



TECHNICAL SERVICE GUIDE

GE 1.2 cu. ft. Microwave Ovens

Model Numbers

JE1223L

JE1233L

JES1224T

JE1237T

JE1238T

JE1240L



IMPORTANT SAFETY NOTICE

This information is intended for use by individuals possessing adequate backgrounds of electrical, electronic and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

DISCONNECT POWER BEFORE SERVICING IMPORTANT – RECONNECT ALL GROUNDING DEVICES

All parts of this appliance capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips, nuts or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

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

- A. A microwave emission check should be performed prior to servicing if the oven is operative.
- B. Do not operate or allow the oven to be operated with the door open.
- C. If the oven operates with the door open:
 - 1) Instruct the user not to operate the oven and
 - 2) contact the manufacturer and the Center for Devices and Radiological Health immediately.
- D. 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
- E. Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
- F. Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced or adjusted by procedure described in this manual before the oven is released to the owner.
- G. A microwave leakage check to verify compliance with the federal performance standard should be performed on each oven prior to release to the owner.

MICROWAVE LEAKAGE TEST

1. Place 275 ml. water in 600 ml. beaker (WB64X5010).
2. Place beaker in center of oven shelf.
3. Set meter to 2450 MHz scale.
4. Turn oven "ON" for 5 minute test.
5. Hold probe perpendicular to surface being tested and scan surfaces at rate of one inch/second. Test following areas:
 - Entire perimeter of door and control panel
 - Viewing surface of door window
 - Exhaust vents
6. Maximum leakage 4MW/CM².
7. Record date on service invoice and microwave leakage report.

NOTE: MAXIMUM ALLOWABLE LEAKAGE IS 5MW/CM². 4MW/CM² IS USED TO ALLOW FOR MEASUREMENT AND METER ACCURACY.

Inform the manufacturer of any oven found to have emission in excess of 5MW/CM². Make repairs to bring the unit into compliance at no cost to owner and try to determine cause. Instruct owner not to use oven until it has been brought into compliance.

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PRODUCT DESCRIPTION

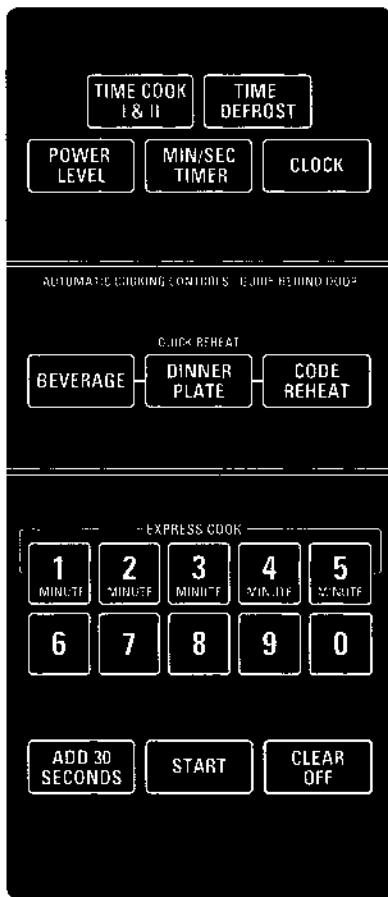
Explanation of Microwave Cooking

The GE Microwave Oven uses microwave energy to produce heat in the food to be cooked. Unlike conventional ovens microwave energy will cook foods without applying external heat.

Microwaves are short electromagnetic waves of RF (radio frequency) energy, that pass through materials such as glass, paper, china and most plastics. Materials such as metal and aluminum foil tend to reflect microwaves and may be used only as recommended in the cooking instructions.

Materials with a high moisture content, like most foods, will absorb microwave energy. As the microwave energy enters the food, the food molecules align themselves with the microwave energy. Because the microwaves are changing polarity every half cycle, the food molecules are changing direction every half cycle or oscillating back and forth 4,900,000,000 times per second. This high speed oscillation causes friction between the molecules, thereby converting the microwave energy to heat.

FEATURES	JE1223L	JES1224T	JE1233L	JE1237T	JE1238T	JE1240L
TIME COOK I & II	.	.	.	.	.	.
TIME DEFROST	.	.	.	.	.	.
AUTO DEFROST	.	.	.	.	.	.
POWER LEVEL	.	.	.	.	.	.
MIN/SEC TIMER	.	.	.	.	.	.
CLOCK PAD	.	.	.	.	.	.
POPCORN (S=SENS T=TIMED)		T	T	T	T	S
QUICK REHEAT: BEVERAGE, DINNER, CODE	.		.	.	.
REHEAT		.				
AUTO COOK						S
AUTO REHEAT						S
NUMBER PADS	.	.	.	.	.	.
ADD 30 SECONDS	.		.	.	.	.
START	.	.	.	.	.	.
AUTO START			.	.	.	.
AUTO START REMINDER						.
MINUTE PAD			.			.
CLEAR/OFF	.	.	.	.	.	.
OVEN CAVITY LIGHT	.	.	.	.	.	.
CLOCK	.	.	.	.	.	.
WARRANTY	1 YR	1 YR	1 YR	1 YR	1 YR	1 YR
WARRANTY ON MAG-PART ONLY	10 YR	10 YR	10 YR	10 YR	10 YR	10 YR
LINE CURRENT	14.5	14.5	14.5	14.5	14.5	14.5
LINE WATTS	1625	1625	1625	1625	1625	1625
MAG POWER (IEC-705)	900 W	900 W	900 W	900 W	900 W	900 W
OPERATING FREQUENCY 2450 MHZ	.	.	.	.	.	.
POW REG 120V 60 HZ, SINGLE PHASE 3 WIRE GROUNDED	.	.	.	.	.	.
TOUCH CONTROL SYSTEM	.	.	.	.	.	.
CLOCK 1:00-12:59	.	.	.	.	.	.
TIMER (0-99 MIN 99 SEC)	.	.	.	.	.	.
CAVITY DIMENSIONS (WxHxD)	15" x 8-1/4" x 16-1/8"					
CASE DIMENSIONS (WxHxD)	21-5/8" x 12-1/4" x 16-3/8"					



JE1223L



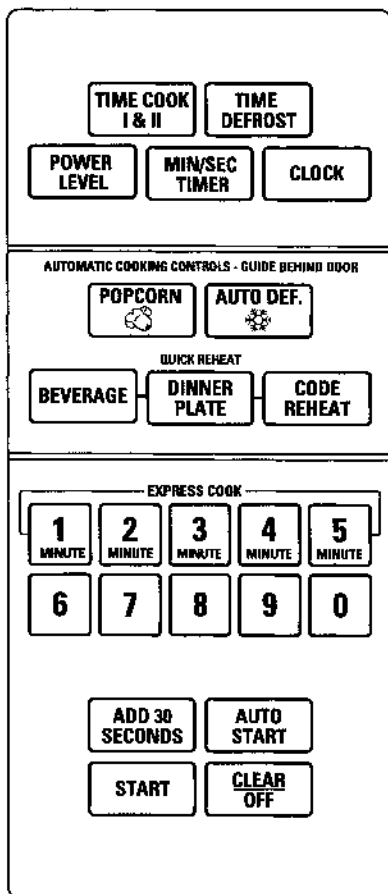
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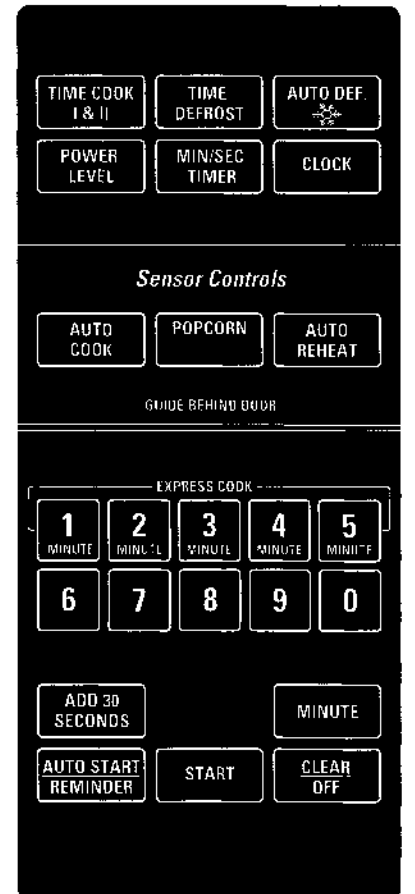
JE1233L



JE1237T



JE1238T



JE1240L

OPERATION

DESCRIPTION OF OPERATING SEQUENCE

The following is a description of component functions during oven operation.

OFF CONDITION

Closing the door activates the door sensing and secondary interlock switches. (In this condition, the monitor switch contacts are opened.)

When oven is plugged in, 120 volts A.C. is supplied to the smart board.

1. The display panel lights up for 15 seconds then "RESET" appears. Touch the CLOCK pad to set the clock and the oven is ready for use.

If power is disrupted at any time, the above sequence recurs, and you must reset the clock after touching the CLEAR/OFF pad.

COOKING CONDITION

When the START pad is touched the following occurs:

1. Relay contacts are closed and the following components are turned on:
 - RY-1** oven lamp/fan motor
 - RY-2** power transformer
2. 120 volts A.C. is supplied to the primary winding of the power transformer and is converted to about 3.1 volts A.C. output on the filament winding, and approximately 2280 volts A.C. on the high voltage winding.
3. The filament winding voltage heats the magnetron filament and the H.V. is sent to a voltage doubler circuit.
4. The microwave energy produced by the magnetron is channeled through the wave guide into the cavity feedbox, and then into the cavity where the food is to be cooked.
5. Upon completion of the cooking time, the power transformer, oven lamp, etc. are turned off and the generation of microwave energy is stopped. The oven will revert to the OFF condition.
6. When the door is opened during a cook cycle, the monitor switch, door sensing switch, secondary interlock switch and primary interlock relay are activated with the following results: The circuits to the cooling fan motor and the high voltage components are de-energized, the oven lamp remains on and the digital readout displays the time remaining in the cook cycle when the door was opened.
7. The monitor switch electrically monitors the operation of the secondary interlock switch and the primary interlock relay and is mechanically associated with the door so that it will function in the following sequence:
 - (1) When the door opens, the secondary interlock switch, primary interlock relay and secondary interlock switch open their contacts, then the monitor switch contacts close.



- (2) When the door is closed the monitor switch contacts open, and the contacts of the secondary interlock switch and primary interlock relay close.

If the secondary interlock switch and primary interlock relay fail (contacts closed) when the door is opened, the closing of the monitor switch contacts will form a short circuit through the monitor fuse, secondary interlock switch and primary interlock relay, causing the monitor fuse to blow.

POWER LEVEL 0 TO 9 COOKING

When Variable Cooking Power is programmed, 120 volts A.C. is supplied to the power transformer intermittently through the contacts of relay (RY-2) which is operated by the control unit within a 32 second time base. Microwave power operation is as follows:



VARI-MODE	ON TIME	OFF TIME
Power 10 (HIGH) (100% power)	32 sec.	0 sec.
Power 9 (approx. 90% power)	30 sec.	2 sec.
Power 8 (approx. 80% power)	26 sec.	6 sec.
Power 7 (approx. 70% power)	24 sec.	8 sec.
Power 6 (approx. 60% power)	22 sec.	10 sec.
Power 5 (approx. 50% power)	18 sec.	14 sec.
Power 4 (approx. 40% power)	16 sec.	16 sec.
Power 3 (approx. 30% power)	12 sec.	20 sec.
Power 2 (approx. 20% power)	8 sec.	24 sec.
Power 1 (approx. 10% power)	6 sec.	26 sec.
Power 0 (0% power)	0 sec.	32 sec.

NOTE: The ON/OFF time ratio does not correspond with the percentage of microwave power, because approximately 2 seconds are needed for heating of the magnetron filament.

QUICK REHEAT

Consists of three programs:

- Dinner plate program for reheating a plate of leftovers.
- Beverage program for reheating liquid beverages.
- Code Reheat program for reheating leftovers using a code number from 1 to 6 (see guide).

To Use QUICK REHEAT

Dinner Plate:

1. Touch DINNER PLATE pad.
2. Touch START pad.

NOTE: Oven will signal and display remaining time counting down shortly before shut off on all Quick Reheat Programs.

Beverage:

1. Touch BEVERAGE pad.
2. Touch START pad.

Code Reheat:

1. Touch CODE REHEAT.
2. Touch a number pad from 1-6 to select a food group (see Code Reheat Guide).
3. Touch START pad.

CODE REHEAT GUIDE

Code	Display Code	Time/Serv (T1)	Description
1	bREAd	:20	Breads, pastries, pies, bakery goods
2	MEATS	1:00	Meats, casseroles, pizza, solids
3	VEGS	1:00	Fruits and vegetables
4	bEV	1:15	Beverages
5	SAUCE	2:30	Soups, stews, sauces
6	PLATE	3:45	2 to 3 foods; 4 oz. each

To Reheat More Than One Serving

Quick Reheat codes 1 through 5 and Beverage will allow you to heat up to three servings. To add more than one serving, just touch number pad 2 or 3 right before touching START pad. The word "SERV" and a number will be displayed to show how many servings are selected.

The serving size may be changed or added after touching START. Just touch number pad 2 or 3. "SERV" and a number will be displayed briefly to show that serving size has been changed.

POPCORN

This features works best with 3.0 to 3.7 ounces of prepackaged microwave popcorn.

TO USE POPCORN:

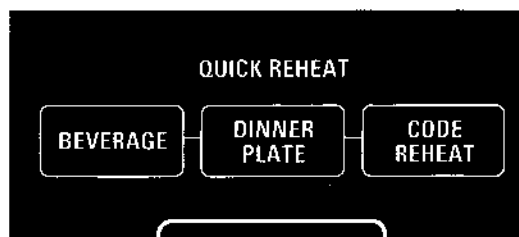
Regular Microwave Popcorn

1. Touch POPCORN pad.
 2. Touch START pad.
- Oven will signal and display remaining time counting down shortly before shut off.

Lite Microwave Popcorn

1. Touch POPCORN pad.
2. Touch number pad 2.
3. Touch START pad.

NOTE: The cooking time can be increased or decreased by 20 seconds.



To Increase Time

1. Touch the POPCORN pad (plus 1 for regular and 2 for lite).
 2. Touch number 9.
- A plus sign indicates 20 seconds is added to cooking time.

To Decrease Time

1. Touch the POPCORN pad (plus 1 for regular and 2 for lite).
 2. Touch number 1.
- A minus sign indicates 20 seconds less cooking time is being provided.

Code	Display	Power	T1	T2	Total		
1	REG	100%	-	2:00	:0	-	2:00
			N	2:00	:20		2:20
			+	2:00	:40	+	2:40
2	LITE	100%	-	1:55	:0	-	1:55
			N	1:55	:20		2:15
			+	1:55	:40	+	2:35



AUTO DEFROST

With the AUTO DEFROST feature the oven automatically sets defrosting time and power levels by using the weight of the food in pounds and tenths of pounds.

If weight of food is stated in pounds AND ounces, the ounces must be converted to tenths (.1) of a pound. The conversion guide is as follows:

OUNCES	POUNDS	OUNCES	POUNDS
1-2	.1	9-10	.6
3	.2	11	.7
4-5	.3	12-13	.8
6-7	.4	14-15	.9
8	.5		



To use AUTO DEFROST:

1. Touch AUTO DEFROST.
2. Enter food weight, (1-1/2 lbs. is 15)
3. Touch START.

Twice during defrosting, the oven will “beep” and the display will flash “TURn”. Follow the directions in the Auto Defrost Guide for what to do at the first and second signal, then close door and touch start. Defrosting will continue during the “TURn” display.

EXPRESS COOK

This feature is used to set the timer and cook for 1-5 minutes.

How to Use Express Cook:

1. Touch a number (1-5) for cooking time (Ex. 2 for two minutes).
2. Touch the START pad.

The oven will automatically signal, flash “END” and shut off at the end of the programmed time.

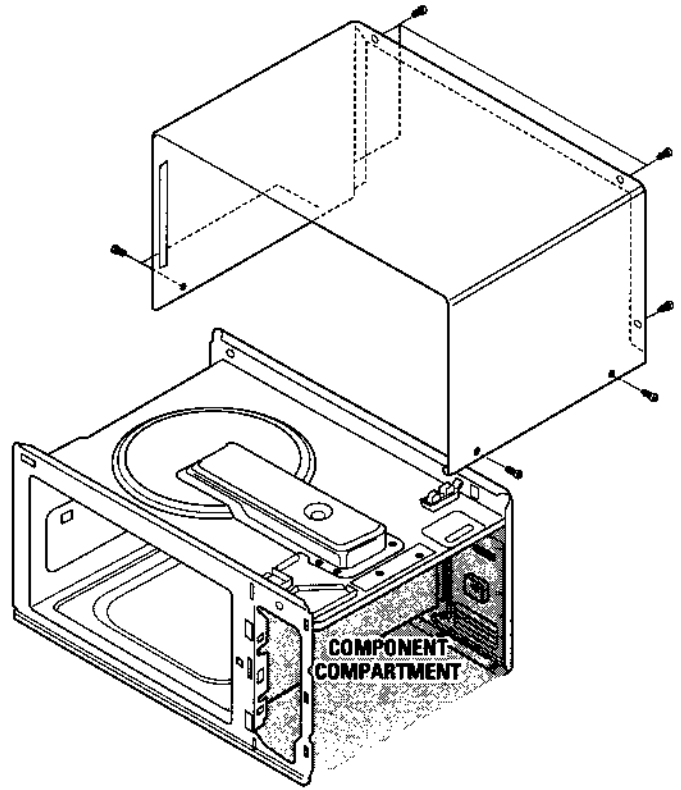
DESCRIPTION AND FUNCTION OF COMPONENTS

OUTER CASE REMOVAL

To remove outer case, proceed as follows:

1. Disconnect oven from power supply.
2. Remove screws from rear and along the side edge of case.
3. Slide the entire case back about 1 inch (3 cm) to free it from retaining clips on the cavity faceplate.
4. Lift entire case from the unit.

CAUTION: DISCHARGE HIGH VOLTAGE CAPACITOR BEFORE TOUCHING ANY OVEN COMPONENTS OR WIRING.



TOUCH CONTROL PANEL ASSEMBLY TEST

The touch control panel assembly is divided into two units, Key Panel and Smart Board, and troubleshooting by unit replacement is described according to the symptoms indicated.

1. Key Panel.

The following symptoms indicate a defective key panel:

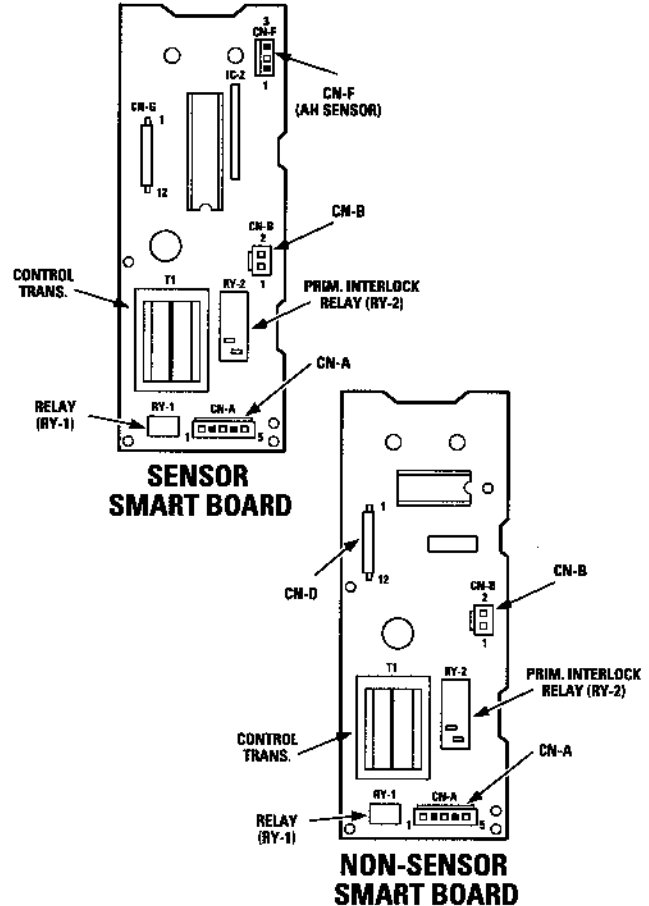
- a) When touching the pads, a certain pad produces no signal at all.
- b) When touching a number pad, two figures or more are displayed.
- c) When touching the pads, sometimes a pad produces no signal.

NOTE: If necessary key panel can be checked with ohmmeter.

2. Smart Board

The following symptoms indicate a defective smart board:

- 2-1 In connection with pads
 - a) When touching the pads, a certain group of pads do not produce a signal.
 - b) When touching the pads, no pads produce a signal.
- 2-2 In connection with indicators
 - a) At a certain digit, all or some segments do not light up.
 - b) At a certain digit, brightness is low.
 - c) Only one indicator does not light.
 - d) The corresponding segments of all digits do not light up; or they continue to light up.
 - e) Wrong figure appears.
 - f) A certain group of indicators do not light up.
 - g) The figure of all digits flicker.
- 2-3 Other possible problems caused by defective smart board
 - a) Buzzer does not sound or continues to sound.
 - b) Clock does not operate properly.
 - c) Cooking is not possible.
 - d) Proper temperature measurement is not obtained.



TO REPLACE KEY PANEL

Key Panel and Control Trim will be replaced as a complete assembly.

KEY PANEL TEST

1. If necessary the key panel pads can be verified by a continuity test. For ease of handling, the key should be removed and placed on a flat surface. Check continuity between pad connections at end of ribbon. (Use high Ω scale).

Pad	Connectors
TIME COOK I & II	4-9
TIME DEFROST	5-10
AUTO DEFROST	4-10
AUTO COOK	1-10
POPCORN	3-10
AUTO REHEAT	5-11
ADD 30 SECONDS	2-12
POWER LEVEL	4-11
MIN/SEC TIMER	6-11
MINUTE	3-11
CLOCK	6-12
1	6-9
2	6-10
3	7-9
4	7-10
5	7-11
6	7-12
7	8-9
8	8-10
9	8-11
0	8-12
AUTO START/REMINDER	1-11
CLEAR/OFF	5-12
START	5-9

RELAY TEST

Remove the outer case and check voltage between Pin Nos. 3 and 5 of the 3 pin connector (A) on the control unit with an A.C. voltmeter.

The meter should indicate 120 volts, if not check oven circuit.

RY1 and RY2 Relay Test

These relays are operated by D.C. voltage.

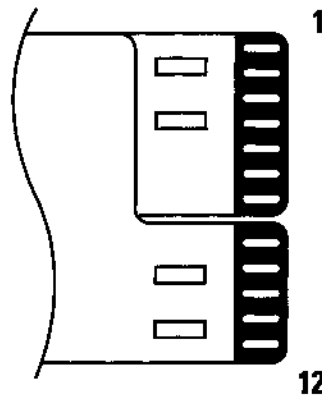
Check voltage at the relay coil with a D.C. voltmeter during the microwave cooking operation.

D.C. voltage indicated – defective relay.

D.C. voltage not indicated – smart board is defective.

Relay Symbol	Operation Voltage	Connected Components
RY1	Appx. 26.5 V.D.C.	Oven lamp/Turntable motor/ Cooling fan motor
RY2	Appx. 25.7 V.D.C.	Power transformer

Model JE1240L operation voltage RY1 and RY2 appx. 24 V.D.C.



CONTROL PANEL ASSEMBLY REMOVAL

1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Disconnect wire leads from panel components.
4. Remove one (1) screw holding panel assembly to oven flange.
5. Lift up the control panel assembly and pull it forward.

DOOR OPENER

The door is opened by pushing the button on the control panel which raises the switch lever and the latch head from the latch hook, releasing the door.

OVEN LAMP

The Oven Light Assembly is located in the Air Duct attached to the top of the component compartment by three spring tabs. To replace the lamp the outer case and air duct must be removed and the light unscrewed.

POWER TRANSFORMER TEST

DISCHARGE THE HIGH VOLTAGE CAPACITOR BEFORE TOUCHING ANY OVEN COMPONENTS OR WIRING.

Disconnect the primary input terminals and measure the resistance of the transformer with an ohmmeter. Check for continuity of the coils with an ohmmeter. On the Rx 1 scale, the resistance of the primary coil should be less than 1 ohm and the resistance of the high voltage coil should be approximately 90.8 ohms; the resistance of the filament coil should be less than 1 ohm.

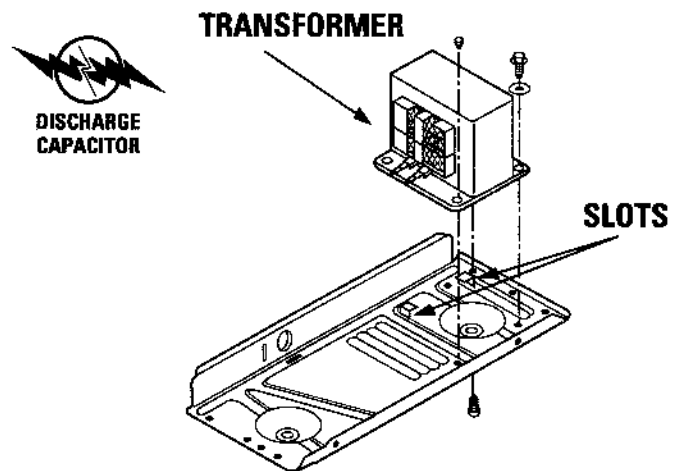
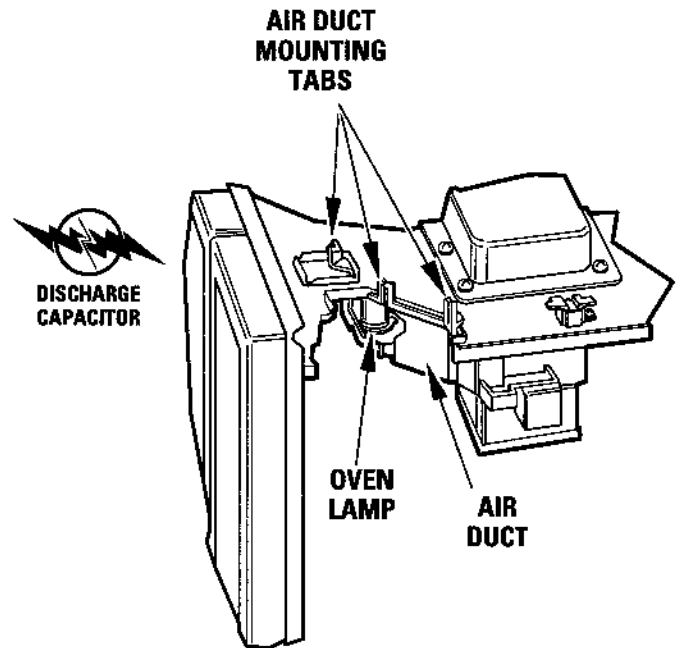
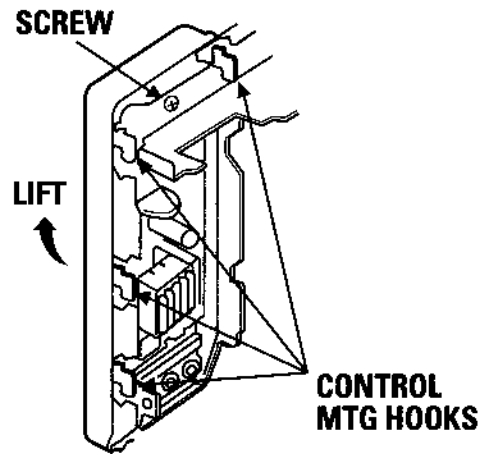
(HIGH VOLTAGES ARE PRESENT AT THE HIGH VOLTAGE TERMINAL, SO DO NOT ATTEMPT TO MEASURE THE FILAMENT AND HIGH VOLTAGE.)

POWER TRANSFORMER REMOVAL

1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Remove the fan motor assembly from the oven.
4. Disconnect transformer leads from magnetron and capacitor.
5. Disconnect wire leads from power transformer.
6. Remove two (2) screws from the top and one (1) screw from bottom side holding transformer to base plate.
7. Remove transformer.

Re-install

1. Rest transformer on base plate with its primary terminals toward oven faceplate.
2. Insert two edges of transformer into two metal slots on base plate.
3. Make sure transformer is mounted correctly to corners underneath those slots.
4. After re-installing transformer, secure transformer with two (2) screws on top, and one (1) screw from bottom side to base plate.



5. Re-connect wire leads (primary and high voltage) to transformer and filament leads of transformer to magnetron and high voltage capacitor.
6. Re-install outer case and check that oven is operating properly.

HIGH VOLTAGE RECTIFIER TEST

DISCHARGE THE HIGH VOLTAGE CAPACITOR BEFORE TOUCHING ANY OVEN COMPONENTS OR WIRING.

Isolate the rectifier from the circuit. Using the highest ohm scale of the meter, read the resistance across the terminals and observe, reverse the leads to the rectifier terminals and observe meter reading. If a short is indicated in both directions, or if an infinite resistance is read in both directions, the rectifier is probably defective and should be replaced.

HIGH VOLTAGE CAPACITOR TEST

DISCHARGE THE HIGH VOLTAGE CAPACITOR BEFORE TOUCHING ANY OVEN COMPONENTS OR WIRING.

If the capacitor is open, no high voltage will be available to the magnetron. Disconnect input leads and check for short or open between the terminal using an ohmmeter.

Checking with a high ohm scale, if the high voltage capacitor is normal, the meter will indicate continuity for a short time and should indicate an open circuit once the capacitor is charged. If the above is not the case, check the capacitor with an ohmmeter to see if it is shorted between either of the terminals and case.

If it is shorted, replace the capacitor.

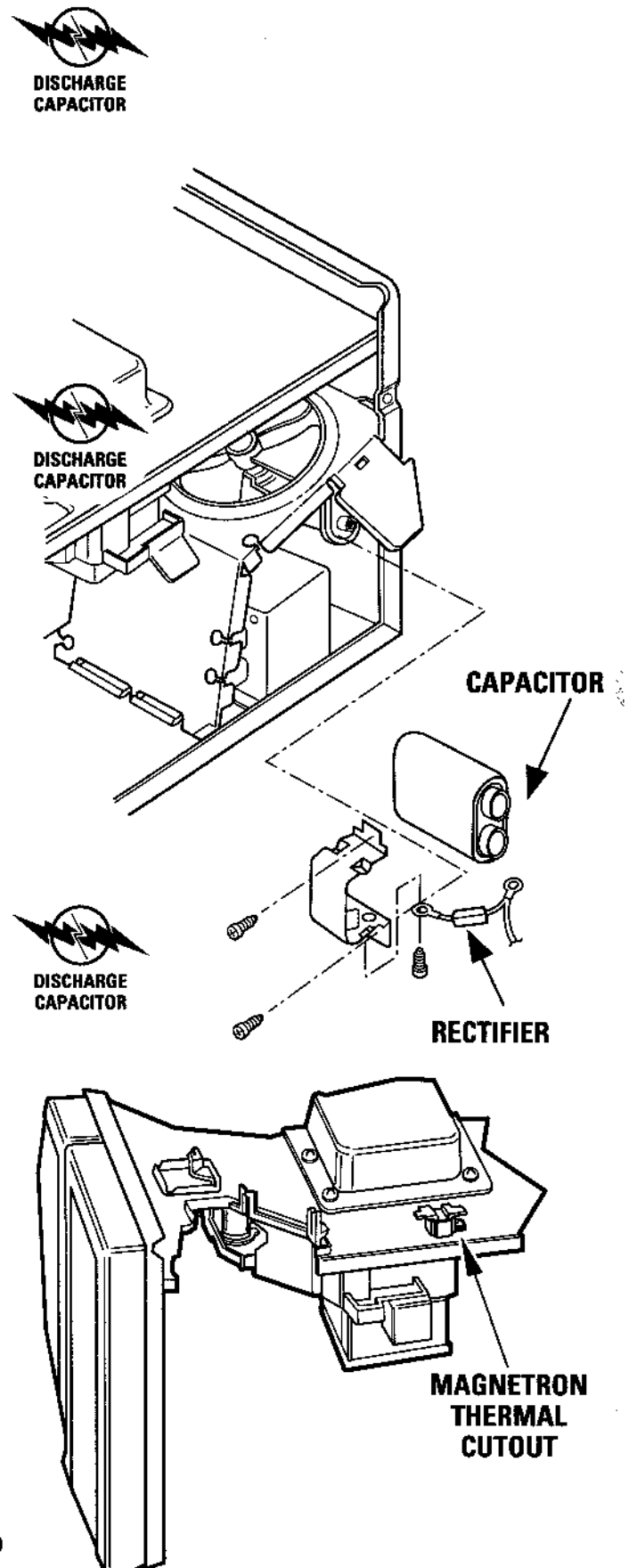
RECTIFIER ASSEMBLY AND HIGH VOLTAGE CAPACITOR REMOVAL

1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Remove two (2) screws holding capacitor holder to rear cabinet.
4. Disconnect terminal of rectifier from capacitor.
5. Remove screw holding rectifier to capacitor.

CAUTION: WHEN REPLACING H.V. RECTIFIER AND HIGH VOLTAGE CAPACITOR, GROUND SIDE TERMINAL OF H.V. RECTIFIER MUST BE SECURED FIRMLY WITH A GROUNDING SCREW AND WASHER.

MAGNETRON THERMAL CUTOUT

The magnetron thermal cutout located in front of the wave guide is designed to prevent damage to the magnetron if an over heated condition develops in the tube due to cooling fan failure, obstructed air ducts, dirty or blocked air intake.



Under normal operation, the magnetron thermal cutout remains closed. However, when abnormally high temperatures are reached within the magnetron, the magnetron thermal cutout will open at 302°F (150°C) causing the oven to shut down.

NOTE: Magnetron thermal cutout is resettable.

OVEN THERMAL CUTOUT

The thermal cutout, located on the top of the component compartment, is designed to prevent damage to the unit if the foods in the oven catch fire due to overheating caused by improper setting of cook time or failure of control unit.

Under normal operation, the oven thermal cutout remains closed. However, when abnormally high temperatures are reached within the oven cavity, the oven thermal cutout will open at 293°F (145°C), causing the oven to shut down.

NOTE: Oven thermal cutout is non-resettable

MAGNETRON FAN MOTOR

The magnetron fan motor drives a blade which draws in cool external air. This cool air is directed through the air vanes surrounding the magnetron and cools the magnetron assembly. Most of the air is then exhausted directly through the vents on the back plate. However, a portion of this air is channeled through the cavity to rotate the stirrer blade and remove steam and vapors given off from the heating foods. It is then exhausted through the air vents in the oven cavity into a condensation compartment.

MAGNETRON FAN MOTOR ASSEMBLY REMOVAL

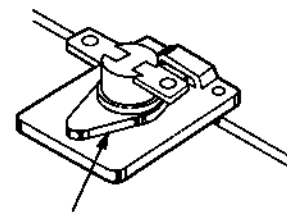
1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Remove one (1) screw holding the magnetron air guide to the magnetron and remove guide.
4. Remove one (1) screw holding the fan motor grounding wire to oven cavity.
5. Disconnect the wire leads from the fan motor.
6. Disconnect the wire leads to the magnetron.
7. Release the magnetron wire leads from the holes in the fan duct.
8. Release the tabs of the fan duct from the holes in the bottom plate and the back plate of the component compartment.
9. Release the main wire harness from the hole in the fan duct.
10. Now, the fan motor assembly is free.

COMPONENT TEST

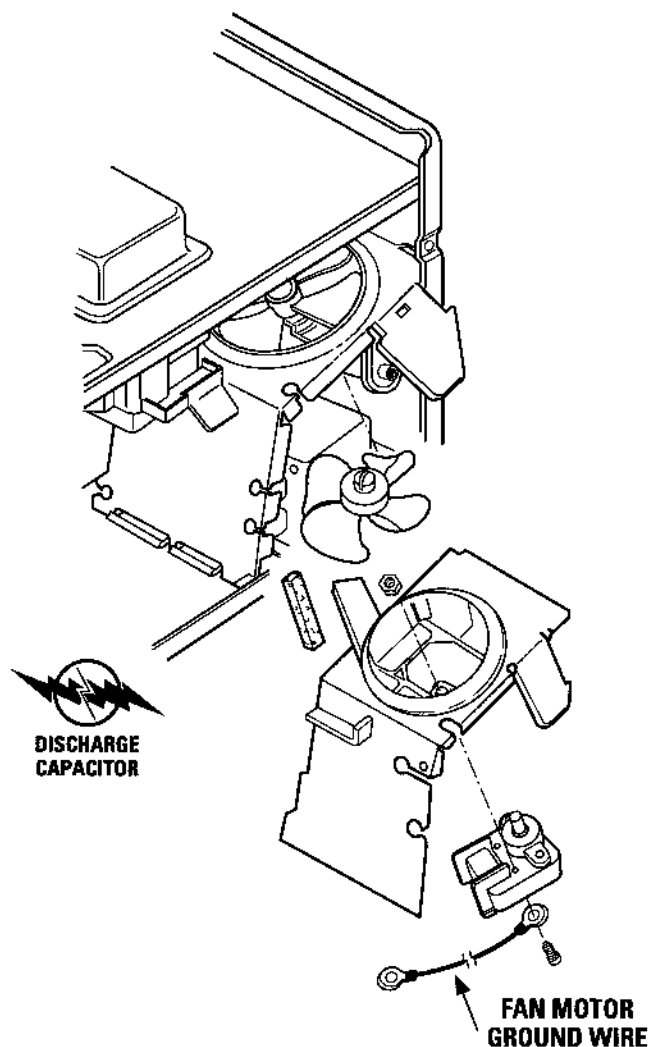
MAGNETRON ASSEMBLY TEST

High voltages are present during the cook cycle, so extreme caution should be observed. Disconnect oven from power supply and discharge the high voltage capacitor before touching any oven components or wiring.

To test for an open filament, isolate the magnetron from the high voltage circuit. A continuity check



**OVEN THERM.
CUTOUT**



across the magnetron filament leads should indicate less than 1 ohm.

To test for a shorted magnetron, connect the ohmmeter leads between the magnetron filament leads and chassis ground. This test should indicate an infinite resistance. If there is little or no resistance the magnetron is grounded and must be replaced.

Power output of the magnetron can be measured by performing a water temperature rise test. This test should only be used if above tests do not indicate a faulty magnetron and there is no defect in the following components or wiring: Silicon rectifier, high voltage capacitor and power transformer.

MAGNETRON REMOVAL

1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Remove one (1) screw holding the magnetron air guide to magnetron.
4. Remove the air duct from the component compartment.
5. Carefully loosen four (4) screws holding magnetron to wave guide with magnetic screwdriver. When removing the screws hold the magnetron to prevent it from falling.
6. Remove the magnetron from the unit with care so it does not hit any metal object.

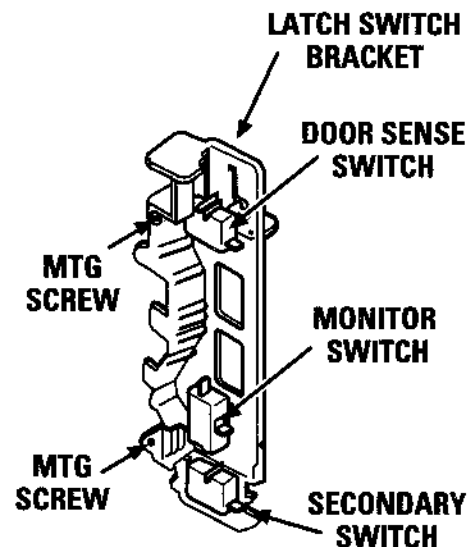
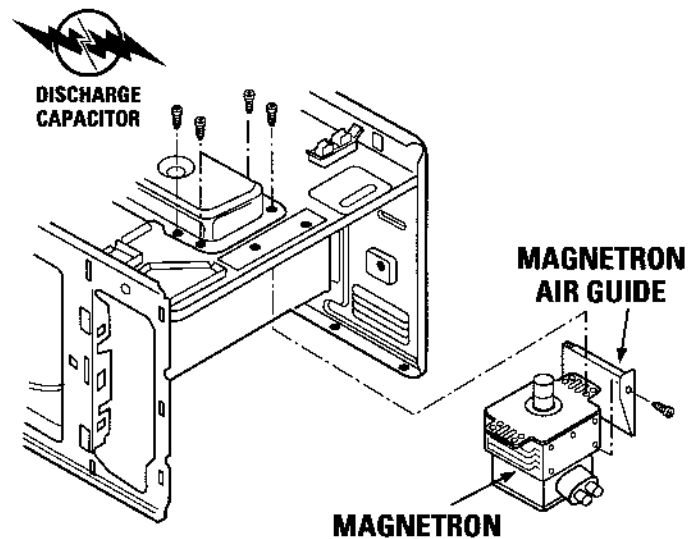
Re-install

1. Re-install magnetron to the wave guide with four (4) mounting screws. Re-install air duct.
2. Re-connect wire leads to magnetron.

CAUTION: WHEN REPLACING THE MAGNETRON, BE SURE THE R.F. GASKET IS IN PLACE AND MOUNTING SCREWS ARE TIGHTENED SECURELY.

DOOR SENSING AND SECONDARY INTERLOCK SWITCHES

The secondary interlock switch is mounted in the lower position of the latch switch bracket and the door sensing switch in the primary interlock system is mounted in the upper position of latch switch bracket. They are activated by the latch heads on the door. When the door is opened, the switches interrupt the circuit to all components, except the oven lamp. A cook cycle cannot take place until the door is firmly closed thereby activating both interlock switches. The primary interlock system consists of the door sensing switch and primary interlock relay located on the control circuit board.



PRIMARY INTERLOCK SYSTEM TEST

Door Sensing Switch

Isolate the switch and connect the ohmmeter to the common (COM.) and normally open (NO) terminal of the switch, the meter should indicate an open circuit with the door open and a closed circuit with the door closed. If improper operation is indicated, replace the door sensing switch.

Primary Interlock Relay (RY2)

Disconnect two (2) wire leads from the male tab terminals on the printed wiring circuit board provided in the control panel assembly. The tab terminals are located in the left area of the circuit board on the component side, and are connected to the contacts of the primary interlock relay. Check the state of the relay contacts using an ohmmeter. The relay contacts should be open. If the relay contacts are closed, replace the circuit board entirely.

Secondary Interlock Switch Test

Isolate the switch and connect the ohmmeter to the common (COM.) and normally open (NO) terminal of the switch. The meter should indicate an open circuit with the door open and a closed circuit with the door closed. If improper operation is indicated, replace the secondary interlock switch.

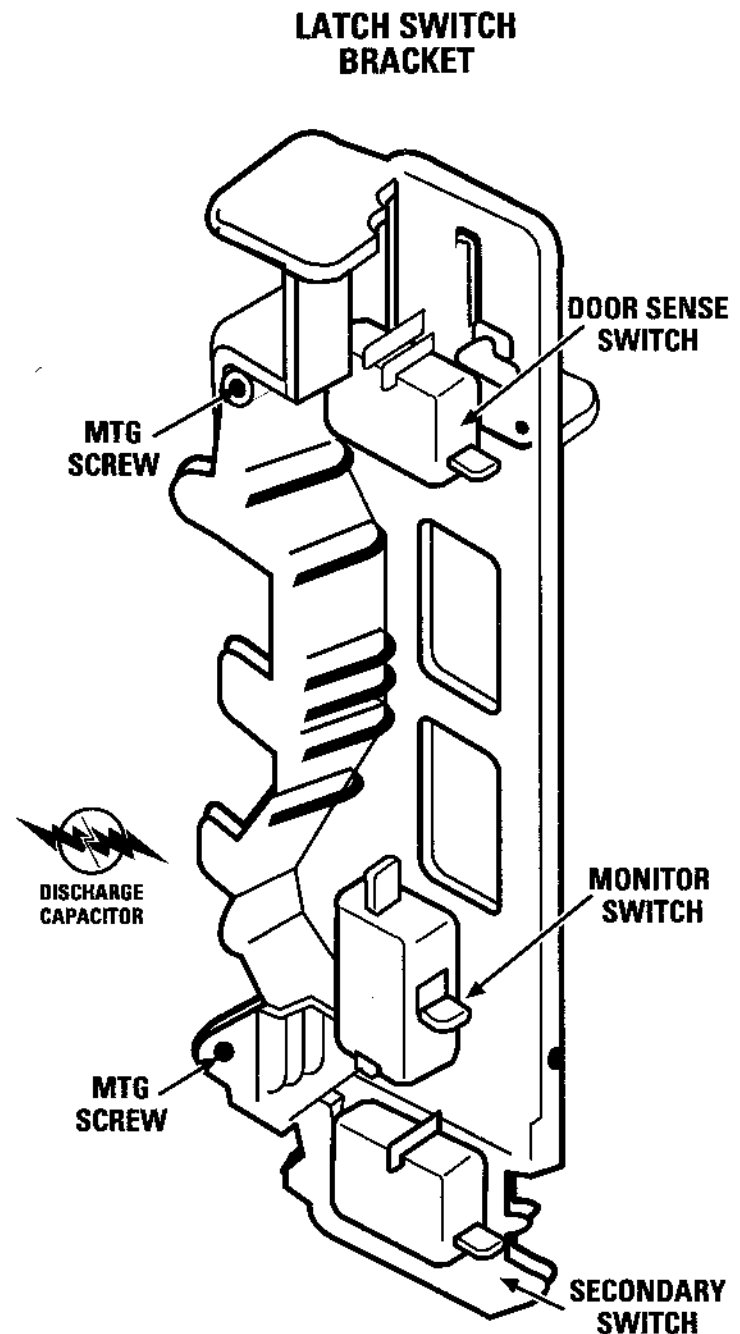
DOOR SENSING, SECONDARY INTERLOCK AND MONITOR SWITCH REMOVAL

1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Disconnect wire leads from the switches.
4. Remove the air duct from the component compartment.
5. Remove two (2) screws holding latch switch bracket to component compartment front flange.
6. Remove latch switch bracket assembly.
7. Push outward on the two (2) retaining tabs holding switch in place.
8. Switch is now free.

At this time switch lever will be free, do not lose it.

Re-install

1. Re-install the interlock switch. The secondary interlock/monitor switches are in the lower position and the door sensing switch is in the upper position.
2. Re-connect wire leads to each switch. Refer to pictorial diagram.
3. Secure latch switch bracket (with two (2) mounting screws) to component compartment front flange.
4. Make sure that the monitor switch is operating properly.



DOOR SENSING, SECONDARY INTERLOCK AND MONITOR SWITCH ADJUSTMENT

If the door sensing switch, secondary interlock switch and monitor switch do not operate properly due to a misadjustment, the following adjustment should be made:

1. Loosen the two (2) screws holding latch switch bracket to the component compartment front flange.
2. With door closed, adjust latch switch bracket by moving it back and forth, and up and down. In and out play of the door allowed by the upper and lower position of the latch switch bracket should be less than 0.5mm (.0197"). The vertical position of the latch switch bracket should be placed where the door sensing switch and secondary interlock switch have activated with the door closed.
3. Firmly secure the screws with washers.
4. Check the door sensing switch operation. If the door sensing switch has not activated with the door closed, loosen screw and adjust the latch switch bracket position.

After adjustment, check the following.

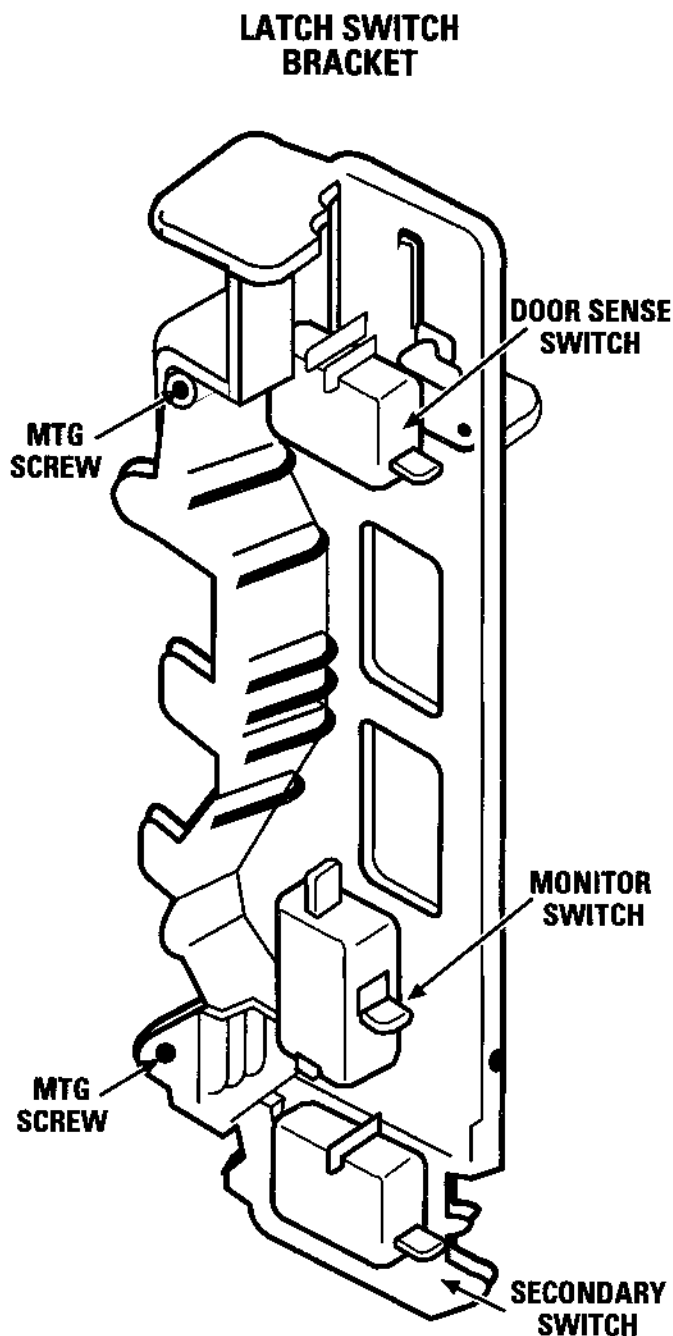
1. In and out play of door remains less than 0.5mm (.0197") when latched position. First check upper position of latch switch bracket, pushing and pulling upper portion of door toward the oven face. Then check lower position of the latch switch bracket, pushing and pulling lower portion of the door toward the oven face. Both results (movement of the door) should be less than 0.5mm (.0197").
2. The door sensing switch and secondary interlock switch interrupt the circuit before the door can be opened.
3. Monitor switch contacts close when door is opened.
4. Re-install outer case and check for microwave leakage around door with an approved microwave survey meter.

MONITOR SWITCH

The monitor switch is activated (the contacts opened) by the latch head on the door while the door is closed. The switch is intended to render the oven inoperative by means of blowing the monitor fuse when the contacts of the primary interlock relay and secondary interlock switch fail to open when the door is opened.

Functions:

1. When the door is opened, the monitor switch contact closes (to the ON condition). At this time the primary interlock relay and secondary interlock switch are in the OFF condition (contacts open).
2. As the door goes to a closed position, the monitor switch contacts are first opened and then the door sensing switch and the secondary



interlock switch contacts close. (On opening the door, each of these switches operate inversely.)

3. If the door is opened, and the primary interlock relay and secondary interlock switch contacts fail to open, the monitor fuse blows simultaneously with closing of the monitor switch contacts.

CAUTION: Before replacing a blown monitor fuse, test the primary interlock relay, door sensing switch, monitor switch and secondary interlock switch for proper operation.

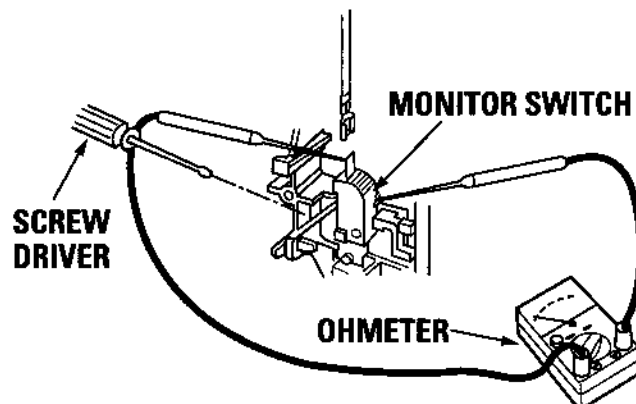
MONITOR SWITCH TEST

Disconnect the oven from power supply.

Before performing this test, make sure that the secondary interlock switch and the primary interlock relay are operating properly. Disconnect the wire lead from the monitor switch (NC) terminal. Check the monitor switch operation by using the ohmmeter as follows:

When the door is open, the meter should indicate a closed circuit. When the monitor switch actuator is pushed by a screwdriver through the lower latch hole on the front plate of the oven cavity with the door opened (in this condition the plunger of the monitor switch is pushed in), the meter should indicate an open circuit. If improper operation is indicated, the switch may be defective.

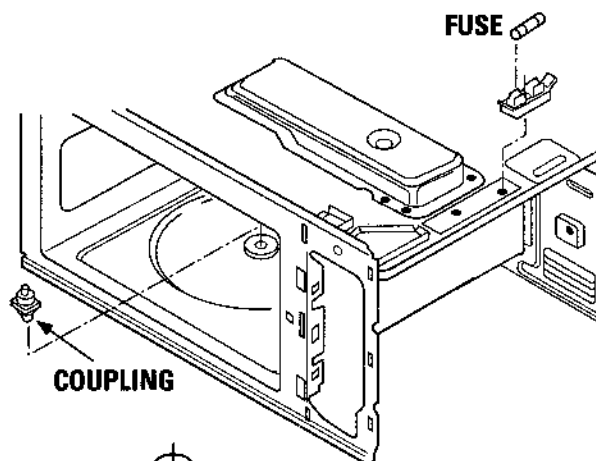
After testing the monitor switch, re-connect the wire lead to the monitor switch (NC) terminal.



BLOWN MONITOR FUSE

If the monitor fuse is blown when the door is opened, check the primary interlock relay, secondary interlock switches and monitor switch before replacing the blown monitor fuse.

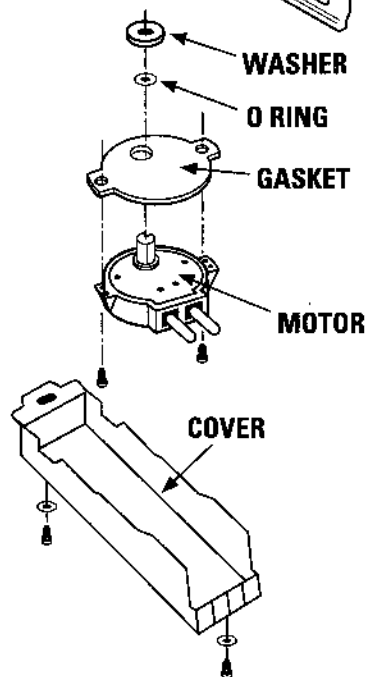
CAUTION: BEFORE REPLACING A BLOWN MONITOR FUSE, TEST THE DOOR SENSING SWITCH, PRIMARY INTERLOCK RELAY, SECONDARY INTERLOCK SWITCH AND MONITOR SWITCH FOR PROPER OPERATION. IF THE MONITOR FUSE IS BLOWN BY IMPROPER SWITCH OPERATION, MONITOR FUSE (20A) AND SWITCH MUST BE REPLACED EVEN IF THE MONITOR SWITCH OPERATES NORMALLY.



MODELS JES1224T, JE1237T, JE1238T ONLY TURNTABLE MOTOR AND COUPLING REMOVAL

1. Disconnect the oven from the power supply.
2. Remove the motor cover by removing two (2) screws.
3. Disconnect the wire leads from the turntable motor and remove the two (2) screws holding the motor.
4. Turntable motor is now free.
5. At this time turntable coupling will be free.

NOTE: The two (2) screws holding the turntable motor cover to the oven cavity must be used.



DOOR ADJUSTMENT

The door can be adjusted by keeping screws of each hinge loose. Lower oven hinge can be loosened with Torx screwdriver (T-15).

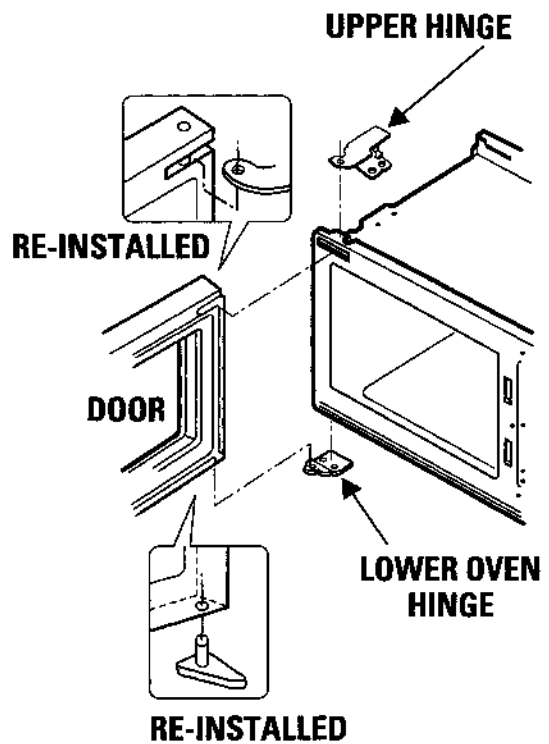
After adjustment, make sure of the following:

1. Door latch heads catch smoothly, latch hook through latch holes, and also latch head goes through center of latch hole.
2. Deviation of door alignment from horizontal line of cavity faceplate is to be less than 1.0mm (.0394").
3. Door is positioned with its face depressed toward cavity faceplate.
4. Re-install outer case and check for microwave leakage around door with an approved microwave survey meter.

NOTE: Door on a microwave oven is designed to act as an electronic seal preventing the leakage of microwave energy from oven cavity during cook cycle. This function does not require that door be airtight, moisture- (condensation) tight or light-tight. Therefore, occasional appearance of moisture, light or sensing of gentle warm air movement around oven door is not abnormal and do not of themselves, indicate a leakage of microwave energy from oven cavity. If such were the case, your oven could not be equipped with a vent, the very purpose of which is to exhaust vapor-laden air from oven cavity.

DOOR DISASSEMBLY

The door will be replaced as an assembly.



MODEL JE1240L ONLY

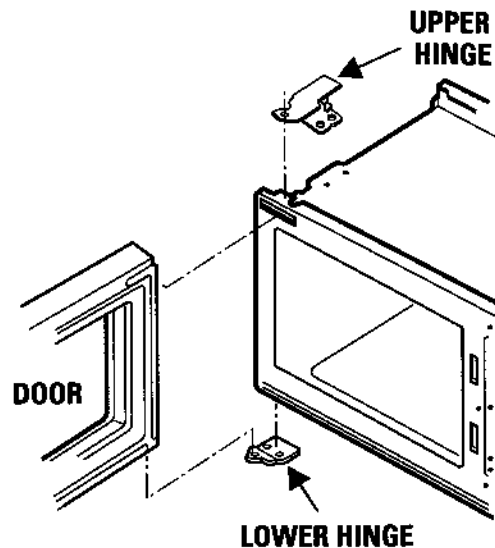
DOOR REMOVAL AND REINSTALLATION

The door will be replaced as an assembly.

1. Disconnect oven from power supply and remove the outer case. Remove objects from oven cavity.
2. Remove two (2) screws (T-15 Torx) holding lower oven hinge.
3. Remove lower oven hinge from oven cavity bottom flange.
4. Remove door assembly from upper oven hinge on the oven.
5. Door assembly is now free.
6. On re-installing door, insert the upper oven hinge into the door hinge pin.
Then while holding door in place:
7. Make sure the door is parallel with ovenface lines (left and upper side lines) and door latch heads pass through latch holes correctly.
8. Insert lower oven hinge to oven cavity bottom flange and then door hinge pin. Then secure the lower oven hinge firmly with two (2) mounting screws.

NOTE: After any service to the door:

- a) Make sure that door sensing switch and secondary interlock switch are operating properly.
- b) An approved microwave survey meter should be used to assure compliance with proper microwave radiation emission limitation standards.



SENSOR MODEL JE1240L ONLY

SENSOR COOKING CONDITION

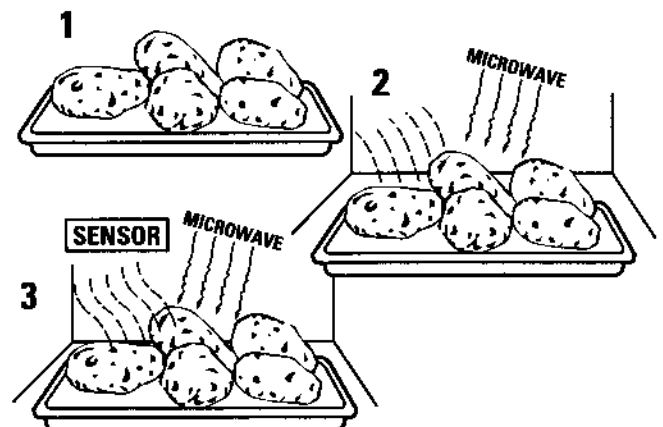
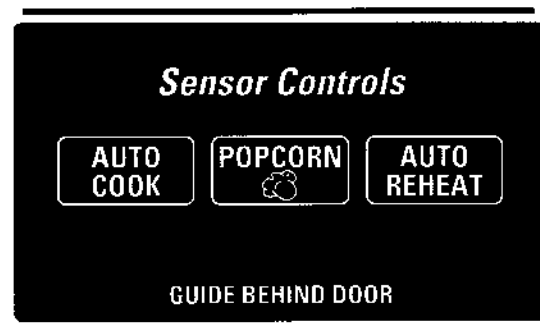
Using the AUTO COOK, POPCORN or AUTO REHEAT function, the foods are cooked without calculating time, power level or quantity. When the oven senses enough steam from the food, it relays the information to the microprocessor which will calculate the remaining cooking time and power level needed for best results. When the food is cooked, water vapor is developed. The sensor "senses" the vapor and its resistance increases gradually. When the resistance reaches the value set according to the menu, supplementary cooking is started.

The time of supplementary cooking is determined by experiment with each food category and entered into the microprocessor.

An example of how the sensor works:

(AUTO COOK, 2)

1. Potatoes at room temperature. Vapor is emitted very slowly.
2. Heated potatoes. Moisture and humidity are emitted rapidly.
3. The sensor detects the moisture and humidity and calculates cooking time and variable power.



COOKING SEQUENCE

1. Touch AUTO REHEAT pad then START pad.

NOTE: The oven should not be operated on AUTO REHEAT immediately after plugging it in. Wait five minutes.

2. The coil of the shut-off relay (RY-1) is energized, oven lamp and cooling fan motor are turned on, but the power transformer is not.

3. After about 16 seconds, the cook relay (RY-2) is energized and the power transformer is turned on. Microwave energy is then produced and the first stage is started.

16 seconds cooling time is required to remove any vapor from the oven cavity and sensor.

NOTE: During this first stage, do not open the door or touch CLEAR/OFF pad.

4. When the sensor detects the vapor emitted from the food, the display switches over to the remaining cooking time and the timer counts down to zero. At this time, the door may be opened to stir food, turn, or season, etc.

5. When the timer reaches zero, an audible signal sounds. The shut-off relay and cook relay are de-energized and the power transformer, oven lamp, and cooling motor are turned off.

6. Opening the door or touching the CLEAR/OFF pad will cause the time of day to reappear on the display and the oven will revert to an OFF condition.

JE1240L ONLY

AUTO COOK

This function will automatically microwave at pre-programmed power levels and determines the proper amount of cooking time. There are 8 codes that can be used.

- **Code 1** (quick reheat) will turn the oven off as soon as the sensor detects steam from the food.
- **Codes 2-8** will add additional cooking time after steam has been detected. It will automatically switch to TIME COOK and signal "AUTO" on the display. That will then be replaced by countdown numbers.

To Use AUTO COOK:

1. Touch AUTO COOK pad. "ENTER COOK CODE" flashes on display.
2. Touch number pad for desired code (see use & care), Code number shows, in four seconds "START" flashes.
3. Touch START, "AUTO" shows on display indicating steam sensor has been activated.
4. Beep sounds when steam is sensed and "AUTO" is replaced by cook time. When done, oven beeps every minute until door is opened or CLEAR/OFF is touched.

AUTO
REHEAT

START

AUTO
COOK

1

2

3

AUTO²

COOK

CODE

JE1240L ONLY

POPCORN

The POPCORN feature is a preprogrammed function that uses the humidity sensor to automatically select the correct cooking time.

NOTE: Use of the metal Double Duty™ shelf with the popcorn pad is not recommended.

This feature works best when the popcorn contents are in the 3.0-3.7 ounces range.

To Use Popcorn:

1. Put popcorn in the center shelf per instructions.
2. Touch POPCORN pad. "POP" flashes, after 4 seconds "START" flashes on display.
3. Touch START. The popcorn sensor automatically calculates the cooking time. After the popcorn sensor detects steam, the oven signals and displays remaining cooking time needed.
4. When cooking is completed, the oven signals and flashes "End".



JE1240L ONLY

AUTO REHEAT

With this feature the oven automatically adjusts its heating time to various types and amounts of pre-cooked food by sensing the steam that escapes as food heats. Do not open the oven door while the word "RHEAT" IS DISPLAYED, steam escaping will affect oven performance.

NOTE: Use of the metal Double-Duty™ shelf with Auto Reheat is NOT recommended. Best results are obtained with foods you want to steam or retain moisture (must be covered).

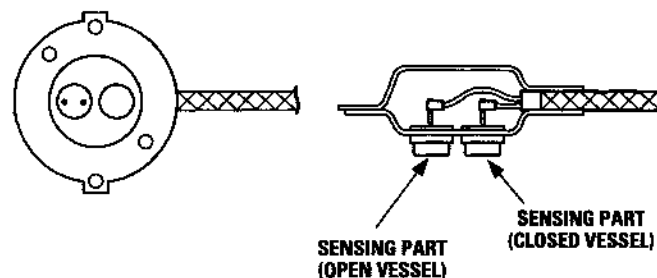
To Use AUTO REHEAT:

1. Touch AUTO REHEAT pad. "RHEAT" shows on display and "FOOD" flashes. After 4 seconds, "START" flashes on display.
2. Touch START pad. "RHEAT" and "FOOD" are displayed.
3. Beep sounds when steam is sensed and "RHEAT" is replaced by time counting down. Rotate/stir food if necessary. When done, oven displays "END". Oven will beep every minute until door is opened or CLEAR/OFF is touched.



STRUCTURE OF ABSOLUTE HUMIDITY SENSOR

The absolute humidity sensor includes two thermistors as shown in the illustration. One thermistor is housed in the closed vessel filled with dry air while another is in the open vessel. Each sensor has a protective cover made of metal mesh to protect it from external airflow.



JE1240L ONLY

AH SENSOR TEST

Checking the initial sensor cooking condition

1. The oven should be plugged in at least five minutes before sensor cooking.
2. Room temperature should not exceed 95°F (35°C).
3. The unit should not be installed in any area where heat and steam are generated, for example, next to a conventional surface unit.
4. Exhaust vents are provided on the back of the unit for proper cooling and air flow in the cavity. To permit adequate ventilation, be sure to install so as not to block these vents. There should be some space for air circulation.
5. Be sure the exterior of the cooking container and the interior of the oven are dry. Wipe off any moisture with a dry cloth or paper towel.
6. The Sensor works with food at normal storage temperature. For example, chicken pieces would be at refrigerator temperature and canned soup at room temperature.
7. Avoid using aerosol sprays or cleaning solvents near the oven while using Sensor settings. The sensor will detect the vapor given off by the spray and turn off before food is properly cooked.
8. After about 2 to 9 minutes if the sensor has not detected the vapor of the food, ERROR will appear and the oven will shut off.

WATER LOAD COOKING TEST (SENSOR)

Make sure the oven has been plugged in at least five minutes before checking sensor cook operation. The cabinet should be installed and screws tightened.

1. Fill approximately 200 milliliters (7.2 oz) of tap water in a 1000 milliliter measuring cup.
2. Place the container on the center of tray in the oven cavity.
3. Close the door.
4. Touch AUTO REHEAT and START pads. The oven will operate for the first 16 seconds, without generating microwave energy.

NOTE: ERROR will appear if the door is opened during first stage of sensor cooking.

5. After approximately 16 seconds, microwave energy is produced, oven should turn off when water is boiling (bubbling).

NOTE: DO NOT use styrofoam cup.

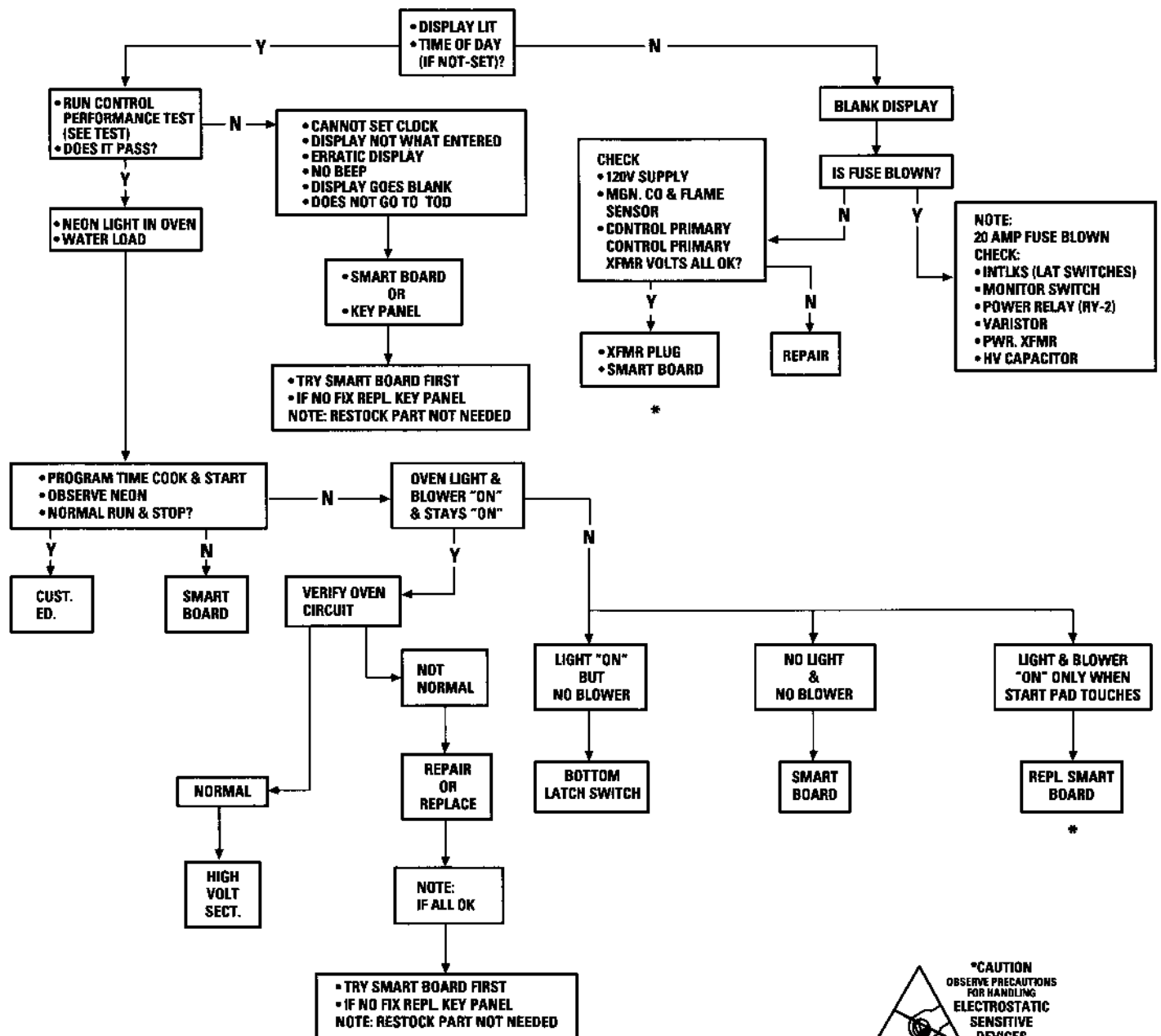
If the oven does not turn off, replace the AH sensor or check the smart board.

PERFORMANCE TEST (ALL MODELS)

1. Measure line voltage (loaded). This test is based on normal voltage variations of 105V to 130V. Low voltage will affect power and temperature rise.
2. Place (1) WB64X0073 beaker containing exactly one liter of water between 59°F and 75°F in the center of the shelf. Record the starting water temperature with an accurate glass thermometer (Robinair No. 12084).
3. Set at HIGH (Power).
4. Turn oven "ON" and time for exactly two minutes and three seconds.
5. At the end of time, record the water temperature. The difference between starting and ending temperatures is the temperature rise. Depending upon the line voltage, the minimum temperature rise should be: 36°F @ 120V

DIAGNOSIS FLOW CHART

Refer result to Diagnosis Flow Chart



SERVICING

TROUBLESHOOTING GUIDE

When troubleshooting the microwave oven, it is helpful to follow the Sequence of Operation in performing the checks. Many of the possible causes of trouble will require that a specific test be performed. These tests are given a procedure letter which will be found in the "Test Procedure" section.

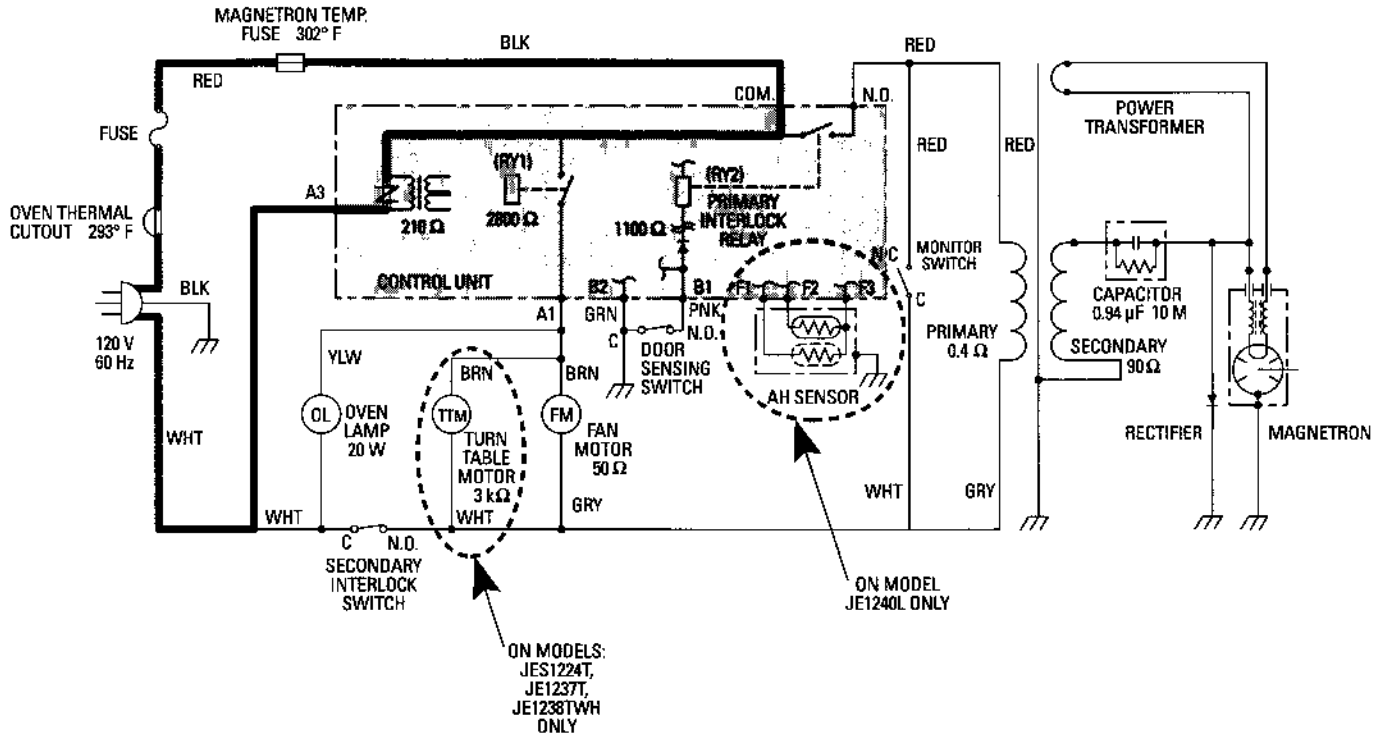
IMPORTANT: If the oven becomes inoperative because of a blown monitor fuse in the monitor switch, primary interlock relay and secondary interlock switch circuit, check the monitor switch, primary interlock relay, door sensing switch and secondary interlock switch before replacing the monitor fuse.

CONDITION	TEST PROCEDURE	POSSIBLE CAUSE AND DEFECTIVE PARTS																					
		PROBLEM	Short in Power Cord	Short or Open Wiring	Magnetron	Power Transformer	Rectifier Assembly	H.V. Capacitor	Primary Interlock Switch	2nd Interlock Switch	Monitor Switch	Monitor Fuse	Temperature Fuse or Thermal Cut-out	Control Unit	Oven Lamp or Socket	Cooling Fan Motor	Stirrer Fan	Wrong Operation	Low Voltage	Dirty Oven Cavity	AH Sensor Assembly	Turntable Motor	
OFF CONDITION	Home fuse blows when power cord is plugged into wall receptacle		●	●																			
	Microwave fuse blows when power cord is plugged into wall receptacle.			●							●												
	All letter and indicator lights do not appear in display when power cord is first plugged into wall outlet.			●							●	●	●	●									
	Display does not operate properly when CLEAR/OFF key is touched. (Buzzer should sound and time of day should appear in display.)								●					●									
	Oven lamp does not light with door opened.			●								●	●	●	●								
COOKING CONDITION	Door closed, oven lamp and cooling fan motor on can not clear.							●															
	Oven lamp does not light in cool cycle or when door is opened.												●										
	Oven lamp does not light at all.		●										●	●									
	Oven lamp lights but fan motor or turntable motor do not operate.		●												●							●	
	Oven does not go into cook cycle when START pad is touched.		●					●	●		●	●	●										
	Oven seems to be operating but little or no heat is produced in oven load. (Food is incompletely cooked or not cooked at all at end of cook cycle.)		●	●	●	●	●	●															
	Oven produces extremely uneven heating in cook cycle.		●													●	●	●	●	●			●
	Oven does not cook properly when programmed for Cooking Power 5 mode. (Operates properly on Cooking Power 10 mode.)		●											●									
SENSOR COOKING CONDITION	Oven is in the sensor cooking condition but AH sensor does not end, or AH sensor turns off about max. 30 min. after start. When a cup of water is heated by sensor, the oven does not shut off when water is boiling.												●									●	

SCHEMATIC

- NOTE: CONDITION OF OVEN**
1. DOOR CLOSE
2. CLOCK APPEARS ON DISPLAY

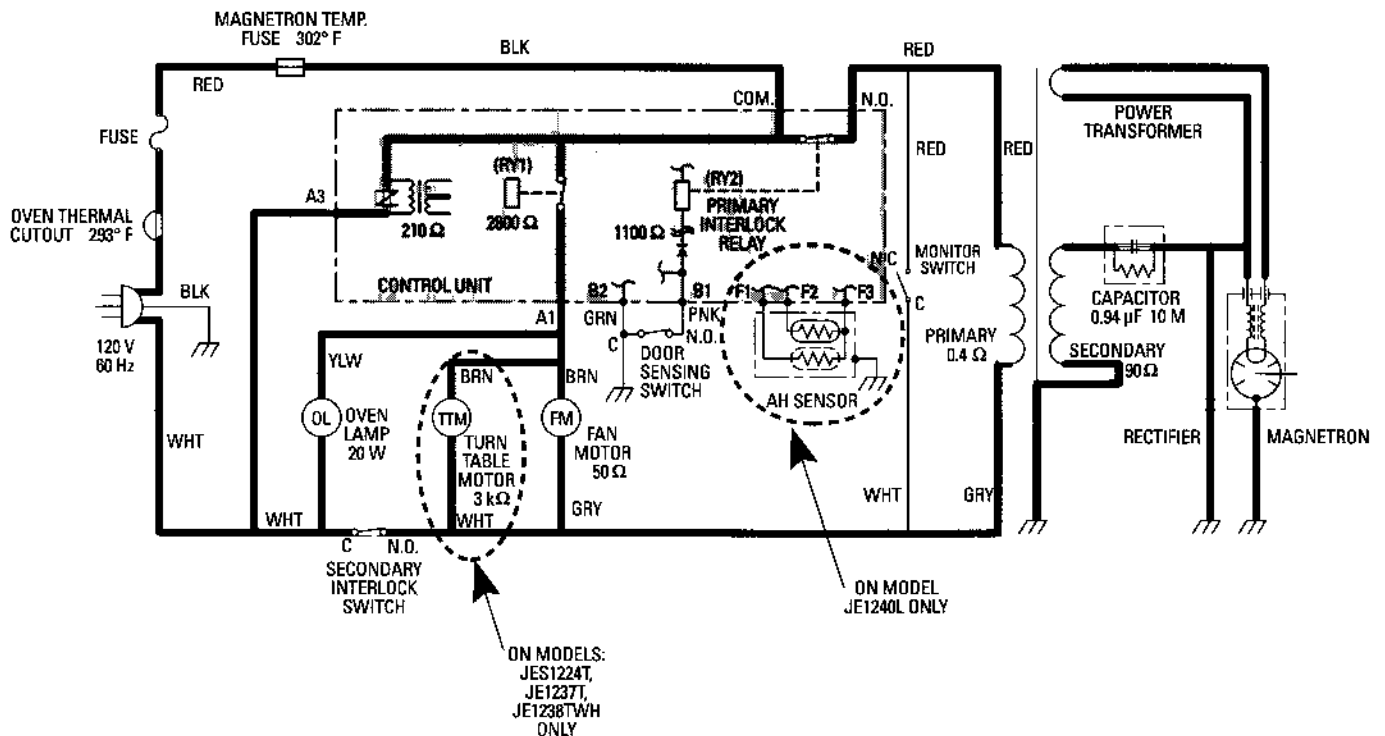
Oven Schematic – Off Condition



SCHEMATIC

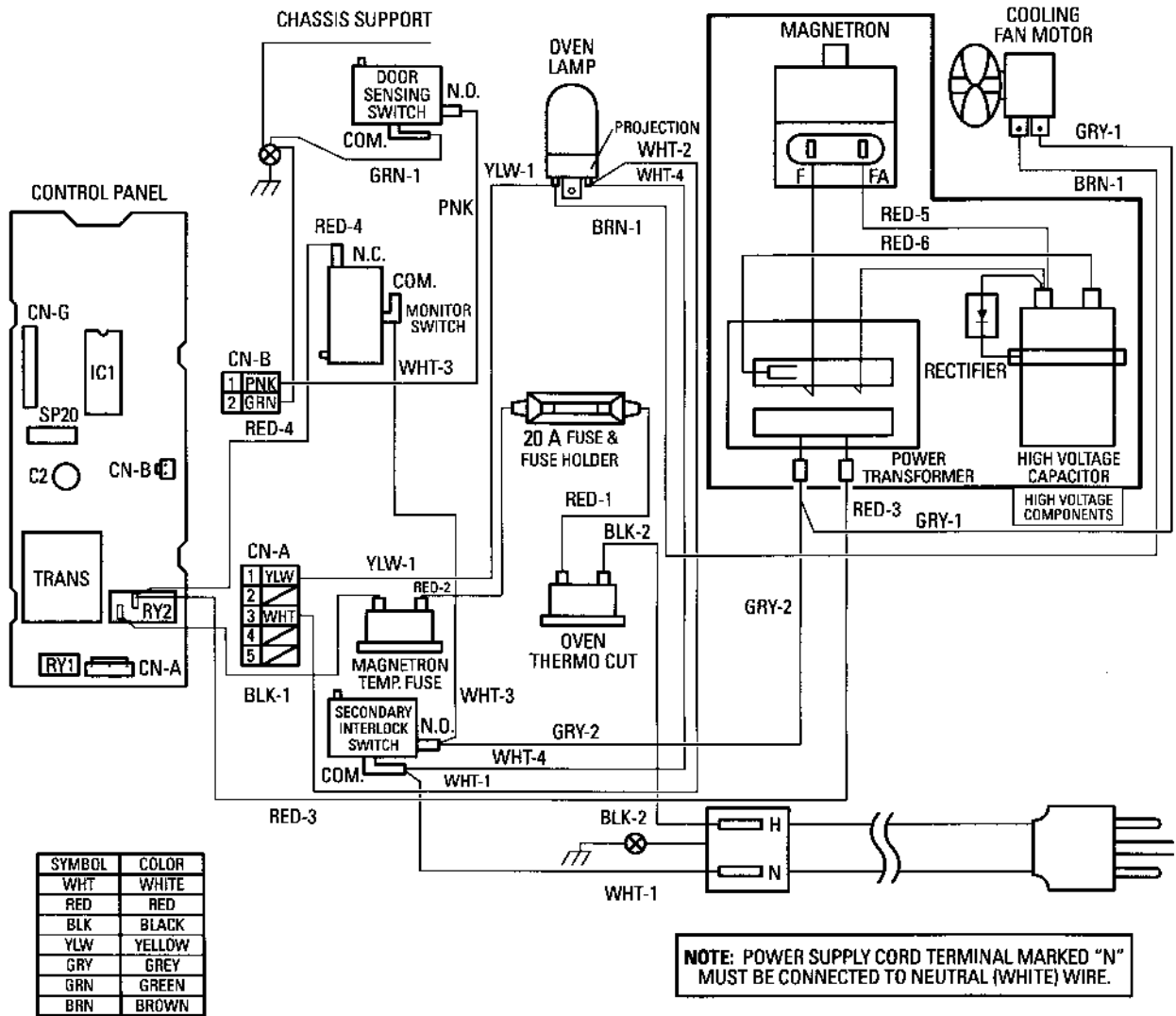
- NOTE: CONDITION OF OVEN**
1. DOOR CLOSE
2. CLOCK TIME PROGRAMMED
3. POWER LEVEL "Power 10"
4. "START" PAD TOUCHED

Oven Schematic – Cooking Condition



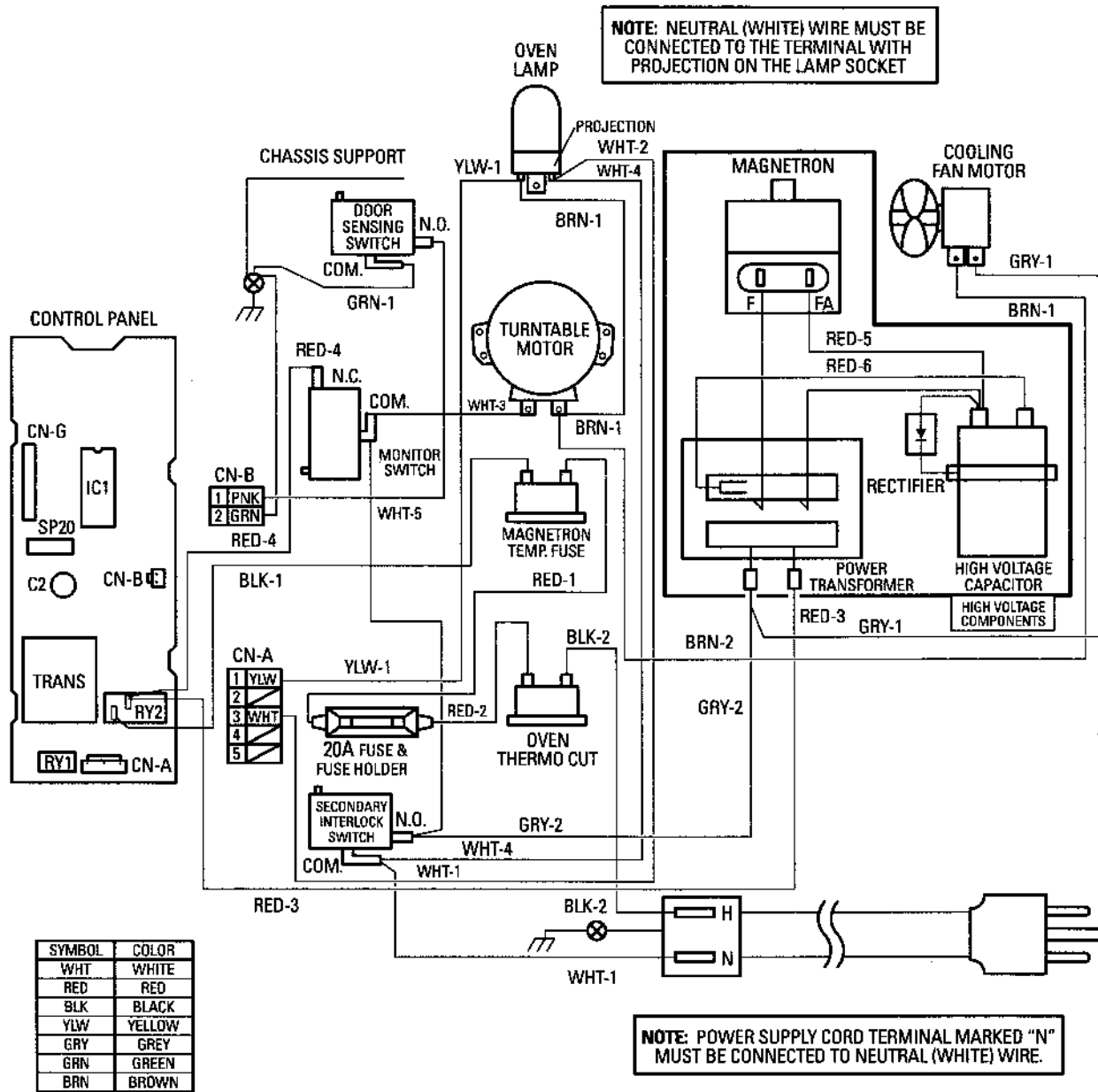
Wiring Diagram for JE1223L, 1233L

NOTE: NEUTRAL (WHITE) WIRE MUST BE CONNECTED TO THE TERMINAL WITH PROJECTION ON THE LAMP SOCKET

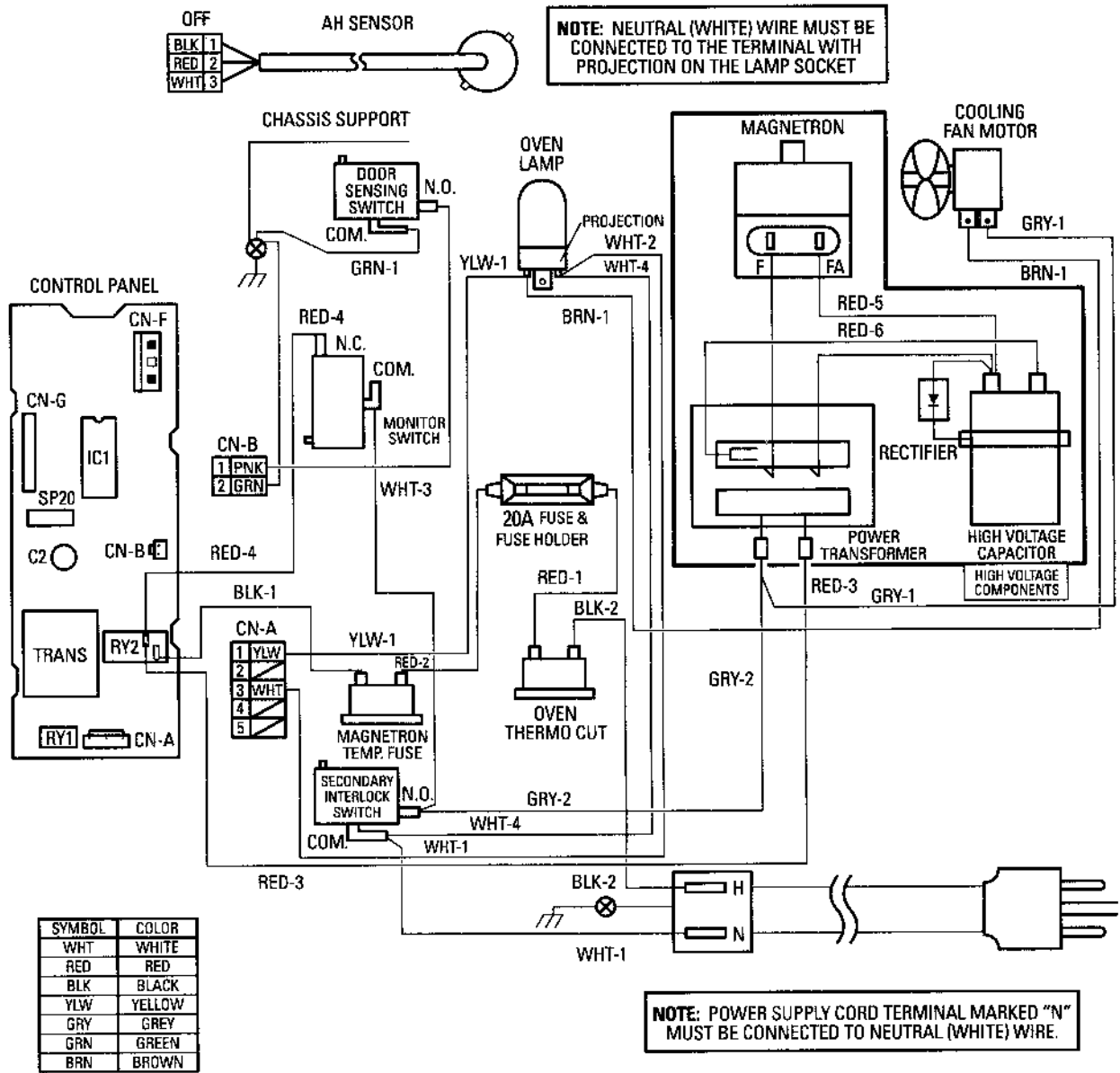


NOTE: POWER SUPPLY CORD TERMINAL MARKED "N" MUST BE CONNECTED TO NEUTRAL (WHITE) WIRE.

Wiring Diagram for JES1224T, 1237T, 1238T

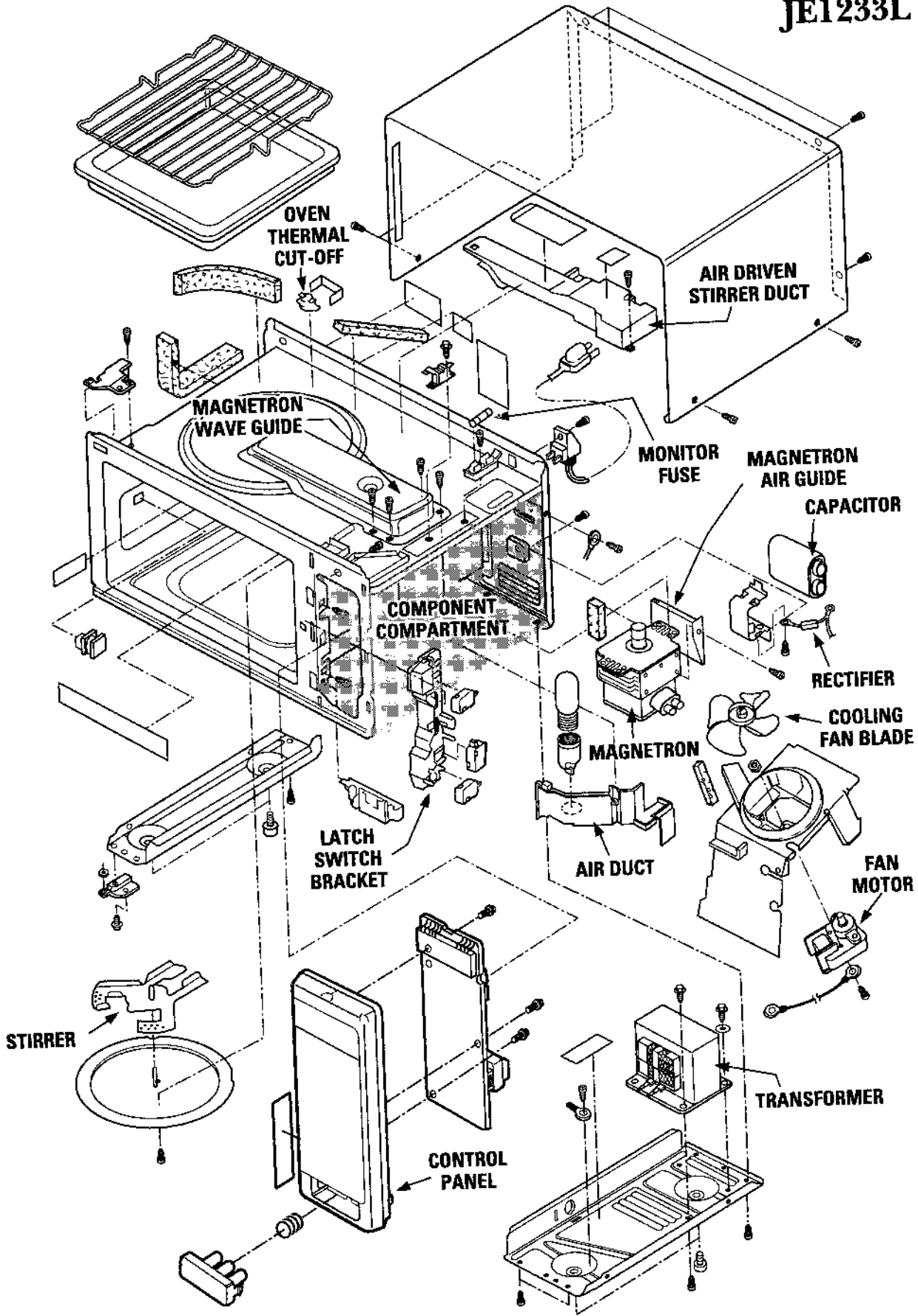


Wiring Diagram for JE1240L



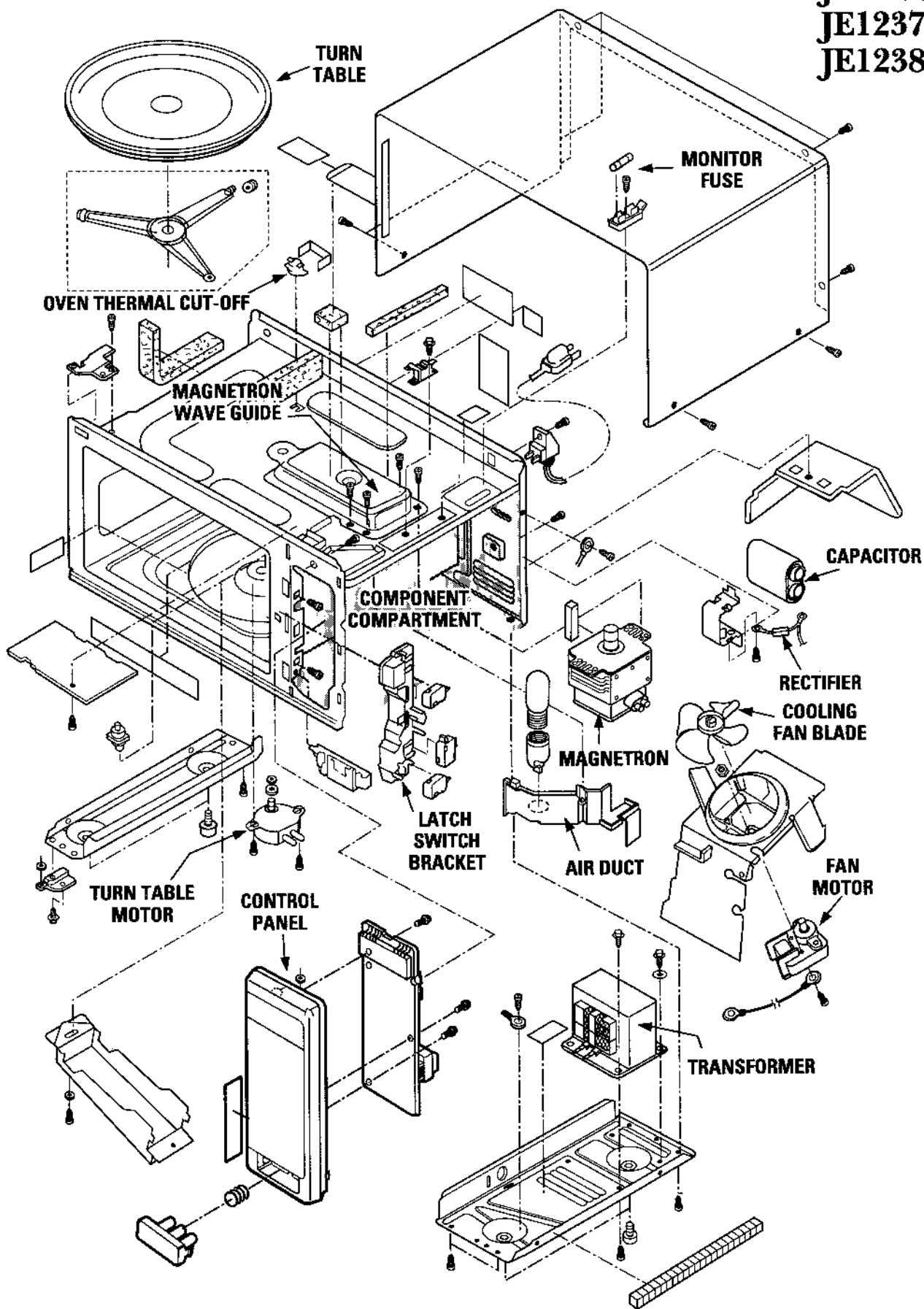
Oven and Cabinet Parts

Microwave
JE1223L
JE1233L



Oven and Cabinet Parts

Microwave
JES1224T
JE1237T
JE1238T



Oven and Cabinet Parts

Microwave
JE1240L

