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GE Consumer Service Training

Technician Manual

GE Countertop Microwave Ovens
0.9 Turntable 850 Watt Models
1.2 Turntable 900 Watt Models

GE 850 Watts
JES933BW/WW
JE940PW/GW/WW

GE 900 Watts
JE1240GW/WW

REF94
Pub. No. 31-20107

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 at High Power (Power Level 10).
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/CM^2.
7. Record date on service invoice and microwave leakage report.

NOTE: *Maximum allowable leakage is 5MW/CM^2. 4MW/CM^2 is used to allow for measurement and meter accuracy.*

Inform the manufacturer of any oven found to have emission in excess of 5MW/CM^2. 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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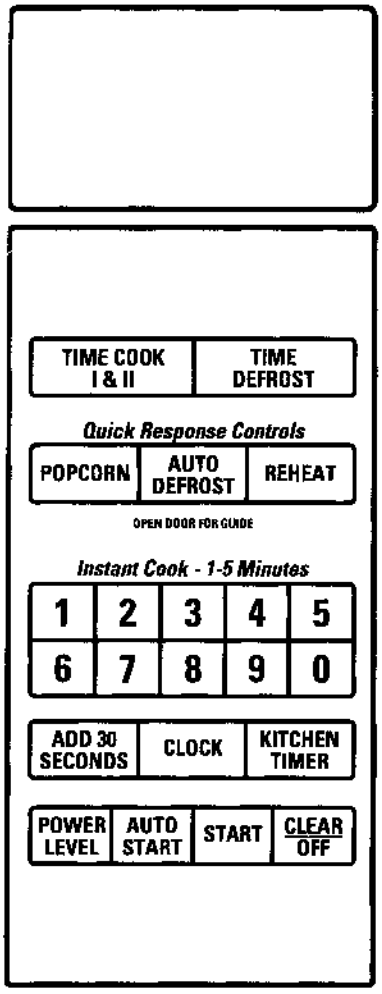
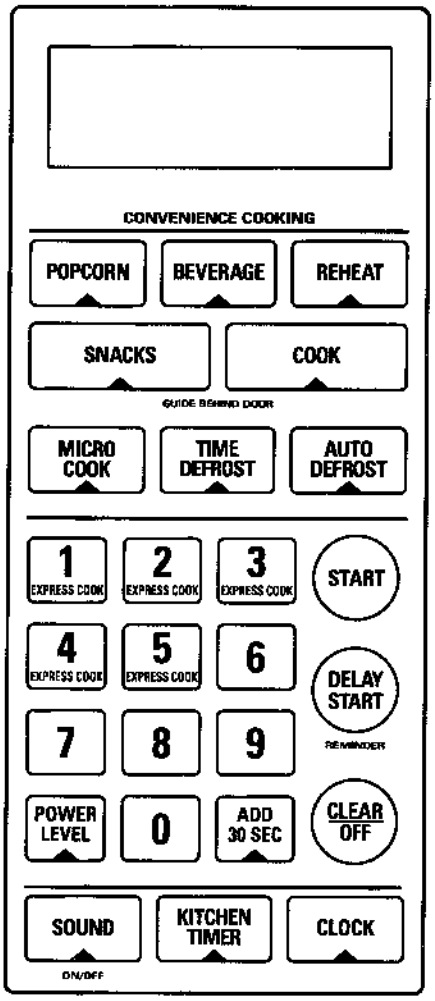


JES933(W)



JE940(W)
JE1240(W)

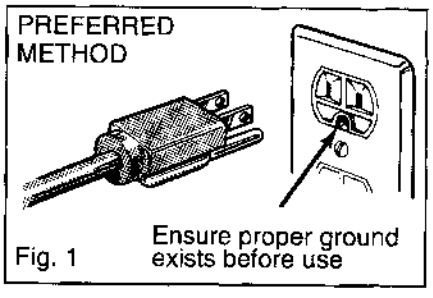


Fig. 1

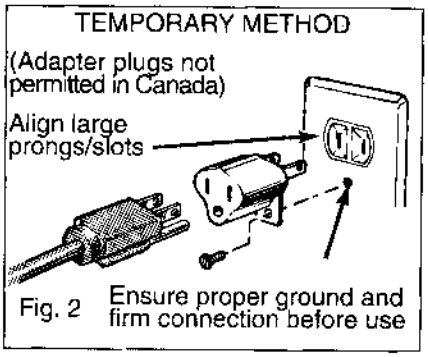


Fig. 2

Plug Installation

Ensure proper ground exists before plugging in microwave oven. See Fig. 1 and Fig. 2.

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	JES933(W)	JE940(W)	JE1240(W)
TIME COOK I & II/MICRO COOK	•	•	•
TIME DEFROST	•	•	•
AUTO DEFROST	•	•	•
POWER LEVEL	•	•	•
KITCHEN TIMER	•	•	•
CLOCK PAD	•	•	•
POPCORN (TIMED)	•	•	•
QUICK REHEAT: BEVERAGE*, SNACKS, COOK		•	
EXPRESS COOK* (1-5)	•	•	•
REHEAT	•	•	
NUMBER PADS	•	•	•
ADD 30 SECONDS*	•	•	•
SOUND ON/OFF		•	•
CHILD LOCKOUT	•	•	•
START	•	•	•
AUTO START	•	•	•
CLEAR/OFF	•	•	•
OVEN CAVITY LIGHT	•	•	•
CLOCK	•	•	•
WARRANTY (CARRY IN)	1 YR	1 YR	1 YR
WARRANTY ON MAG-PART ONLY	5 YR	10 YR	10 YR
LINE CURRENT	12 AMPS	12 AMPS	12.5 AMPS
LINE WATTS	1370	1370	1450
MAG POWER (IEC-705)	850 W	850 W	900 W
TOUCH CONTROL SYSTEM	•	•	•
CLOCK 1:00-12:59	•	•	•
TIMER (0-99 MIN 99 SEC)	•	•	•
NET WEIGHT	35	35	41

*INSTANT ON

Reading the Identification Tag

Every GE microwave oven has a model identification tag – a nameplate – attached. The location of attachment varies from one unit to another. This nameplate, when properly read, gives you specific information on that particular model.

GE Cooking Product
J – GE R – HPT L – RCA
Z – Monogram

Microwave Oven
E = Countertop model
V = Over-the-Range model
EB = Built-in Profile
M = Built-in Monogram

M = Mounts under a cabinet
T = Convection model
S = Specialty
C = Built-in Microwave/ Convection
W = Built-in Microwave
I = International

Cavity Size (cu. ft.)
1 = 1.0 } (over-the-range
2 = 1.1 } models only)
3 = .3
3 = (also indicates 1.4 cu. ft. convection model when preceded by "JET" prefix)

4 = .4	9 = .9
5 = .5	10 = 1.0
6 = .6	12 = 1.2
7 = .7	14 = 1.4
8 = .8	15 = 1.5

1, 2, 3 = 1.0 cu. ft. (Built-in, models only ZMC, ZMW, JEBC, JEB)

Cavity Size (continued)
Models with "JEM" prefix and one or two numbers
1-9 = .6 cu. ft.
10-30 = .8 cu. ft.
31 & up = .8 or .9 cu. ft.

Feature Content
01-99 Feature package

L/M/N/V/W = Model Year Designator
T = Turntable
B = Black
P = Panel (Woodgrain)
W = White
WH = White on white

Engineering identification

J V M 1 50 J 0 0 1

GENERAL ELECTRIC CO. LOUISVILLE, KY 40225 — UL LISTED 725F
HOUSEHOLD MICROWAVE OVEN — E70049

MODEL NO.	SERIAL NO.	MANUFACTURED
J VM150J 001	LD940719S	JUNE – 1990

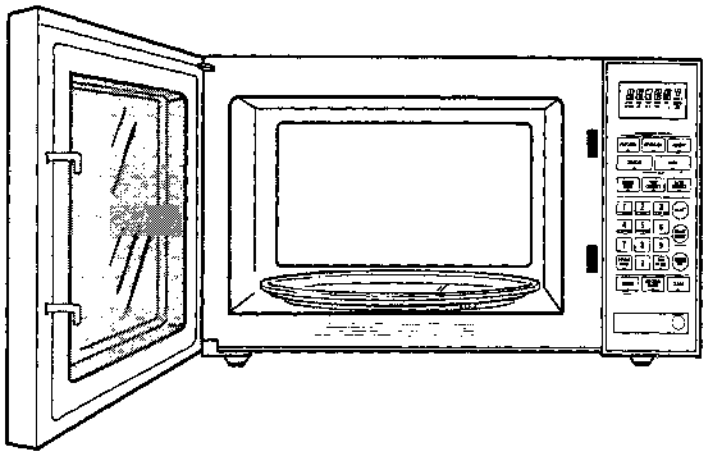
KW: 1.35 VAC/HZ: 120/60	WARRANTY: 1 YEAR FULL	FCC ID A3L9QN150J GENERAL ELECTRIC MADE IN KOREA

THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUB CHAPTER J

0.9 AND 1.2 TURNTABLE COUNTERTOP MICROWAVE

An upgraded redesign of the 0.9 and 1.2 cu. ft. countertop microwave will be introduced in the GE model line late in the summer of 1995. The non-sensor JES933(W) and JE940(W) will have an IEC cooking wattage rating of 850 watts. The JE1240(W) will be rated at 900 watts (IEC).

These units will weigh approximately 40 pounds.



FEATURES DESCRIPTION

POWER UP

At power up or after a power interruption the display lights all segments and function indicator words for 15 seconds, and then "RESET".

CLOCK

To set the clock, touch CLOCK and enter the time of day. The display will flash "TIME". Touch START (or CLOCK) to start the clock.

CHILD LOCK-OUT

The control panel can be locked out to prevent the microwave from being accidentally started.

To Lock the Control:

- Press and hold the CLEAR/OFF pad for about 3 seconds.
- The display will beep twice and show LOCK and then return to the time of day.
- A large "L" will be displayed to indicate that the control panel is locked.
- If control is attempted to be used "LOCK" will be displayed then return to time of day.

To Unlock the Control:

- Press and hold the CLEAR/OFF pad for about 3 seconds.
- Control will beep twice and return to time of day.

SOUND ON/OFF

This feature will turn the beeper on or off.

- Touch the SOUND ON/OFF pad once to turn the sound off. When the sound has been turned off, the display will show "OFF" and then return to the time of day. A small "NO SOUND" will be displayed in the corner.
- Touch the pad again for sound.

CLEAR/OFF

When this pad is touched, it shuts off the oven and erases all settings (except for the time of day).

POWER LEVELS AND DUTY CYCLE

The control has 10 power levels, 1-10. The chart indicates the time in seconds that the magnetron is on and off during the 30 second duty cycle.

POWER LEVEL	BEST USES
High 10	Fish, bacon, vegetables, boiling liquids.
Med-High 7	Gentle cooking of meat and poultry; baking casseroles and reheating.
Medium 5	Slow cooking and tenderizing such as stews and less tender cuts of meat.
Low 3	Defrosting without cooking; simmering; delicate sauces.
Warm 1	Keeping food warm without overcooking; softening butter.

Power Level	Mag On	Mag Off
1	4	26
2	7	23
3	10	20
4	13	17
5	16	14
6	19	11
7	22	8
8	25	5
9	28	2
10	30	0

COOKING COMPLETE REMINDER

After the completion of all defrost and cook cycles (except Temp. Cook/Hold) the control will beep once every minute until door is opened or CLEAR pad is touched.

KITCHEN TIMER

The KITCHEN TIMER is a no power HOLD feature which can be used for four timing functions:

- Operates as a minute timer.
- Can be used to "Delay Start" cooking. (Time Cook or Temp Cook only.)
- Can be used as a hold setting after defrost.
- Could be used while another program is running.

To Use Kitchen Timer While Another Program is Operating:

1. Set up other program, press start.
2. Touch KITCHEN TIMER pad.
3. Enter the amount of time you want by touching the number pads.
4. Timer will automatically start in 3 seconds, no need to touch start.

MICRO COOK/TIME COOK 1 & 2

The Cook function can be programmed for **one** or **two** time cook cycles in the same program. The two cycle feature is useful if a power level change is desired during the cooking operation. Each function can be set for a maximum of 99 minutes and 99 seconds.

Micro Cook 1 & 2 can be programmed in any sequence but it will always execute **Cook 1** first.

TIME DEFROST

The defrost setting is approximately 30% power. Touch time defrost and enter time.

ADD 30 SECONDS

The ADD 30 SECONDS feature provides "instant on" at high power (10) for 30 seconds or can be used to add 30 seconds to any **timed** function.

EXPRESS COOK/INSTANT COOK (No Function Pad)

This "instant on" feature will provide 1-5 minutes of cooking at power level 10 as soon as it is selected.

DELAY START

The DELAY START function provides a 12-hour delay start for any program or sequence of programs. Since it is a 12-hour timer, the start time can be delayed up to a maximum of 11 hours and 59 minutes.

NOTE: The time-of-day clock must be set for the DELAY START function to work.

To Use Delay Start:

1. Touch DELAY START pad.
2. Enter the time of day you want the oven to start. Be sure microwave oven shows the correct time of day.
3. Enter desired cooking program.
4. Touch START pad. The oven will display start time and automatically start at the desired time.

REMINDER

REMINDER (Use Delay Start Pad)

The Reminder feature, like an alarm clock, will signal (fast beeps) when a desired time of day is reached.

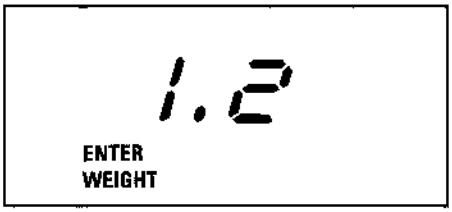
To Use Reminder:

1. Touch DELAY START pad.
2. Enter the desired time of day (11 hours and 59 minutes maximum) that you want the oven to signal. Clock must show correct TOD.
3. Touch START pad (REM will be in display).
4. When desired time is reached oven will signal with fast beeps until clear pad is touched or door is opened.

NOTE: This feature cannot be used with or during any cooking function.

AUTO DEFROST (NON-SENSOR FEATURE)

The Auto Defrost function automatically sets the defrosting time and power levels by entering the weight of the frozen food. The weight must be entered in tenths of pounds. Use conversion guide and auto defrost guide in Use and Care.



TO USE AUTO DEFROST:

1. Touch AUTO DEFROST.
2. Enter food weight, use conversion guide and auto defrost guide.
3. Touch START.

Twice during defrosting, the oven beeps 4 times and "TURn" flashes. Follow directions in the Auto Defrost guide.

IMPORTANT: The magnetron power will continue to defrost even if food is not "turned". "Turn" will continue to flash in the display.

START

BEVERAGE (TIMED 1:15 per serving)

This feature is used to reheat a beverage the size of a cup, one serving. The serving size can be changed to 2 or 3 serving size by touching that number right after touching the beverage pad.

COOK (TIMED)

The oven sets the cooking time and power level for a specific food category.

1. Touch COOK.
2. Enter food code.
3. Enter weight.
4. Touch START.

NOTE: To display the remaining cooking time, touch the COOK pad.

POPCORN (TIMED 2:20 per bag)

The popcorn feature is a pre-timed function that allows one touch cooking for prepackaged microwave popcorn in the 3.0-3.5 ounce range.

TO USE POPCORN

1. Remove the outer wrapper from the microwave popcorn and place package in center of oven floor per manufacturer's instructions.
2. Touch POPCORN pad. POP flashes, oven turns on instantly.

HOW TO ADJUST THE POPCORN PROGRAM TO PROVIDE A SHORTER OR LONGER COOKING TIME

If popcorn is undercooked you can make an adjustment by adding time.

- Touch the POPCORN pad and then touch #9, this will add 20 seconds more cooking time.

If popcorn is overcooked you can make an adjustment by subtracting time.

- Touch the POPCORN pad and then touch #1, this will subtract 20 seconds of cooking time.

SNACKS

This feature sets the time and power level for cooking or warming many common type foods and different quantities. Use snack code guide (1-6).

1. Touch SNACKS pad.
2. Touch number pad of desired food code (food item appears on display).
3. A number pad is needed next to tell the quantity that is being cooked. (1-4, codes 5 & 6 you must enter weight).
4. Touch START.

COOK GUIDE

CODE	FOOD	DISPLAY	TIME
1	Canned Vegs	VEG 1	15 sec/oz
2	Frozen Vegs	VEG 2	35 sec/oz
3	Fresh Vegs	VEG 3	45 sec/oz
4	Potatoes	PotAt	25 sec/oz
5	Fish	FISH	25 sec/oz
6	Chicken	Chikn	23 sec/oz
7	Ground Beef, Pork, Turkey	Meat	25 sec/oz
8	Bacon	bACON	50 sec/oz
9	Frozen Pizza	PIZ	35 sec/oz

SNACKS GUIDE

CODE	FOOD	DISPLAY	TIME	QTY
1	Bakery – Rolls	bREAd	20 sec/item	1-4
2	Sandwiches	SANdW	50 sec/sand.	1-2
3	Leftover Pizza	PIZ	50 sec/slice	1-4
4	Dessert Toppings	TOP	20 sec/serv.	1-4
5	Soups	SOUP	15 sec/oz	8-40 oz
6	Cheese Dip	CHEEZ	10 sec/oz	4-16 oz

REHEAT

The REHEAT feature is a short term program to automatically reheat a previously cooked food.

1. Touch REHEAT pad.
2. Select a number pad from 1-6 to select a food group.
3. Touch START.

NOTE: Reheat codes 1-5 allows you to heat up to 3 servings. Just touch the number pad 2 or 3 before (or after) start.

REHEAT GUIDE

CODE	DISPLAY	TIME/PER SERVING
1	PASTA	2:20
2	MEATS	1:05
3	VEGS	1:15
4	BEV	1:30
5	SAUCE	2:35
6	PLATE	3:40

OPERATION

DESCRIPTION OF OPERATING SEQUENCE

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

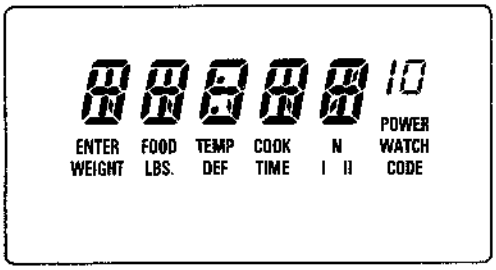
OFF CONDITION

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

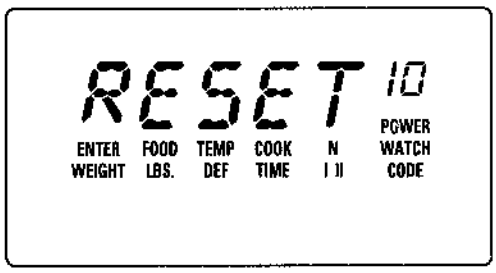
When the START pad is touched the following occurs:

1. Relay contacts are closed and the following components are turned on:

   RY-1 **oven lamp/fan motor/turntable 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.

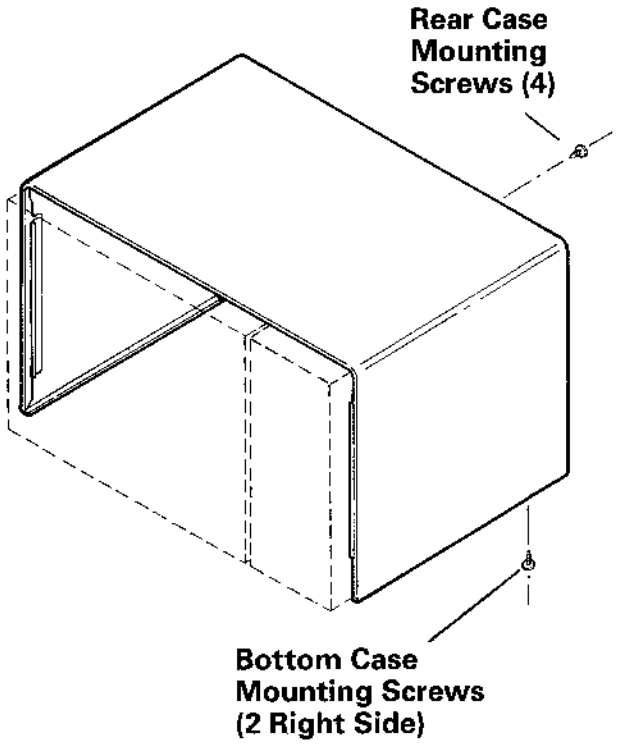
DESCRIPTION AND FUNCTION OF COMPONENTS

OUTER CASE REMOVAL

To remove outer case, proceed as follows:

1. Disconnect oven from power supply.
2. Remove screws from rear and along the bottom right edge of case. (JE1240 does not use screws on bottom edge.)
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 trouble-shooting 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.

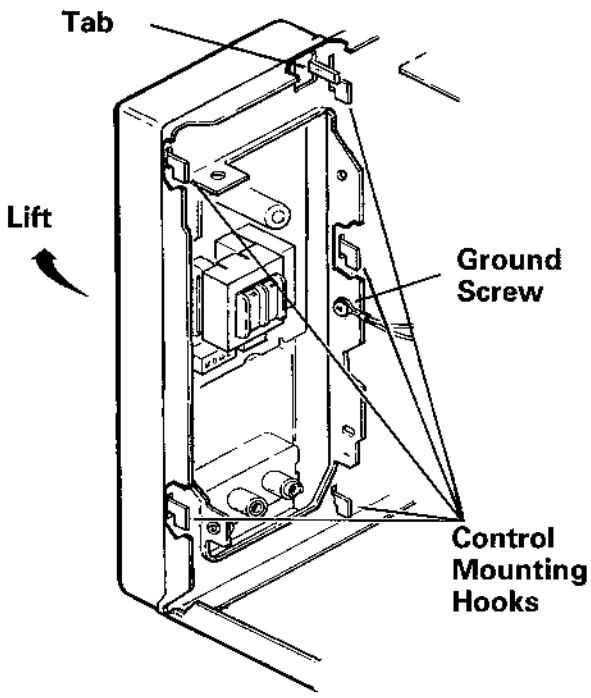
2-3 Other possible problems caused by defective smart board
a) Buzzer does not sound or continues to sound.
b) Clock does not operate properly.
c) Cooking is not possible.
d) Proper temperature measurement is not obtained.

CONTROL PANEL

The control panel consists of the Key Panel, Trim, Crystal & Smart Board along with the Door Release Button.

To Remove Control Panel Assembly

1. DISCONNECT POWER, remove case and DISCHARGE CAPACITOR.
2. Disconnect leads to the control, remove key panel and smart board ground screw.
3. Bend the tab that is above the top mounting hook straight and lift control up to disengage tabs at side of cavity.

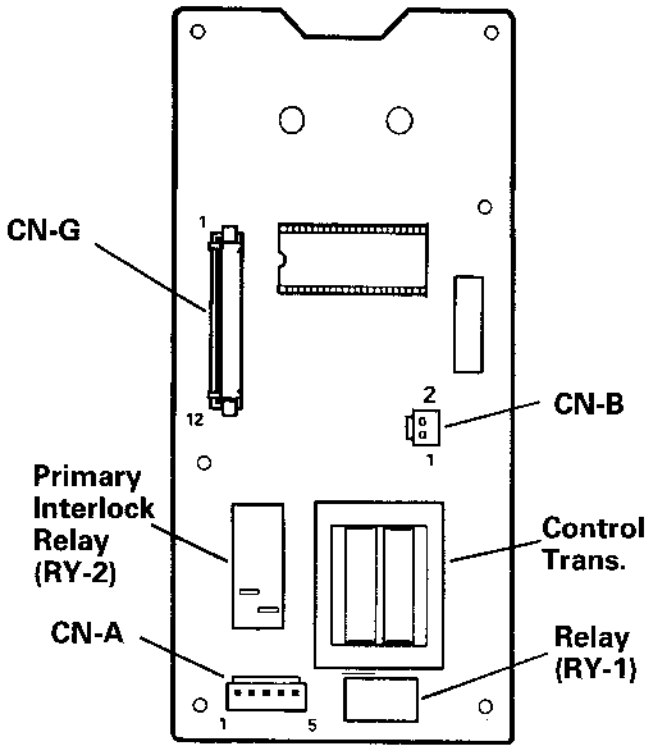


SMART BOARD (PCB)

The smart board is mounted to the control trim by three screws, and contains the Control Transformer Power Relay (RY-2, Primary Interlock), Main Relay (RY-1), Varistor, and three connectors (Con A – Secondary Interlock Switch, Con B – Door Sensing Switch, and Con G – Key Panel).

The following checks can be made to help verify if a problem is with the smart board or another component:

1. Power to board – check for 120V between black lead on Relay 2 and white lead on Con. A.
2. Remove power and check main relay and power relay contacts to determine if they are shorted (squeeze connector when removing) – should read ∞ Ω.
3. Check door sense switch operation by disconnecting Con B and checking at harness connection. Door open – ∞ Ω, and door closed – 0Ω.

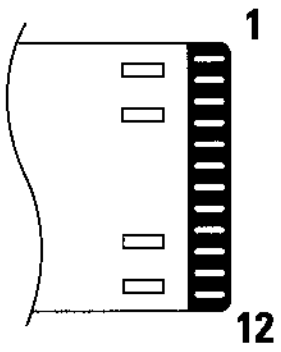


KEY PANEL

The key panel has 1 ribbon connector on smart board.

If necessary, the key panel pads can be checked by a continuity test. For ease of handling, the key panel or control should be removed and placed on a flat surface.

The ribbon connections are on one side (1-12). Pad operation can be checked between connections at end of ribbon (use high Ohms scale).



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4 EXPRESS COOK	7-10
5 EXPRESS COOK	7-11
6	7-12
7	8-9
8	8-10
9	8-11
0	8-12
CLEAR OFF	5-12
START	5-9

TO REPLACE KEY PANEL

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

DOOR OPENER

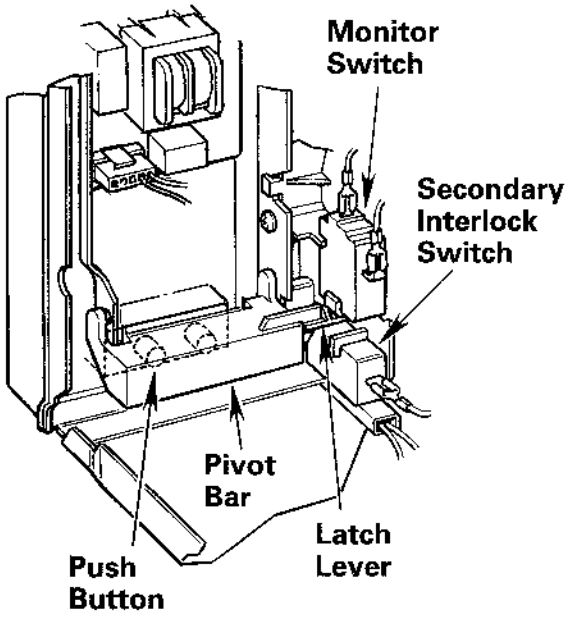
The door is opened by pushing the button on the control panel which raises the switch lever and the latch head from the latch hook, releasing the door.

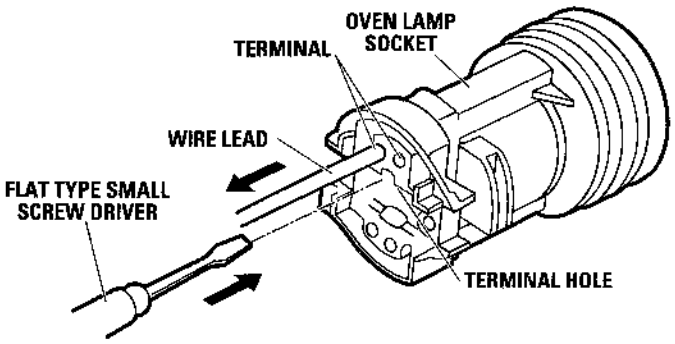
OVEN LAMP

The Oven Light Assembly is located in the Air Duct behind the control panel. To replace the lamp the outer case must be removed, complete oven light assembly removed and replaced with a new assembly. Insert a small screwdriver in the slot under the wire and push to release wire.

To Release Wire Leads

- Pull the wire lead while pushing the terminal hole (under lead) with a very small flat bladed screwdriver.
- Bend the tab on the air guide that is capturing the socket and lift the socket assembly.
- On the JE1240 the side bracket and air duct will have to be removed to gain access to socket assembly.





POWER TRANSFORMER TEST

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

Disconnect the primary input terminals (red and grey – JE940, red and white – JE1240) and measure the resistance of the transformer with an ohmmeter. Check for continuity of the windings with an ohmmeter. On the Rx 1 scale, the resistance of the primary coil should be less than 1 ohm. The resistance of the secondary windings should be approximately 70-130 ohms (measure from red wire on high voltage transformer to chassis ground); the resistance of the filament windings should be less than 1 ohm. Remove and check leads going to magnetron and capacitor. *(High voltages are present at the high voltage terminal, so do not attempt to measure the filament and high voltage.)*

DISCHARGE CAPACITOR

POWER TRANSFORMER REMOVAL

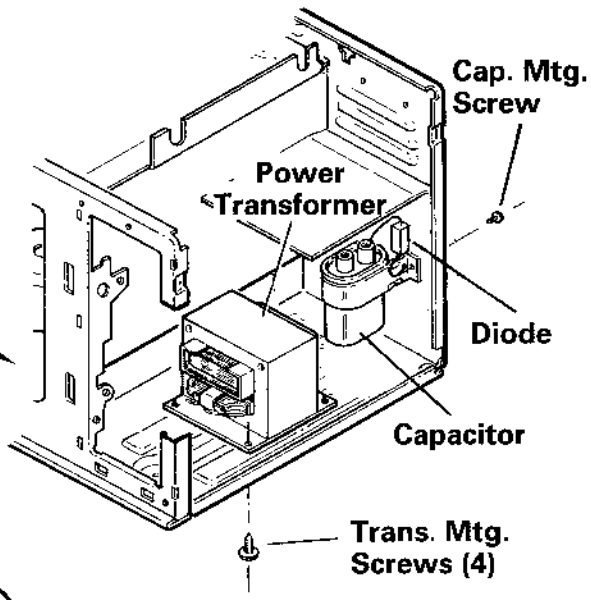
1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Remove oven contents.
4. Remove four (4) screws from bottom of oven that go through the transformer.

Note: *JE1240 has 2 screws and 2 tabs.*

5. Disconnect and mark leads.
6. Reinstall reversing this procedure.

DISCHARGE CAPACITOR

JE940



HIGH VOLTAGE CAPACITOR TEST

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

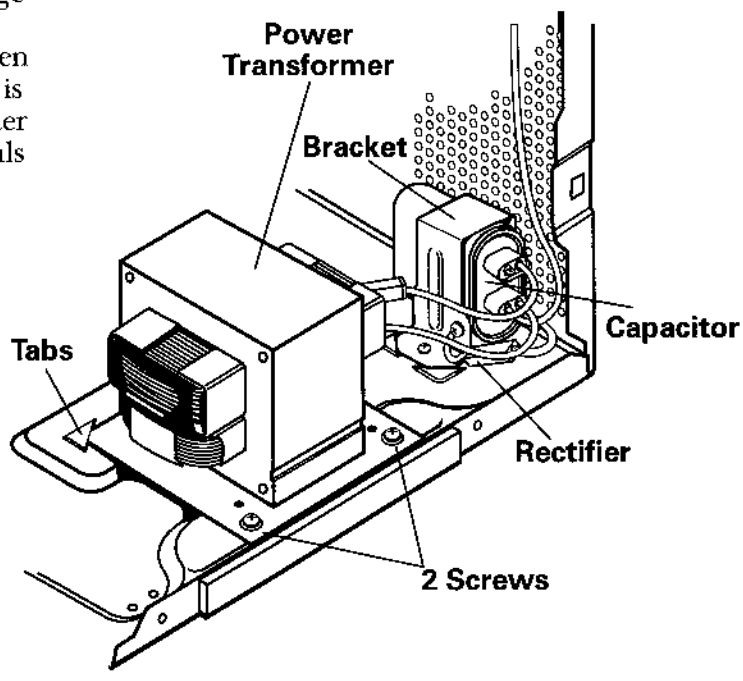
If the capacitor is open, no high voltage will be available to the magnetron. Disconnect input leads and check for short or open between the terminal using an ohmmeter.

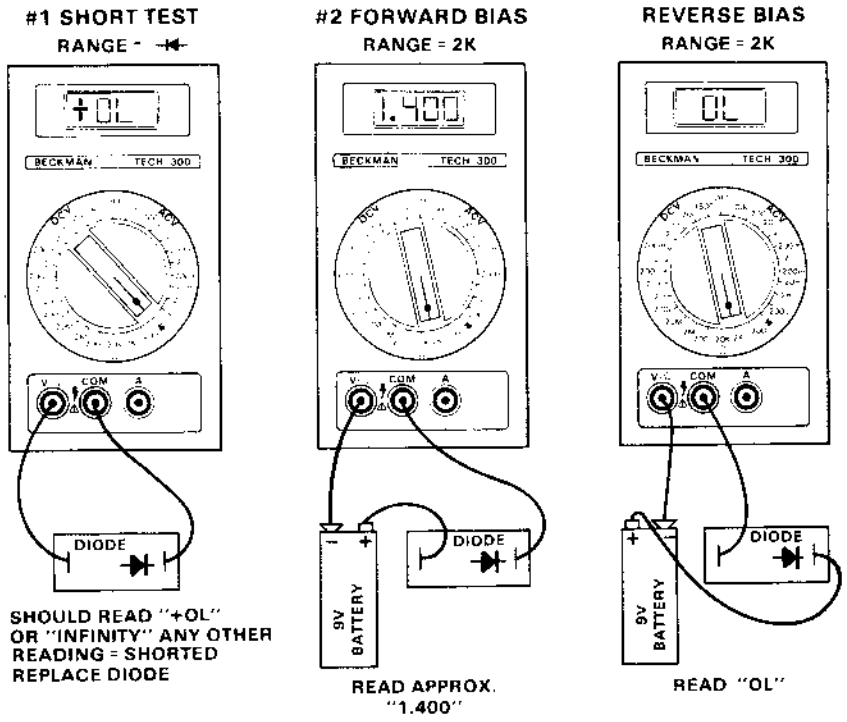
Checking with a high ohm scale, if the high voltage capacitor is normal, the meter will indicate continuity for a short time and should indicate an open circuit once the capacitor is charged. If the above is not the case, check the capacitor with an ohmmeter to see if it is shorted between either of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

If it is shorted, replace the capacitor.

DISCHARGE CAPACITOR

JE1240





NOTE: READING MAY VARY WITH OTHER BRAND METERS.

HIGH VOLTAGE RECTIFIER/DIODE TEST

DISCHARGE CAPACITOR

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 and a 9 volt battery, 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.

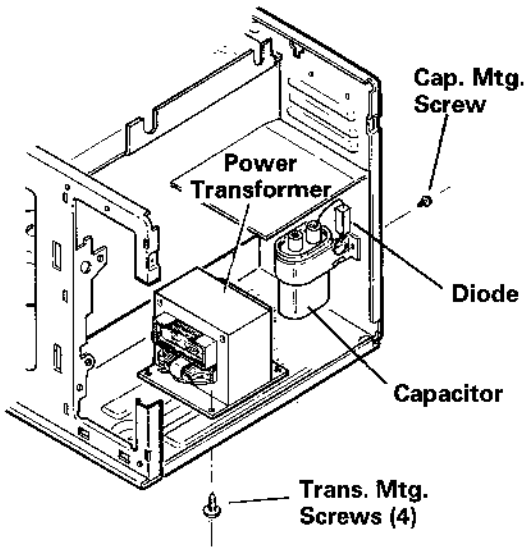
RECTIFIER/DIODE ASSEMBLY AND HIGH VOLTAGE CAPACITOR REMOVAL

DISCHARGE CAPACITOR

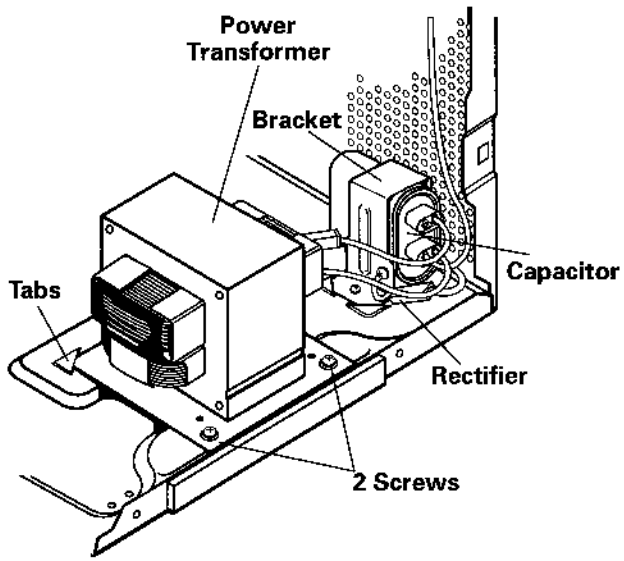
1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Remove one (1) screw holding capacitor holder to oven rear wall (on floor for JE1240).
4. Disconnect terminal of rectifier from capacitor.
5. Remove bracket holding capacitor.

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.*

JE940



JE1240



MAGNETRON THERMAL CUTOUT

The magnetron thermal cutout is located on the bottom of the magnetron (on top of air guide on JE1240) and is designed to prevent damage to the magnetron if an overheated 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 causing the oven to shut down.

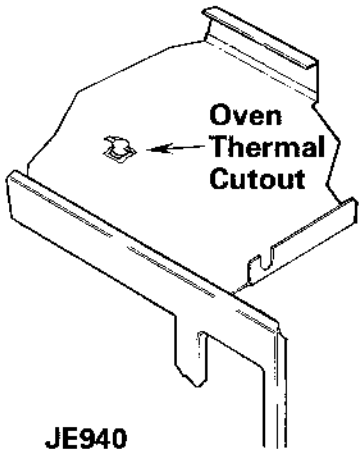
NOTE: Magnetron thermal cutout is resetable (140°F).

OVEN THERMAL CUTOUT

The thermal cutout, located on the opposite side 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, causing the oven to shut down.

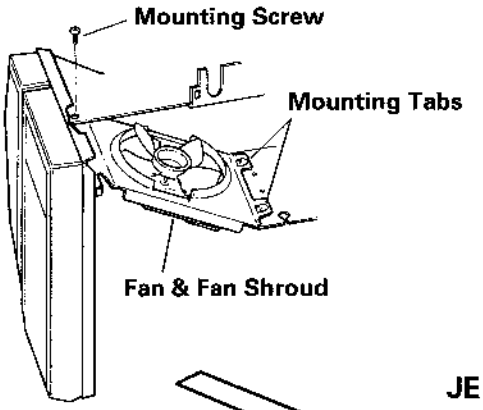
NOTE: Oven thermal cutout is non-resetable.



JE940

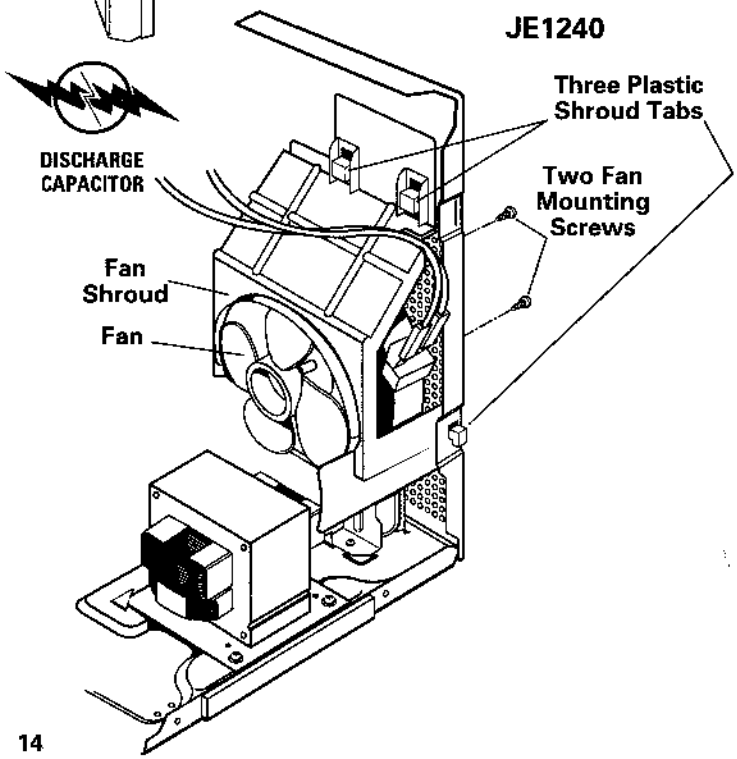
MAGNETRON FAN MOTOR

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. This air is channeled through the oven cavity to remove steam and vapors given off from the heating foods. It is then exhausted through the exhausting air vents at the oven cavity.



MAGNETRON FAN MOTOR ASSEMBLY REMOVAL

1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Disconnect the wire leads from the fan motor and bracket. **(Positive lock connectors – see illustration.)**
   At times the positive lock connectors will be housed in plastic. If so, just squeeze plastic and connector will release.
4. Remove side support bracket.
5. Remove screws holding bracket to case (JE1240 – remove screws from rear of cabinet into fan motor).
6. Bend tabs up that capture lower end of assembly.
7. Remove assembly.



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

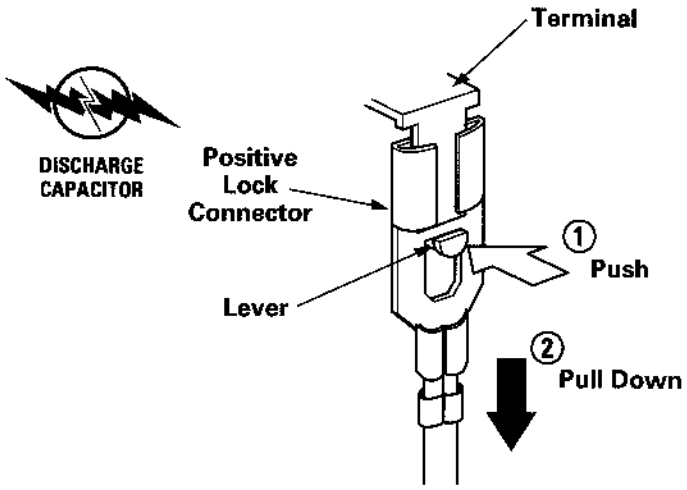
To test for a shorted magnetron, connect the ohmmeter leads between the magnetron filament leads and chassis ground. This test should indicate an infinite resistance. If there is little resistance the magnetron is grounded and must be replaced.

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.

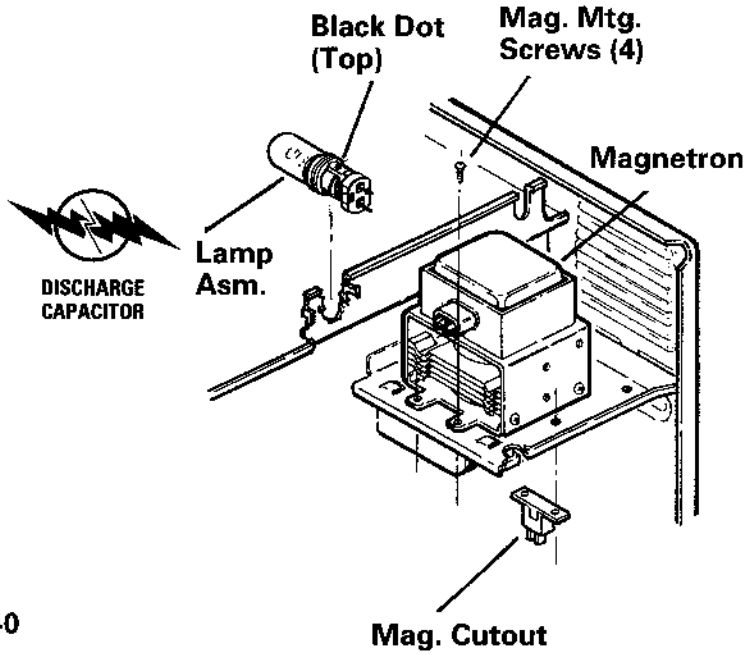
MAGNETRON REMOVAL

1. Disconnect oven from power supply and remove outer case.
2. Discharge high voltage capacitor.
3. Remove side bracket screw that goes into magnetron (and air guide on JE1240).
4. Disconnect 2 magnetron wire leads.
5. Remove 4 magnetron screws.
6. Remove magnetron from wave guide.

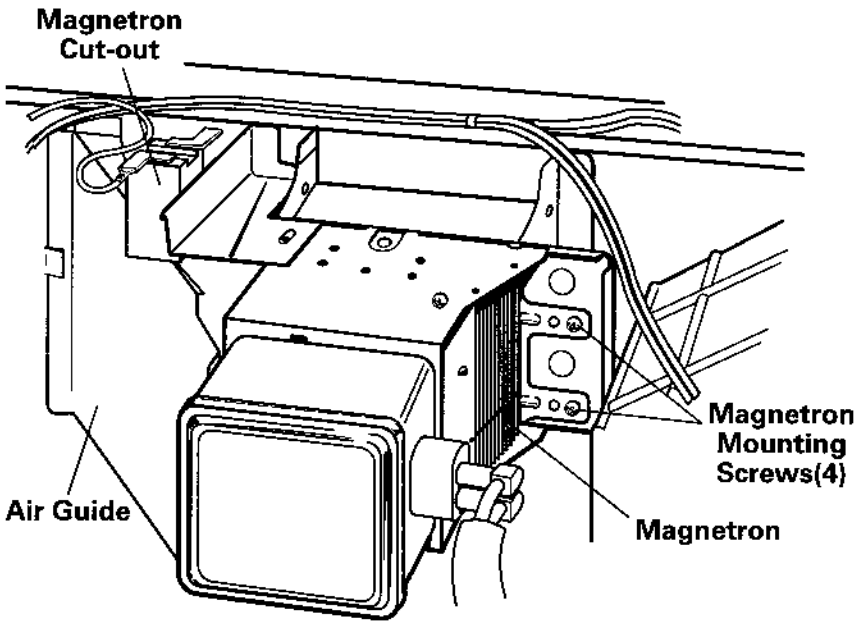
CAUTION: *When replacing the magnetron, be sure the R.F. gasket is in place and mounting screws are tightened securely.*



JE940



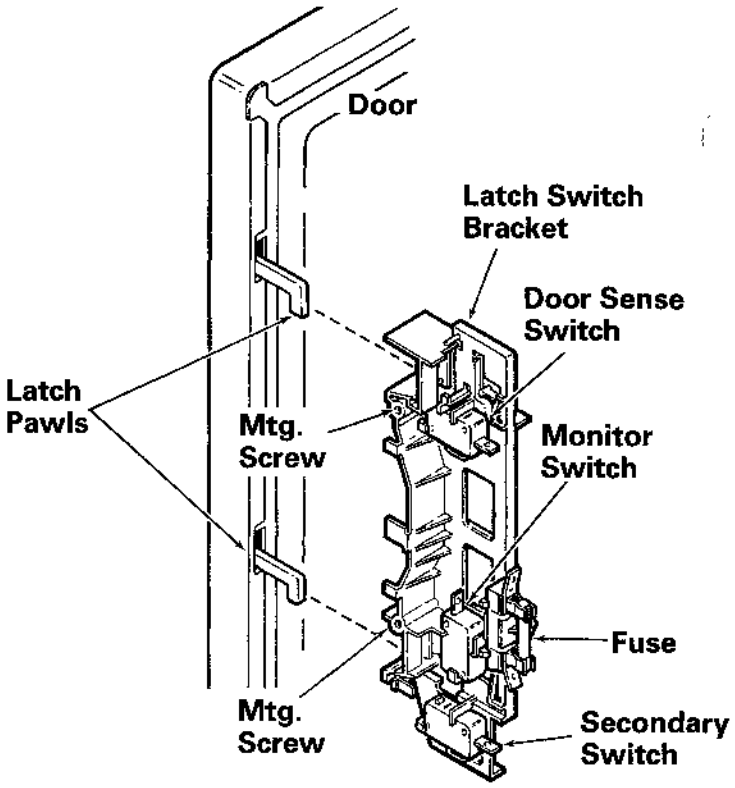
JE1240



DOOR SENSING AND PRIMARY INTERLOCK SWITCHES

The door sensing, monitor and secondary interlock switches are mounted to a plastic body on the right side of the cavity.

The primary interlock relay (RY-2/Power Relay) is mounted on the smart board. 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.



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 secondary interlock switch and primary interlock relay 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 secondary interlock switch and primary interlock relay 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 secondary interlock switch, door sensing switch, monitor switch and primary interlock relay for proper operation.*

BLOWN MONITOR FUSE

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

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

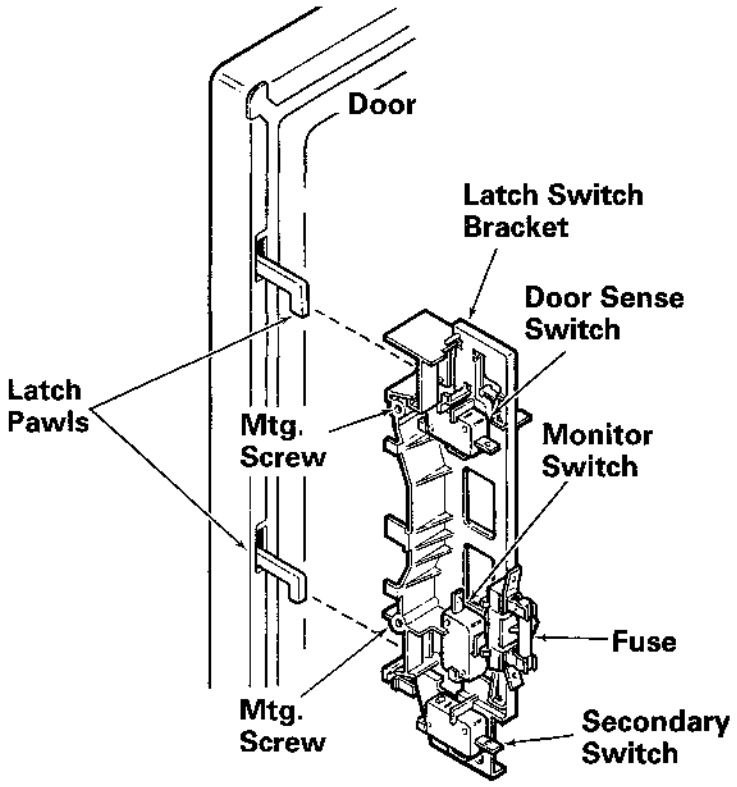
If the monitor fuse is blown by improper switch operation, monitor fuse (15A) and switch must be replaced even if the monitor switch operates normally.

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.

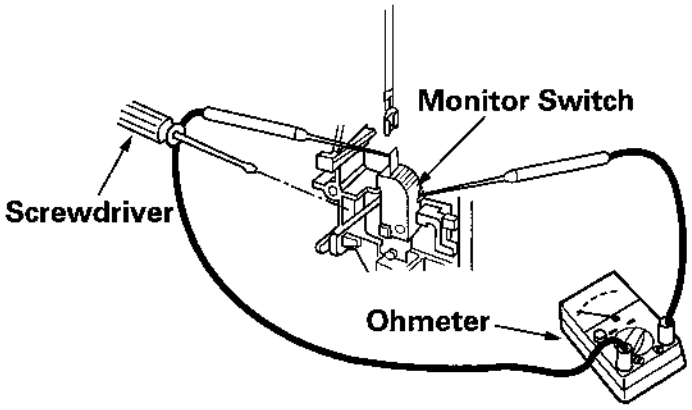
Primary Interlock Relay (RY2/Power Relay)
Disconnect two (2) wire leads from the male tab terminals on the printed wiring circuit board provided in the control panel assembly. The tab terminals are located in the left area of the circuit board on the component side, and are connected to the contacts 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.



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.



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 two (2) screws holding latch switch bracket to component compartment front flange.
5. Remove latch switch bracket assembly.
6. Push outward on the two (2) retaining tabs holding switch in place.

DISCHARGE CAPACITOR

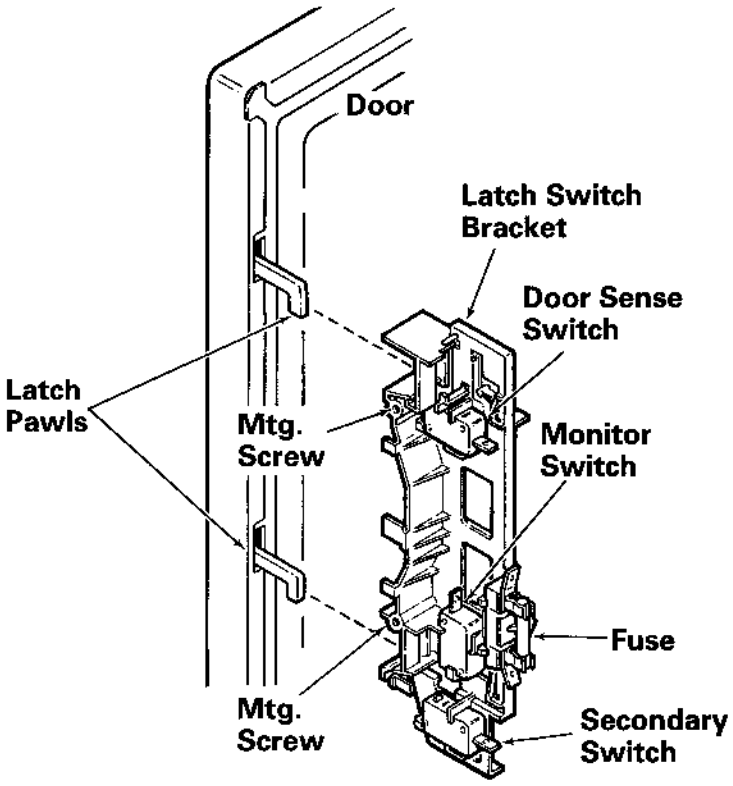
DOOR SENSING, SECONDARY INTERLOCK AND MONITOR SWITCH ADJUSTMENT

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 (.02"). The vertical position of the latch switch bracket should be placed where the door sensing switch and primary 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.

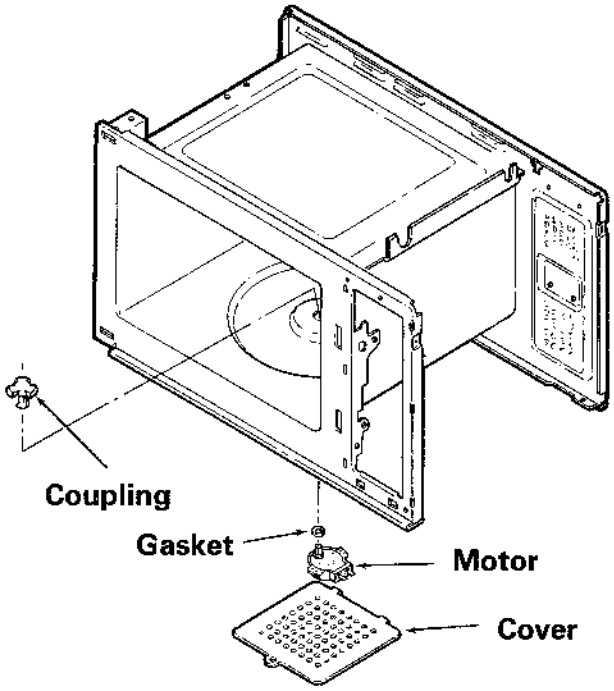
After adjustment, check the following:

1. In and out play of door remains less than 0.5mm (.02") when in latched position. First check upper position of latch switch bracket, pushing and pulling upper portion of door toward the oven face. Then check lower portion 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 (.02").
2. The door sensing switch and primary 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.



TURNTABLE MOTOR AND COUPLING REMOVAL

1. Disconnect oven from power supply.
2. Remove turntable and turntable support from oven cavity.
3. Turn the oven over.
4. Remove turntable motor cover from the bottom plate by snipping off material in four corners.
5. Where the corners have been snipped off bend corner areas flat. No sharp edge must be evident after removal of turntable motor cover.
6. Disconnect wire leads from turntable motor.
7. Remove screw holding turntable motor to oven cavity.
8. After replacement use a self tapping screw to mount the turntable motor cover.



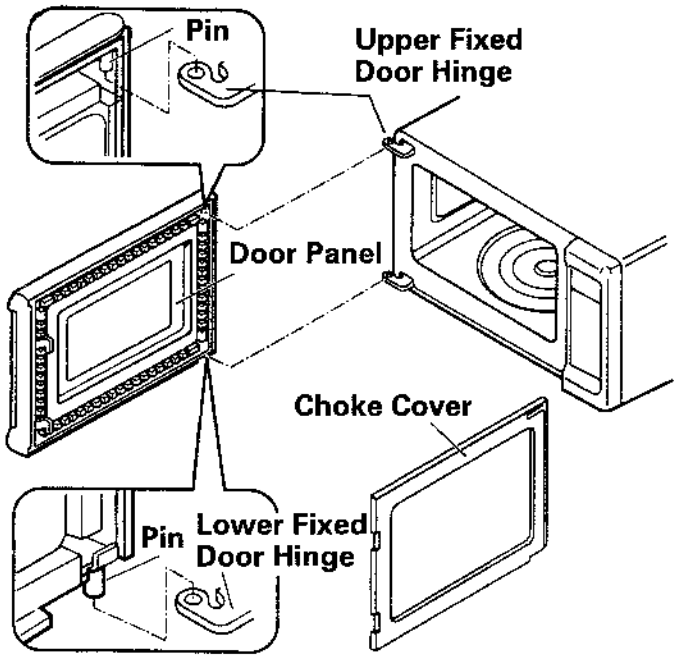
DOOR ADJUSTMENT

The door cannot be adjusted, the hinges are welded in place.

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 ASSEMBLY

The oven door consists of outer door frame, door screen, door panel/metal choke with a plastic film over the hole pattern, snap in plastic trim, latch and spring.

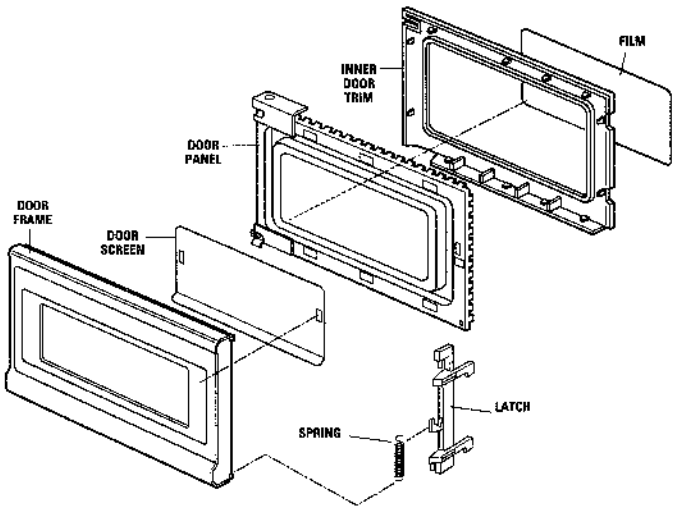


DOOR REMOVAL

1. Disconnect power and remove shelf from oven.
2. Push the door button and open the door slightly.
3. Insert flat type small screwdriver into the gap between inner door trim and lower right corner of door panel first and then around the sealer plate to free engaging parts of inner door trim.
4. Lift door up until pins clear holes of hinges.

TO SERVICE DOOR

1. The latch pawl can be removed by lifting up on the latch until pins clear mounting holes. Disconnect spring.
2. Carefully insert flat type small screwdriver between tabs of door frame and door panel and pry up.
   To replace outer door frame, door screen and choke, door frame must be removed.

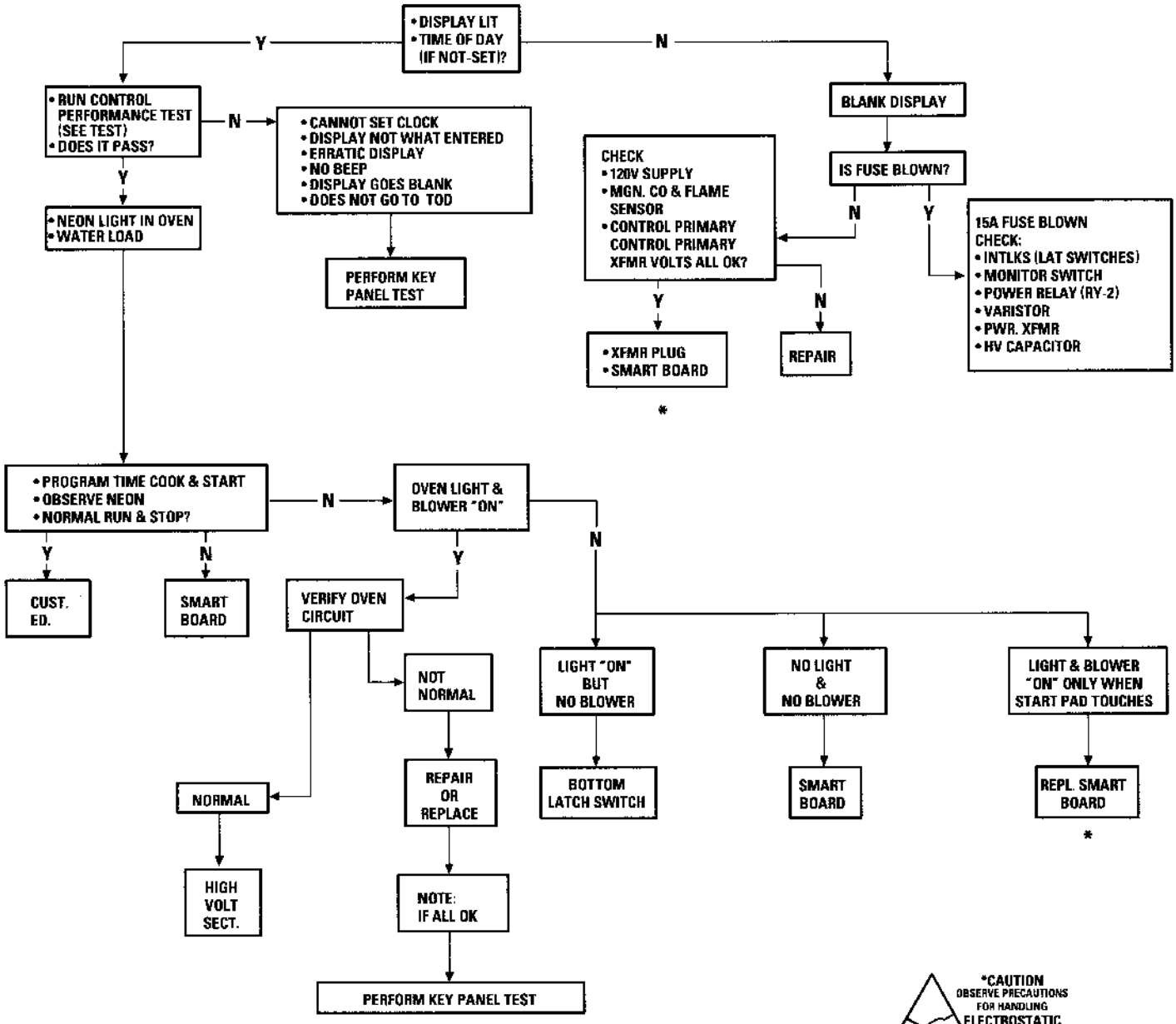


PERFORMANCE TEST (ALL MODELS)

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: 31°F @ 120V.

DIAGNOSIS FLOW CHART

Refer result to Diagnosis Flow Chart



SERVICING

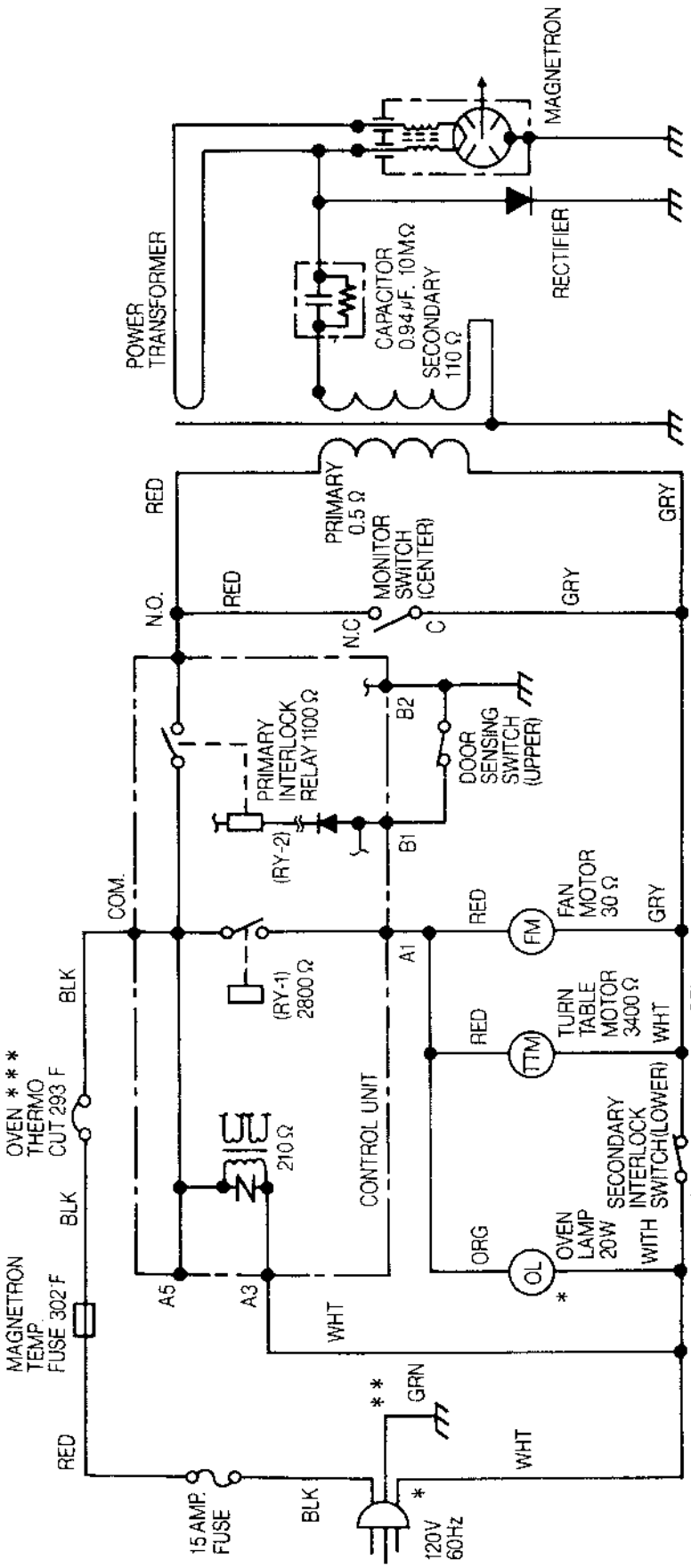
TROUBLESHOOTING GUIDE

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.

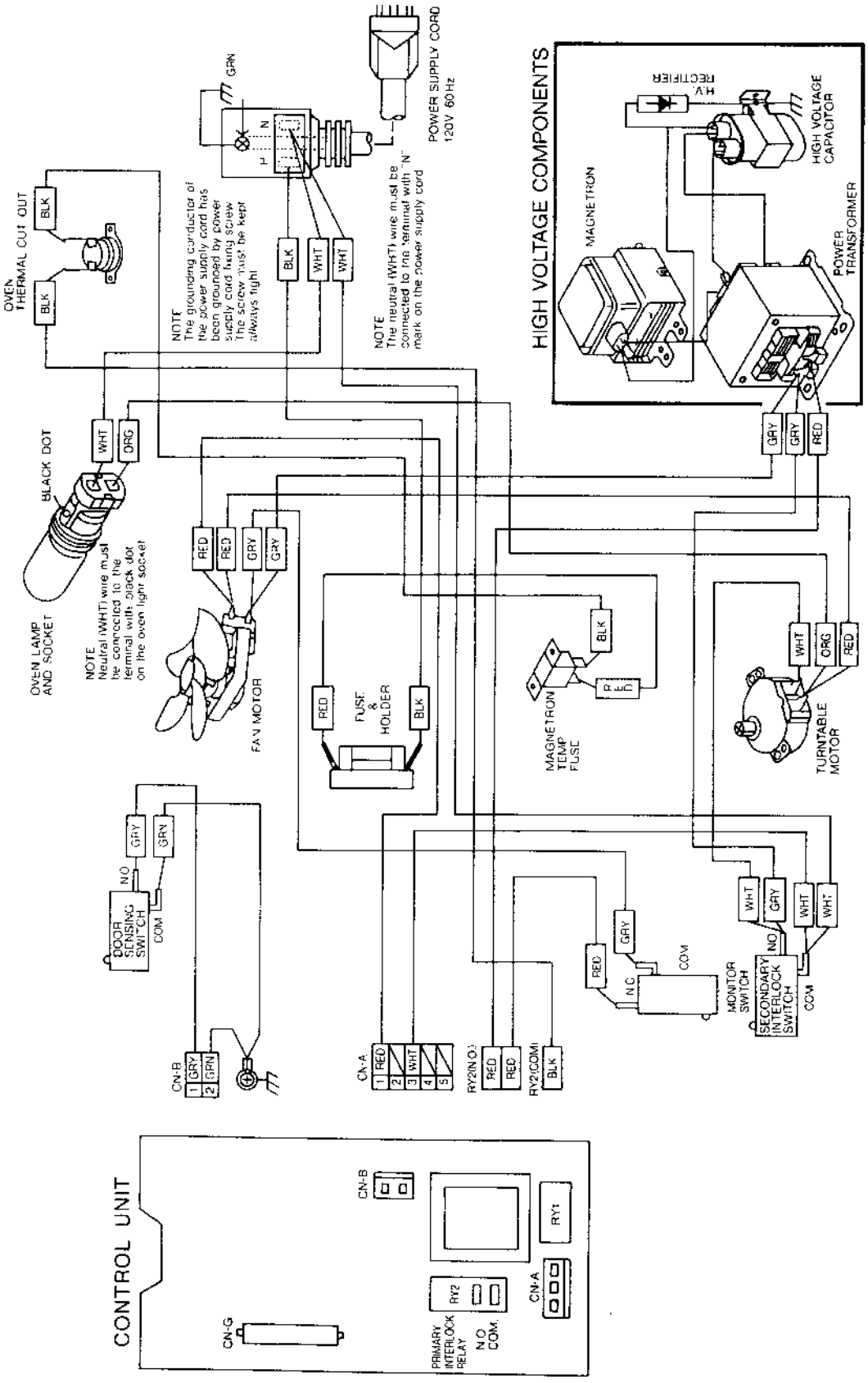
	TEST PROCEDURE																					
CONDITION	POSSIBLE CAUSE AND DEFECTIVE PARTS PROBLEM	Short in Power Cord	Short or Open Wiring	Magnetron	Power Transformer	Rectifier Assembly	H.V. Capacitor	Primary Interlock Switch	2nd Interlock Switch	Monitor Switch	Monitor Fuse	Temperature Fuse or Thermal Cutout	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 cannot 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.												●							●	

MODEL NO. JE940GW/PW/WW, JES933BW/WW
SCHEMATIC DIAGRAM (DOOR CLOSED, COOK OFF CONDITION)

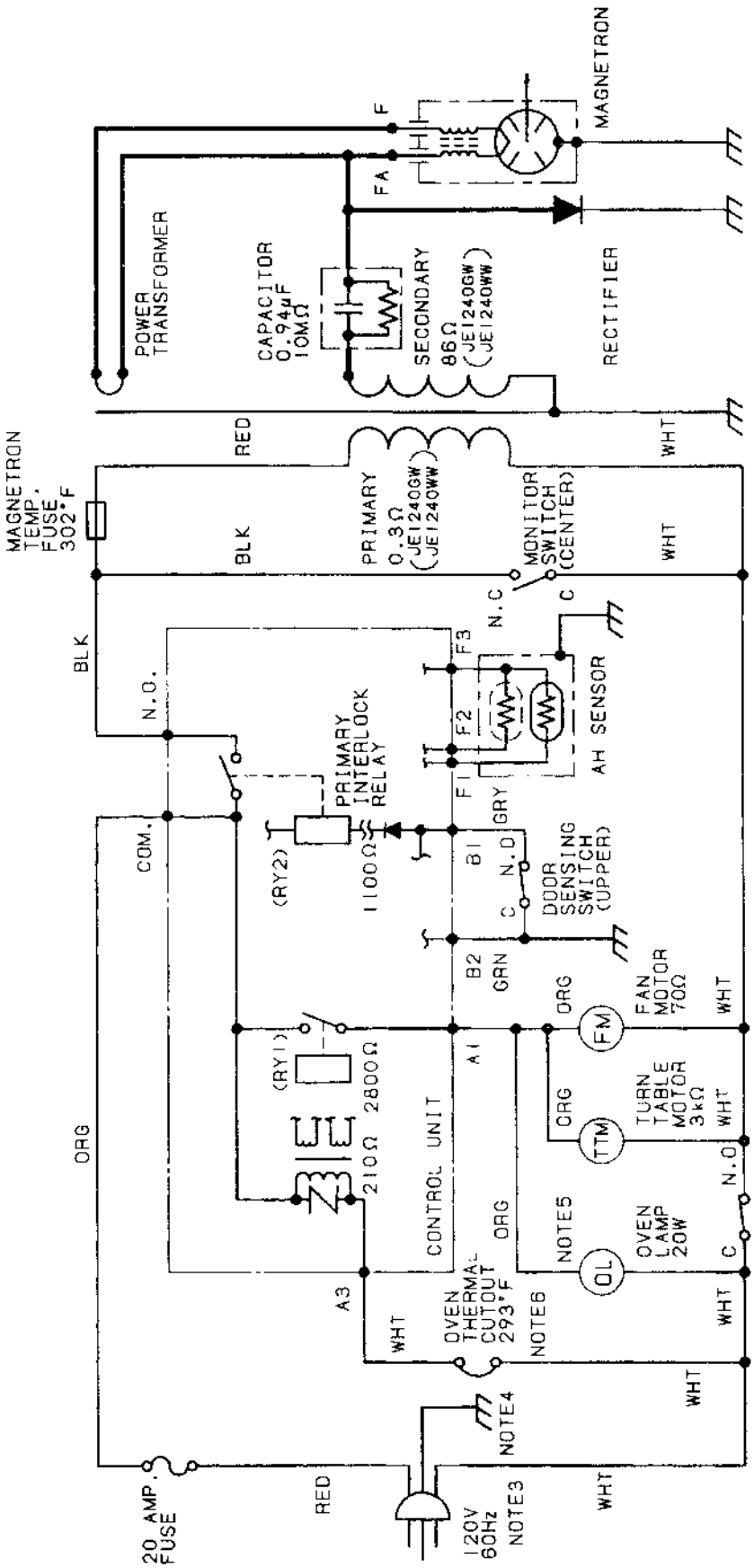


NOTES: 1. CIRCUITS SUBJECT TO CHANGE WITHOUT NOTICE.
*2. NEUTRAL WIRE(S) MUST BE CONNECTED TO THE TERMINAL WITH BLACK DOT ON THE LAMP SOCKET AND "N" MARK ON THE POWER SUPPLY CORD.
**3. GROUNDING CONDUCTOR OF THE POWER SUPPLY CORD HAS BEEN GROUNDED BY POWER SUPPLY CORD FIXING SCREW. THE SCREW MUST ALWAYS BE KEPT TIGHT.
***4. NON RESETABLE THERMO CUT.

MODEL NO. JE940GW/PW/WW, JES933 BW/WW
WIRING DIAGRAM



MODEL NO. JE1240GW/WW
SCHEMATIC DIAGRAM (DOOR CLOSED, COOK OFF CONDITION)



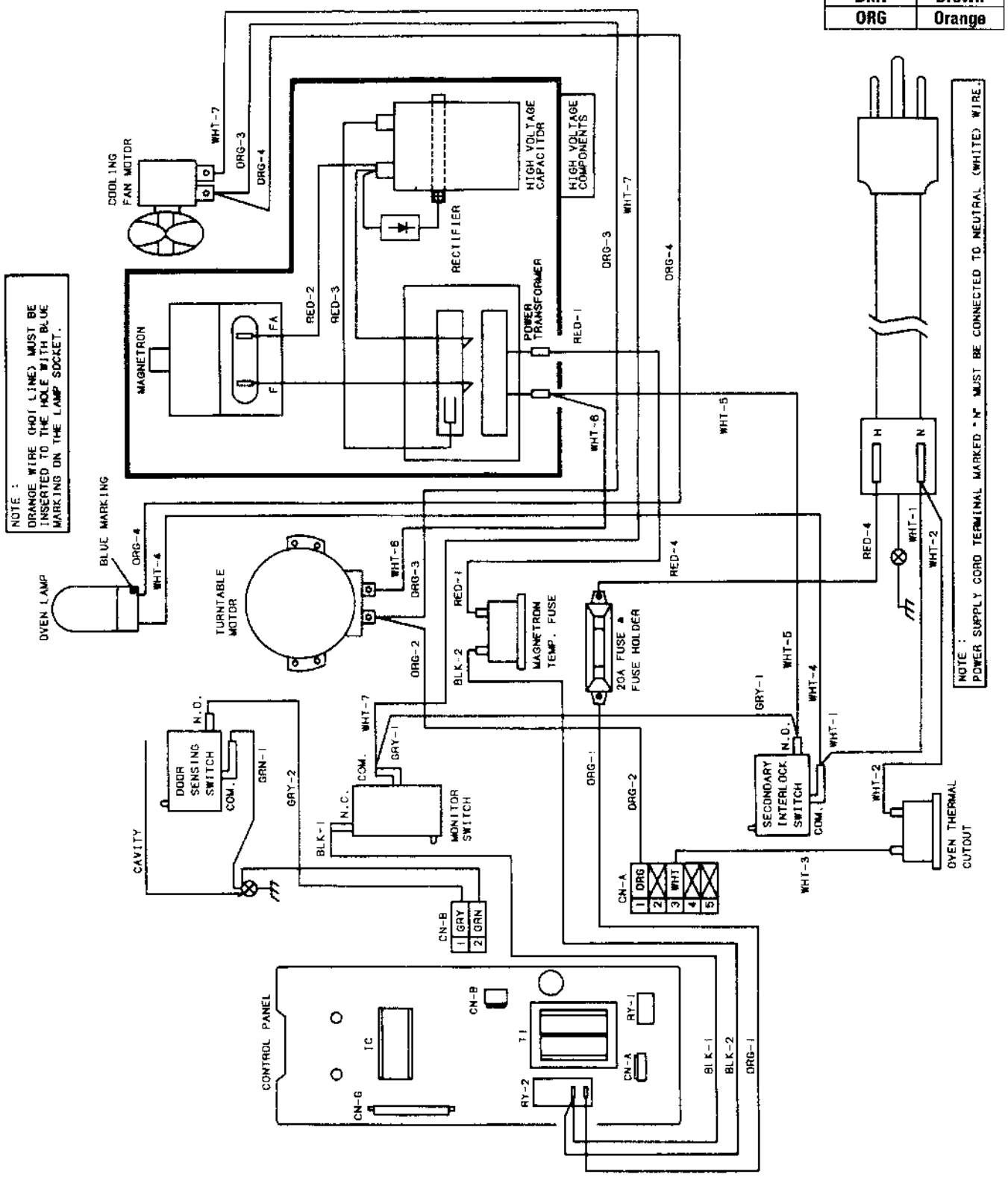
LEAD WIRE COLOR CODE **NOTE2**

HOT LINE	NEUTRAL LINE	EARTH LINE
BLK: Black	WHT: White	GRN: Green
RED: Red	GRY: Gray	
YLW: Yellow		
BRN: Brown		
ORG: Orange		

NOTES:
1. CIRCUITS SUBJECT TO CHANGE WITHOUT NOTICE.
2. LEAD WIRE COLOR CODES ARE APPLICABLE TO PRIMARY CIRCUITS ONLY AND ARE NOT APPLICABLE TO LOW VOLTAGE OR SECONDARY CIRCUITS.
3. POWER SUPPLY CORD TERMINAL MARKED "N" MUST BE CONNECTED TO NEUTRAL (WHITE) WIRE.
4. POWER SUPPLY CORD GROUNDING SCREW MUST ALWAYS BE KEPT TIGHT.
5. ORANGE WIRE (HOT LINE) MUST BE INSERTED TO THE HOLE WITH BLUE MARKING ON THE LAMP SOCKET.
6. NON RESETABLE THERMAL CUTOUT.

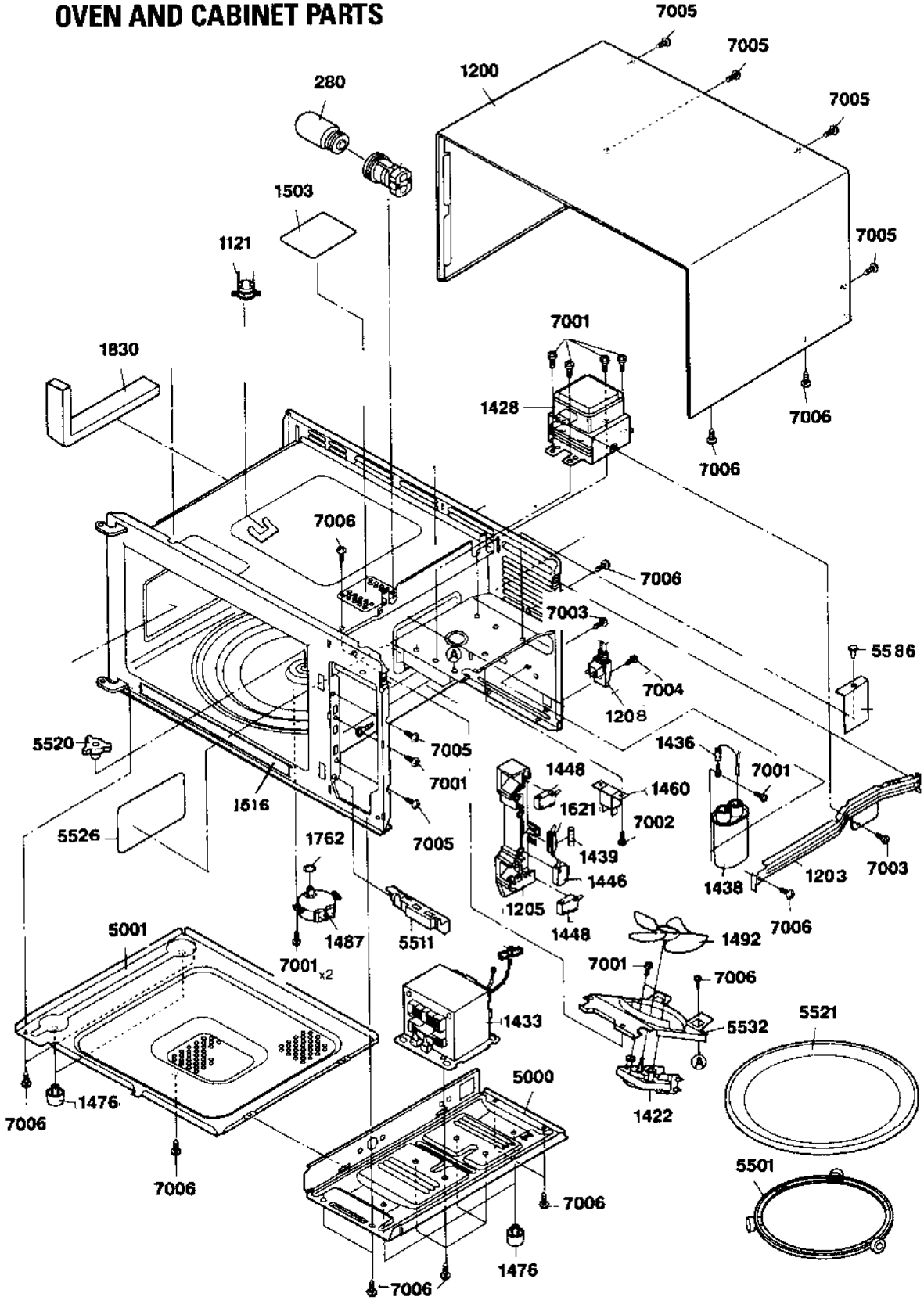
MODEL NO. JE1240GW/WW
WIRING DIAGRAM

SYMBOL	COLOR
WHT	White
RED	Red
BLK	Black
YLW	Yellow
GRY	Gray
GRN	Green
BRN	Brown
ORG	Orange



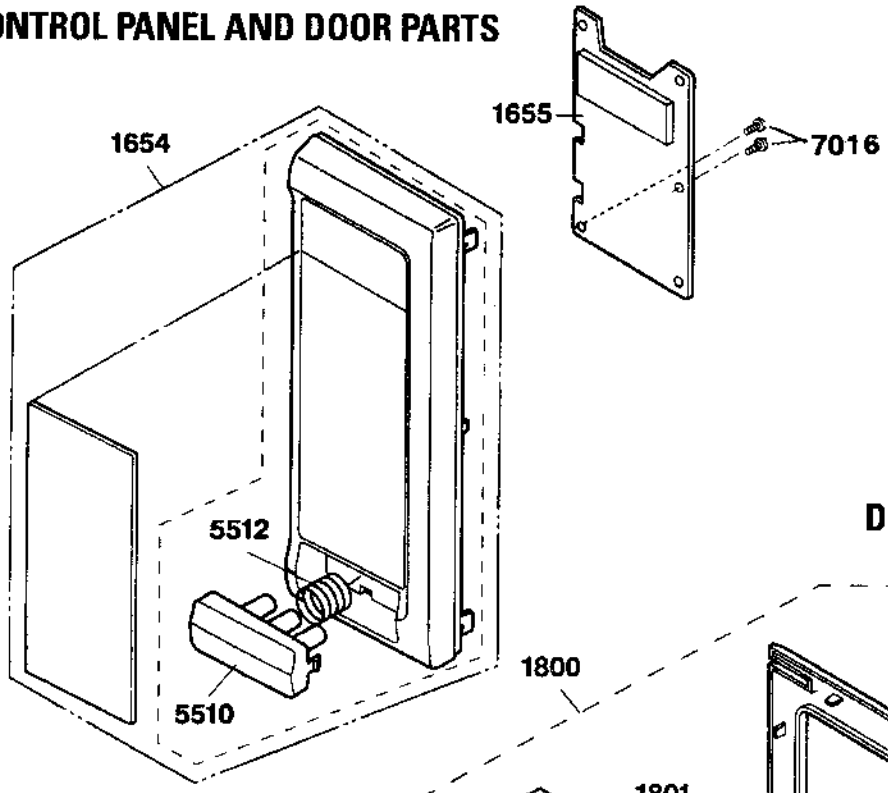
PARTS IDENTIFICATION
MODELS JE940GW, JE940PW, JE940WW

OVEN AND CABINET PARTS

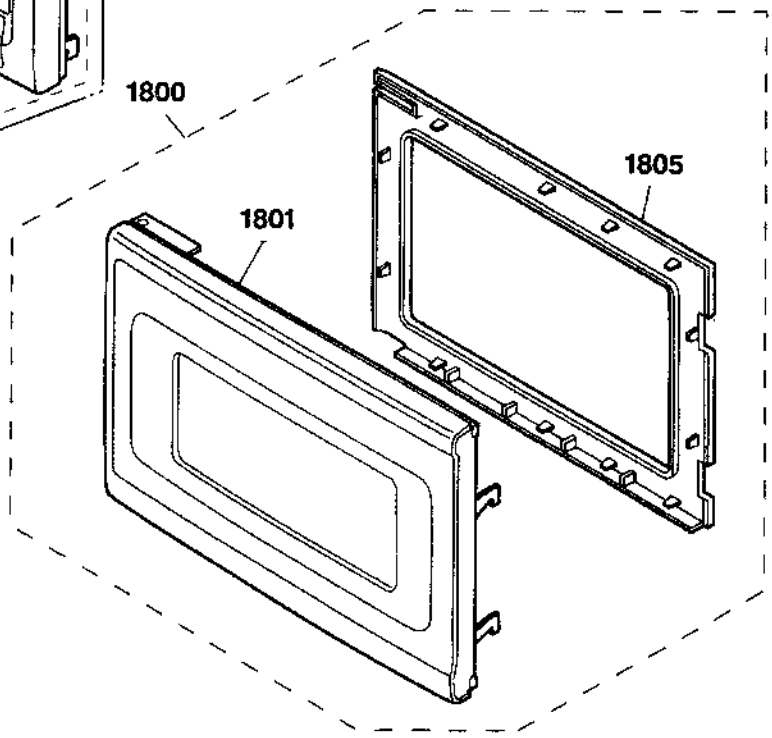


PARTS IDENTIFICATION
MODELS JE940GW, JE940PW, JE940WW

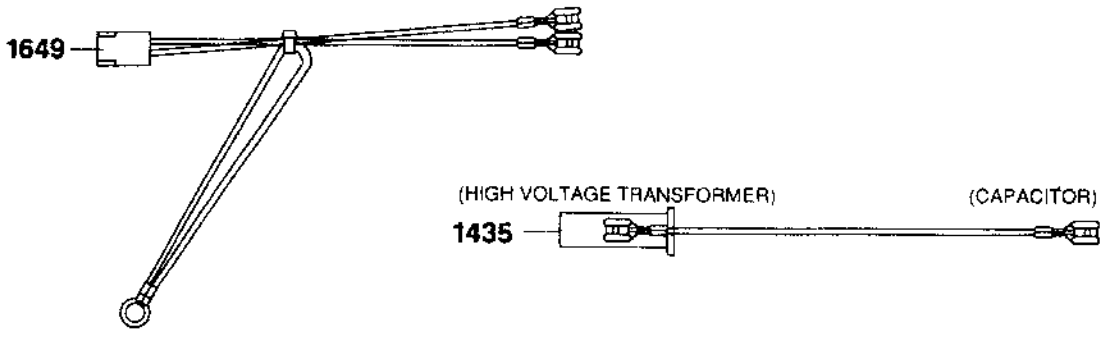
CONTROL PANEL AND DOOR PARTS



DOOR PARTS



MISCELLANEOUS

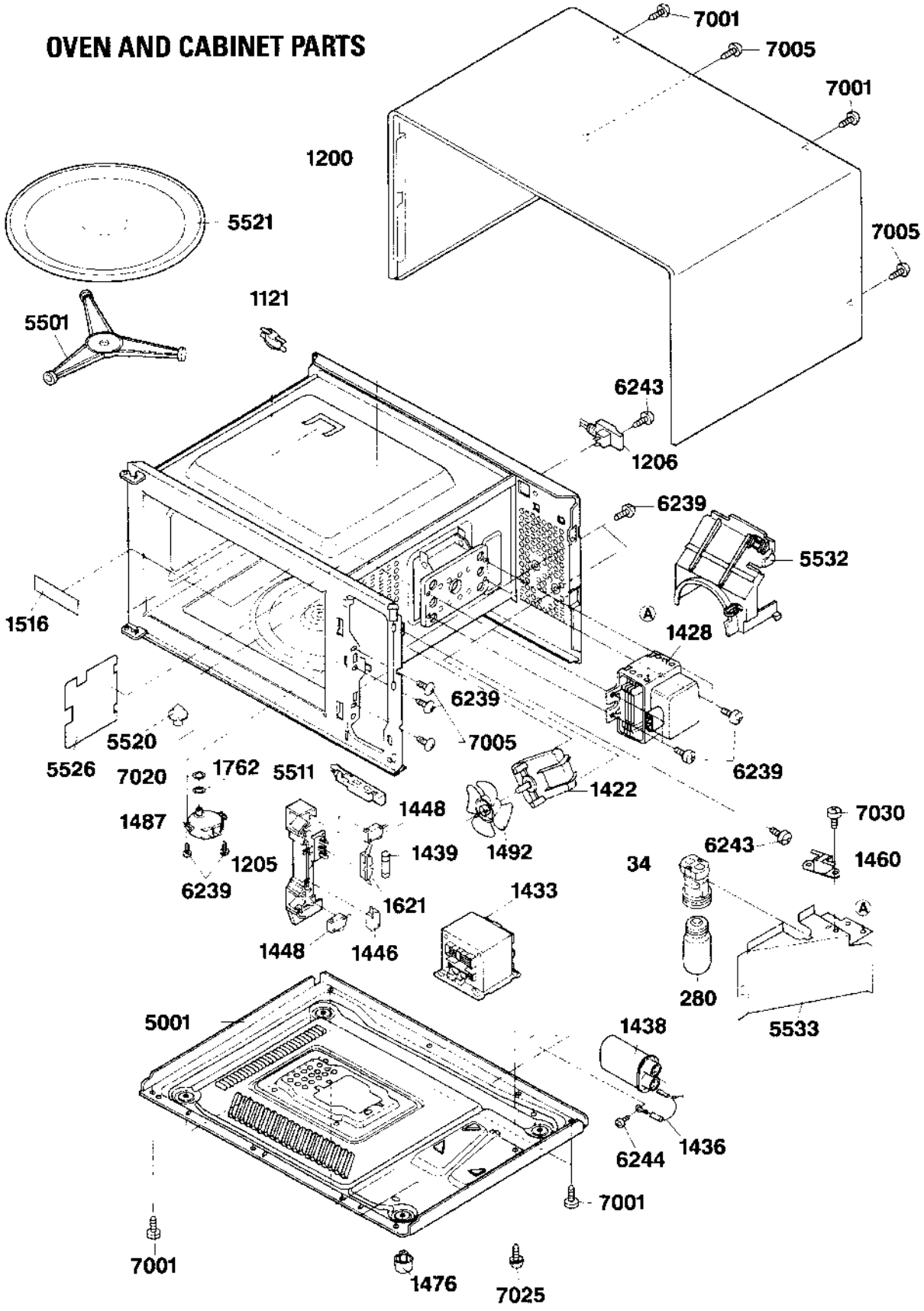


Ref. No.	Part No.	Part Description	JE940GW	JE940PW	JE940WW
0280	WB02X9251	Lamp, Oven	1	1	1
1121	WB27X1046	Flame Sensor	1	1	1
1200	WB56X2123	Outer Case	—	1	—
	WB56X2164	Outer Case	1	—	—
	WB56X2167	Outer Case	—	—	1
1203	WB06X0445	Support, Chassis	1	1	1
1205	WB06X0432	Latch Hook	1	1	1
1206	WB18X0551	Power Supply Cord	1	1	1
1422	WB26X0174	Fan Motor	1	1	1
1428	WB27X1049	Magnetron	1	1	1
1433	WB27X1048	Power Transformer	1	1	1
1435	WB18X0460	Wire H V	1	1	1
1436	WB27X1047	High Voltage Rectifier	1	1	1
1438	WB27X0755	Capacitor HV	1	1	1
1439	WB27X0895	Fuse (15A)	1	1	1
1446	WB24X0804	Monitor Switch	1	1	1
1448	WB24X0803	Sensing & 2nd Lock Swit.	2	2	2
1460	WB27X0442	Thermostat – Oven	1	1	1
1476	WB06X0431	Foot	4	4	4
1487	WB26X0161	Turntable Motor	1	1	1
1492	WB06X0433	Fan Blade	1	1	1
1503	WB04X0142	Lamp Filter	1	1	1
1516	WB04X0186	Cooking Guide Label	1	1	1
1621	WB08X0313	Fuse Holder	1	1	1
1649	WB18X0480	Switch Harness	1	1	1
1654	WB27X1071	Key Panel and Frame Asm	—	—	1
	WB27X1072	Key Panel and Frame Asm	1	1	—
1655	WB27X1073	Smartboard	1	1	1
1762	WB06X0437	O-ring	1	1	1
1800	WB55X0951	Door Assembly – White	—	—	1
	WB55X0952	Door Assembly – Black	1	1	—
1801	WB55X0953	Door Panel Assembly – White	—	—	1
	WB55X0954	Door Panel Assembly – Black	1	1	—
1805	WB55X0945	Inner Door Frame	1	1	1
1830	WB06X0436	Cushion	1	1	1
5000	WB56X2165	Bottom Plate, Right	1	1	1
5001	WB56X2166	Bottom Plate, Left	1	1	1
5501	WB06X0438	Turntable Support	1	1	1

Ref. No.	Part No.	Part Description	JE940GW	JE940PW	JE940WW
5510	WB03X0871	Push Button	1	1	—
	WB03X0876	Push Button	—	—	1
5511	WB06X0335	Switch Lever	1	1	1
5512	WB06X0273	Spring-open Button	1	—	—
	WB09X0246	Spring-open Button	—	1	1
5520	WB01X1476	Coupling	1	1	1
5521	WB49X0684	Cooking Tray	1	1	1
5526	WB06X0435	Waveguide Cover	1	1	1
5532	WB06X0434	Fan Duct	1	1	1
5586	WB02X9254	Clip	1	1	1
7001	WB01X1240	Screw	10	10	10
7002	WB01X1445	Screw	1	1	1
7003	WB01X1244	Screw	2	2	2
7004	WB01X1501	Tap Tight Screw	1	1	1
7005	WB01X1247	Screw	6	6	6
7006	WB01X1246	Screw	17	17	17
7016	WB01X1211	Screw	2	2	2
9999	31-20086	Mini Manual with Wire Diag	1	1	1
	49-8649	Use and Care Manual	1	1	1

PARTS IDENTIFICATION
MODELS JE1240GW, JE1240WW

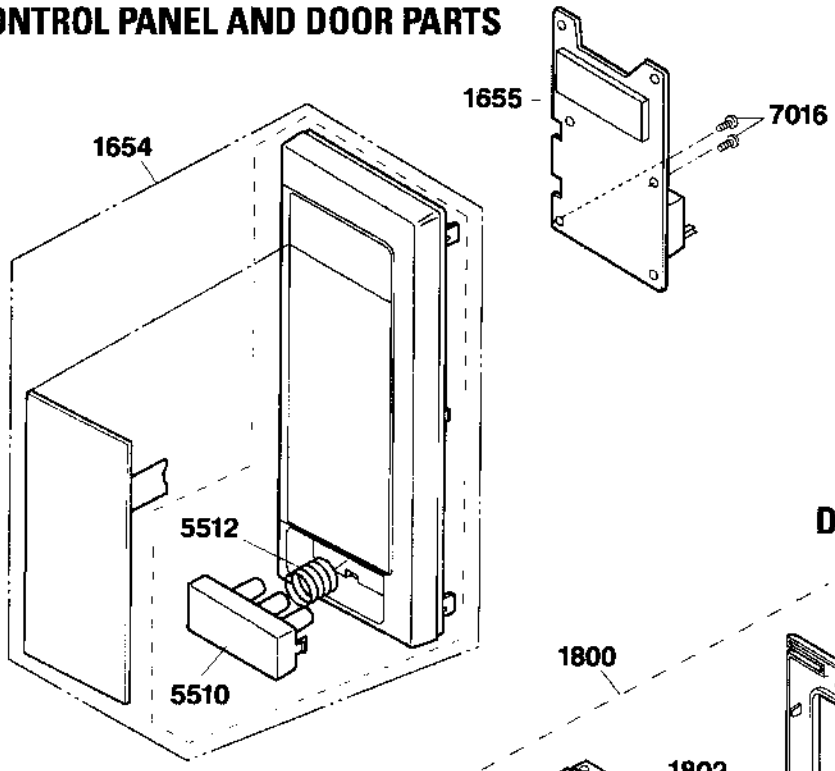
OVEN AND CABINET PARTS



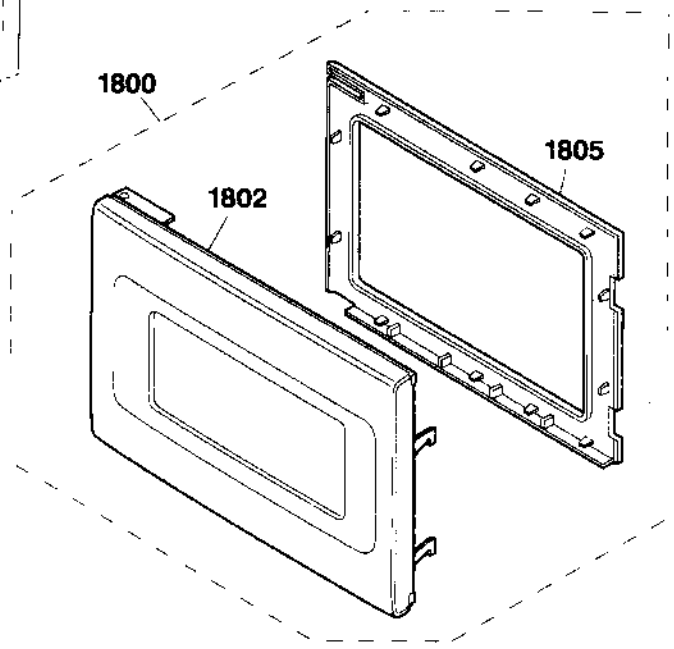
(ART NO. WB11689) C

PARTS IDENTIFICATION
MODELS JE1240GW, JE1240WW

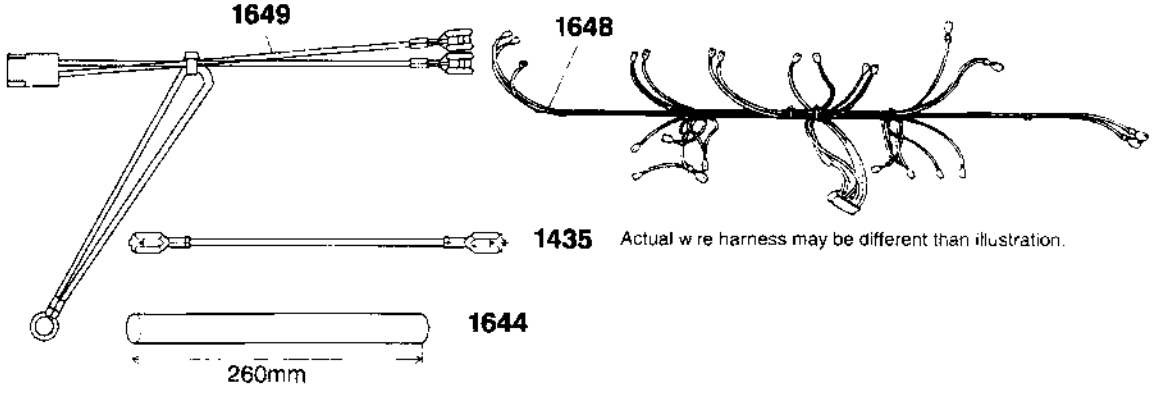
CONTROL PANEL AND DOOR PARTS



DOOR PARTS



MISCELLANEOUS



Actual w re harness may be different than illustration.

(ART NO. WB11688) C

Ref. No.	Part No.	Part Description	JE1240GW	JE1240WW
0034	WB08X0314	Socket, Oven Lamp	1	1
0280	WB02X9251	Lamp, Oven	1	1
1121	WB27X0865	Thermal Cutout	1	1
1200	WB56X2169	Outer Case	—	1
	WB56X2170	Outer Case	1	—
1205	WB06X0432	Latch Hook	1	1
1206	WB18X0551	Power Supply Cord	1	1
1422	WB26X0175	Fan Motor	1	1
1428	WB27X1049	Magnetron	1	1
1433	WB27X1063	H.V. Transformer	1	1
1435	WB18X0460	Wire H.V.	1	1
1436	WB27X1070	H.V. Rectifier Asm	1	1
1438	WB27X0829	H.V. Capacitor	1	1
1439	WB27X1065	Fuse 20A	1	1
1446	WB24X0804	Switch, Monitor	1	1
1448	WB24X0803	Switch, Secondary & Door	2	2
1460	WB27X0677	Fuse, Temperature	1	1
1476	WB02X9462	Foot	4	4
1487	WB26X0137	Turntable Motor	1	1
1492	WB02X9470	Fan Blade	1	1
1516	WB04X0186	Cooking Guide Label	1	1
1621	WB08X0313	Fuse Holder	1	1
1644	WB18X0501	Tube 260 MM	1	1
1648	WB18X0553	Wire Harness, Main	1	1
1649	WB18X0480	Switch Harness	1	1
1654	WB27X1081	Key Panel and Frame Assembly	1	—
	WB27X1082	Key Panel and Frame Assembly	—	1
1655	WB27X1050	Smartboard	1	1
1762	WB06X0275	O-ring	1	1
1800	WB55X0966	Door Assembly	1	—
	WB55X0967	Door Assembly	—	1
1802	WB55X0968	Door Panel Assembly	1	—
	WB55X0969	Door Panel Assembly	—	1
1805	WB55X0943	Inner Door Frame	1	1
5001	WB56X2171	Bottom Plate	1	1
5501	WB06X0160	Turntable Support	1	1
5510	WB03X0874	Button, Door	—	1
	WB03X0875	Button, Door	1	—

Ref. No.	Part No.	Part Description	JE1240GW	JE1240WW
5511	WB06X0335	Switch Lever	1	1
5512	WB09X0246	Spring	1	1
5520	WB06X0155	Turntable Coupling	1	1
5521	WB49X0669	Turntable Tray	1	1
5526	WB06X0440	Waveguide Cover	1	1
5532	WB06X0439	Fan Duct	1	1
5533	WB06X0451	Air Duct, Magnetron	1	1
6239	WB01X1239	Screw	7	7
6243	WB01X1501	Tap Tight Screw	2	2
6244	WB01X1244	Screw	3	3
7001	WB01X1246	Screw	11	11
7005	WB01X1247	Screw	4	4
7016	WB01X1211	Screw	3	3
7020	WB01X1455	Washer	1	1
7025	WB01X1444	Screw 5mm x 12mm	2	2
7030	WB01X1445	Screw	1	1
9999	31-20087	Mini-Manual with Schematic	1	1
	49-8649	Use and Care Manual	1	1

NOTES