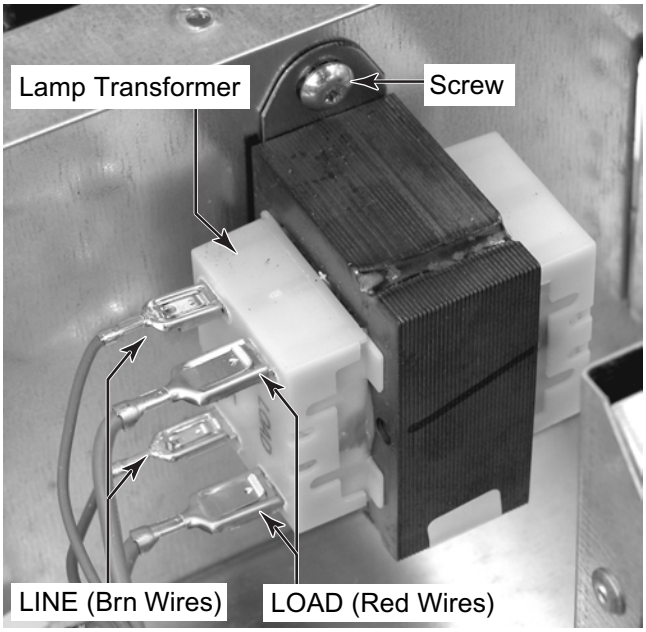
c) Disconnect the halogen lamp wire connectors from the lamp transformer LOAD terminals.



6. **To remove the lamp transformer:**

a) Disconnect the four wire terminals from the transformer terminals.

b) Remove the T10 Torx screw from the transformer and remove it from the mounting bracket.



REMOVING THE 20A LINE FUSEHOLDER, POWER SUPPLY CORD, AND LINE FILTER CAPACITOR

⚠WARNING

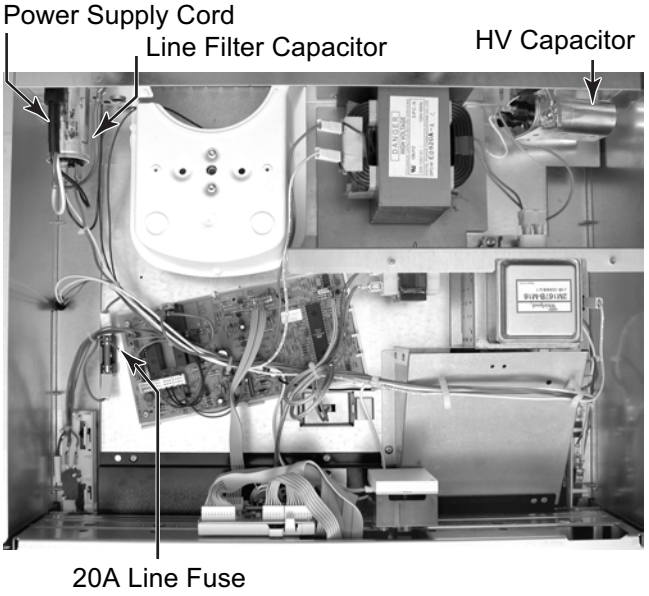
Electrical Shock Hazard

Disconnect power before servicing.

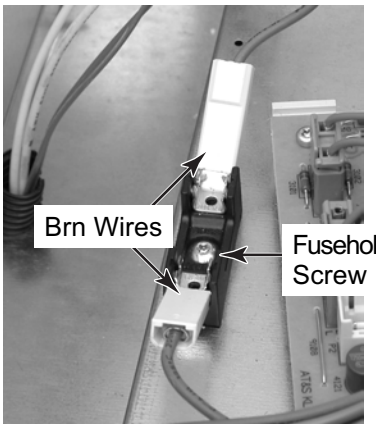
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the top cover from the microwave (see steps 3 and 4 on page 4-2 for the procedure).
4. **CAUTION: Discharge the line filter and high voltage capacitors using a 20,000 Ω resistor from the terminals to chassis ground.**

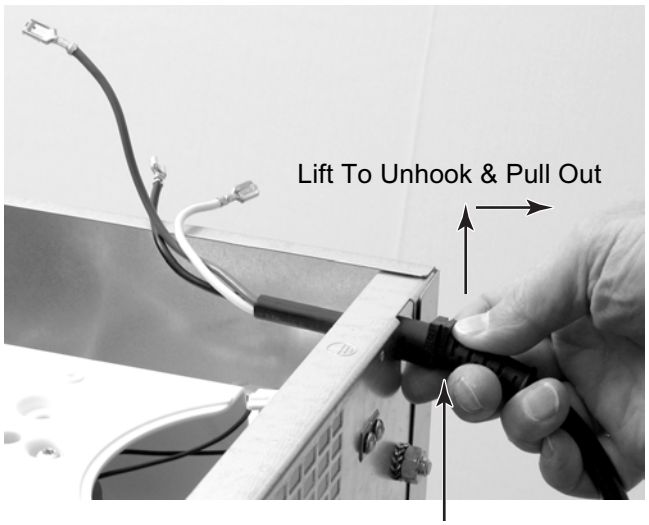


5. **To remove the 20A line fuseholder:**
   a) Remove the fuse from the fuseholder.
   b) Disconnect the two wire connectors from the terminals.
   c) Remove the T10 Torx screw from the fuseholder and remove the fuseholder.



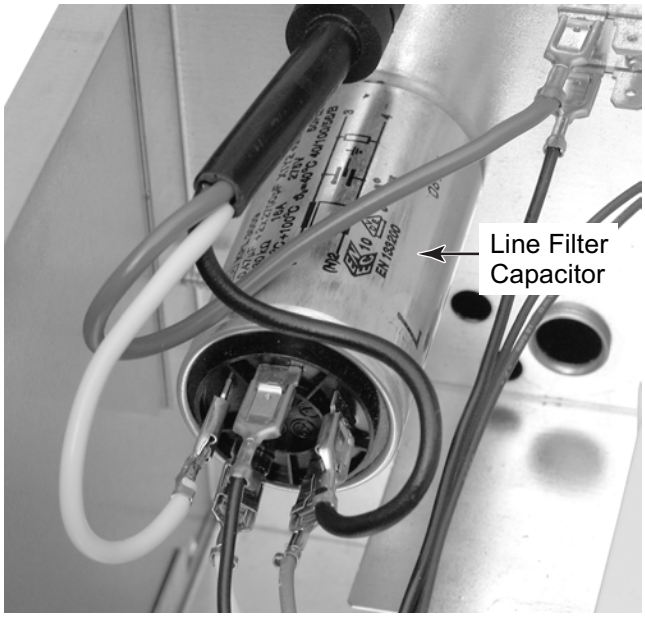
6. **To remove the power supply cord:**
   a) Disconnect the white and black power supply cord wires from the line filter capacitor terminals.
   b) Disconnect the green ground wire from the ground terminal.

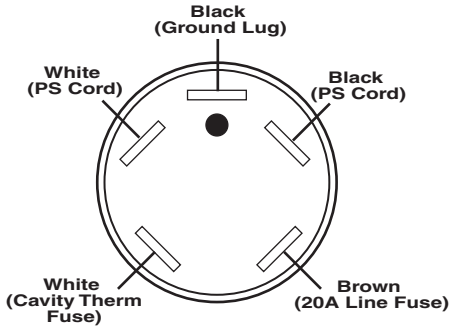
c) Lift the power supply cord and remove it from the chassis slot.



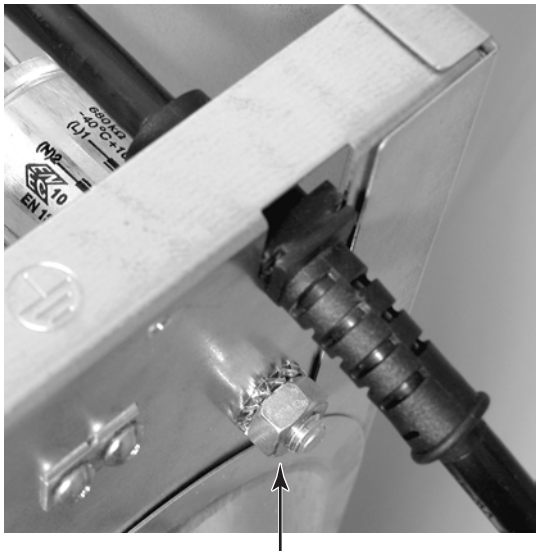
7. **To remove the line filter capacitor:**

a) Disconnect the wires from the line filter capacitor terminals.





b) Remove the 5/8″ hex nut from the rear of the chassis and remove the line filter capacitor.



REMOVING THE COOLING FAN MOTOR

⚠WARNING

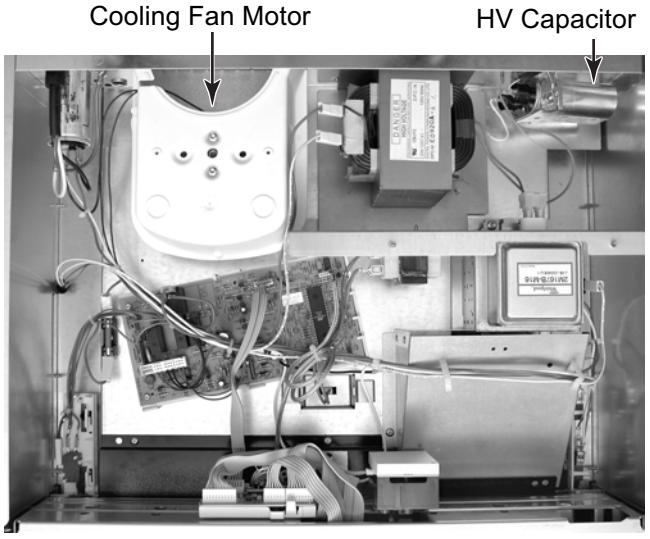
Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

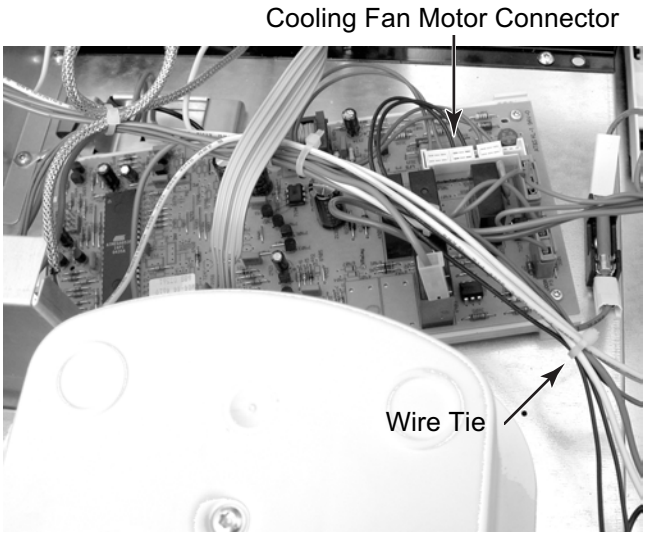
Failure to do so can result in death or electrical shock.

1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the top cover from the microwave (see steps 3 and 4 on page 4-2 for the procedure).
4. **CAUTION: Discharge the high voltage capacitor using a 20,000 Ω resistor from the terminals to chassis ground.**

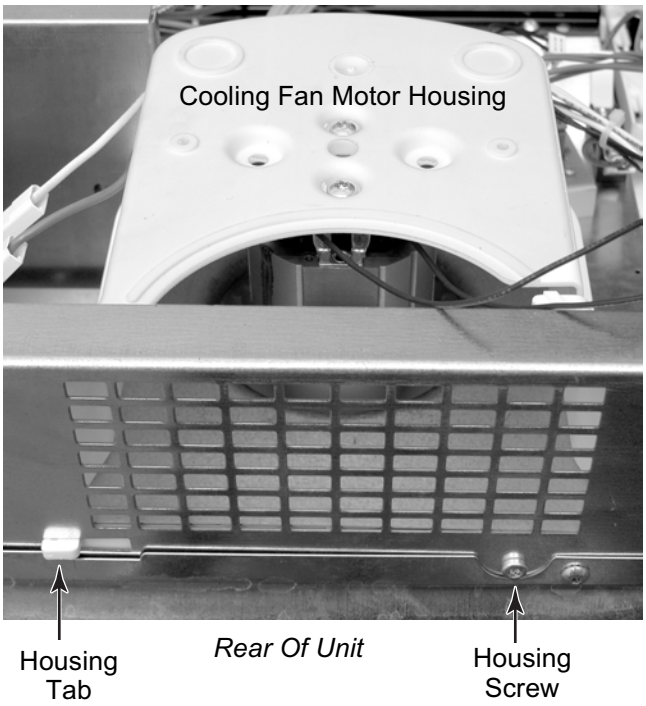


5 Disconnect the motor connector (2 black wires) from connector P2 on the electronic control board.

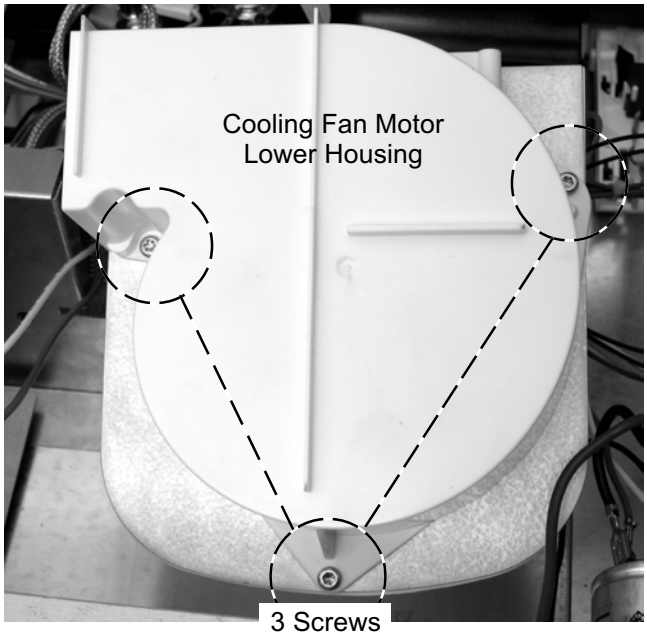
6. Cut the wire tie with the two cooling fan motor wires.



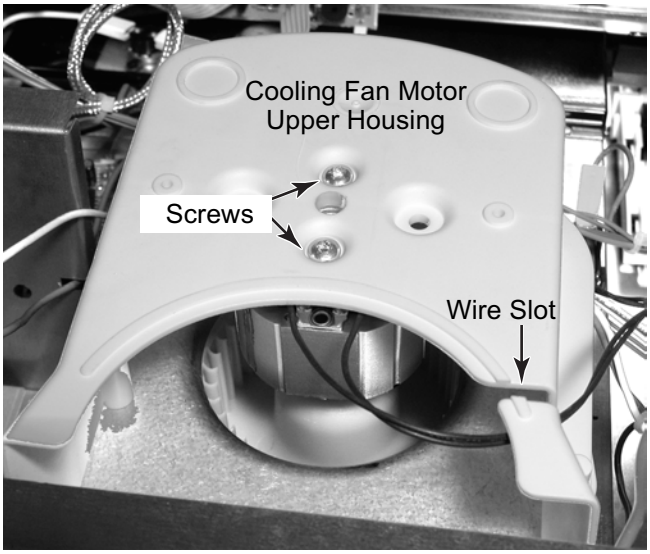
7. Remove the motor housing screw from the rear of the unit.
8. Slide the cooling fan motor housing to the right and unhook the tab from the rear panel. Remove the assembly from the unit and turn it over.



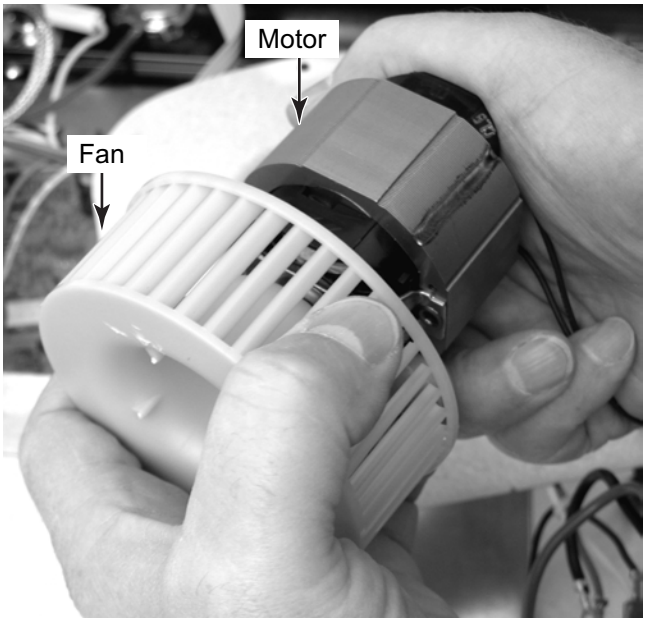
9. Remove the three lower housing T20 Torx screws and remove the lower housing.



10. Remove the two cooling fan motor shoulder T20 Torx screws from the upper housing and remove the motor from the housing.



11. Pull the fan off the motor shaft.



REASSEMBLY NOTE: When you mount the motor to the upper housing, be sure to position the motor with the wires as shown in the top photo so they can be routed through the wire slot in the side of the housing.

REMOVING THE ELECTRONIC CONTROL BOARD

⚠WARNING

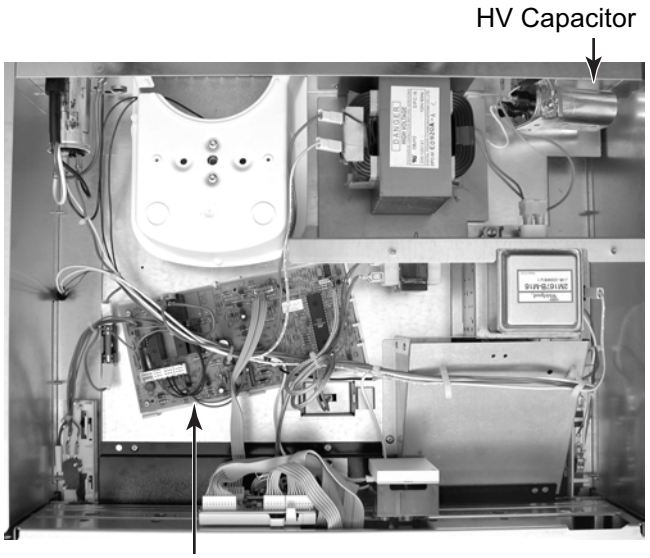
Electrical Shock Hazard

Disconnect power before servicing.

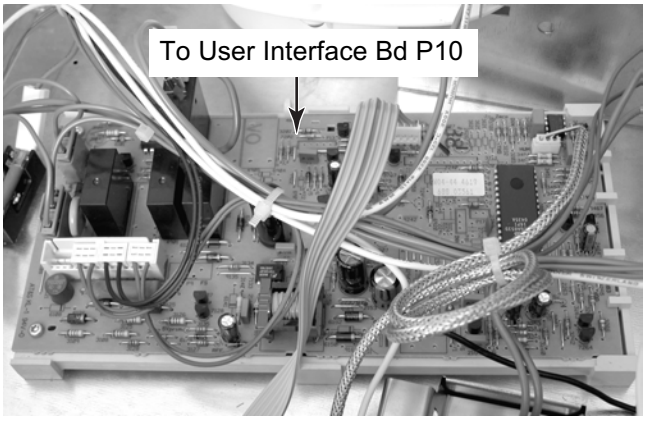
Replace all parts and panels before operating.

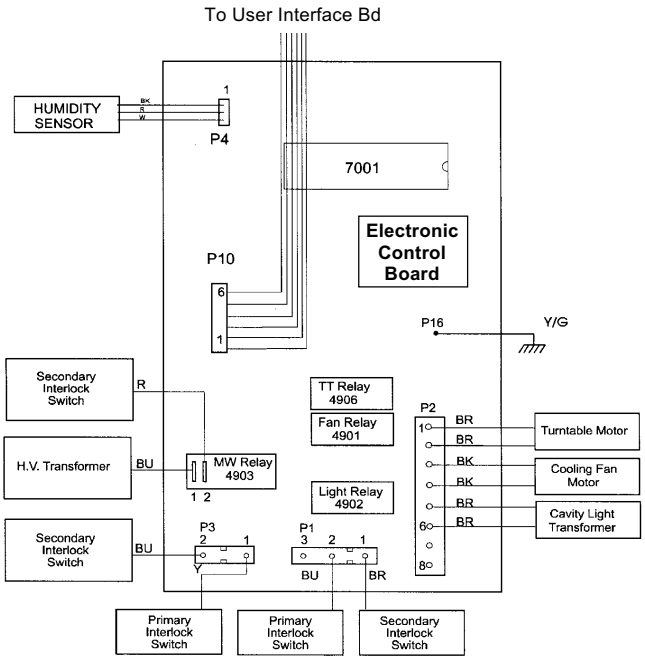
Failure to do so can result in death or electrical shock.

1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the top cover from the microwave (see steps 3 and 4 on page 4-2 for the procedure).
4. **CAUTION: Discharge the high voltage capacitor using a 20,000 Ω resistor from the terminals to chassis ground.**

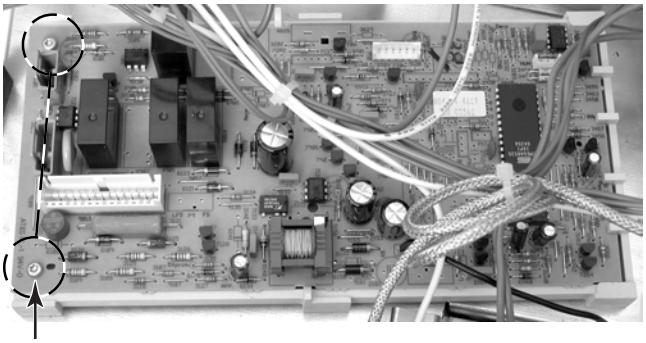


5. Disconnect the wire connectors from the electronic control board.





6. Remove the two T10 Torx screws from the electronic control board, then remove the board from the unit.



REMOVING THE MAGNETRON THERMOSTAT & THE MAGNETRON

⚠WARNING

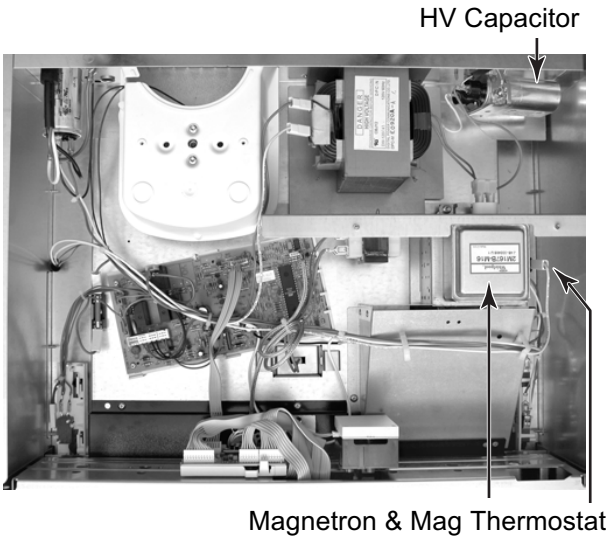
Electrical Shock Hazard

Disconnect power before servicing.

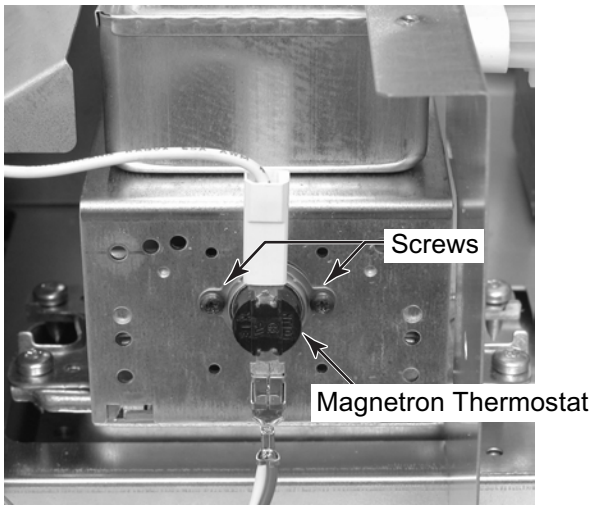
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

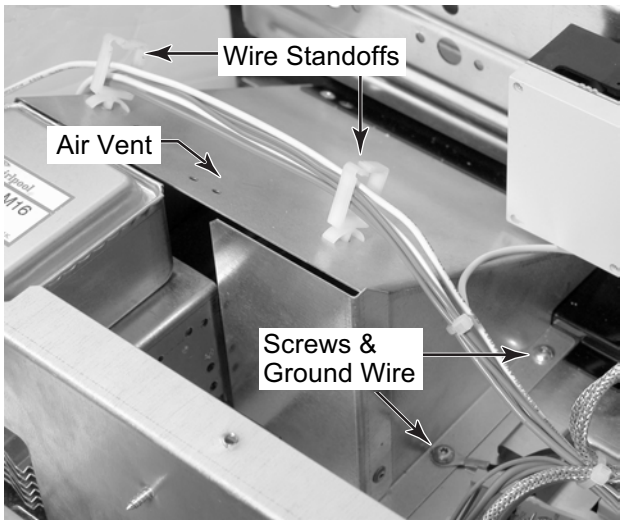
1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the top cover from the microwave (see steps 3 and 4 on page 4-2 for the procedure).
4. **CAUTION: Discharge the high voltage capacitor using a 20,000 Ω resistor from the terminals to chassis ground.**



5. Remove the right side panel (see step 7 on page 4-6 for the procedure).
6. **To remove the magnetron thermostat:**
   a) Disconnect the wire connectors from the thermostat terminals.
   b) Remove the two T10 Torx screws and remove the thermostat from the magnetron.



7. **To remove the magnetron:**
   a) Remove the magnetron thermostat (see step 6).
   b) Remove the wires from the air vent standoffs.
   c) Remove the four T10 Torx screws (two on each side), and the ground wire eyelet from the air vent and remove the vent.



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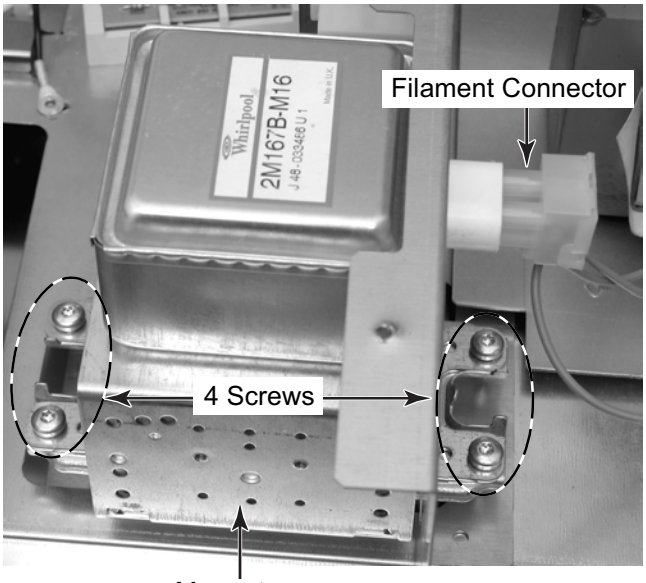
d) Pull the filament connector off the magnetron terminals.
e) Remove the four T20 Torx screws from the magnetron and remove the magnetron from the unit.



REMOVING THE HIGH VOLTAGE TRANSFORMER, DIODE, AND CAPACITOR

⚠WARNING

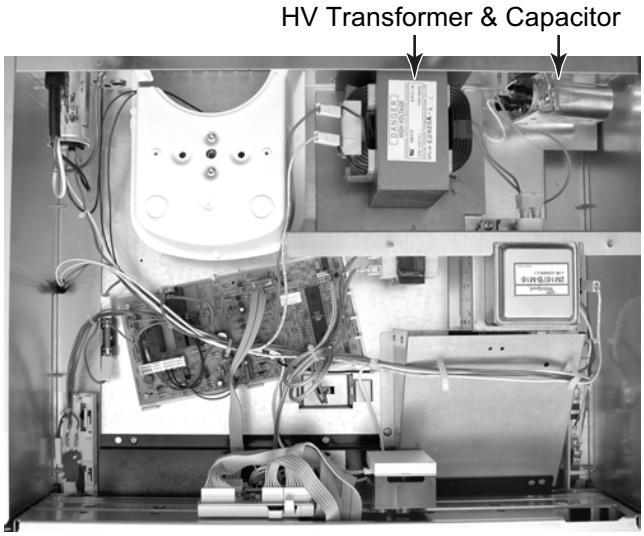
Electrical Shock Hazard

Disconnect power before servicing.

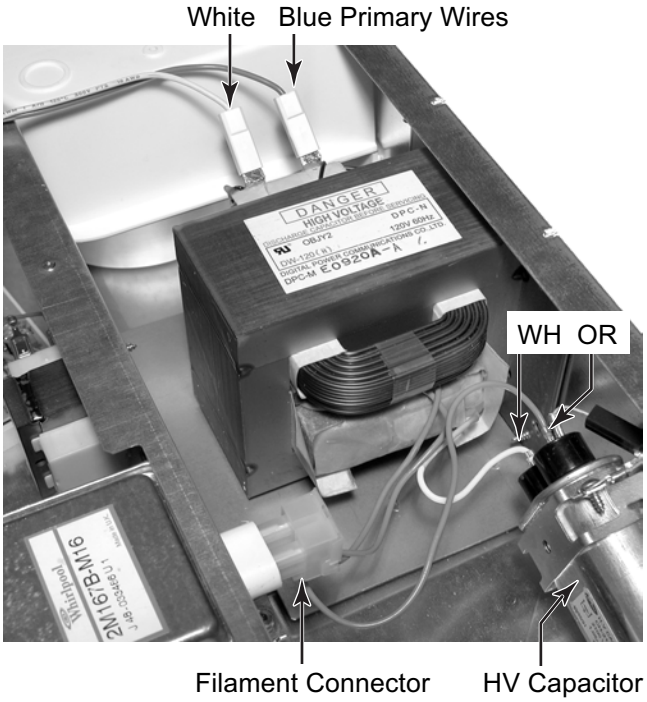
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

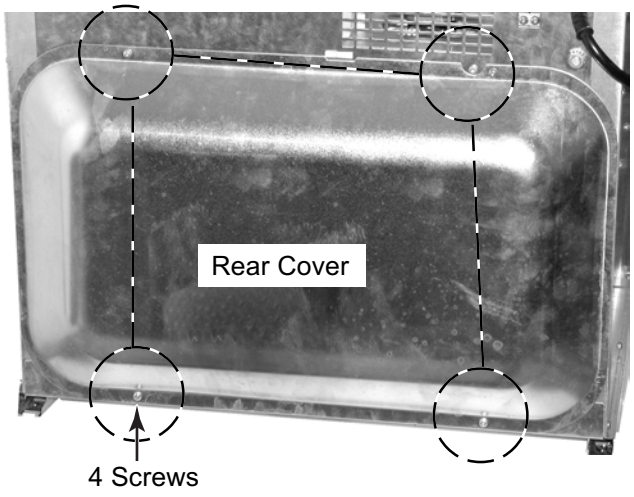
1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Remove the top cover from the microwave (see steps 3 and 4 on page 4-2 for the procedure).
4. **CAUTION: Discharge the high voltage capacitor using a 20,000 Ω resistor from the terminals to chassis ground.**



5. **To remove the high voltage transformer:**
   a) Disconnect the white and blue wires from the primary terminals.
   b) Disconnect the filament connector from the magnetron terminals.
   c) Disconnect the orange and white wires from the high voltage capacitor.

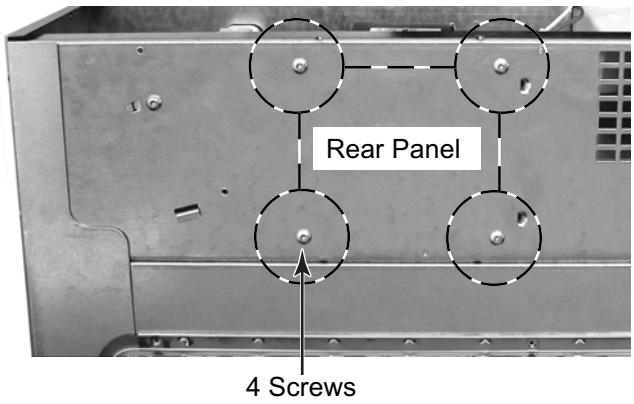


   d) Remove the four T10 Torx screws from the rear cover and remove the cover.



Continued on the next page.

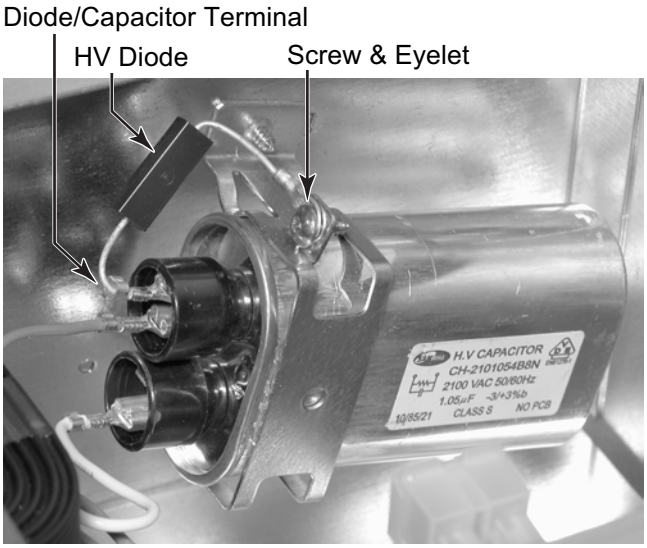
e) Remove the four high voltage transformer screws from the rear panel of the microwave oven, and remove the transformer from the oven.



6. **To remove the high voltage diode:**

a) Remove the T10 Torx screw from the diode lead eyelet.

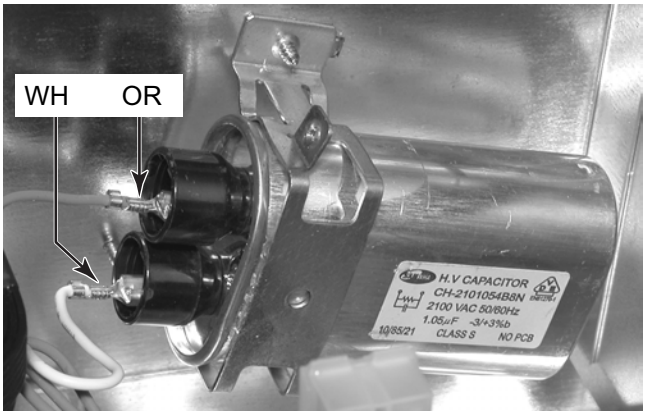
b) Disconnect the other diode lead from the capacitor terminal and remove the diode.



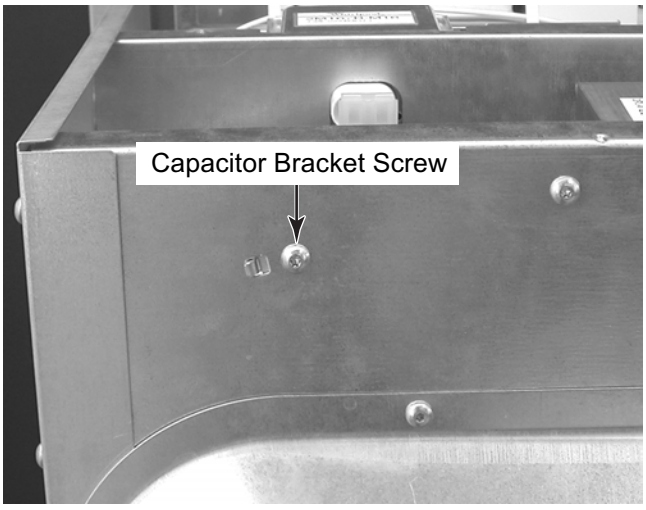
7. **To remove the high voltage capacitor:**

a) Remove the diode from the capacitor (see step 6).

b) Disconnect the white and orange wires from the capacitor terminals.



c) Remove the T10 capacitor bracket Torx screw from the rear panel and remove the bracket and capacitor.



REMOVING THE TURNTABLE MOTOR

⚠WARNING

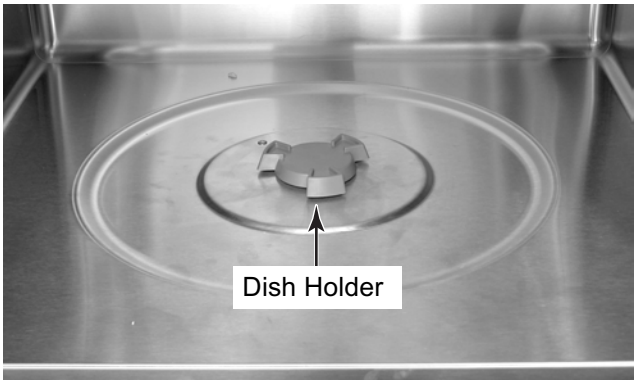
Electrical Shock Hazard

Disconnect power before servicing.

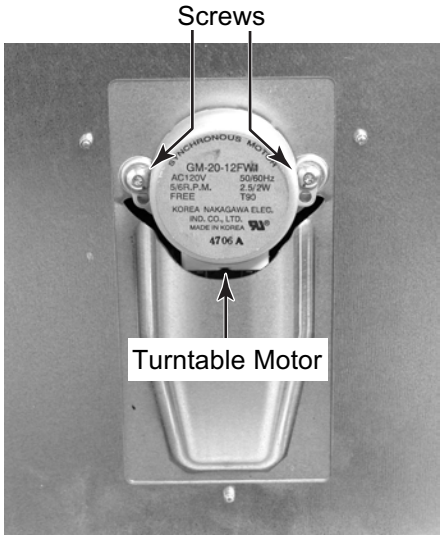
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

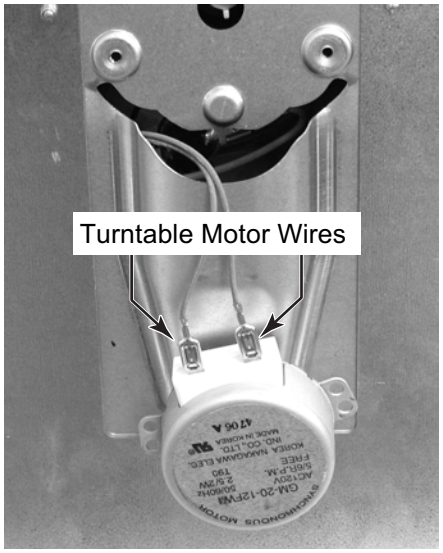
1. Unplug microwave oven or disconnect power.
2. Remove the microwave oven from its mounting location.
3. Open the oven door and remove the dish holder from the turntable motor shaft.



4. Lay the microwave oven on its rear panel so you can access the bottom of the unit.
5. Remove the two T20 Torx screws from the turntable motor.



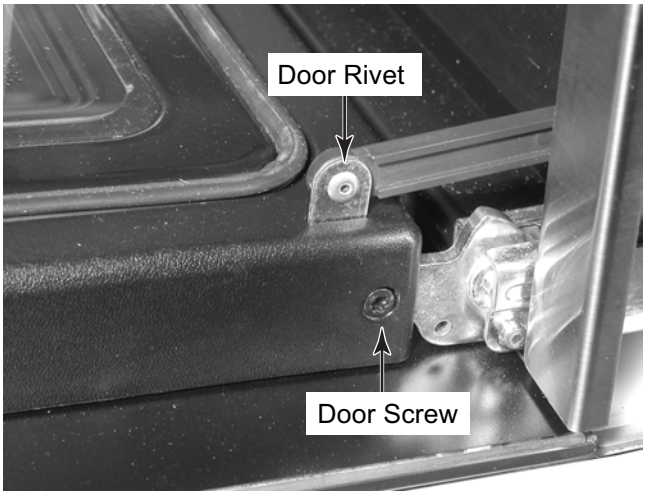
6. Disconnect the two wires from the turntable motor and remove the motor.



REMOVING THE OVEN DOOR

1. Open the microwave oven door.

2. Use a 1/4″ drill bit, and drill the head off the rivet on the right side of the oven door. **NOTE:** A new rivet is supplied with the replacement oven door (a rivet must be used in this application to deter disassembly by customers).
3. Remove the T10 Torx screws from the left and right sides of the oven door, and remove the door.



COMPONENT TESTING

Before testing any of the components, perform the following checks:

- The most common cause for control failure is corrosion on connectors. Therefore, disconnecting and reconnecting wires will be necessary throughout test procedures.
- All tests/checks should be made with a VOM or DVM having a sensitivity of 20,000 ohms-per-volt DC, or greater.
- Check all connections before replacing components, looking for broken or loose wires, failed terminals, or wires not pressed into connectors far enough.
- Resistance checks must be made with power cord unplugged from outlet, and with wiring harness or connectors disconnected.

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

HUMIDITY SENSOR

Refer to page 4-5 for the procedure for accessing the humidity sensor.

1. Unplug microwave oven or disconnect power.
2. Disconnect the 3-wire connector from the HUM connector on the electronic control board.
3. Set the ohmmeter to the R x 1K scale.
4. Touch the ohmmeter test leads to the indicated wire terminals of the 3-wire connector. The meter should indicate as follows:

   Black to white = approximately 2800 Ω @ 77°F/25°C ±18°F/10°C.

   White to red = approximately 2800 Ω @ 77°F/25°C ±18°F/10°C.

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

CAVITY THERMOSTAT

Refer to pages 4-5 for the procedure for accessing the cavity thermostat.

1. Unplug microwave oven or disconnect power.
2. Disconnect one of the wires from the thermostat terminals.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the terminals. The meter should indicate a closed circuit (0 Ω).

NOTE: The thermostat opens @ 239°F / 115°C and closes at –31°F / –35°C. If the thermostat is defective, the ohmmeter will indicate an infinite circuit.

NO LOAD CAVITY THERMOSTAT

NOTE: The no load cavity thermostat assembly is a non-serviceable component. It is located below the floor of the oven cavity. To check the thermostat, perform the following steps.

1. Unplug microwave oven or disconnect power.
2. Disconnect the white wire from the high voltage transformer terminal.
3. Set the ohmmeter to the R x 1 scale.
4. Touch one ohmmeter test lead to the white wire connector from the high voltage transformer. Touch the other ohmmeter test lead to the white wire of the magnetron thermostat. The meter should indicate a closed circuit (0 Ω).

NOTE: The thermostat opens @ 257°F / 125°C and closes at 185°F / 85°C. If the thermostat is defective, the ohmmeter will indicate an infinite circuit.

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

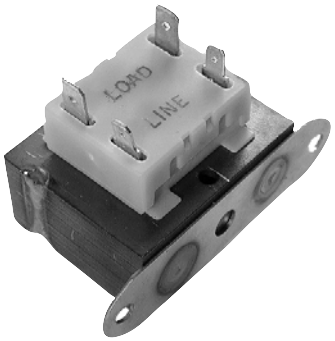
DOOR INTERLOCK SWITCHES

Refer to page 4-6 for the procedure for accessing the door interlock switches.

1. Unplug microwave oven or disconnect power.
2. Disconnect the wires from the switch terminals.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the terminals of the ***primary*** or ***secondary*** interlock switch (normally-open). The meter should indicate an open circuit (infinite).
5. Touch the ohmmeter test leads to the terminals of the ***monitor*** interlock switch (normally-closed). The meter should indicate a closed circuit (0 Ω).

NOTE: Pressing the actuator button should result in opposite readings (normally-open should read closed, and normally-closed should read open).

LAMP TRANSFORMER



Refer to page 4-8 for the procedure for accessing the lamp transformer.

1. Unplug microwave oven or disconnect power.
2. Disconnect one of the wire connectors from the LOAD and LINE transformer terminals.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the LOAD transformer terminals. The meter should indicate less than 1 Ω.
5. Touch the ohmmeter test leads to the LINE transformer terminals. The meter should indicate approximately 45 Ω.

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

20A LINE FUSE

Refer to page 4-10 for the procedure for accessing the line fuse.

1. Unplug microwave oven or disconnect power.
2. Set the ohmmeter to the R x 1 scale.
3. Touch the ohmmeter test leads to the ends of the fuse. The meter should indicate a closed circuit (0 Ω).

LINE FILTER CAPACITOR

Refer to page 4-10 for the procedure for accessing the line filter capacitor.

1. Unplug microwave oven or disconnect power.
2. **Discharge the line filter and high voltage capacitors using a 20,000 Ω resistor from the terminals to chassis ground.**
3. Disconnect the wire connectors from the line filter capacitor terminals.
4. Set the ohmmeter to the R x 1K scale.
5. Touch the ohmmeter test leads to the capacitor terminals and ground. The meter should indicate several ohms, and gradually return to infinity.

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

COOLING FAN MOTOR

Refer to page 4-12 for the procedure for accessing the cooling fan motor.

1. Unplug microwave oven or disconnect power.
2. Disconnect the wire connectors from the cooling fan motor terminals.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the motor terminals. The meter should indicate approximately 10 Ω.

MAGNETRON THERMOSTAT (N.C.)

Refer to page 4-15 for the procedure for accessing the magnetron thermostat.

1. Unplug microwave oven or disconnect power.
2. Disconnect the wires from the magnetron thermostat terminals.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the terminals. The meter will indicate a closed circuit (0 Ω) at room temperature. **NOTE:** The thermostat opens @ 293°F / 145°C and resets (closes) @ 250°F / 121°C.

⚠WARNING

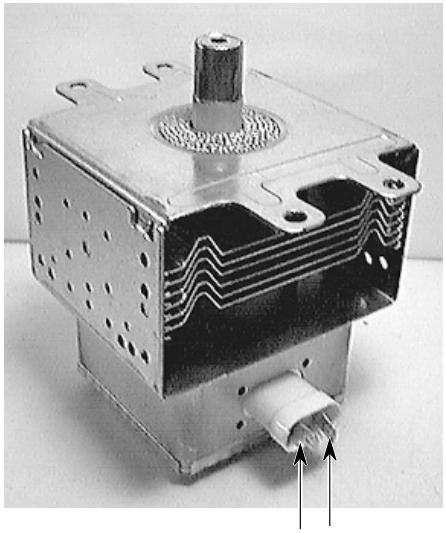
Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

MAGNETRON



Refer to page 4-15 for the procedure for accessing the magnetron.

1. Unplug microwave oven or disconnect power.
2. **Discharge the high voltage capacitor using a 20,000 Ω resistor from the terminals to chassis ground.**
3. Disconnect the wire connector from the filament terminals.
4. Set the ohmmeter to the R x 1 scale.
5. Touch the ohmmeter test leads to the filament terminals. The meter should indicate less than 1 Ω.
6. Touch one ohmmeter test lead to the chassis and the other to each of the filament terminals. The meter should indicate an open circuit (infinite).

HIGH VOLTAGE TRANSFORMER

Refer to page 4-17 for the procedure for accessing the high voltage transformer.

1. Unplug microwave oven or disconnect power.
2. Disconnect the high voltage transformer wires from the magnetron and high voltage capacitor terminals.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the two primary terminals. The meter should indicate less than 1 Ω.
5. Touch one ohmmeter test lead to the white secondary wire terminal and the other test lead to the transformer chassis ground lug. The meter should indicate approximately 75 Ω.
6. Touch the ohmmeter test leads to the two red-black filament terminals. The meter should indicate 0 Ω.
7. Set the ohmmeter to the R x 1K scale.
8. Touch one ohmmeter test lead to the transformer chassis ground lug. Touch the other test lead to each of the filament terminals. The meter should indicate infinity at both terminals.

⚠WARNING

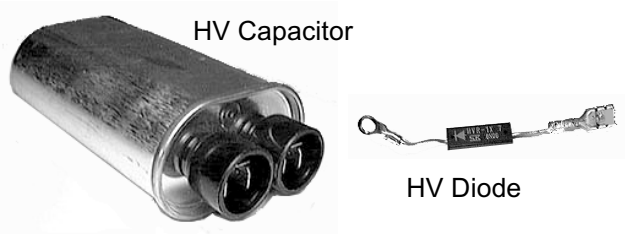
Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

HIGH VOLTAGE CAPACITOR & DIODE



Refer to page 4-17 for the procedure for accessing the high voltage capacitor and diode.

1. Unplug microwave oven or disconnect power.
2. **Discharge the high voltage capacitor using a 20,000 Ω resistor from the terminals to chassis ground.**
3. Disconnect the diode and wire leads from the high voltage capacitor terminals.
4. **To test the high voltage capacitor:**
   a) Set the ohmmeter to the R x 1K scale.
   b) Touch the ohmmeter test leads to the capacitor terminals. The meter should indicate several ohms, and gradually return to infinity.
   c) Touch one ohmmeter test lead to the capacitor case. Touch the other test lead to each of the terminals. The meter should indicate infinity at both terminals.
5. **To test the high voltage diode:**
   a) Set the ohmmeter to the R x 1K scale.
   b) Touch the positive ohmmeter test lead to the anode lead of the diode and the negative ohmmeter test lead to the cathode lead. The meter should indicate continuity (0 Ω).
   c) Reverse the ohmmeter test leads on the diode and the meter should indicate infinity.

⚠WARNING

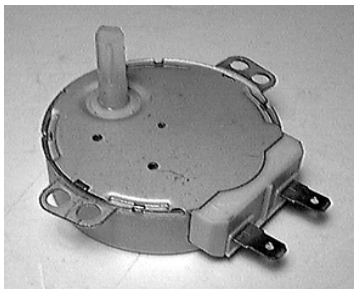
Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

TURNTABLE MOTOR



Refer to page 4-19 for the procedure for accessing the turntable motor.

1. Unplug microwave oven or disconnect power.
2. Disconnect one of the wire connectors from the motor terminals.
3. Set the ohmmeter to the R x 1K scale.
4. Touch the ohmmeter test leads to the turntable motor terminals. The meter should indicate approximately 2450 Ω.

DIAGNOSTICS & TROUBLESHOOTING

FAILURE CODE INDICATIONS

Display	Likely Failure Condition	Recommended Repair Procedure
Flashing colon ":"	Power failure	After a power failure, the colon ":" will be flashing. Press any key to end this indication. The colon will then be steady when in standby.
F2	Keyboard failure	1. Unplug microwave oven or disconnect power. 2. Replace membrane switch. 3. If problem persists, replace electronic control. 4. Plug in microwave oven or reconnect power.
F3H	Humidity sensor failure	1. Unplug microwave oven or disconnect power. 2. Connect a new sensor to the electronic control (at P2). 3. Plug in microwave oven or reconnect power. 4. If no failure code appears when starting sensor function: • Unplug microwave oven or disconnect power. • Replace old sensor. 5. If failure code appears when starting sensor function: • Unplug microwave oven or disconnect power. • Replace electronic control. 6. Plug in microwave oven or reconnect power.
F6	Microwave relay failure	1. Check wiring to Relay 4903 for short circuits. 2. If wiring is OK: • Unplug microwave oven or disconnect power. • Replace electronic control. • Plug in microwave oven or reconnect power.

MICROWAVE OVEN POWER OUTPUT TEST

The power output of the magnetron can be measured by the following tap water temperature rise test.

NOTES:

- Be sure oven cavity is clean and cool (not used recently).
- The magnetron output will be lower with lower line voltages.

1. Fill a glass beaker with 10 oz (300 mL) of tap water. Stir the water with a thermometer (digital recommended) and record the temperature. This starting temperature of the water should be between 50°F and 75°F (10°C and 24°C).
2. Place the beaker and water in the center of the microwave oven. Operate on HIGH power level for 30 seconds.
3. When the microwave oven is finished, stir the thermometer through the water and record the temperature.
4. Subtract the cold water temperature from the warm water temperature to get the temperature rise. Normal range is as shown in the following table.

Voltage (VAC under load)	Temperature Rise ºF	ºC
120V	27 - 34.2	15 - 19
108V	23.4 - 30.6	13 - 17

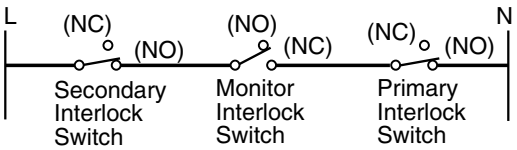
PRIMARY, SECONDARY, & MONITOR INTERLOCK SWITCH CHECKOUT PROCEDURE

Switch	Check By	Door Open	Door Closed
Primary Interlock	1. Unplug microwave oven or disconnect power. 2. Disconnect the wires at the Primary Interlock Switch. 3. Check from the common terminal (white/brown wires) to the normally open terminal (white wire).	–	+
Secondary Interlock	1. Unplug microwave oven or disconnect power. 2. Disconnect the wires at the Secondary Interlock Switch. 3. Check from the common terminal (black wires) to the normally open terminal (white/red wires).	–	+
	1. Unplug microwave oven or disconnect power. 2. Disconnect the wires at the Secondary Interlock Switch. 3. Check from the common terminal (black wires) to the normally closed terminal (orange wire).	+	–
Monitor Interlock	1. Unplug microwave oven or disconnect power. 2. Disconnect the wires at the Monitor Interlock Switch. 3. Check from the common terminal (white wire) to the normally open terminal (blue wires).	–	+
	1. Unplug microwave oven or disconnect power. 2. Disconnect the wires at the Monitor Interlock Switch. 3. Check from the common terminal (white wire) to the normally closed terminal (red/brown wires).	+	–

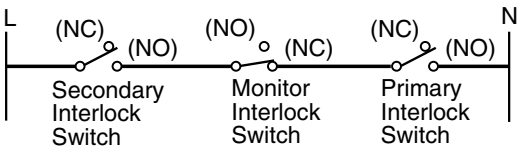
(+) Continuity (–) No Continuity

NOTE: These diagrams are not intended to show a complete circuit; they represent the position of switches during “DOOR OPEN” or “DOOR CLOSED” (continuity checks only).

Door Closed

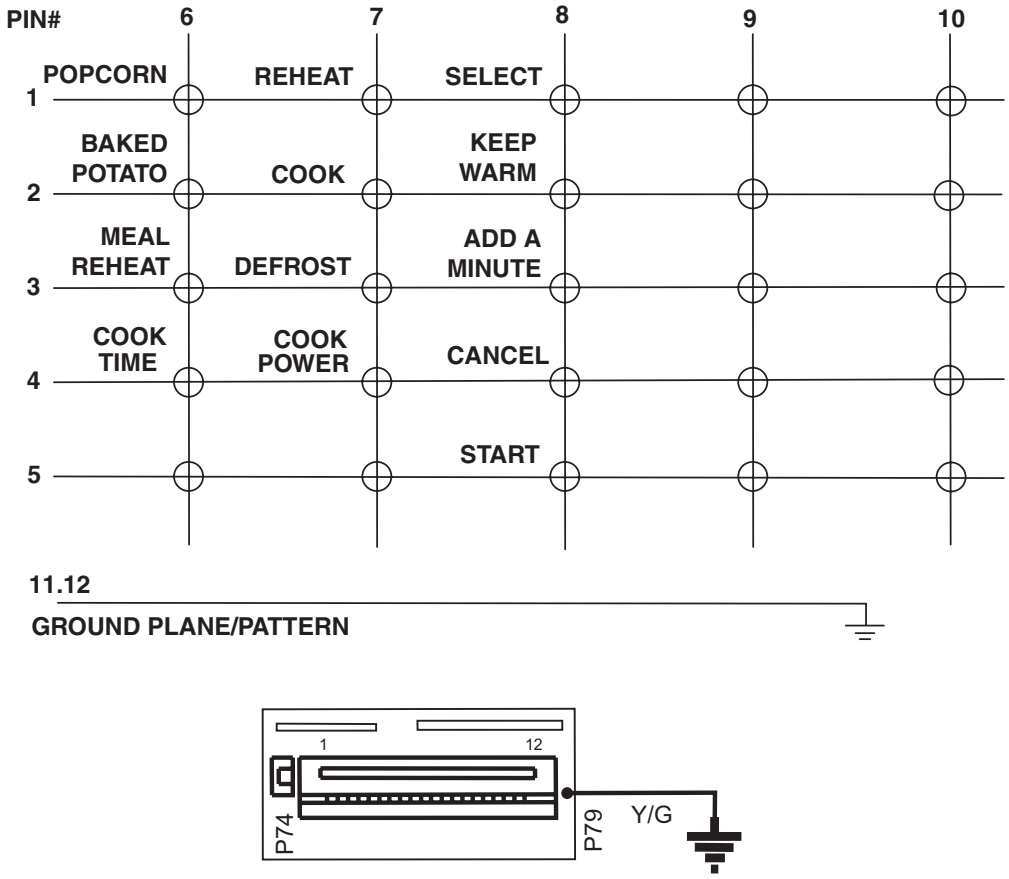


Door Open



TOUCH PANEL

TOUCH PANEL CONTINUITY TEST



NOTE: The distance between the ground plane and the membrane switch should be at least 7/25″ (7 mm). The electrical top layer of the membrane switch must contain a ground plane/pattern.

TOUCH PANEL & ELECTRONIC CONTROL BOARD TEST

The microwave hood combination is provided with a self-diagnostic routine that can be accessed through the touch keypad.

To initiate this routine:

1. Press and hold CANCEL/OFF while opening the door. While still holding the CANCEL/OFF button, unplug the microwave oven for 2 seconds, then plug it back in.
2. Release the CANCEL/OFF button and close the door.
3. After pressing each button on the control panel, “8” will appear in the display to indicate that the circuits are complete and all relays are working. Refer to Key Table for Test Mode.

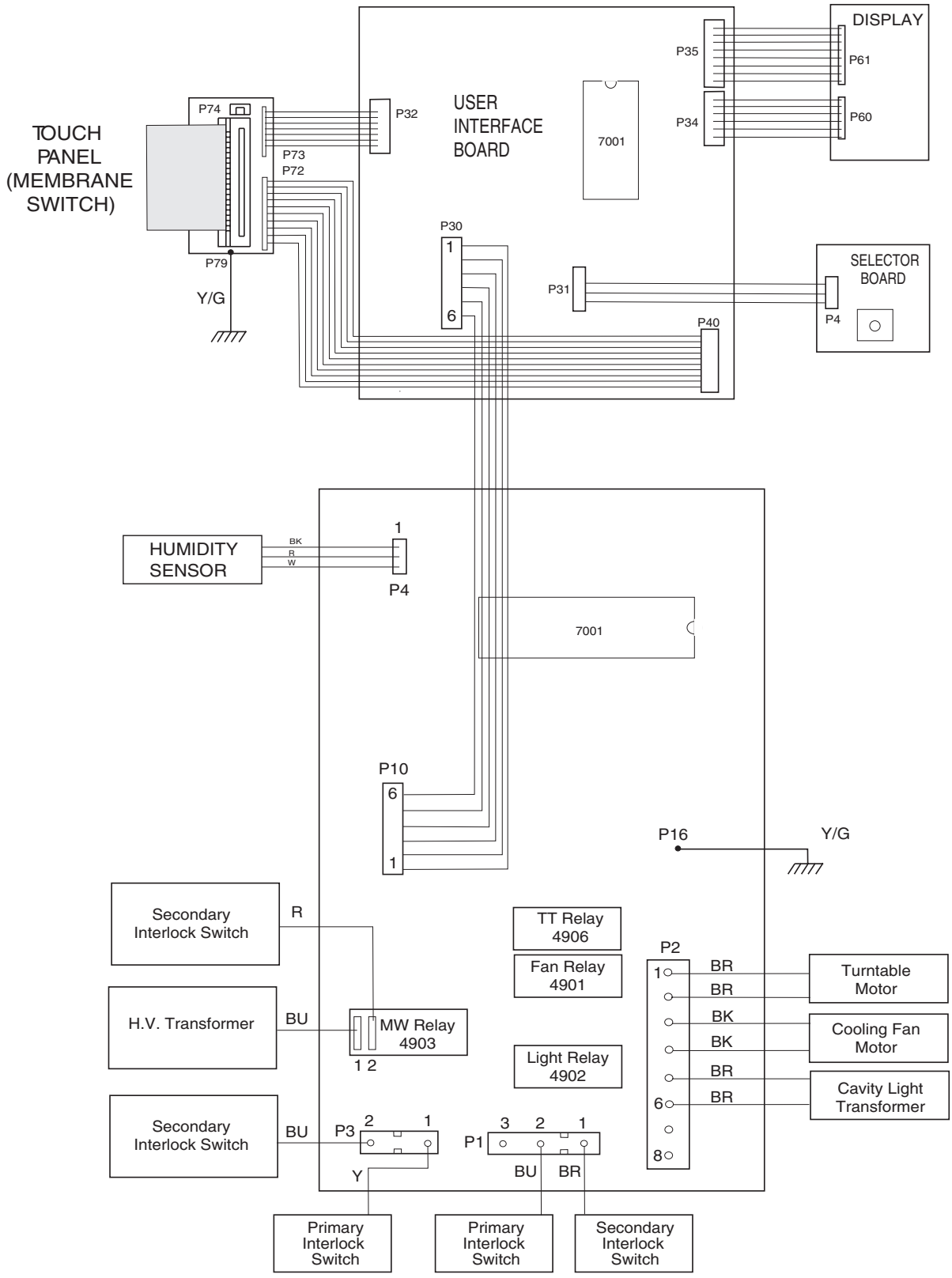
NOTE: If the CANCEL/OFF button is pressed during this diagnostic routine, you will exit the test mode.

KEY TABLE FOR TEST MODE

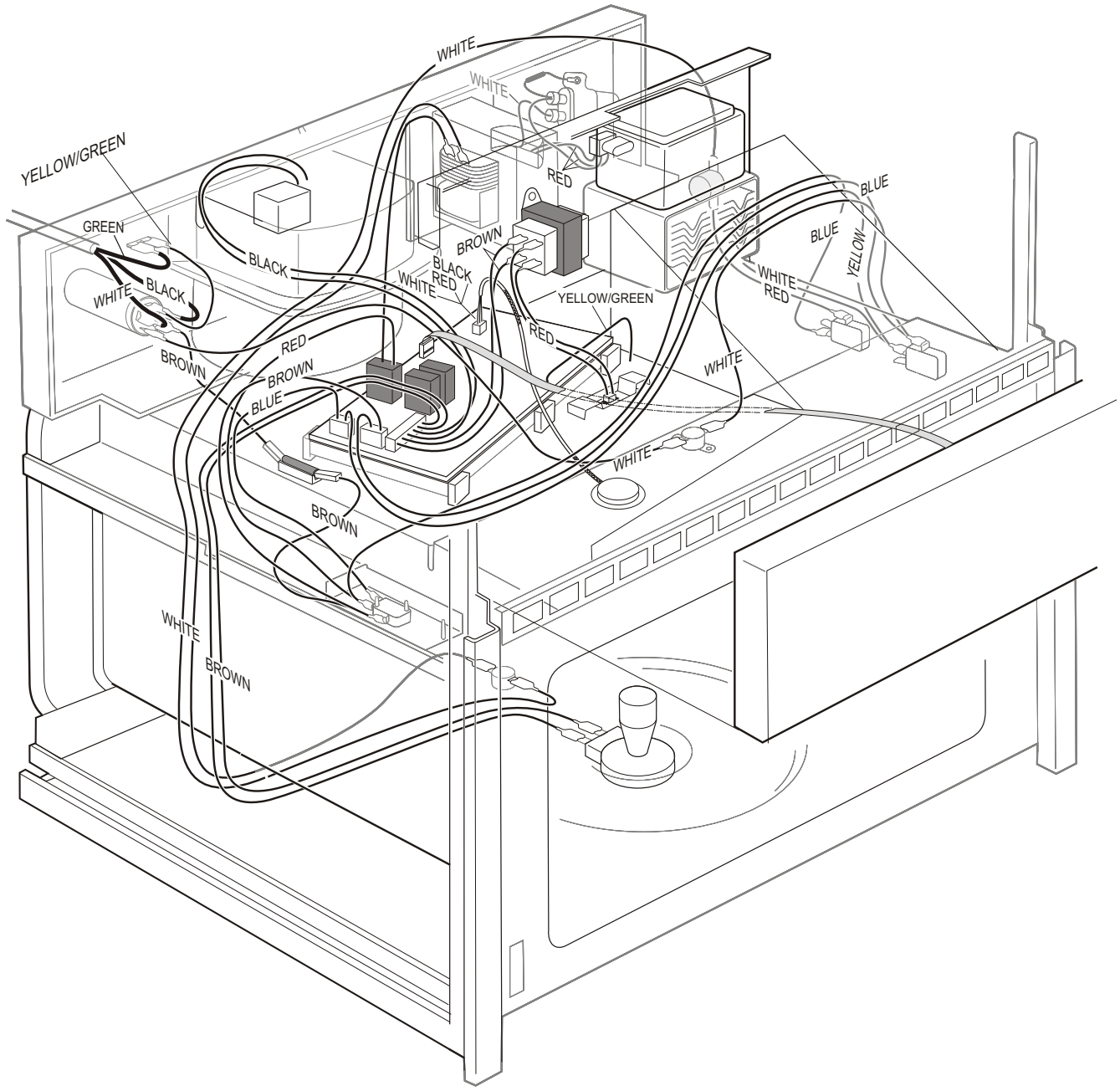
NOTE: Activate keys and turn dial to check functions according to the table below. The result of all actions will be active until any new action is chosen. All relays are on until next action or until time-out.

Key	Display	MW-Relay	TT-Relay	Cavity Lamp	Cavity Fan	Buzzer	Comment
Rot. CW	-	-	-	On	-	On	
Rot. CCW	-	-	On	-	On	Off	
Popcorn	Version # of USIF-board flash	-	-	-	-	-	Cook Time LED is lit.
Baked Potato	Button # to the left in display	-	-	On	On	-	Cook Power LED is lit.
Meal Reheat	Humidity sensor	-	-	-	-	-	Food type LED is lit. Will show sensor PWM-value in the display if the value is within allowed range, else error code "Err7" will be shown.
Reheat	Version # of electronic control flash	-	-	On	On	-	Sensor LED is lit.
Cook	Version # of electronic control eeprom	-	-	-	-	-	Start LED is lit.
Defrost	Ambient temp sensor	-	-	On	On	-	Will show sensor value in 2 LSD if within allowed range, else error code "Err4" will be shown.
Cook Time	Button # to the left in display	-	-	-	-	-	Cups LED is lit.
Cook Power	Button # to the left in display	-	-	-	On	-	OZ LED is lit.
Select	Button # to the left in display	-	-	On	-	-	Pieces LED is lit.
Keep Warm	Button # to the left in display	-	On	On	On	-	LBS LED is lit.
Add a Minute	Button # to the left in display	-	-	-	-	On	Servings LED is lit.
Start	Button # to the left in display	-	-	-	-	-	
Cancel/Off	Colon	-	-	-	-	-	Leave test mode.

BOARD INTERCONNECTION DIAGRAM



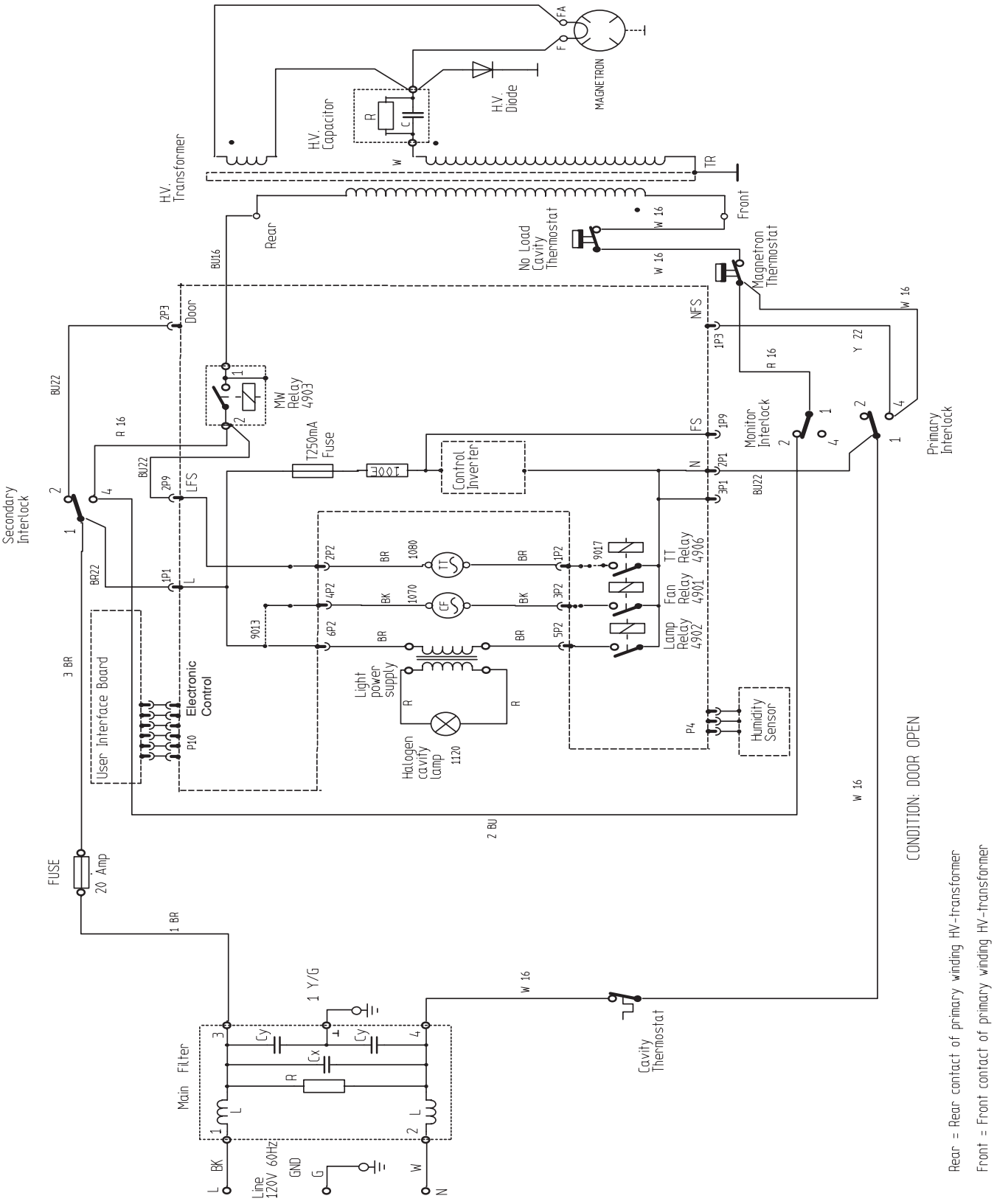
MICROWAVE OVEN WIRING



— NOTES —

WIRING DIAGRAMS & STRIP CIRCUITS

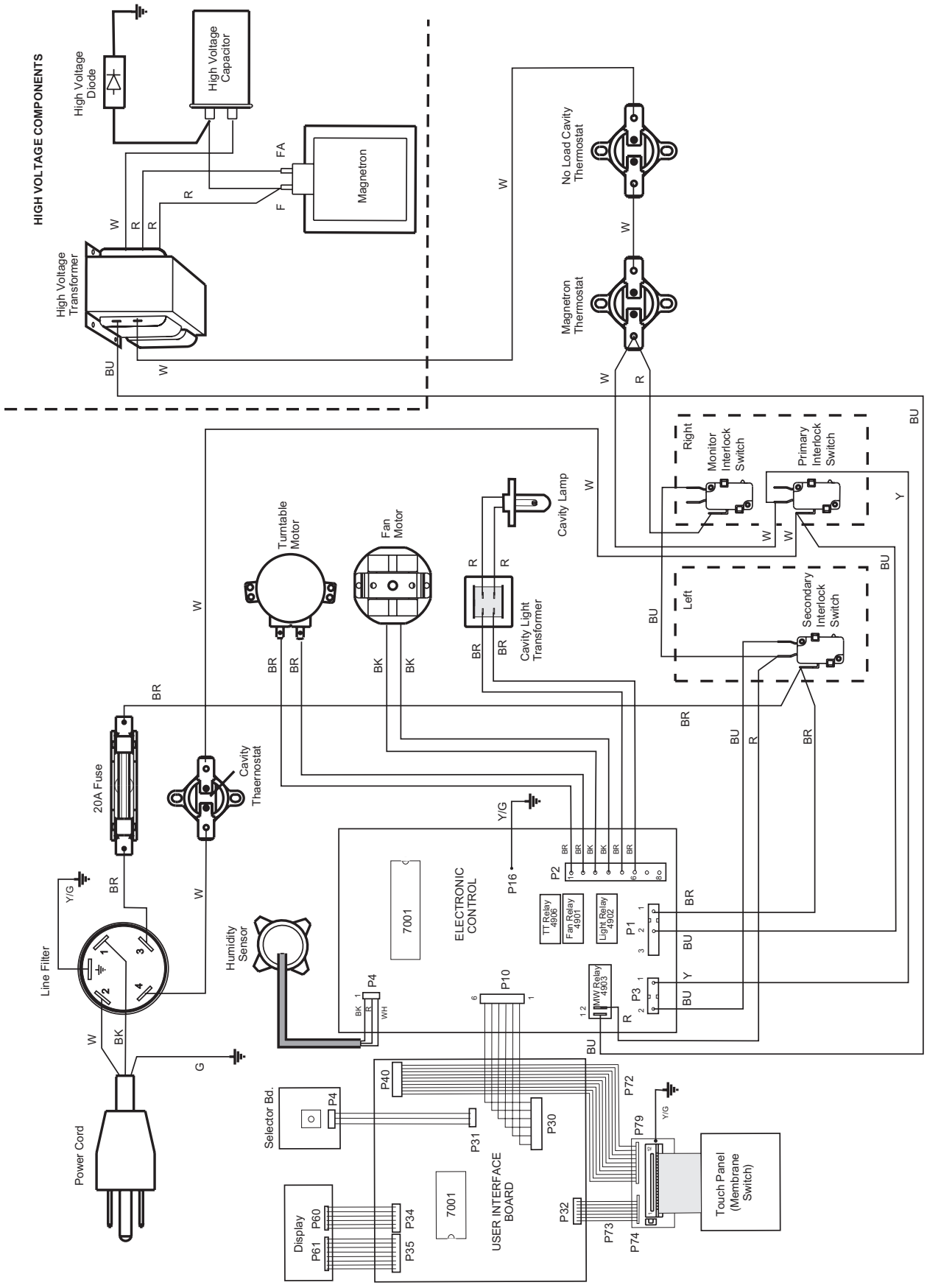
SCHEMATIC DIAGRAM



Rear = Rear contact of primary winding HV-transformer

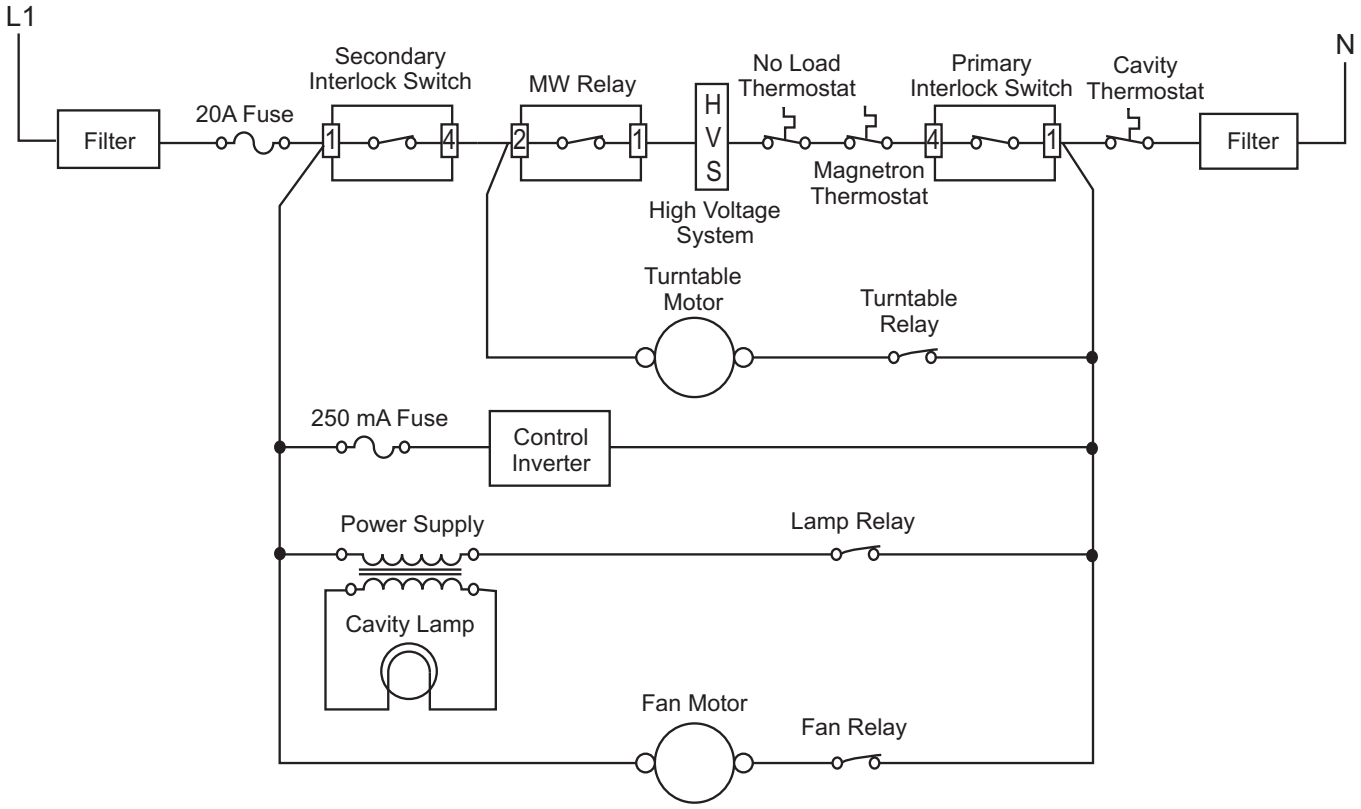
Front = Front contact of primary winding HV-transformer

WIRING DIAGRAM

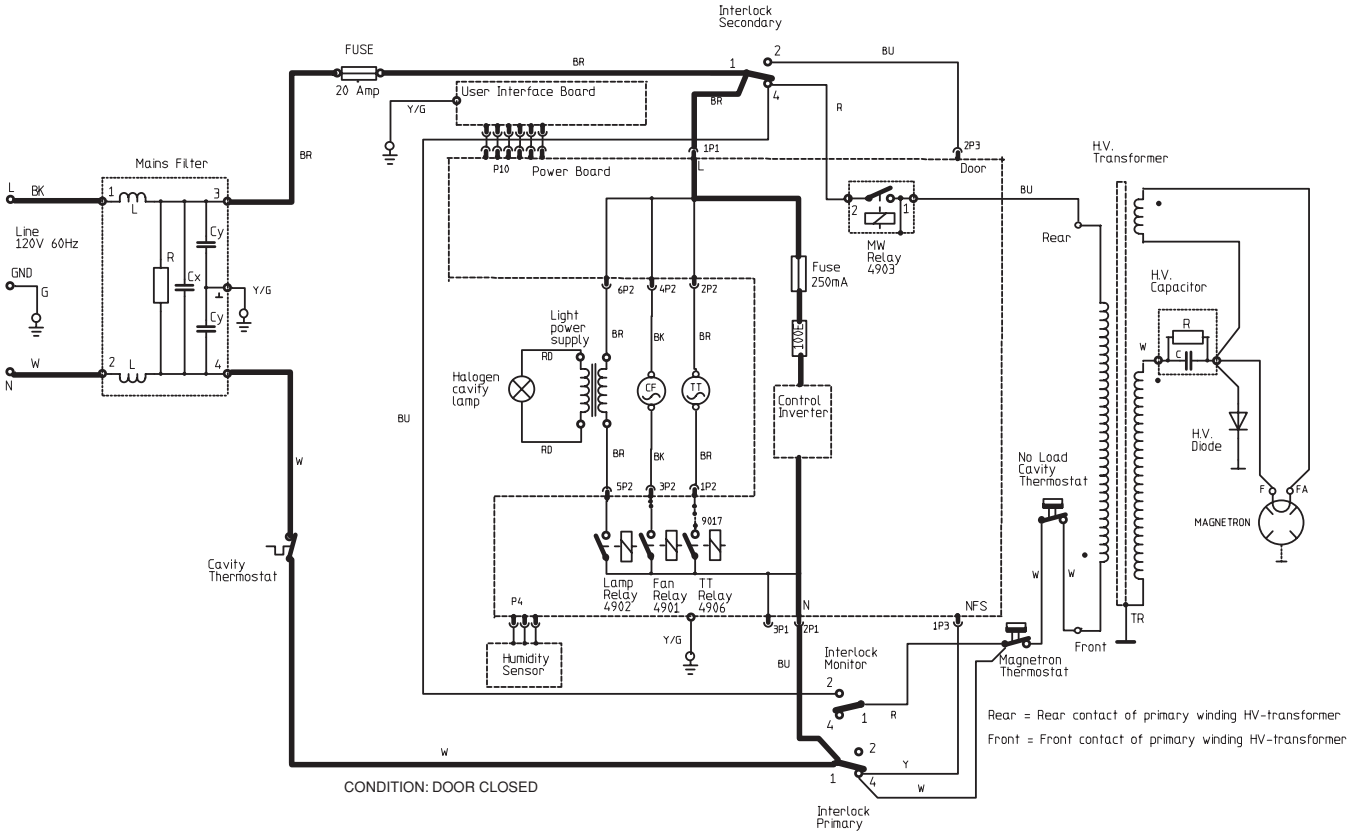


STRIP CIRCUITS

MICROWAVE OVEN COOKING



TIME OF DAY DISPLAYED



PRODUCT SPECIFICATIONS
AND
WARRANTY INFORMATION SOURCES

IN THE UNITED STATES:

FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:

FOR WHIRLPOOL PRODUCTS: 1-800-253-1301
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FOR ROPER PRODUCTS: 1-800-447-6737

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THE TECHNICAL ASSISTANCE LINE: 1-800-253-2870

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FOR LITERATURE ORDERS:

PHONE: 1-800-851-4605

FOR TECHNICAL INFORMATION AND SERVICE POINTERS:

www.servicematters.com

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