Thermador®

Service Manual

for

Thermador® Built-In Oven

Models:

SMW272B, SMW272S, SMW272W, SMW272P

SMW Oven
Table of Contents

SMW SERVICE MANUAL

This manual contains information that is necessary for servicing the Thermador® built-in electric ovens, models:

SMW272B, SMW272W, SMW272S, SMW272P

This manual, as well as the information contained in it, is designed to be used only by qualified authorized Thermador service personnel, familiar with and knowlegable of proper safety and servicing procedures and possessing high quality testing equipment associated with Microwave, gas and electrical appliance repiar.

Thermador recommends that customers DO NOT SERVICE THEIR OWN UNITS, due to the complexity and the risk of high-voltage electrical shock.

All individuals who attempt repairs by improper means or adjustment subject themselves and others to the risk of serious and fatal injury.

Use only genuine Thermador approved fdactory replacement components.

The information is organized to help the servicer easily find what is needed to repair the unit.

SAFETY PRECAUTIONS

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

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

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

(1) Interlock operation.

(2) Proper door closing.

(3) Seal and sealing surfaces (arcing, wear, and other damage).

(4) Damage to or loosening of hinges and latches.

(5) Evidence of dropping or abuse.

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

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

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

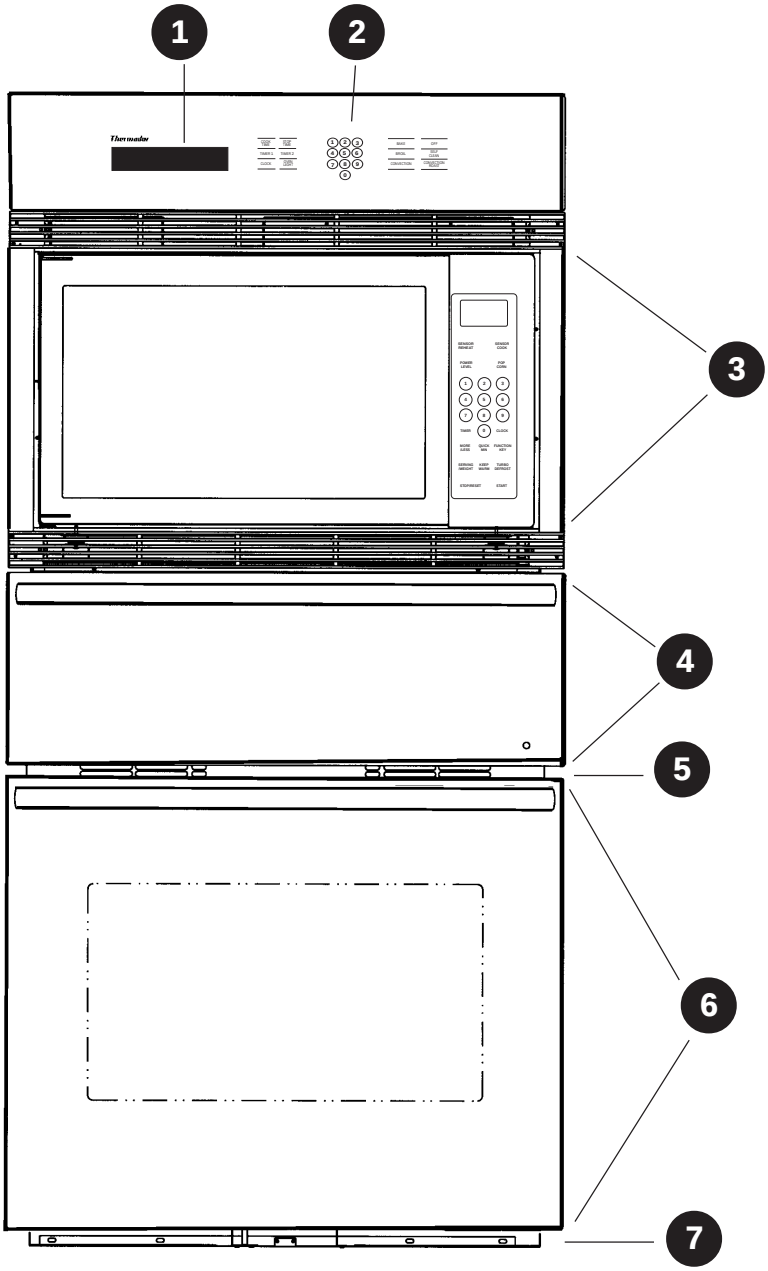
F. Operate the oven from a properly grounded AC outlet capable of supplying 120/240 or a 120/208 volt, 60Hz.

INTRODUCTION

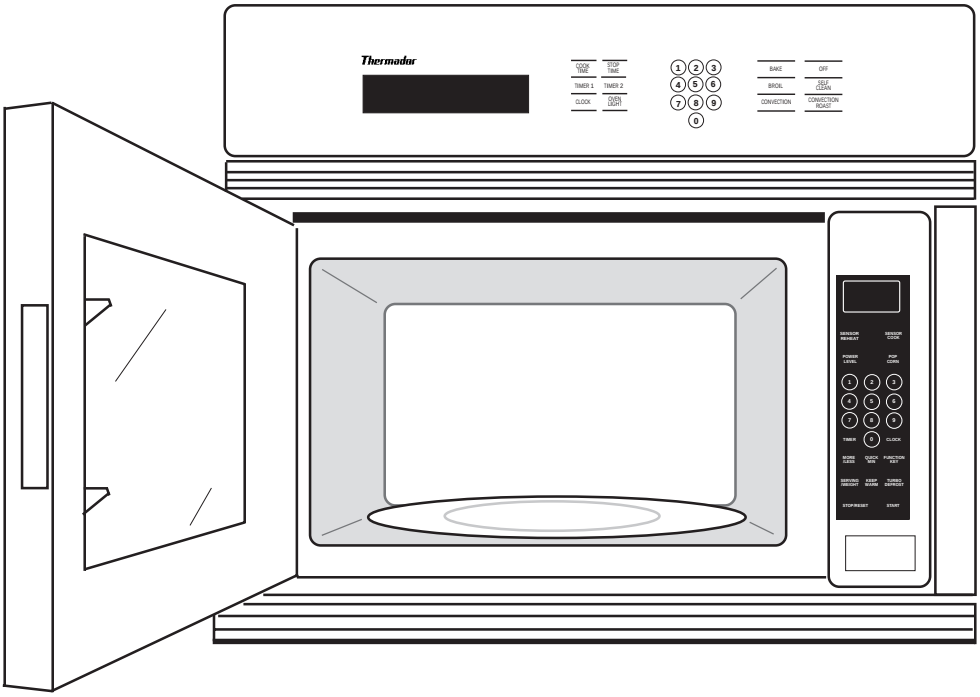
Model SMW272

Model SMW272 is desigmed with modular construction which makes it easier to service. The SMW Oven has a microwave section that is enclosed in the structure. The microwave section can be pulled out to service additionally, it has a warming drawer built into the structure below the microwave section. It does not need to be removed for service. All service can be performed from the front. The lower oven is an “S” oven with single “S” oven controls.

1. Time of Day Clock and Lower Oven Display Window
2. Touch Pads for Lower Oven
3. Microwave Oven Section
4. Warming Drawer Section
5. Oven Cooling Vents
6. Lower Convection Oven Section
7. Lower Oven Exhaust Vent



Microwave Oven Section

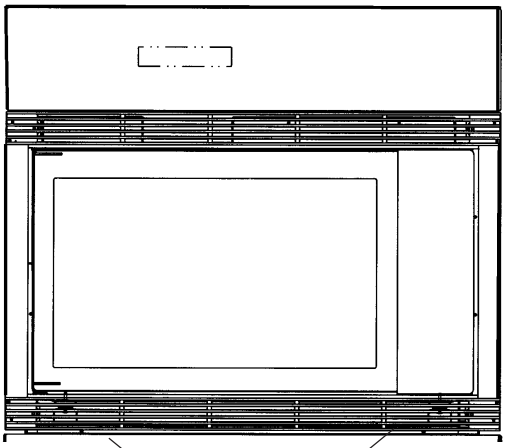


Specifications

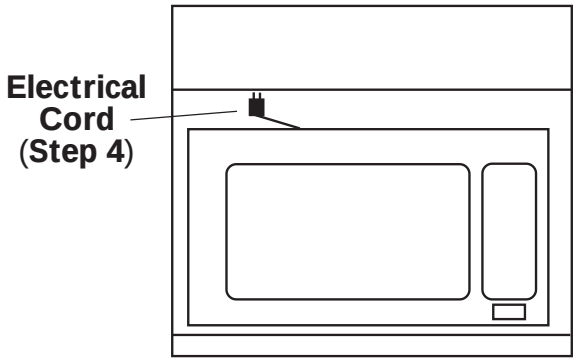
Models:	
Power Source:	120 VAC Single Phase, 60 Hz
Power Requirements:	1420W (12.1A)
Output:	1100W
Microwave Frequency:	2,450MHz
Timer:	30 min. /stage (HIGH Power) – 5 Stage Maximum 99 min. 99 sec. /stage (Other Power Levels) 3 Stage Maximum
Oven Cavity Size:	2.1 cu. ft.
Inside Dimensions: (W x D x H)	$18\frac{7}{16}$" (W) X $18\frac{1}{2}$" (D) X $10\frac{11}{16}$" (H) 469mm (W) X 470mm (D) X 271 mm (H)
Weight:	40 lbs/18.1 kg
Inverter Power Supply	Output power: IEC705-88 Test procedure Specifications subject to change without notice

To remove microwave section from cabinet:

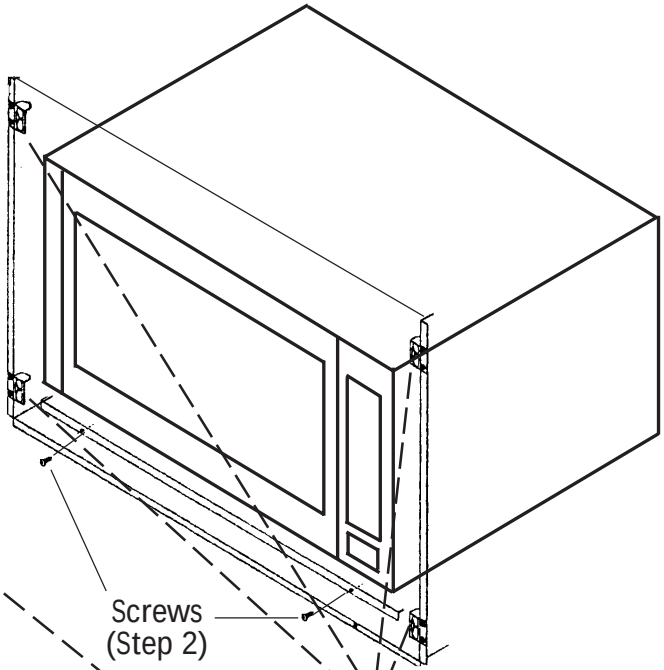
1) Using both hands, pull the sides of the frame forward and unsnap the posts on both sides of the frame from the catches on the enclosure (See Illustrations, below).
2) Remove the two screws holding the microwave section in the enclosure.
3) Pull the microwave section out of the cabinet half way.
4) Disconnect the electrical cord (Top left, back corner) and remove the microwave section all the way out of the enclosure.



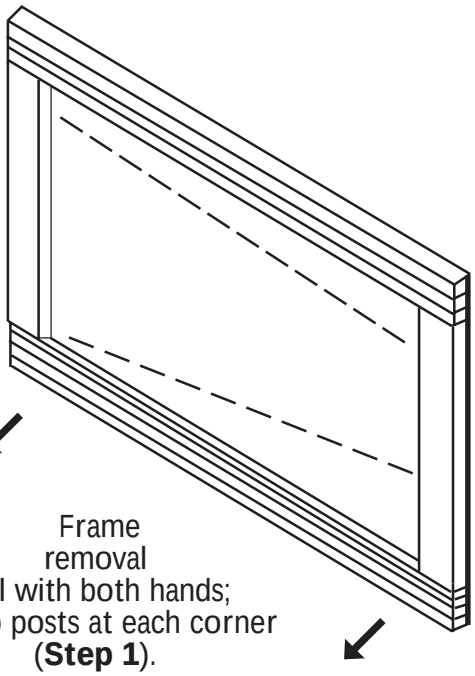
Screws
(**Step 2**)
Visible after Frame removal



Electrical Cord (**Step 4**)

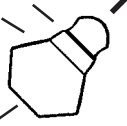


Screws
(Step 2)



Frame removal
Pull with both hands; unsnap posts at each corner (**Step 1**).

Catch (**Step 1**)



Post (**Step 1**)

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product dealt with in this service information by anyone else could result in serious injury or death.

DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)

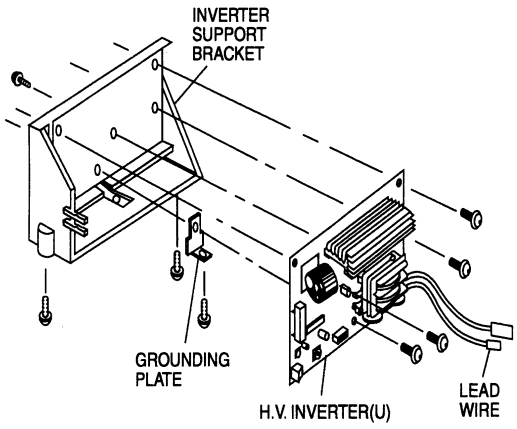
INVERTER WARNING

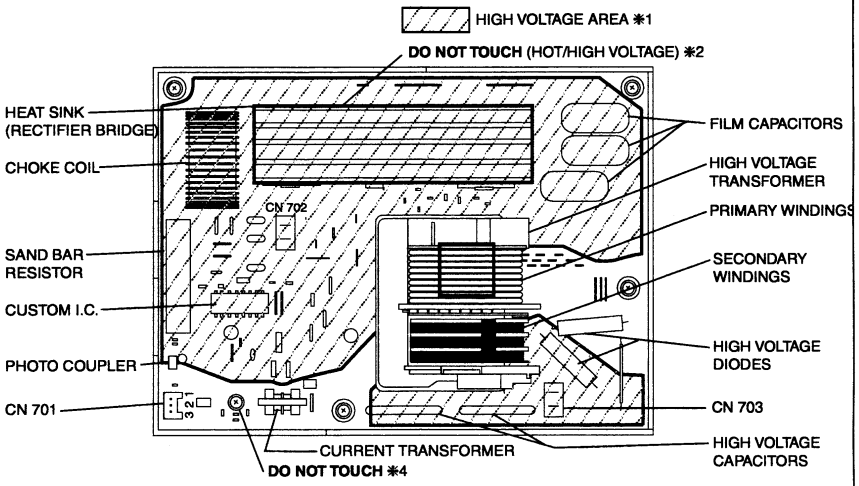
This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current.

IT HAS: 1. Very high voltage and high current circuits. NEW HV
It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.
2. Aluminum heat sink is energized with very high voltages and high heat energy.
3. Very high voltage may remain in circuitry even when oven is off. High voltages may remain in the capacitors on the board.

DO NOT: ✳1. Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage may remain in circuit.
✳2. Do not touch aluminum heat sink because it is very hot in high voltage and also very hot in high heat energy.
✳3. Do not try to repair Inverter PCB because it is very dangerous to repair it. Replace as whole High Voltage Inverter Circuit (U) unit and return fully re-packed with original shipping box and shipping materials.
✳4. Do not try to adjust or tamper with preset volume on the Inverter board because it is very dangerous to adjust without proper test equipment.
✳5. Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.

INVERTER POWER SUPPLY DIAGRAM





DO NOT REPAIR, REPLACE WHOLE H.V. INVERTER(U)

⚠ WARNING

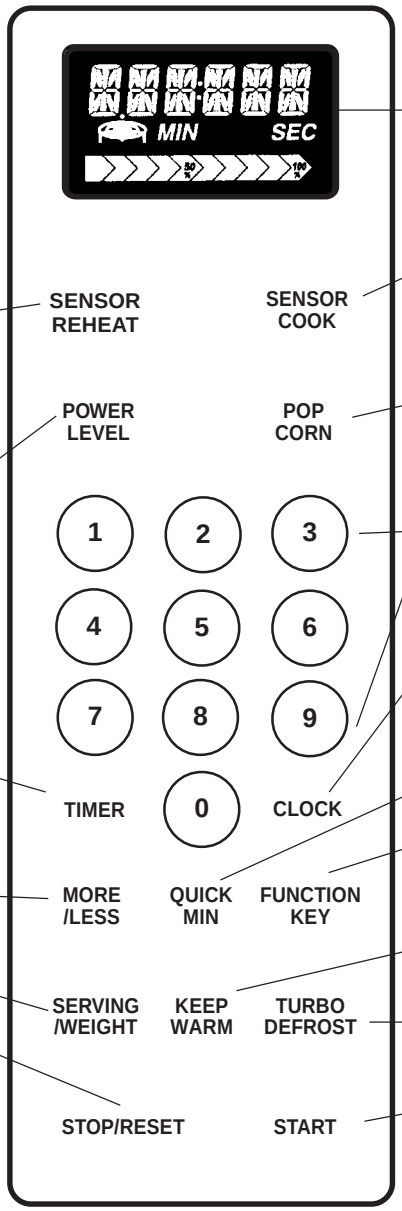
1. This product should be serviced only by trained qualified personnel.
2. Though this product has been manufactured in compliance with:
   "Federal Performance Standard 21 CFR Subchapter J" (D.H.H.S.): U.S.A. models\
   or "Radiation Emmiting Devices Act" (Health and Welfare (Canada): Canadian models
   it is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage".
4. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
5. Any serviceman who learns of any accident pertaining to microwave radiation leakage including the oven operating with open door should immediately notify the appropriate address listed below and Center for Devices and Radiological Health, DHHS.

IN CANADA (PCI) Thermador Customer Service
5551 McFadden Ave.
Huntington Beach, CA 92646
800/735-4328

6. There are special components used in the microwave which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts should be replaced only with the manufacturer's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the original design.

Microwave Control Panel

Beep Sound
When a pad is pressed correctly, a beep will be heard. If a pad is pressed and no beep is heard, the unit did not or cannot accept the instruction. The oven will beep twice between programmed stages. At the end of any complete program, the oven will beep 5 times.



Display Window

Sensor Cook Pad
Automatically calculates cooking time for six different items.

Sensor Reheat Pad
Automatically reheats. Three different categories.

Popcorn Pad
Automatically timed by weight.

Power Level Pad
Manually changes Microwave power.

Number Pads

Time of Day Clock Pad

Timer Pad
Counts down and signals end time. Can be used for delay or stand time.

Quick Minute Pad
Adds or sets time in 1 minute increments, up to 10 minutes.

Function Key Pad
Selects the noncooking features, i.e. Child Lock, etc.

More/Less Pad
Increases or decreases cooking time for Sensor Cook or Sensor Reheat.

Keep Warm Pad
Three different foods can be kept warm for 30 minutes after cooking.

Turbo Defrost
Defrosts by weight.

Stop/Reset Pad
Before cooking: One tap clears your instruction. During cooking: one tap temporarily stops to cooking process. Another tap cancels all your instructions and time of day or colon appears on the Display Window.

Start Pad
One tap allows oven to begin functioning. If door is opened or Stop/Reset Pad is pressed once during oven operation. Start Pad must be pressed again to restart oven.

Start Pad
One tap allows oven to begin functioning. If door is opened or STOP/RESET Pad is pressed once during oven operation, START Pad must again be pressed to restart oven.

Stop/Reset Pad
Before cooking: One tap clears your instructions. During cooking: One tap temporarily stops the cooking process. Another tap cancels all your instructions and time of day appears in the display window.

Word Prompters
When pads are pressed, a beep sound is heard and the corresponding letter or word(s) appear and roll across the window. If a pad is pressed and no beep is heard, the unit does not or cannot accept the instruction. As each pad is pressed the corresponding word(s) roll across the window. Words will automatically appear to prompt the user to perform the next step. It is not necessary to wait for the words to appear before pressing pads for the next step. A two beep sound is heard between stages. At the end of any complete program, the oven will beep five times and "ENJOY YOUR MEAL" will appear in the display window.

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

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

(B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  (1) Interlock operation
  (2) Proper door closing
  (3) Seal and sealing surfaces (arcing, wear, and other damage)
  (4) Damage to or loosening of hinges and latches.
  (5) Evidence of dropping or abuse

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

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

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

FEATURE CHART

FEATURES	
Five Stage Cooking	○
Sensor Reheat	○
Sensor Cook	○
Inverter Turbo Defrost	○
Inverter New Recipes	○
Popcorn	○
Serving/Weight	○
Quick Minute	○
More/Less	○
Child Safety Lock	○
Display Mode Operating Guide	○
Delay Start	○
Timer	○
Digital Clock	○
Function Key	○
2 Level Cooking	○
Keep Warm	○

NOTE: The function Key allows the user to select the following features: (Refer to Operation on Page 10.)

1. Language Choice
2. Lb/Kg choice
3. Word Speed
4. Menu Action On/Off
5. Child Lock On/Off
6. Beep On/Off
7. Reminder Beep On/Off
8. Daylight Saving On/Off
9. Clock On/Off
0. Demo Mode On/Off

OPERATION AND DIGITAL PROGRAMMER CIRCUIT TEST PROCEDURE

Operation Guide on the display:

To assist you in programming, the next operation will appear on the display. When you get used to operating the oven, you can turn off the operating guide.

1. To Set Clock

OPERATION	SCROLL DISPLAY
1. Plug the power supply cord into wall outlet.	*—REFER TO OPERATING INSTRUCTIONS BEFORE USE* :
2. Press Clock pad twice.	✳ ✳ *——SET TIME*
3. Enter time of day (TOD) by pressing appropriate Number pads.	*11:25* *——PRESS CLOCK PAD*
4. Press Clock pad. TOD has now been registered into the digital programmer circuit and will count up by minutes.	*11:25*

OPERATION	SCROLL DISPLAY
5. Set for 1 minute by pressing Number pads. 1 min. = 1 0 0	*1 00* *MIN SEC* *——PRESS START*
6. Press Start pad. 1st stage cooking begins as time counts down.	*5* *sec*
7. When 1st stage cooking time has elapsed, oven beeps twice and automatically switches to 2nd stage cooking.	*1 00* *MIN SEC*
8. When 2nd stage cooking time has elapsed, oven beeps 5 times and shuts off.	*ENJOY YOUR MEAL*

2. Time Cooking for Two Stage

OPERATION	SCROLL DISPLAY
1. Place a water load in the oven.	
2. Press Power Level pad once to set High power. (1st stage)	*P100* *——SET TIME*
3. Set for 5 seconds by pressing Number pad. 5 sec. = 5	*5* *SEC* *——PRESS START*
4. Press Power Level pad 5 times to set Medium power. (2nd Stage)	*P60* *——SET TIME*

3. Inverter Turbo Defrost

OPERATION	SCROLL DISPLAY
1. Press Inverter Turbo Defrost pad.	*INVERTER TURBO DEFROST* *——SET WEIGHT*
2. Set the weight for 3 pounds by pressing Number pads. 3 lb. = 3 0	*3.0 LB* *——PRESS START*
3. Press Start pad. Turbo Defrost cycle begins as time counts down.	*12 37* *MIN SEC*
4. To stop before Defrost cycle is complete, press Stop/Reset pad twice. Oven shuts off. Time of day or colon appears in the display.	*11:25*

4. Popcorn

OPERATION	SCROLL DISPLAY
1. Press Popcorn pad five times for 3.5 oz. serving. (Select 1.75,2.65, 2.85, 3.0 or 3.5 oz.)	*POPCORN 3.5 OZ.* *PRESS START*
2. Press Start pad. Cooking begins as time counts down.	2: 50 MIN SEC
3. When cooking time has elapsed, Oven beeps 5 times and shuts off.	*ENJOY YOUR MEAL*

5. Sensor Cooking

OPERATION	SCROLL DISPLAY
1. Pour 150 ±15cc (4.5±1/2ozs) of room temperature water in a beaker, place the beaker in the center of the oven. Press Sensor Cook pad.	*SENSOR COOK* *SELECT RECIPES BY NUMBER PADS*
2. Press the desired Sensor Cook Category by Number pads. e.g. Chicken Teriyaki	*CHICKEN TERIYAKI* *PRESS START*
3. Press Start pad.	SENSOR
4. The steam sensor detects steam about 1.5 to 4 minutes after the Start pad is pressed. Sensor cooking (T1) automatically switches to cooking time (T2). "Sensor" disappears with beep sounds and the remainder of cooking time appears in the display window. NOTE: Cooking time will vary depending on the water temperature, the shape of the beaker or the power source voltage.	32 SEC 1 32 MIN SEC
5. When the balance of cooking time has elapsed, oven stops and beeps 5 times.	*ENJOY YOUR MEAL*

6. Power Level

Press Power Level	Power Level	Display Window
once	P 100(HIGH)	
twice	P 90	
3 times	P 80	
4 times	P 70(MED. HIGH)	
5 times	P 60 (MEDIUM)	
6 times	P 50	
7 times	P 40	
8 times	P 30 (MED. LOW)	
9 times	P 20	
10 times	P 10 (LOW)	

NOTE: You will see one of these 10 displays scroll at the bottom of the display window based on the Power Level or cooking category selected.

To Use Function Pad

This unique feature of your microwave oven allows you to establish the initial non-cooking features of your oven such as CHILD LOCK, WORD SPEED, LANGUAGE CHOICE (ENGLISH, FRENCH OR SPANISH), plus many more. See below.

1) 	Press: FUNCTION. Menu Action Message is "Select Function 0 through 9, 1--LANGUAGE CHOICE --- etc".
2) Select a number (0-9) Ex. CHILD LOCK is 5	Press 5: Menu Action Message is "CHILD LOCK ON/OFF".
3) Select 1, 2 or 3	Press: One number. Your selection is now part of the operating system. You can change it any time.
4) Continue until you have completed your selections.	See below for other options. Selection choice is confined in display. You do not need to press START after entry is made.

1 LANGUAGE CHOICE
The oven has English, French and Spanish display. The display appears in English when you plug-in.
- 1 ENGLISH → Display appears in English.
- 2 FRANCAIS → Display appears in French.
- 3 ESPANOL → Display appears in Spanish.

2 Lb/KG CHOICE
The oven has both imperial and metric weight measurements. The oven displays the weight in imperial when you plug it in.
- 1 Lb → Weight can be set in oz/lb, (Imperial).
- 2 KG → Weight can be set in g/kg, (Metric).

3 WORD SPEED
The speed of word scrolling in the ***Display Window*** can be sped up or slowed down.
- 1 QUICK → Words scroll quickly.
- 2 MEDIUM → Scrolling speed returns to initial setting.
- 3 SLOW → Words scroll slowly.

4 MENU ACTION ON/OFF
MENU ACTION SCREEN helps you to program your oven by prompting the next step to be taken. When you become familiar with your oven, the prompting can be turned off.
- 1 ON → Prompting Guide will appear.
- 2 OFF → Prompting Guide will not appear.

5 CHILD LOCK ON/OFF
The oven has Child Safety Lock feature which prevents use by children. It does not lock the door.
- 1 ON → Child Lock has been set and operation will not be accepted.
- 2 OFF → Child Lock has been cancelled.

6 BEEP ON/OFF
If you wish to have the oven operate with no beep, it can be eliminated.
- 1 ON → Beep sound will reactivate.
- 2 OFF → Beep sound will not be heard.

7 REMINDER BEEP ON/OFF
A reminder beep works to remind you to remove the food from the oven after the completion of cooking. It will occur every 15 seconds.
- 1 ON → Reminder beep will work.
- 2 OFF → Reminder beep will not work.

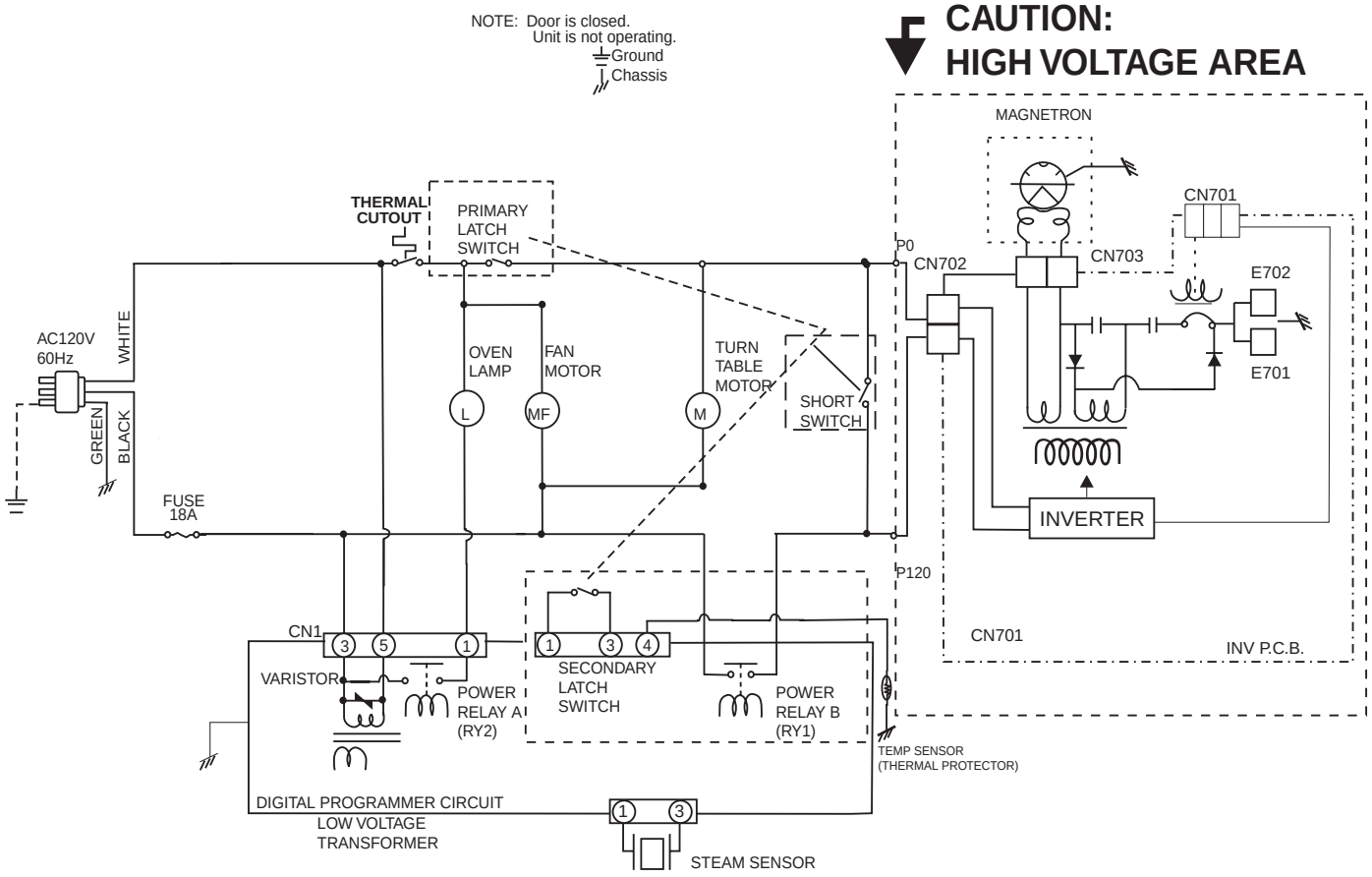
8 DAYLIGHT SAVING ON/OFF
- 1 ON → Time of day will advance one hour.
- 2 OFF → Time of day returns to original setting.

9 CLOCK ON/OFF
Clock display can be turned off.
- 1 ON → Clock display will appear in the ***Display Window***.
- 2 OFF → Clock display will not appear in the ***Display Window***.

Time of day will not be lost while the display is off.

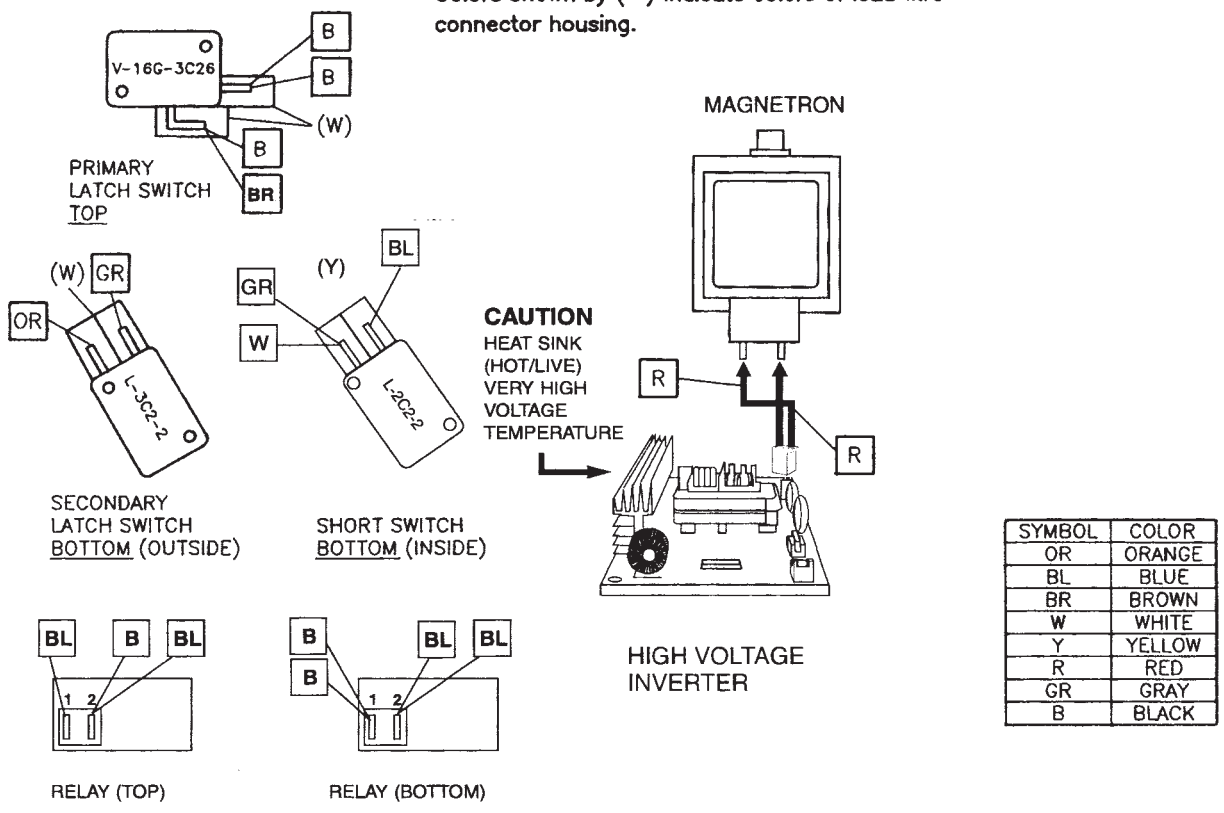
0 DEMO MODE ON/OFF
Demo mode is designed for retail store display. In this mode, the oven can be demonstrated with no power in the oven.
- 1 ON → The oven is in Demo mode.
- 2 OFF → The oven is not in Demo mode.

SCHMATIC DIAGRAM



WIRING DIAGRAM

NOTE: *When replacing, check the lead wire color as shown.
*Colors shown by ( ) indicate colors of lead wire connector housing.



SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK

DESCRIPTION OF OPERATING SEQUENCE

1. Variable power cooking control

The coil of power relay B (RY1) is energized intermittently by the digital programmer circuit, when the oven is set at any power selection except for High power position. The digital programmer circuit controls the ON-OFF time of power relay B contacts in order to vary the output power of the microwave oven from "Low" to "High" power. One complete ON and OFF cycle of power relay B is 22 seconds. The relation between indications on the control panel and the output of the microwave oven is as shown in table.

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

2. Inverter Power Supply Circuit NEW H.V

This Inverter Power Supply Circuit supplies 4,000V DC to the magnetron tube from the line voltage, 120v 60Hz AC input. It functions as the H.V. transformer, the H.V. capacitor and H.V. Diode.

1. The AC input voltage 120V 60Hz is rectified to DC voltage immediately.
2. DC voltage will be supplied to the switching devices called IGBT. These devices will be switched ON-OFF by the 20 to 40 kHz PWM, (pulse width modulation) signal from the microcomputer in the DPC.
3. This drives the High voltage transformer to increase up to 2,000V AC and approximately 3V AC by means of transformer.
4. Then the half wave doubler voltage rectifier circuit, consisting of the HV diodes and Capacitors, generates the necessary 4,000V DC needed for the magnetron.
5. Output power of the magnetron tube is always monitored by the signal output from the current transformer built into the inverter circuit.
6. Then this signal will be fed back to the microcomputer in the DPC to determine operating conditions and output necessary to control PWM signal to the Inverter Power Supply to control output power.

3. Inverter Turbo Defrost

When this Auto Control feature is selected and the Start Pad is tapped:

(A) The digital programmer circuit determines the power level and cooking time to complete cooking and indicates the operating state in the display window. Table shows the corresponding cooking times for respective serving by categories.

(B) When cooking time in the display window has elapsed, the oven turns off automatically by a control signal from the digital programmer circuit.

Variable Power Cooking

POWER SETTING		OUTPUT POWER (%) APPROX.	ON-OFF TIME OF POWER RELAY B (RY1)	
			ON (SEC)	OFF (SEC)
HIGH	P100	100%	22	0
	P90	90%	22	0
	P80	80%	22	0
MEDIUM-HIGH	P70	70%	22	0
MEDIUM	P60	60%	22	0
	P50	50%	22	0
	P40	40%	22	0
MEDIUM-LOW	P30	30%	22	0
	P20	20%	15	7
	P10	10%	8	14
DEFROST	P30	30%	22	0

Inverter Turbo Defrost

SELECTED WEIGHT	COOKING TIME
1.0 LB	4 min. 23 sec.
6.0 LB	24 min. 58 sec.

4. Sensor Cooking

Auto sensor cooking is a revolutionary way to cook by microwave without setting a power level or selecting a time.

All that is necessary is to select an Auto Sensor Program before starting to cook.

Understanding Auto Sensor Cooking

As the food cooks, a certain amount of steam is produced. If the food is covered, this steam builds up and eventually escapes from the container. In Auto Sensor Cooking, a carefully designed instrument, called the steam sensor element, senses this escape of steam. Then, based upon the Auto Sensor Program selected, the unit will automatically determine the correct power level and the proper length of time it will take to cook the food.

NOTE: Auto Sensor Cooking is successful with the foods and recipes found in the Auto Sensor Cooking Guide. Because of the vast differences in food composition, items not mentioned in the Cooking Guide should be prepared in the microwave oven using power select and time features. Please consult Variable Power Microwave Cookbook for procedures.

Explanation of the Auto Sensor Cooking process

1) During the first 10 second period there is no microwave activity, and when calculating the T2 time by using the formula below make sure this 10 seconds is subtracted from the T1 time. In other words T1 time starts at the end of the 10 second period.
2) T1 time...The total amount of time it takes the microwave oven to switch to T2 time after the 10 second period.
3) T2 time...When the steam escapes from the cooking container placed in the oven, the steam sensor detects it and the microprocessor calculates the balance of cooking time. This T2 time is then shown in the display and begins counting down.

Balance of cooking time (T2 time)

The balance of cooking time which is called T2 time, can be calculated by the following formula.

T2 time (in sec.)=T1 time X K factor

NOTE: Remember, the T1 time starts after the 10 second period. The coefficient K is programmed into the microprocessor memory and they are listed in the following tables along with the P1 and P2 powers.

NOTE: When "More" or "Less" pad is selected, the K factor varies resulting in T2 time to be increased or decreased.

Example of calculating the T2 time

Example 1: If the T1 time is measured to be 2 minutes and 40 seconds after the 10 second period, and the Auto program selected is Frozen Vegetable:

T2 = T1 X K
= 2 min. and 40 sec. X 0.1
= 160 sec. X 0.1
= 16 sec.

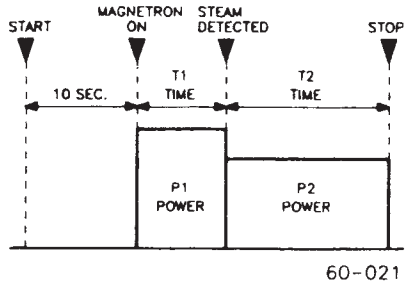
5. Sensor Reheat

Auto Sensor Reheat is a quick and easy way to reheat refrigerator and room temperature foods.

Simply press the reheat pad. There is no need to select power level and cooking time.

NOTE: The Auto Sensor Reheat process is same as Auto Sensor Cooking process.

AUTO SENSOR COOKING/REHEAT PROCESS



Sensor Cooking

Category	P1 Power	P2 Power	K Factor Standard
Frozen Vegetables	HIGH	HIGH	0.1

Sensor Reheat (All Sensor Models)

Category	P1 Power	P2 Power	K Factor Standard
Sensor Reheat	HIGH	M. HIGH	0.1

CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

Unlike many other appliances, the microwave oven is high-voltage, high current equipment. Though it is free from danger in ordinary use, extreme care should be taken during repair.

CAUTION

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

1. Check the grounding

Do not operate on a 2-wire extension cord. The microwave oven is designed to be used when grounded. It is imperative, therefore, to make sure it is grounded properly before beginning repair work.

2. Inverter Warnings NEW H.V.

DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)

This High Voltage Inverter Power Supply circuit supplies very high voltage and very high current for the magnetron tube. Though it is free from danger in ordinary use, extreme care should be taken during repair. As you can see, it looks like a TV flyback transformer, however the current is extremely large and so danger exists because of its high current and high voltages.

The aluminum heat sink is also energized with high voltage (HOT), so do not touch when AC input terminal is connected to the power line because one of the IGBT switching power devices (Collector) is directly connected to the Aluminum heat sink.

The Aluminum heat sink may be HOT from heat energy; therefore, extreme care should be taken during servicing and replacing.

WARNING OF INVERTER POWER SUPPLY (U) GROUNDING

Check the High Voltage Inverter Power Supply circuit grounding. This High Voltage Inverter Power Supply circuit board must have a proper chassis ground by the grounding bracket to the chassis ground; otherwise, this H.V. Inverter circuit board will expose very high voltage and cause extreme DANGER! Be sure to have proper grounding by the grounding plate and screws.

WARNING OF DISCHARGING HIGH VOLTAGE CAPACITORS

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

When replacing or checking parts, remove the power plug from the outlet and short the Inverter output terminal of the magnetron filament terminals to the chassis ground with an insulated handle screwdriver to discharge. Please make sure to touch chassis ground side first then short to the output terminals.

WARNING

There is high-voltage present, with high-current capabilities in the circuits of the primary, and secondary windings, choke coil and heat sink of the Inverter. It is extremely dangerous to work on or near these circuits with oven energized.

DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.

WARNING

Never touch any circuit wiring with your hand nor with an insulated tool during operation.

3. When parts must be replaced, remove the power plug from the outlet.

4. When the 18 Amp fuse is blown due to the operation of short switch:

(A) This is mandatory. Refer to "Measurements and Adjustments" for these switches.

(B) When replacing the fuse, confirm that it has the appropriate rating for these models.

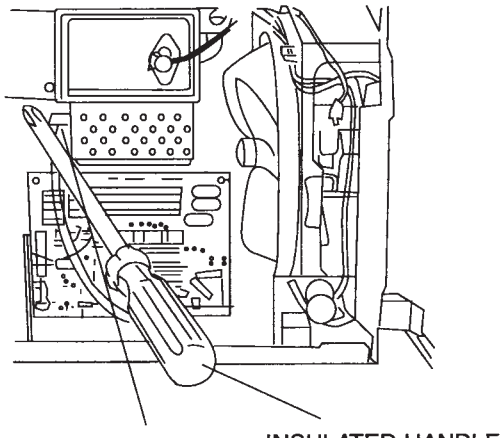
(C) When replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.

5. Avoid inserting nails, wire, etc. through any holes in the unit during operation.

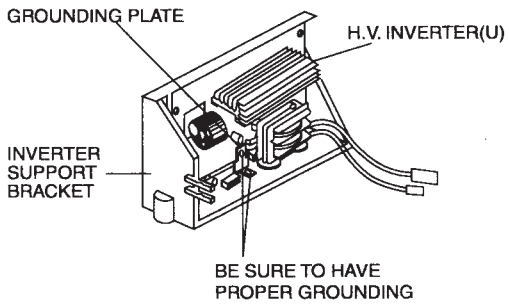
WARNING

When the 18 Amp. fuse if blown due to the operation of short switch, you must replace Primary latch switch and short switch. Also replace power relay B (RY1) when the continuity check reads shorted contacts (1-2).

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any other holes or gaps, because such objects may work as an antenna and cause microwave leakage.



Touch chassis side first then short to the terminal of the magnetron filament terminal.



6. Confirm after repair

(A) After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing.
Microwaves might leak if screws are not properly tightened.

(B) Make sure that all electrical connections are tight before inserting the plug into the wall outlet.

(C) Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage.)

CAUTION

MICROWAVE RADIATION

DO NOT BECOME EXPOSED TO RADIATION FROM THE MICROWAVE GENERATOR OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

IMPORTANT NOTICE NEW H.V.

1. The following components have potentials above 250V while the appliance is operating..
   - ✻ Magnetron
   - ✻ High voltage transformer (Located on Inverter (U))
   - ✻ High voltage diodes (Located on Inverter (U))
   - ✻ High voltage capacitors (Located on Inverter (U))

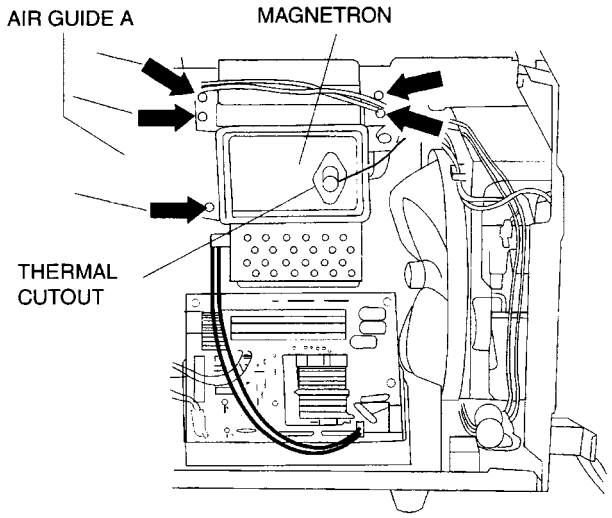
   Pay special attention on these portions.
2. When the appliance is operated with the door hinges or magnetron fixed incorrectly, the microwave leakage can reach more than 5mW/cm^3. After repair or exchange, it is very important to check if magnetron and the door hinges are correctly fixed.

DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

1. Magnetron

(A) Discharge the high voltage capacitors, as mentioned and shown on page 11.
(B) Remove two screws holding magnetron thermal cutout.
(C) Disconnect 2 high voltage lead wires from magnetron filament terminals.
(D) Remove 4 screws holding the magnetron.
NOTE: After replacement of the magnetron, tighten mounting screws in an X pattern, properly making sure there is no gap between the waveguide and the magnetron to prevent microwave leakage.

CAUTION
When replacing the magnetron, be sure the antenna gasket is in place.

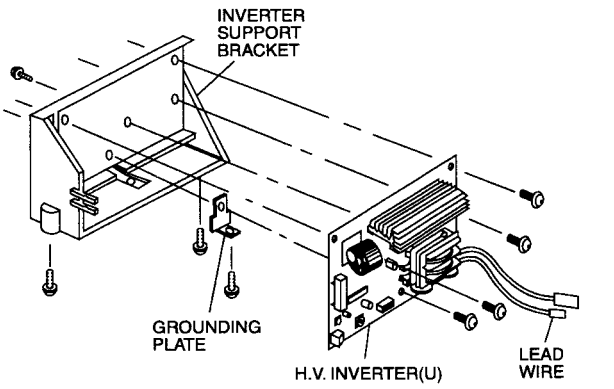


2. Inverter Power Supply (U) NEW H.V.

(A) Discharge the high voltage capacitors, as mentioned and shown on page 11.
(B) Unplug 3 lead wire connectors from the Inverter Power Supply board.
(C) Remove 3 screws to remove Inverter Power Supply board from chassis (base).
(D) Make sure not to loose grounding plate from the Inverter bracket.
(E) Remove 5 screws holding Inverter Power Supply board to the Inverter bracket.
(F) Replace with replacement PCB and follow steps in reverse.

CAUTIONS WHILE REPLACING INVERTER POWER SUPPLY (U)

1. Make sure to leave the grounding plate in its place.
2. Make sure to securely tighten grounding screw from the bottom of chasis (base).
3. Securely connect 3 lead wire connectors.
4. Make sure the heat sink has enough space (gap) from the oven. Take special care not to touch any lead wire to the aluminum heat sink because it is hot.



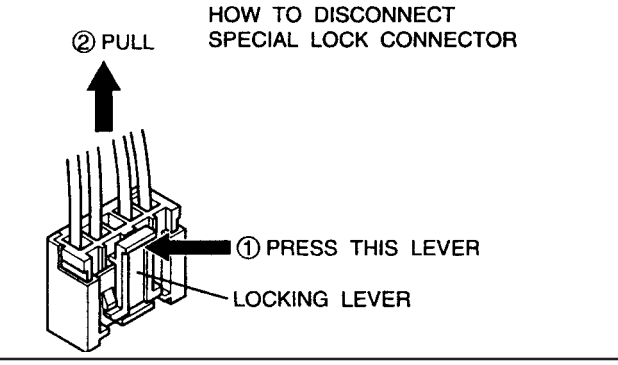
3. Digital Programmer Circuit (DPC) and membrane key board.

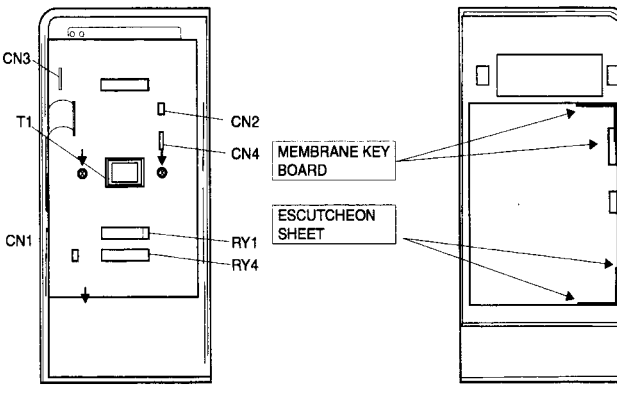
NOTE: Be sure to ground any static electric charge built up on your body before handling the DPC.
(A) Disconnect all connectors from D.P.C.
(B) Remove 1 screw holding escutcheon base to cavity ground and 1 screw at top of escutcheon base and slide the escutcheon base upward slightly.
(C) Release flat cable connector's lock of DPC by pushing both levers to inside and pull them upward, and remove flat cable of membrane key board.
(D) Remove 2 screws holding DPC.

To replace membrane key board

(E) Remove escutcheon bracket from escutcheon base by freeing 4 catch hooks on the escutcheon base.
(F) Push the upper part of key board (display window portion) from back of escutcheon base and peel off escutcheon sheet and membrane key board completely from escutcheon base.

NOTE: 1. The membrane key board is attached to the escutcheon base with double faced adhesive tape. Therefore, applying hot air such as using a hair dryer is recommended for smoother removal.
2. When installing new membrane key board, make sure that the surface of escutcheon base is cleaned sufficiently so that any problems (shorted contacts or uneven surface) can be avoided.
3. Alignment position of membrane key board is as follows (see figure);
Membrane key board: Right and upper edges
Escutcheon sheet: Right and lower edges





4. Low voltage transformer and/or power relays (RY1, RY2)

NOTE: Be sure to ground any static electric charge built up on your body before handling the DPC.

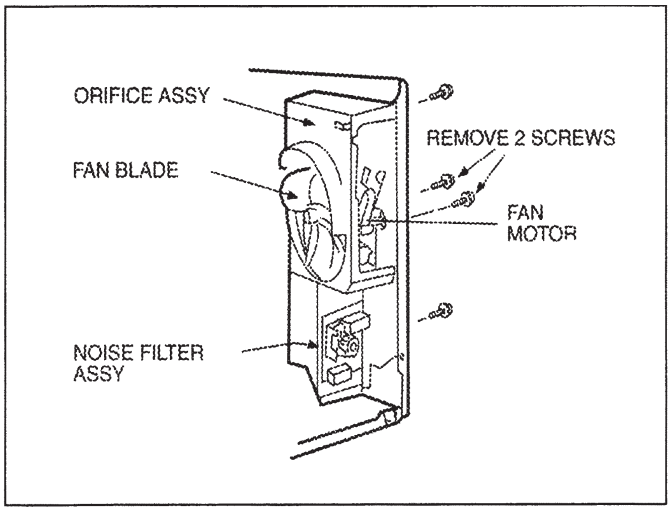
(A) Using solder wick or a desoldering tool and 30W soldering iron, carefully remove all solder from the terminal pins of the low voltage transformer and/or power relays.

NOTE: Do not use a soldering iron or desoldering tool of more than 30 watts on DPC contacts.

(B) With all the terminal pins cleaned and separated from DPC contacts, remove the defective transformer/power relays and install new transformer/relays making sure all terminal pins are inserted completely. Resolder all terminal contacts carefully.

5. Fan motor

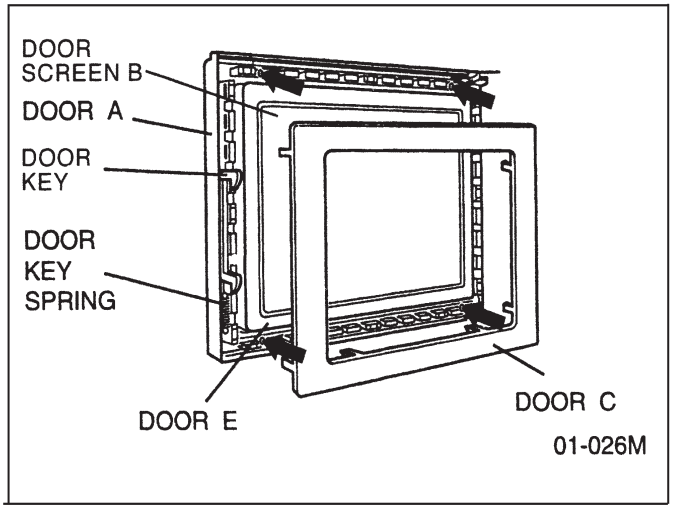
(A) Disconnect 2 lead wires from fan motor terminals.
(B) Disconnect 4 lead wires from noise filter assy terminals.
(C) Remove 1 screw holding yellow ground to base.
(D) Remove orifice assy by removing 2 screws and freeing 4 catch hooks and detach the orifice assy with fan motor shaft from oven assy.
(E) Remove fan blade from the fan motor shaft by pulling it straight out.
(F) Separate the fan motor from the orifice assy by freeing 2 catch hooks on the orifice assy.
(G) Remove noise filter assy by freeing the snap hook and sliding it out.



6. Door assembly

(A) Remove door C from door E by carefully pulling outward starting from upper right hand corner using a flat blade screwdriver.
(B) Remove 4 screws holding door E to door A.
(C) Separate door E from tabs on door A.
(D) Remove door screen B from door A.
(E) Remove door E from hinges by lifting it up and out.
(F) Remove door key and door key spring.

After replacement of the defective component parts of the door, reassemble and install it and perform microwave leakage test.



7. Turntable motor

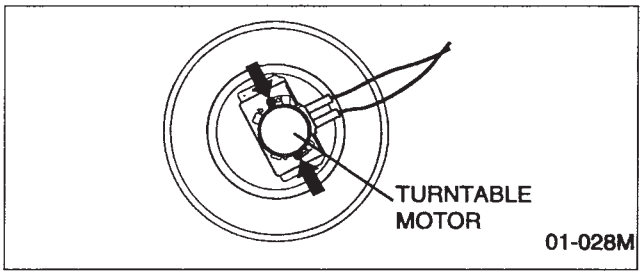
(A) Remove the motor cover by breaking off at the 8 spots indicated by arrows with a cutter or the like. (See Figure)

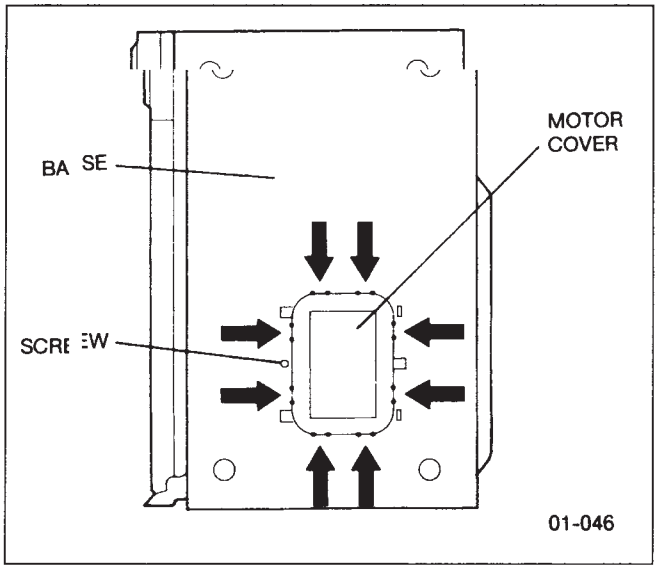
NOTE: After breaking off the motor cover, make sure that cut-off portions are properly trimmed off or bend to inside so that no sharp edge will expose to outside.

(B) Disconnect 2 lead wires connected to the turntable motor.

(C) Remove the turntable motor by removing 2 screws.

NOTE: After reinstalling the new turntable motor and reconnecting the two lead wires, reinstall the motor cover by rotating it around 180 , tucking the tabs under the base into the 2 provided slots, then screw the single tab to the base using a 4mm X 6mm screw (not provided).





8. Steam Sensor

(A) Remove 1 screw holding steam sensor unit.

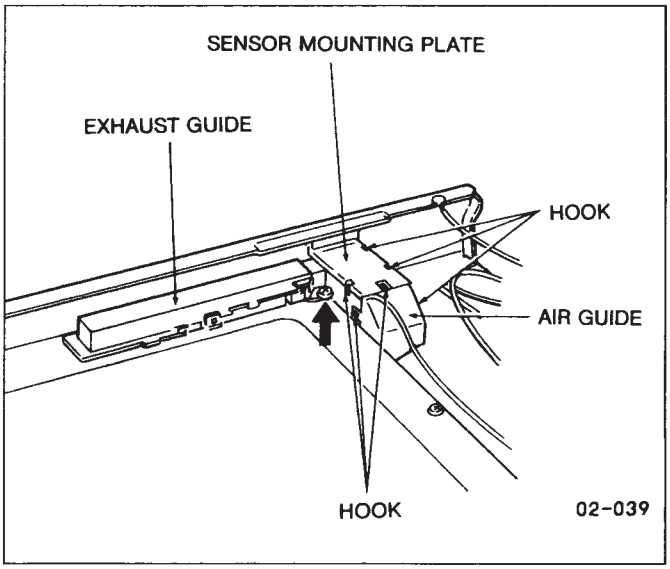
(B) Disconnect CN2 connector from digital programmer circuit board.

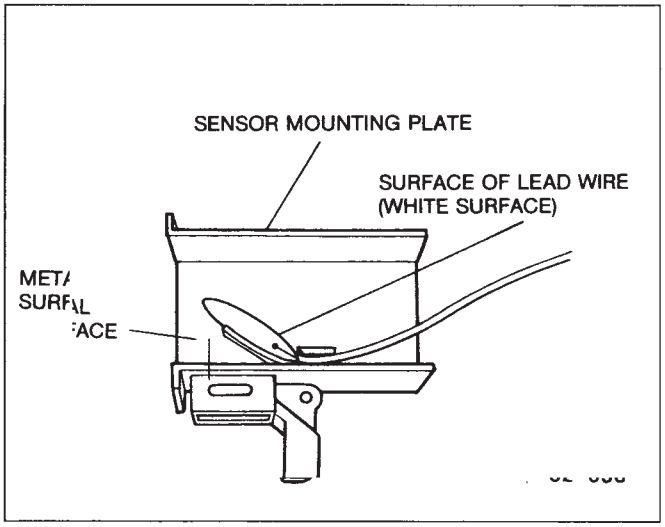
(C) Remove exhaust guide from steam sensor unit.

(D) Remove catch hooks on sensor mounting plate and air guide.

(E) Remove steam sensor from sensor mounting plate.

NOTE: When installing the steam sensor, make sure that the direction of steam sensor is as shown in figure.





COMPONENT TEST PROCEDURE

CAUTION NEW H.V.

1. High voltage is present at the high voltage terminal of the High Voltage Inverter (U) including aluminum heat sink during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components, or wiring, always unplug the oven from its power source and discharge the high voltage capacitors.

1. Primary Latch Switch, Secondary (Secondary Latch Switch and Power Relay B) Interlocks.

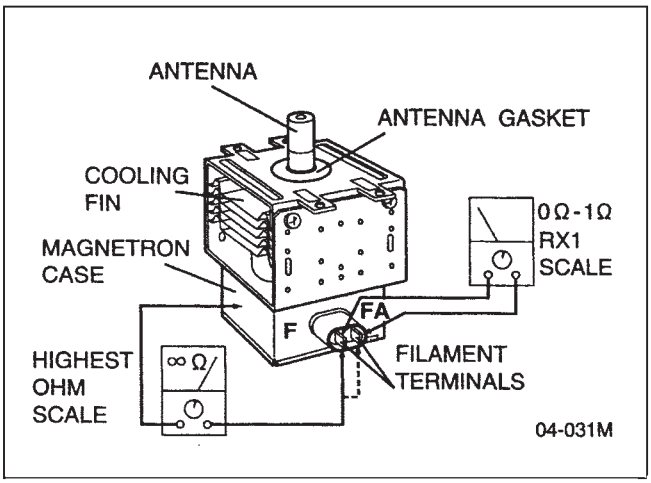
(A) Unplug the lead connectors to Power Relay B and verify continuity of the power relay B 1-2 terminals.
(B) Unplug lead connectors to Primary Latch Switch and Secondary Latch Switch.
(C) Test the continuity of switches at door opened and closed positions with ohm meter (low scale).
Normal continuity readings should be as follows.

	Door Opened	Door Closed
Primary Latch Switch	∞ Ω (open)	0 Ω (close)
Secondary Latch Switch	∞ Ω (open)	0 Ω (close)
Power Relay B	∞ Ω (open)	∞ Ω (open)

2. Short Switch & Monitor

(A) Unplug lead wires from H.V. Inverter primary terminals.
(B) Connect test probes of ohm meter to the disconnected leads which were connected to H.V. Transformer.
(C) Test the continuity of short switch with door opened and closed positions using lowest scale of the ohm meter.
Normal continuity readings should be as follows.

Door Opened	Door Closed
0 Ω	∞ Ω



3. Magnetron

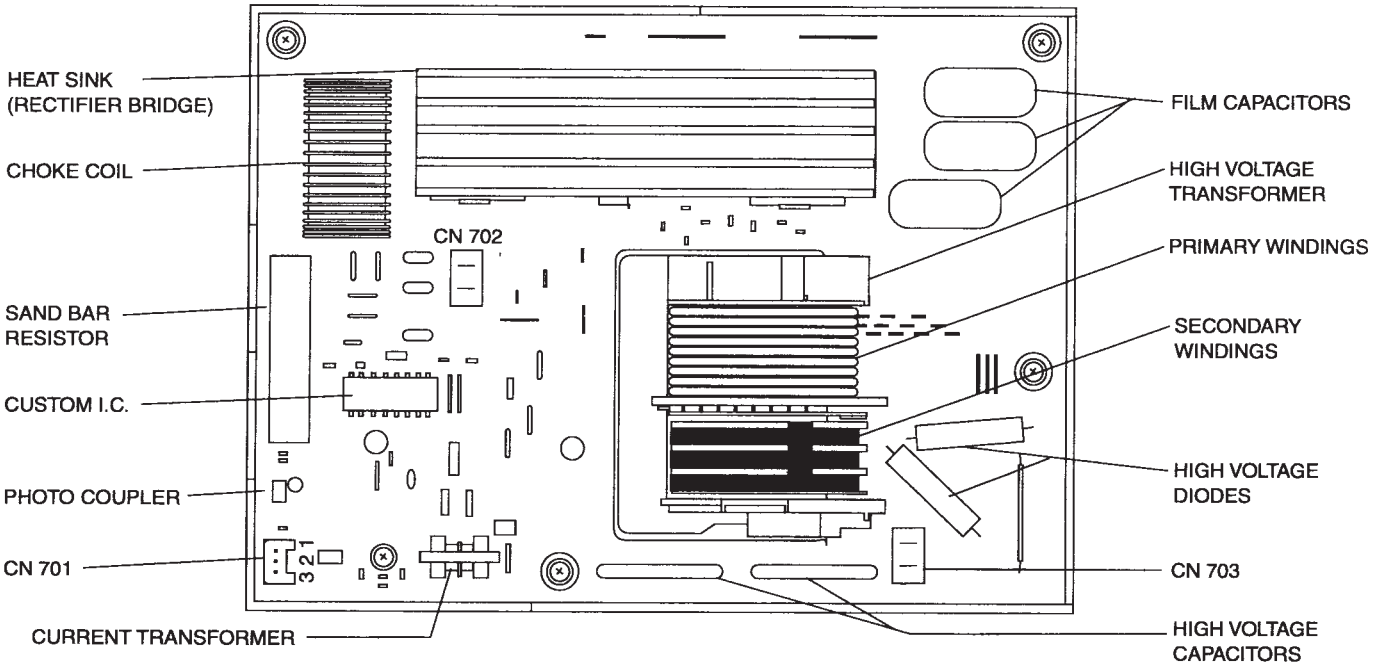
Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron.
(A) Isolate magnetron from the circuit by disconnecting the leads.
(B) A continuity check across magnetron filament terminals should indicate one ohm or less.
(C) A continuity check between each filament terminal and magnetron case should read open.

4. Membrane key board (Membrane switch assembly)

Check continuity between switch terminals, by tapping an appropriate pad on the key board. The contacts assignment of the respective pads on the key board is as shown in digital programmer circuit.

5. Inverter Power Supply (U)

DO NOT try to REPAIR this H.V. Inverter power supply (U). Replace as whole H.V. Inverter(U) Unit.



INVERTER POWER SUPPLY DIAGRAM

6. Inverter Power supply(U)
   DANGER HIGH VOLTAGE
   Test if failure codes of H97 or H98 appears by doing the following procedure. It is recommended to use an AC line input current Ampere meter for testing.
   Test 1
   A. Program DPC.
      1. Tap Clock
      2. Tap TIMER
      3. Tap START
      4. Tap POWER LEVEL
   B. Place 1 liter of water load into oven cavity.
   C. Unplug 2 pin H.V. lead wire connector CN703 from magnetron tube.
   D. Program oven at High power for 1 minute and press start.
      1. After approximately 15 seconds, oven displays H98 and stops oven.
      2. During oven operation, input current is approximately 1.0 to 1.7A. If both 1 and 2 are OK, please proceed to test 2.

	INPUT AMPERE	FAILURE CODE
Unplug CN703	1.0 to 1.7A	H98

Test 2.
Continued from Test 1
A. Unplug 3 pin connector, CN701
B. Set oven at High power for 1 minute and start.
   1. After approximately 27 seconds, oven displays H97 and stops oven.
   2. During oven operation, input current is approximately 0.4 to 0.8A

	INPUT AMPERE	FAILURE CODE
Unplug CN701	0.4 to 0.8A	H97

If both 1 and 2 are OK, the Inverter Power Supply (U) can be determined OK.

7. Steam Sensor and Digital Programmer Circuit
In order to determine if the steam sensor function of the digital programmer circuit is in working order or not, do the following test.
1) Place a water load (150 cc) in the oven.
2) Tap Sensor Reheat pad.
3) Tap Start Pad.
4) Steam Sensor detects steam about 1.5 to 4 minutes after the Start Pad is tapped.
5) T1 time cooking automatically switches to remaining time cooking (T2).
6) The remaining cooking time (T2) appears in display window. If the following cooking time appears, Steam Sensor function is 3) Tap Start Pad.

T1 TIME	T2 TIME (Remaining cooking time)
1 Min. 30 Sec.~4 Min.	8 Sec.~23 Sec.

MEASUREMENTS AND ADJUSTMENTS

WARNING

* For continued protection against radiation hazard, replace only with identical replacement parts (For touch models Part No. ANE6142-1450 Type No. V-16G-3C26-M for Primary latch switch Part No. A61425180AP, Type No. L-3C2-2 for Secondary latch switch and Part No. A61785180AP, Type No. L-2C2-2 for short switch)
* When the 18 Amp. fuse is blown due to the operation of short switch, you must replace Primary latch switch and short switch. Also replace power relay B (Part. No. AEG5J1EG12B/AEG5J1EG18B, Type No. G5J-1-TP) when the continuity check reads shorted contacts (1—2). Then follow the adjustment procedures below.
* Interlock switch replacement — In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.
* Refer to schematic diagram to ensure proper connection.

1. Adjustment of Primary latch switch, Secondary latch switch and Short switch.

(A) When mounting Primary latch switch, Secondary latch switch and short switch to door hook assembly, mount the Primary latch switch, the Secondary latch switch and the short switch to the door hook assembly as shown in table.

NOTE: No specific adjustment during installation of Primary latch switch, Secondary latch switch and short switch to the door hook is necessary.

(B) When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of arrow in table so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.

(C) Reconnect the short switch, Primary and Secondary switches and check the continuity of the monitor circuit and all latch switches again by following the components test procedures.

2. Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However, due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipment:

*1 liter beaker *Glass thermometer

*Wrist watch or stopwatch

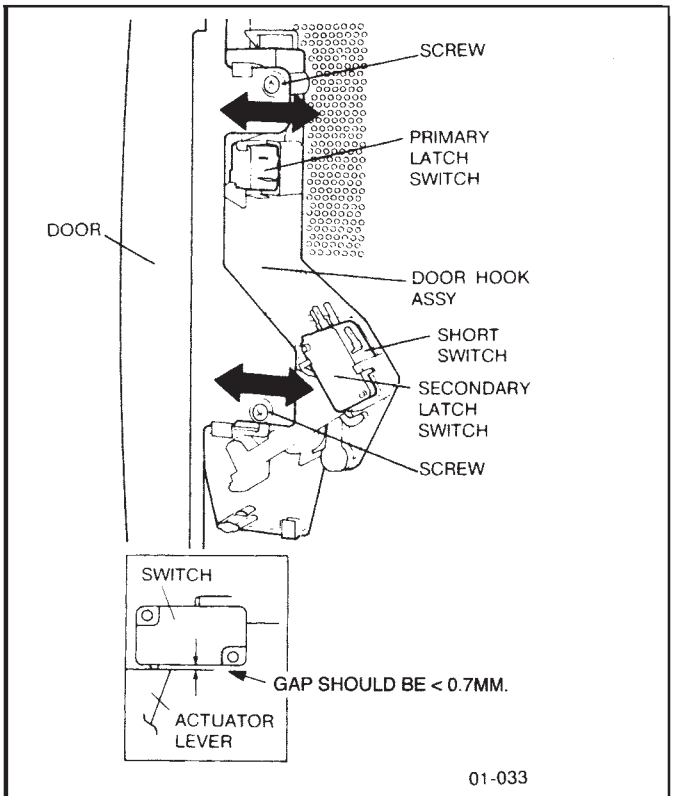
NOTE: Check the line voltage under load. Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurate as possible.

(A) Fill the beaker with exactly one liter of tap water. Stir the water using the thermometer and record the beaker's temperature (recorded as T1).

(B) Place the beaker on the center of glass cook plate. Set the oven for High power and heat it for exactly one minute.

(C) Stir the water again and read the temperature of the beaker (recorded as T2).

(D) The normal temperature rise at High power position for each model is as shown in table.



Please confirm that the gap between the switch housing and switch actuator levers is no more than 0.7 mm when the door is closed

TABLE (1l -1min. test)

RATED OUTPUT	TEMPERATURE RISE
1100W (IEC705-88)	Min. 16.2°F 9.0°C)

PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

WARNING

Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm² (1mW/cm² for Canada) inform PASC, PSC, or PCI immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S. and Health and Welfare Canada regulation. This required must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's home.

NOTE: The U.S. Government standard is 5 mW/cm² while in the customer's home. 2 mW/cm² stated here is our own voluntary standard. (1 mW/cm² for Canada)

1. Equipment

*Electromagnetic radiation monitor
*Glass thermometer 212°F or 100°C
*600cc glass beaker

2. Procedure for measuring radiation leakage.

Note before measuring.

(1) Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.

(2) To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area shown in Figure no faster than 1 inch/sec (2.5 cm/sec).

(3) Leakage with the outer panel removed ------ less than 5mW/cm².

(4) Leakage for a fully assembled oven with door normally closed------ less than 2mW/cm² (1mW/cm² for Canada).

(5) Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door------ less than 2mW/cm².

(A) Pour 275 ± 15cc (9ozs ± 1/2oz) of 20 ±5°C (68 ± 9°F) water in a beaker which is graduated to 600cc, and place in the center of the oven.

(B) Set the radiation monitor to 2450MHz and use it following the manufacturer's recommended test procedure to assure correct results.

(C) When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.

(D) Tap the start pad or set the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

(1) Measurement with the outer panel removed.

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

WARNING

Avoid contacting any high voltage parts.

(2) Measurements with a fully assembled oven.

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

3. Record keeping and notification after measurement

(A) After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.

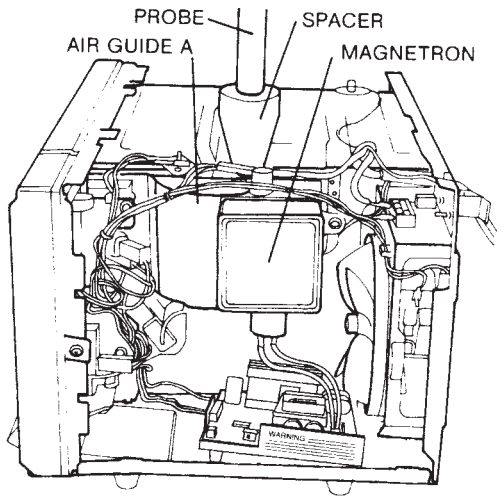
A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.

(B) Should the radiation leakage be more than 2 mW/cm² (1mW/cm² for Canada) after determining that all parts are in good condition, functioning properly, and genuine replacement parts as listed in this manual have been used, immediately notify PASC, PSC or PCI.

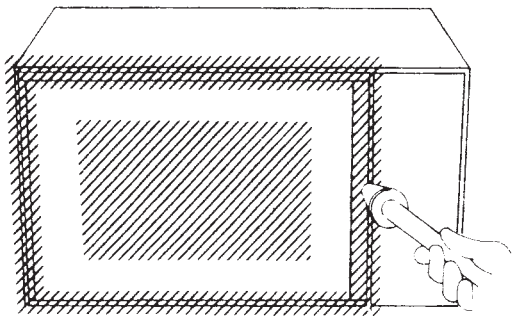
4. At least once a year, have the radiation monitor checked for calibration by its manufacturer.

WARNING

AVOID CONTACTING ANY HIGH VOLTAGE PARTS.



01-034



01-035

MOVE PROBE ALONG SHADED AREA (////) AROUND EXHAUST OPENINGS (as shown) AND AROUND AIR INLET OPENING

TROUBLESHOOTING GUIDE NEW H.V.

CAUTION

1. DO NOT try to REPAIR this H.V. Inverter power supply(U). Replace as whole H.V. Inverter(U) Unit. When returning H.V. Inverter(U) make sure to pack as originally packed.
2. DO NOT RE-ADJUST PRESET VOLUME on the H.V. Inverter(U). It is very dangerous to repair or adjust without sufficient test equipment because this circuit handles very large current with very high voltage. Off alignment of inverter board operation will be dangerous.
3. Ensure proper grounding before checking for trouble.
4. Be careful of the high voltage circuitry, taking necessary precautions when troubleshooting.
5. Discharge high voltage remaining in the Inverter(U).
6. When checking the continuity of the switches or the H.V. Inverter, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.
   When disconnecting a plastic connector from a terminal, you must hold the plastic connector instead of the lead wire and then disconnect it, otherwise lead wire may be open or the connector cannot be removed.
7. Do not touch any parts of the circuitry on the digital programmer circuit, since static electric discharge may damage this control panel.
   Always touch yourself to ground while working on this panel to discharge any static charge in your body.
8. 120V AC is present on the digital programmer circuit (Terminals of power relay's and primary circuit of low voltage transformer). When troubleshooting, be cautious of possible electrical shock hazard.

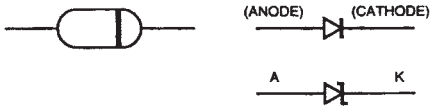
Before troubleshooting, operate the microwave oven following the correct operating procedures in the instruction manual in order to find the exact cause of any trouble,since operator error may be mistaken for the oven's malfunction.

	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven is dead. Fuse is OK. No display and no operation at all.	1. Open or loose lead wire harness. 2. Open thermal cutout (Magnetron) 3. Open low voltage transformer 4. Defective DPC	Check fan motor when thermal cutout is defective.
2.	No display and no operation at all. Fuse is blown.	1. Shorted lead wire harness 2. Defective primary latch switch (NOTE 1) 3. Defective short switch (NOTE 1) 4. Defective Inverter power supply (U) NEW H.V. Refer to component test procedure (Page 19).	Check adjustment of primary, secondary latch switch and short switch including door.
		NOTE 1: All of these switches must be replaced at the same time. (Refer to adjustment instructions.) Check continuity of power relay B's contacts (between 1 and 2) and if it has continuity, replace power relay B also.	
3.	Oven does not accept key input (Program).	1. Key input is not in sequence 2. Open or loose connection of membrane key pad to DPC (Flat cable) 3. Shorted or open membrane key board 4. Defective DPC	Refer to operation procedure. Refer to DPC troubleshooting.
4.	Oven lamp and fan motor turn on when oven is plugged in with door closed.	1. Misadjustment or loose wiring of secondary latch switch 2. Defective secondary latch switch	Adjust door and latch switches.
5.	Timer starts countdown but no microwave oscillation. (No heat while oven lamp and fan motor turn on)	1. Off-alignment of latch switches 2. Open or loose connection of high voltage circuit especially magnetron filament circuit NOTE: Large contact resistance will bring lower magnetron filament voltage and cause magnetron to have lower output and/or have intermittent oscillation. 3. Defective high voltage component H.V. Inverter NEW H.V. Magnetron 4. Open or loose wiring of power relay B 5. Defective primary latch switch 6. Defective power relay B or DPC	Adjust door and latch switches. Check high voltage component according to component test procedure (pg. 16) and replace if it is defective. Refer to DPC troubleshooting
6.	1. Open or loose wiring of secondary latch switch 2. Off-alignment of secondary latch switch 3. Defective secondary latch switch	Oven can program but timer does not start countdown.	Adjust door and latch switches.

	SYMPTOM	CAUSE	CORRECTIONS
7.	Microwave output is low. Oven takes longer time to cook food.	1. Decrease in power source voltage 2. Open or loose wiring of magnetron filament circuit. (Intermittent oscillation) 3. Aging change of magnetron	Consult electrician Refer to output test procedures by water temperature raising test.
8.	Fan motor and oven lamp turn on when door is opened.	1. Shorted primary latch switch	
9.	Oven does not operate and return to plugged in mode as soon as start pad is pressed.	1. Defective DPC	Check tighten screws on escutcheon base bracket, D.P.C. board.
10.	Loud buzzing noise can be heard.	1. Loose fan and fan motor	
11.	Turntable motor does not rotate.	1. Open or loose wiring of turntable motor 2. Defective turntable motor	
12.	Oven stops operation during cooking.	1. Open or loose wiring of primary and secondary latch switch 2. Operation of thermal cutout (Magnetron)	Adjust door and latch switches.
13.	Oven returns to plugged in mode after 10 seconds elapses on the Auto sensor cooking mode.	1. Open or loose wiring of sensor terminal from DPC 2. Open steam sensor 3. Defective DPC	

HOW TO CHECK THE SEMICONDUCTORS USING AN OHM METER

Diode



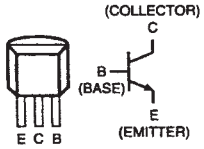
	FORWARD	REVERSE
A-K	SMALL	∞

Transistor

NPN Transistor

2SC·····

2SD·····

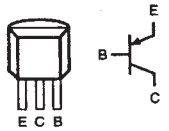


	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

PNP Transistor

2SA·····

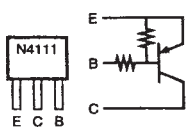
2SB·····



	FORWARD	REVERSE
B-E	SMALL	∞
C-B	SMALL	∞
C-E	∞	∞

Digital Transistor

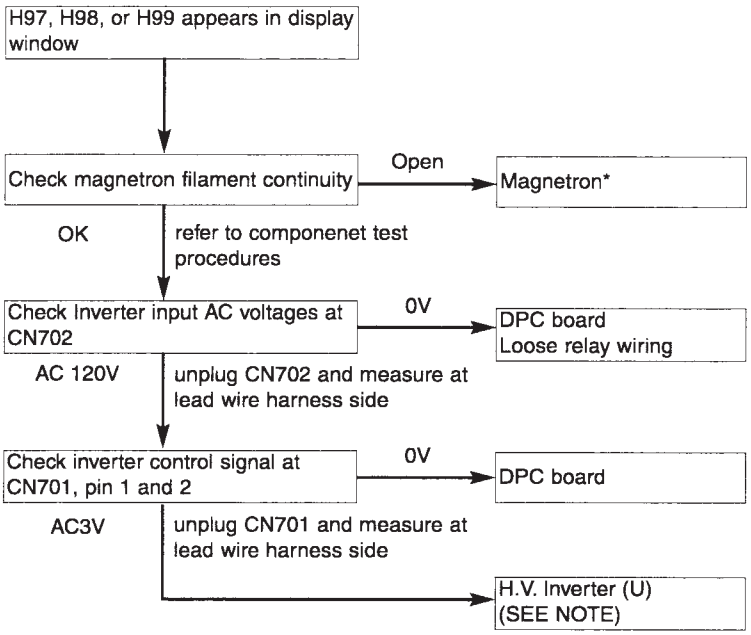
PNP Transistor



	FORWARD	REVERSE
E-B	10kΩ~30kΩ	10kΩ~30kΩ
C-B	50kΩ~90kΩ	∞
C-E	40kΩ~80kΩ	∞

Troubleshooting of Inverter Circuit (U) and Magnetron NEW H.V.

This oven is programmed with a self diagnostics failure code system which will help for troubleshooting. H97, H98, and H99 are the provided failure codes to indicate magnetron and inverter circuit problem areas. This section explains failure codes of H97, H98, and H99. First, you must program the DPC by pressing Clock, Timer, Start, Power Level. H97, H98, H99 appears in display window a short time after start key is pressed and there is no microwave oscillation.

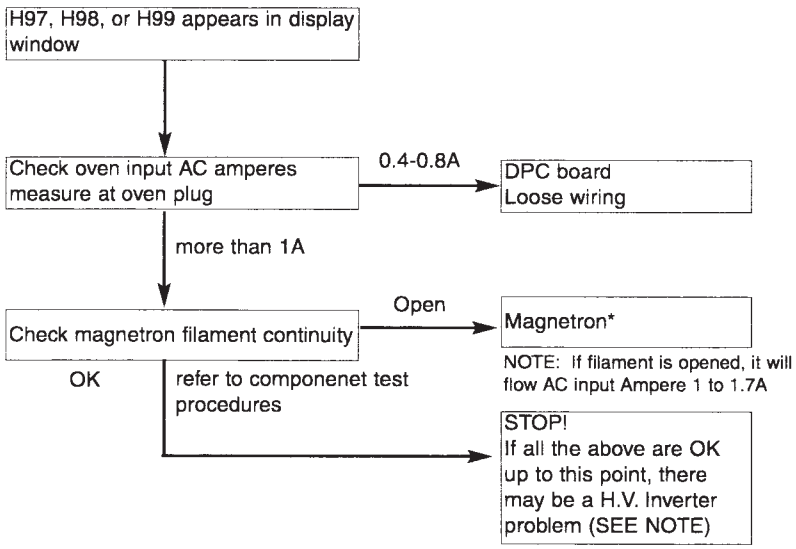


NOTE: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT RE-ADJUST PRESET VOLUME on the board. It is very dangerous to repair or adjust without sufficient test equipment because this circuit handles very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to casing before proceeding to determine a good magnetron.

Alternate way to troubleshoot oven with AC Ampere meter used NEW H.V.

H97, H98, H99 appears in display window a short time after start key is pressed and no microwave oscillation with AC Ampere meter used for troubleshooting



NOTE: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT RE-ADJUST PRESET VOLUME on the board. It is very dangerous to repair or adjust without sufficient test equipment because this circuit handles very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to casing before proceeding to determine a good magnetron.

Trouble Related to Digital Programmer Circuit

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS
No display when oven is first plugged in. Oven is dead.	1	Fuse pattern of DPC	Normal	STEP 2
			Open (NOTE)	Shorted Circuit of ZNR, L.V.T., Oven Lamp etc. Replace DPC
	2	Low voltage transformer (LVT) secondary voltage	Abnormal 0V	LVT
			Normal	→ Step 3
	3	IC-1 pin 15 voltage (Emitter of Q10)	Abnormal	ZD1, Q10
			Normal = 5V	→ Step 4
	4	IC-1 pin 10 voltage (15 pin of IC-220)	Abnormal	IC-220
			Normal	→ IC-1, CX1

NOTE

Procedure of fuse pattern repairing is as follows:

1. When the fuse pattern (PF2) opens.

(1) Remove the jumper wire (PF1).

(2) Insert the removed jumper wire (PF1) to "(PF2)" position and solder it. If both "PF1" and "PF2" fuse patterns are open, please replace DPC.

2. When the fuse pattern (PF4) opens.

(1) Remove the jumper wire (PF3).

(2) Insert the removed jumper wire (PF3) to "(PF4)" position and solder it. If both "PF3" and "PF4" fuse patterns are open, please replace DPC.

NOTE:* At the time of these repairs, make visual inspection of the varistor for burning damage and examine the transformer with tester for the presence of layer short-circuit (check primary coil resistance).

If any abnormal condition is detected, replace the defective parts.

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS
No key input	1	Membrane switch continuity	Abnormal	Membrane switch
			Normal	IC-1
No beep sound	1	IC-1 pin 76 voltage	Abnormal	IC-1
			Normal	BZ,
Power relay A(RY-2) does not turn on even though the program has been set and the start pad is tapped	1	IC-1 pin 3 voltage while operation	Abnormal	IC-1,
			Normal = 5V	→ Step 2
	2	Short circuit between pin 6 and pin 16 of IC-220	Still not turn on	RY-2
			RY-2 turns on	IC-220
No microwave oscillation at any power setting	1	IC-1 pin 8 and pin 80 voltages while operation at high power	Abnormal	IC-1
			Normal 5---5V, 15---5V	→ Step 2
	2	Q220 translator	Abnormal	Q220
			Normal	IC-2, RY-1
Dark or unclear display	1	Replace display and check operation	Normal	DISPLAY
			Abnormal	IC-1
Missing or lighting of unnecessary segment	1	Replace IC-1 and check operation	Normal	IC-1
			Abnormal	DISPLAY
H97/H98 appears in window and oven stops operation. Program High power for 1 minute and conduct following test quickly, unless H97/H98 appears and oven stops. New H.V.	1	Unplug CN702(2 pin) connector and measure voltage between terminals	0V	1. Latch switch 2. DPC/Power Relay
			AC line voltage of 120V	→ Step 2
	2	Unplug CN701(3 pin) connector and measure pin 1 voltage	0V	DPC
			Approx. AV 3V	Magnetron

TO BE CONTINUED FOR SENSOR MODELS

Auto sensor cooking does not operate normally. (Steam Sensor cooking does not detect steam from foods.)	1	Steam sensor terminal voltage by using high impedance tester (20k /V), when breathe on metal surface of sensor	Abnormal = 0V	Steam sensor
			Normal ≥ 10~30mV	IC-1, IC-3

DIGITAL PROGRAMMER CIRCUIT

PARTS LIST Note: Part list is for reference only.

REF No.	PART NO.	DESCRIPTION	QTY	REMARKS
BZ310	EFBAH20C001	BUZZER	1	2.0KHZ
C10	ECA1VM471B	ELECTROLYTIC CAPACITOR, AL	1	470μF/35V/20%
C11	ECEA1CKA100B	ELECTROLYTIC CAPACITOR, AL	1	22μF/16V/20%
C100,330, C340	AECU1F103Z50	CERAMIC CAPACITOR	3	0.01μF/25V/ 20%+80%
C12, 221, 290,291,300 C460	AECU1F104Z25	CERAMIC CAPACITOR	5	0.01μF/50V/ -20%+80%
CN1	AEEMXF01505W	CONNECTOR	1	5PIN
CN2	AEEMMF00703W	CONNECTOR	1	3PIN
CN6	AEEMM09FDZBTM	CONNECTOR	1	9PIN
CN3	AEEMMF00703B	CONNECTOR	1	3PIN
CN4	AEEMXF00D04W	CONNECTOR	1	4PIN
CX320	EFOEC8004T4	CERAMIC RESONATOR	1	8.00MHz
D10	AESS1N4003E	DIODE, SI	1	
D30,31	AESS1N4148M	DIODE, SI	6	
220, 221, 340				
D190, 191, 192	AESQTLGE260T	LED(G)	3	
DISP1	AEDDHLC4M0AP	LCD	1	
IC1	AEIC8C34A125	L.S.I.	1	
IC220	AN6747B	IC	1	
IC480	AEHMH705S	IC	1	
Q10, Q190	2SD1859TV	TRANSISTOR, SI, 1.2W	1	(120MHZ)
Q191, Q220	2SC2412KT146	TRANSISTOR	1	
Q192	AESC23JKE	TRANSISTOR	1	
Q340	AESC14EKE	TRANSISTOR	1	
R223, R325	ERJ3GSYJ103V	CARBON FILM RESISTOR	5	
R341, 480, 481	ERJ3GSYJ472V	CARBON FILM RESISTOR	3	4.7K ,1/4W, +/-5%
R10, 11	ERDS2TJ102T	CARBON FILM RESISTOR	2	10K , 1/4W±5%
R330	ERJ3GSYJ471V	CARBON FILM RESISTOR	1	
R39-47, 101-103, 222,311,461	ERJ3GSYJ102V	CARBON FILM RESISTOR	15	150 1/4W±5%
R310	ERJ3GSYJ332V	CARBON FILM RESISTOR	1	
R460,	ERJ3EKF3302V	CARBON FILM RESISTOR	2	
R100	ERJ3GSYJ220V	CARBON FILM RESISTOR	1	
R191	ERJ3GSYJ390V	CARBON FILM RESISTOR	1	150 1/4W±5%
R30-38, 350	ERJ3GSYJ104V	CARBON FILM RESISTOR	10	10K , 1/4W±5%
R190 ,290	ERDS2TJ103T	CARBON FILM RESISTOR	7	10K , 1/4W±5%
RY1,RY4	AEGG5G1A18	POWER RELAY	1	(12V)
RY2	AEBJQ1A18	POWER RELAY	1	(18V)
SP1	A611A4J00XN	LCD HOLDER (U)	1	
T10	ETP35K136A	TRANSFORMER	1	
ZD10	AESZMTZJ5R6B	ZENER DIODE,SI	1	
D25	ERZV10D271E3	VARISTOR	1	270V
D26, 27	ERZV10D112C1	VARISTOR	2	
D222,R220, R224,R228, J1 PF2	ANE64454R0AG	JUMPER WIRE (5mm)		

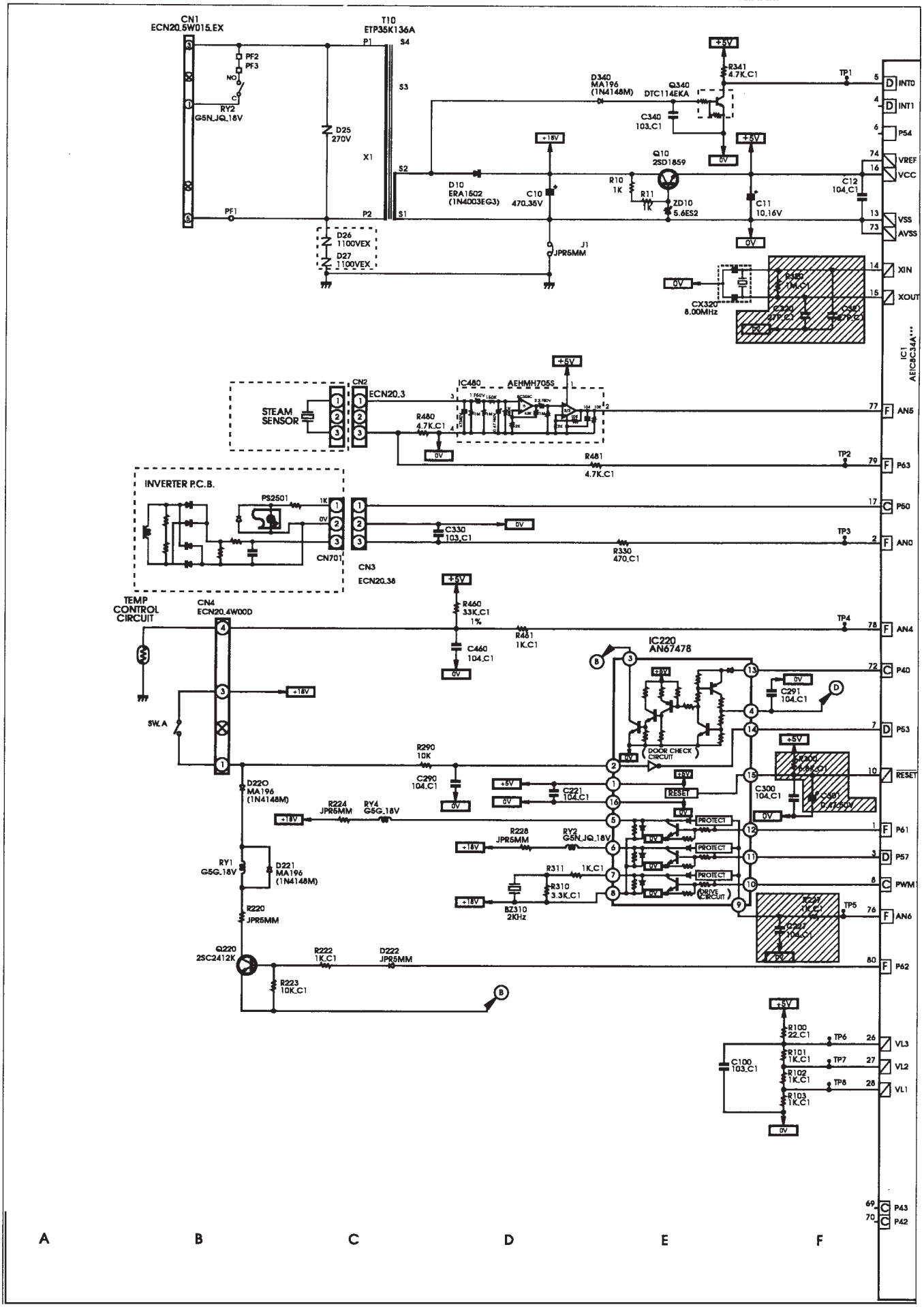
SERVICE FIXTURES AND TOOLS

EXTENSION CABLES

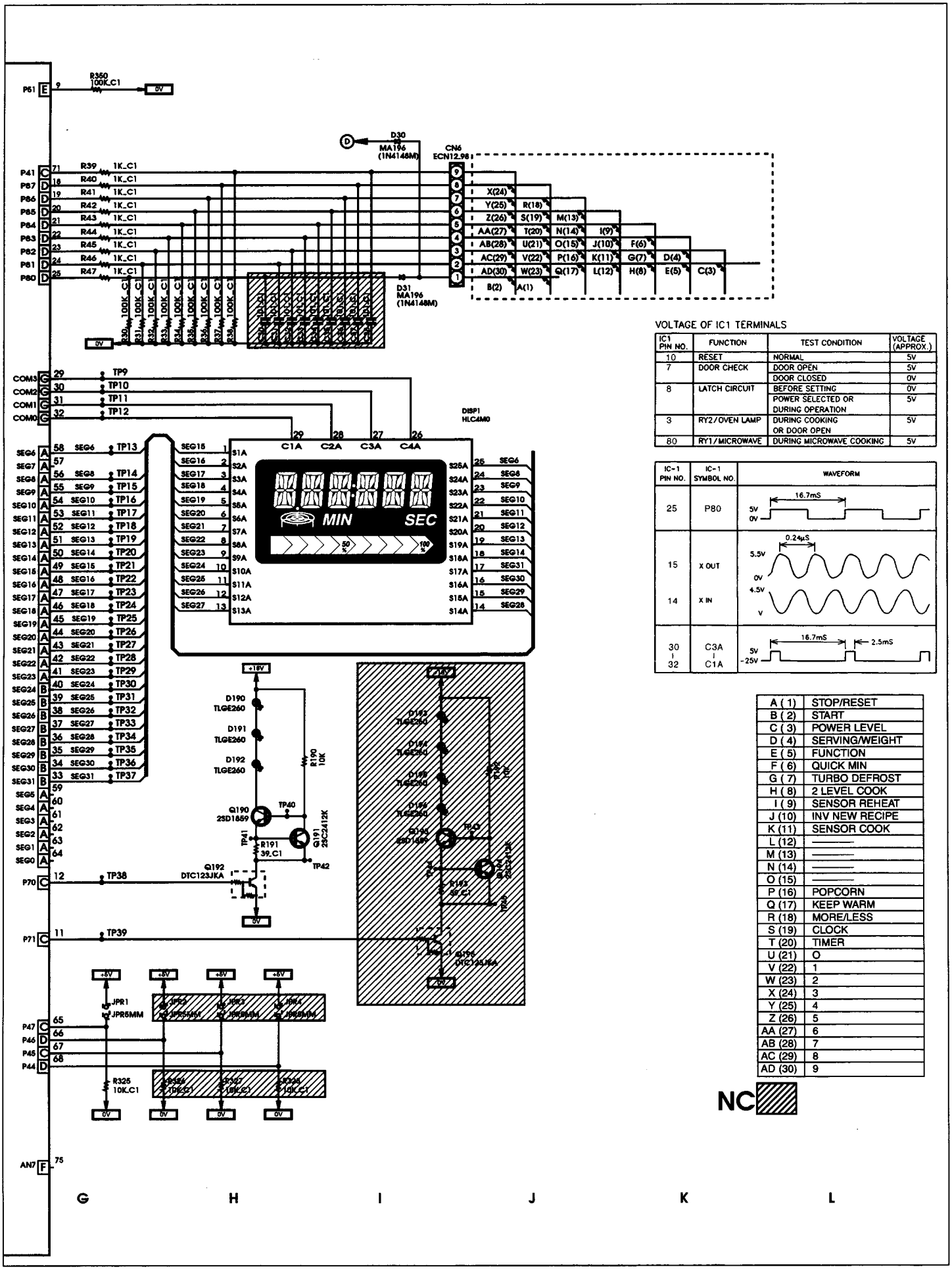
NOTE: To be used when repairing the DPC board assembly directly on the oven for easy access of the board.

REF No.	PART NO.	DESCRIPTION	QTY	REMARKS
	AT40P003	3 pin Extension Cable	1	Cable No. 48
	AT40P004	4 pin Extension Cable	1	Cable No. 47
	AT40P005	5 pin Extension Cable	1	Cable No. 46
	AT4E006	1 pinX6 Extension Cable	1	Cable No. 9

DIGITAL PROGRAMMER CIRCUIT SCHEMATIC DIAGRAM



DIGITAL PROGRAMMER CIRCUIT SCHEMATIC DIAGRAM



VOLTAGE OF IC1 TERMINALS

IC1 PIN NO.	FUNCTION	TEST CONDITION	VOLTAGE (APPROX.)
10	RESET	NORMAL	5V
7	DOOR CHECK	DOOR OPEN	5V
		DOOR CLOSED	0V
8	LATCH CIRCUIT	BEFORE SETTING	0V
		POWER SELECTED OR DURING OPERATION	5V
3	RY2/OVEN LAMP	DURING COOKING OR DOOR OPEN	5V
80	RY1/MICROWAVE	DURING MICROWAVE COOKING	5V

IC-1 PIN NO.	IC-1 SYMBOL NO.	WAVEFORM
25	P80	16.7mS, 5V, 0V
15	X OUT	0.24μS, 5.5V, 0V
14	X IN	4.5V, V
30 I 32	C3A I C1A	16.7mS, 2.5mS, 5V, -25V

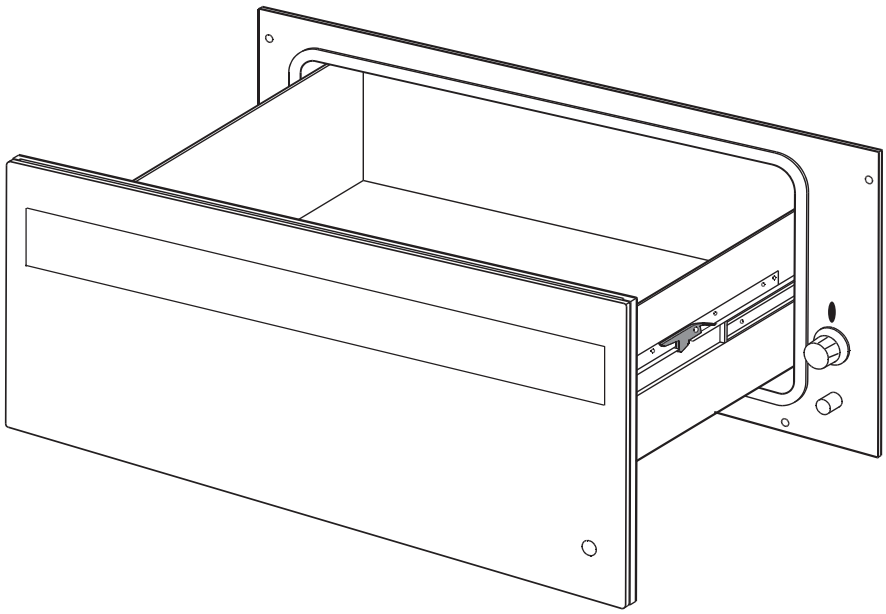
A (1)	STOP/RESET
B (2)	START
C (3)	POWER LEVEL
D (4)	SERVING/WEIGHT
E (5)	FUNCTION
F (6)	QUICK MIN
G (7)	TURBO DEFROST
H (8)	2 LEVEL COOK
I (9)	SENSOR REHEAT
J (10)	INV NEW RECIPE
K (11)	SENSOR COOK
L (12)	———
M (13)	———
N (14)	———
O (15)	———
P (16)	POPCORN
Q (17)	KEEP WARM
R (18)	MORE/LESS
S (19)	CLOCK
T (20)	TIMER
U (21)	0
V (22)	1
W (23)	2
X (24)	3
Y (25)	4
Z (26)	5
AA (27)	6
AB (28)	7
AC (29)	8
AD (30)	9

NC

G H I J K L

Notes

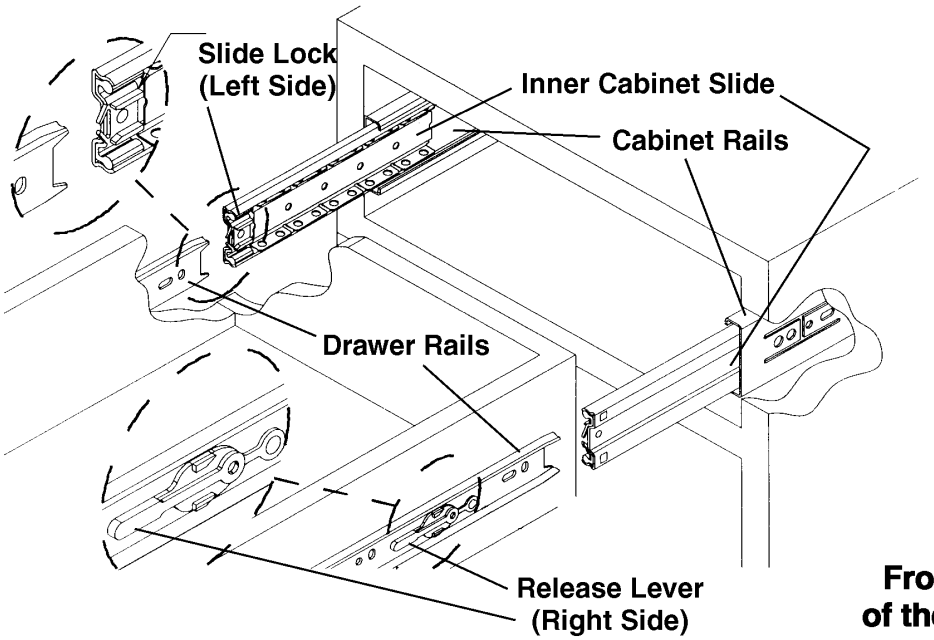
Warming Drawer Section



To Replace Thermostat or On/Off Switch

A Remove drawer assembly (See Figure 1.)

Figure 1. REMOVING THE DRAWER



To remove the drawer:

WARNING: Do not remove drawer while hot.

- Pull drawer to fully open position.

Be sure drawer is empty before removing.

- Lift up on left side Release Lever and press down on the right side Release Lever.
- Firmly pull the drawer outward until each Drawer Rail pulls free from each Inner Cabinet Slide. Retract

To replace the drawer:

- Be sure Cabinet Rails are pushed inside cabinet.
- Align each Drawer Rail to each Inner Cabinet Slide. Use the Slide Lock to guide placement.
- Close the drawer completely; the Slide Lock will secure the drawer.
- Pull out drawer fully to check that both locks are engaged.

B. Remove drawer front Figure 2.

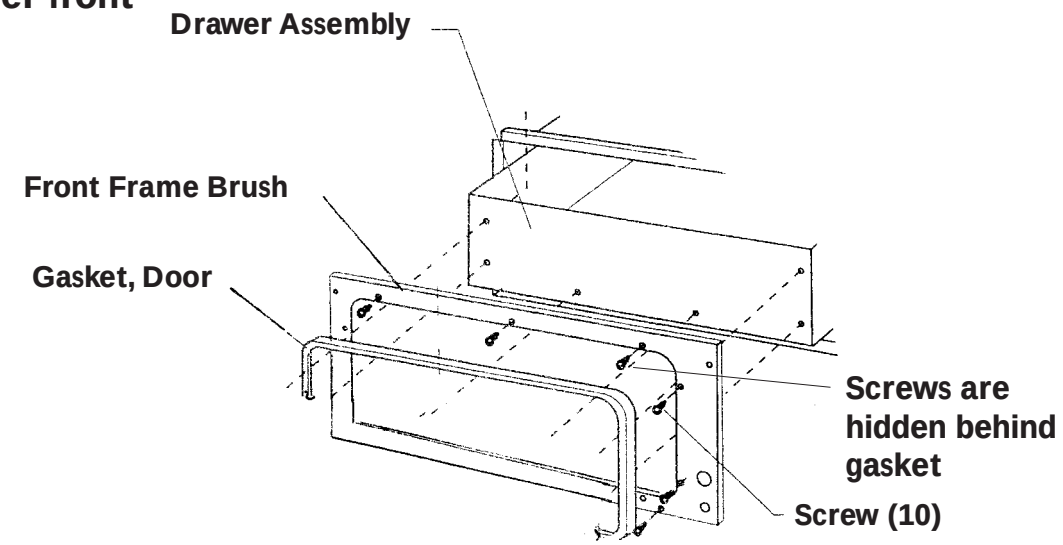


Figure 3. Control Assembly

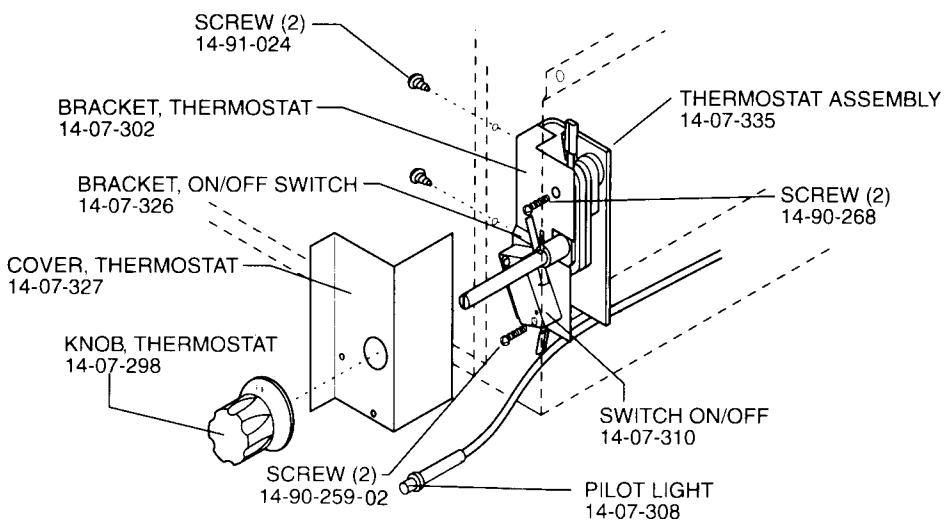
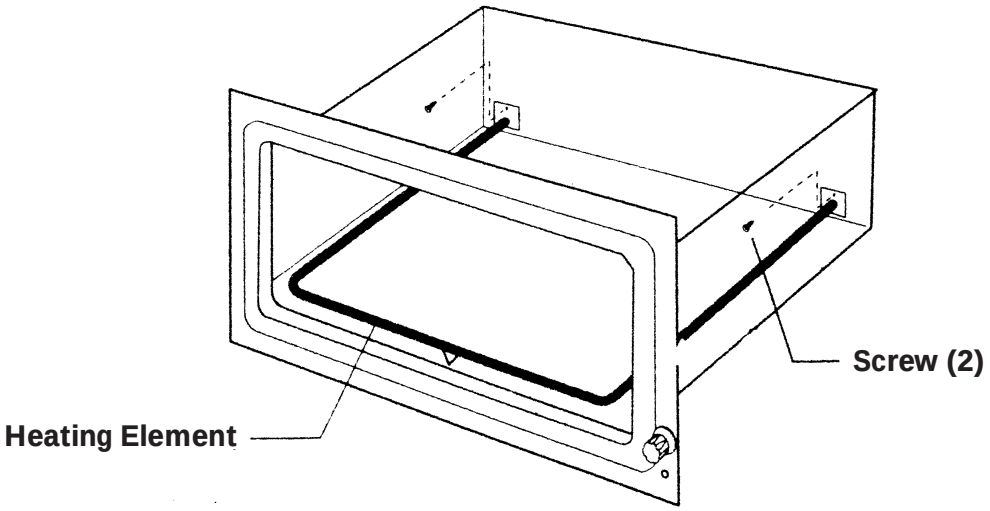


Figure 4. Heating Element



2. To replace heating element:

a. Remove screws from element brackets in back of the liner.

b Disconnect the wires from the bake element.

c. Connect wires to the new element.

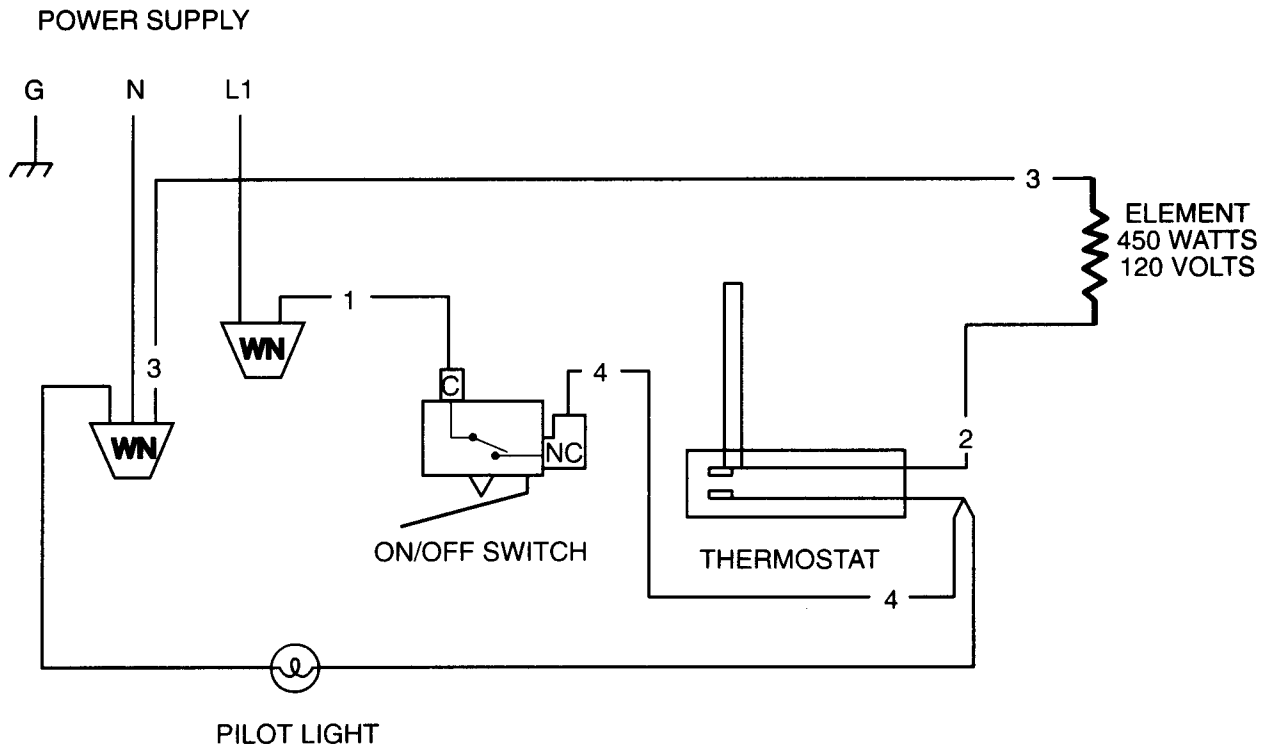
3. To replace liner slides:

a. Remove two screws holding slides n liner

b. Reinstall new slides into liner with 2 screws.

Warming Drawer Wiring Diagram

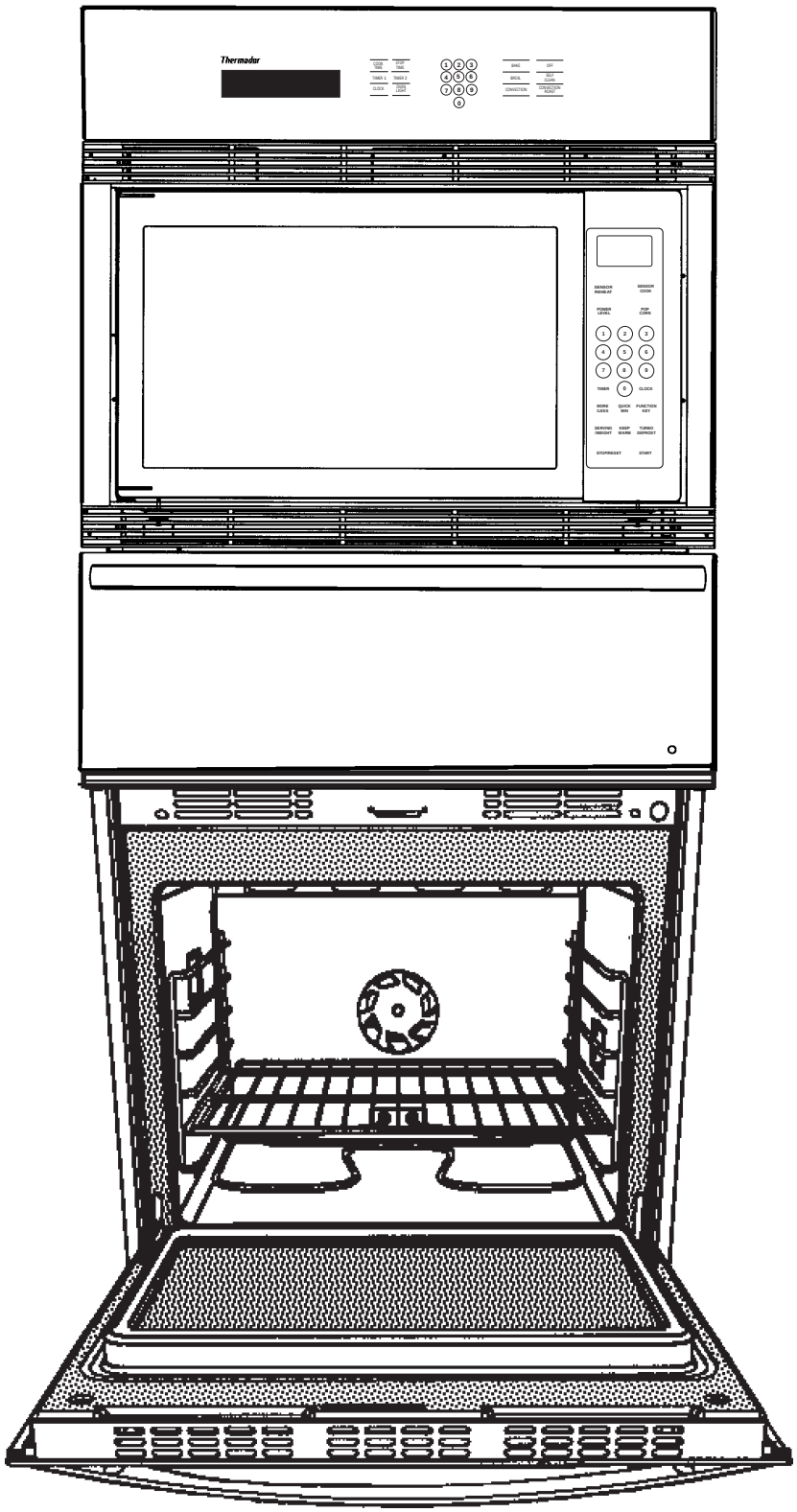
Figure 5.



TEMPURATURE HEAT SETTINGS

LOW (140°F) MED (170°F) HIGH (210°F)

Lower Oven Section



SYMBOLS YOU WILL SEE IN THE MANUAL

The following symbols are provided throughout this manual. For reasons of personal safety and proper operation and servicing of the oven, follow the instructions carefully each time you see one of the symbols.

⚠ WARNING

This symbol alerts you to such dangers as personal injury, burns, fire, and electrical shock.

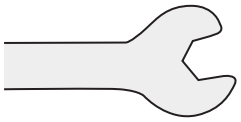
⚠ CAUTION

This symbol alerts you to actions that could cause product damage (scratches, dents, etc.), and damage to your personal property.

⚠ WARNING

Be sure to turn off all electrical supplies to the oven before servicing; otherwise, a fire may result causing property damage, personal injury, or death.

TECH TIP!!

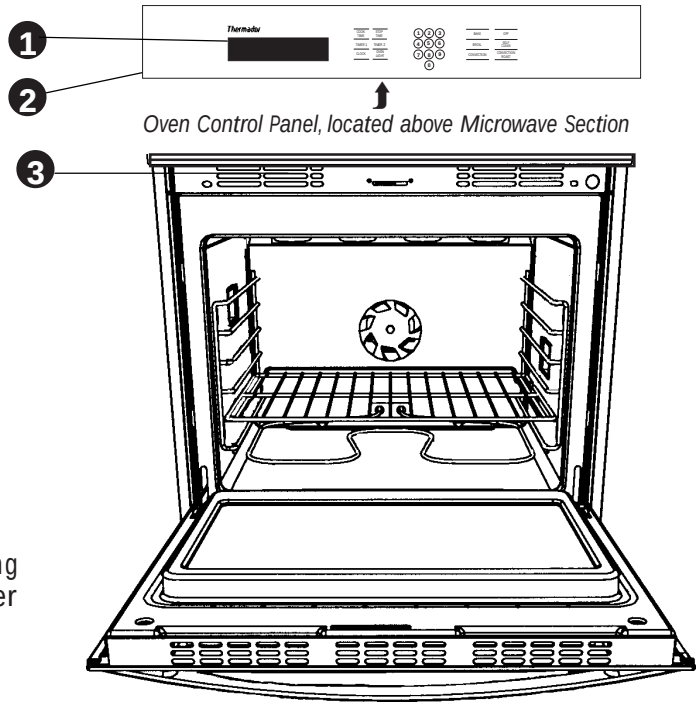


This symbol alerts you to a service tip or a special procedure.

THERMADOR ASSUMES NO RESPONSIBILITY FOR ANY REPAIRS MADE ON OUR PRODUCTS BY ANYONE OTHER THAN AUTHORIZED THERMADOR SERVICE TECHNICIANS.

SERIAL NUMBER/DATA STICKER LOCATION

Figure 6.



1. Display Window
2. Control Panel
3. Data Plate showing model and serial number

REMOVING THE BAKE & BROIL ELEMENTS, CATALYST

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

1. Turn off the electrical power to the oven.
2. To make servicing easier, remove the oven door (see Page 57).
3. Remove the racks from the oven.
4. **To remove the bake element (see Figure 6, Page 39):**
   a) Remove the screws from the bake element brackets on the back of the oven liner.
   b) Pull the bake element forward so you can access the wires, then tie a 12″ piece of string around each of the wire connectors so you can retrieve the wires if they should slide back inside the liner.
   c) Disconnect the wires from the bake element terminals.
   d) Connect the wires to the terminals of the new bake element, remove the string, and mount the element to the liner with its screws. **NOTE:** Do not allow the wires to "bunch up" inside the insulation material when pushing them into the liner holes.
5. **To remove the broil element (see Figure 7, Page 39):**
   a) Remove the screws from the broil element brackets on the rear of the oven liner, and the screws from the two top front brackets of the element. Then, remove the four screws from the shield, lower the broil element, and pull it forward.
   b) Tie a 12″ piece of string around each of the wire connectors so you can retrieve the wires if they should slide back inside the liner.
   c) Disconnect the wires from the broil element terminals.
   d) Connect the wires to the terminals of the new broil element, remove the string, and mount the element to the liner with its mounting screws. **NOTE:** Do not allow the wires to "bunch up" inside the insulation material when pushing them into the liner holes.
6. **To remove the catalyst (see Figure 8):**
   a) Remove the screws and pull it out of the oven cutout.
   b) Install the new catalyst.
7. Reassemble the oven.

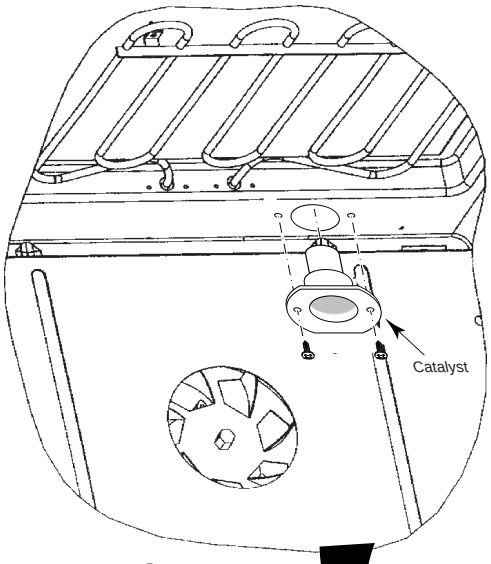
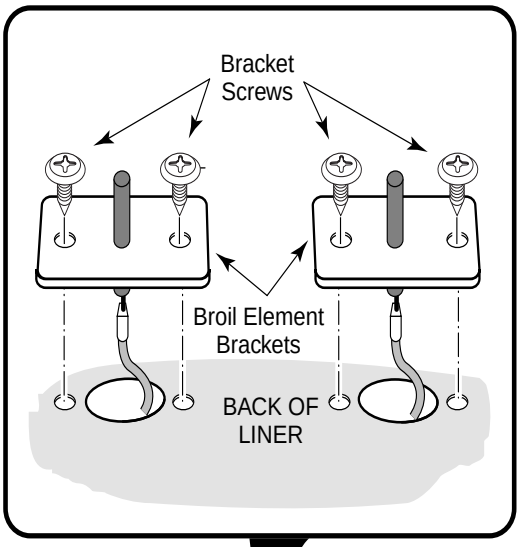


Figure 8



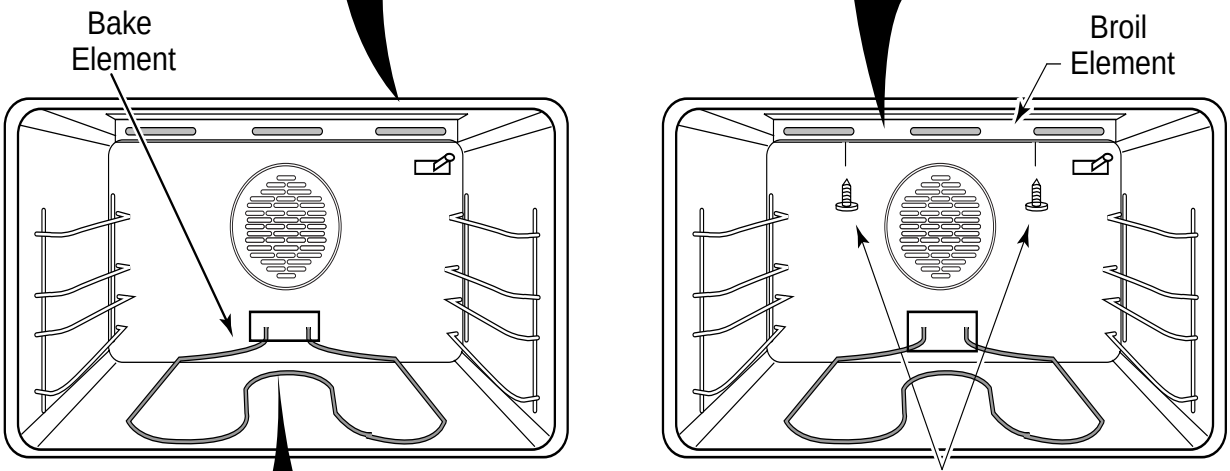


Figure 7

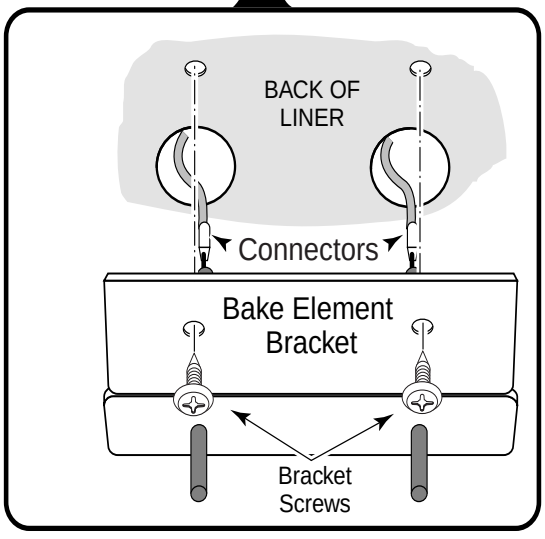


Figure 6

REMOVING THE OVEN TEMPERATURE SENSOR

⚠ WARNING

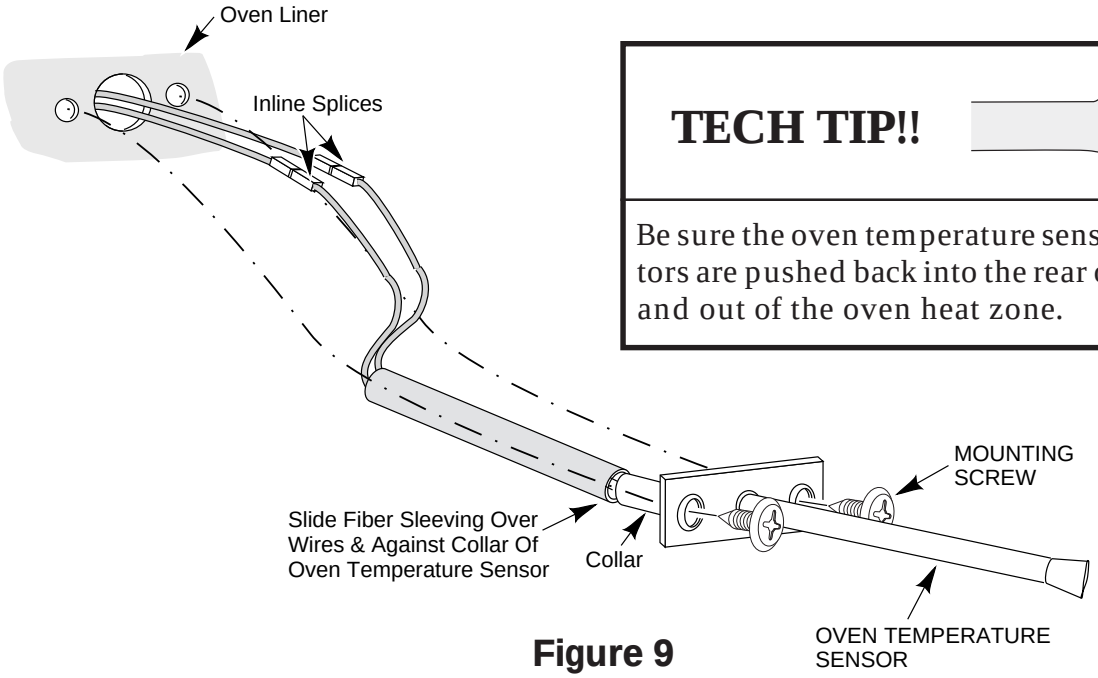
Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

Refer to Figure 9 for the following steps.

1. Turn off the electrical power to the oven.
2. To make servicing easier, remove the oven door (see Page 57).
3. Remove the racks from the oven.
4. Remove the screws from the bracket and pull the oven temperature sensor forward until the wire connectors are through the opening.
5. Cut the inline splices from the oven temperature sensor and main harness wires.
6. Connect the wires from the new oven temperature sensor to the main harness wires with two red inline splices. After you connect the wires, pull on them to make sure that the inline splices are secure.
7. Use a screwdriver and push the wires into the back of the oven as far as they will go, then install the oven temperature sensor in the oven liner with its two screws.
8. Reassemble the oven.



TECH TIP!!

Be sure the oven temperature sensor connectors are pushed back into the rear of the oven and out of the oven heat zone.

Figure 9

REMOVING THE CONVECTION BAKE ELEMENT

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

Refer to Figure 10 for the following steps.

1. Turn off the electrical power to the oven.
2. To make servicing easier, remove the oven door (see Page 57).
3. Remove the racks from the oven.
4. Remove the front screws from the left and right oven rack supports and remove the supports from the oven liner.
5. Remove the screws from the convection baffle and remove the baffle from the back of the oven liner.
6. Remove the screws from the convection bake element bracket and the screw from the bottom support and pull the element forward, then disconnect the wires from the terminals.
7. Install the new convection bake element and connect the wires to the terminals.
8. Reassemble the oven.

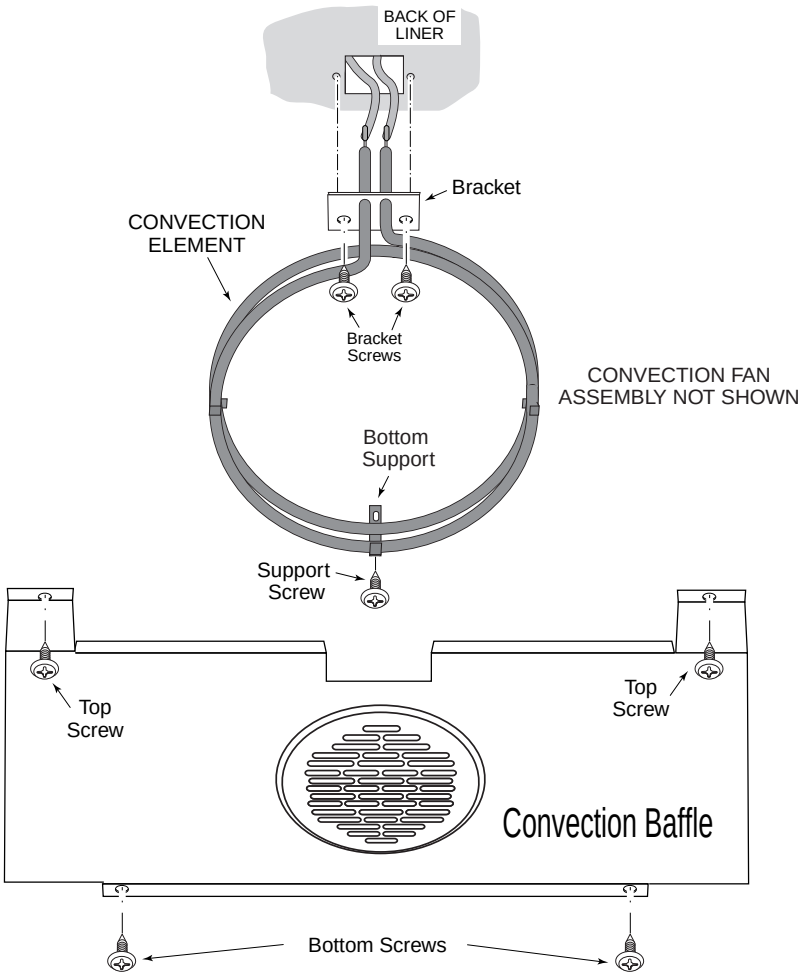


Figure 10

REMOVING A CONVECTION FAN MOTOR

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

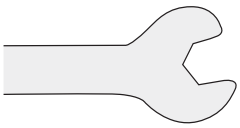
⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

Refer to Figure 11 for the following steps.

1. Turn off the electrical power to the oven.
2. To make servicing easier, remove the oven door (see Page 57).
3. Remove the racks from the oven.
4. Remove the front screws from the left and right oven rack supports and remove the supports from the oven liner.
5. Remove the screws from the convection baffle and remove the baffle from the back of the oven liner.
6. Remove the hex nut from the front of the convection blade. NOTE: The nut has left-rotating threads.

TECH TIP!!



The convection blade hex nut has left-rotating threads.

7. Remove the flat washer and e-ring from the convection blade and remove the blade from the motor shaft.
8. Remove the screws from the pan and remove the pan.
9. Remove the motor screws from the bracket and remove the motor from the bracket.
10. Disconnect the two wires from the fan motor terminals.
11. Connect the brown wire (#45) to the right terminal of the new convection fan motor, and the white wire (#44) to the left terminal, then install the motor assembly.
12. Reassemble the oven.

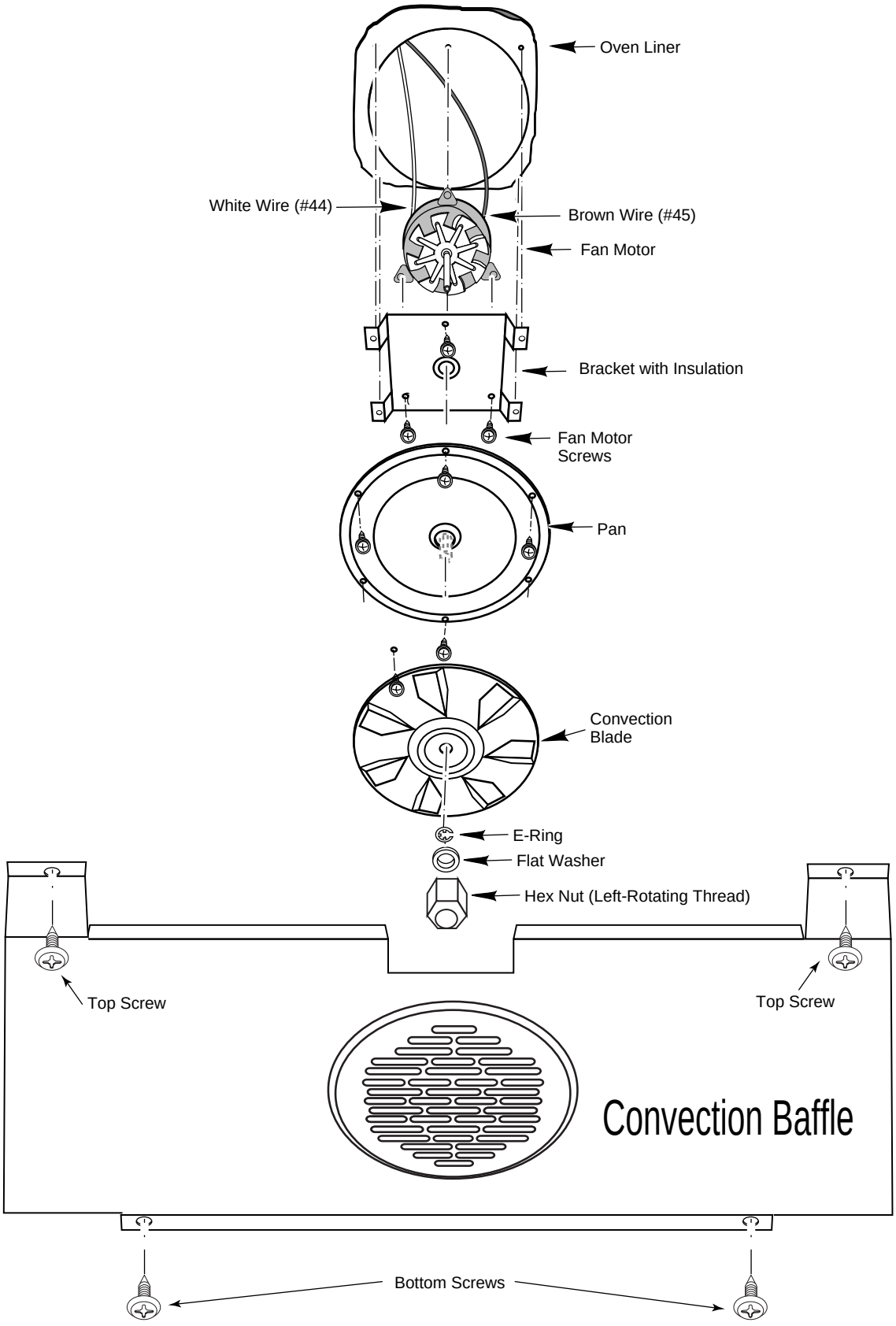

Oven Liner
White Wire (#44)
Brown Wire (#45)
Fan Motor
Bracket with Insulation
Fan Motor Screws
Pan
Convection Blade
E-Ring
Flat Washer
Hex Nut (Left-Rotating Thread)
Top Screw
Top Screw
Convection Baffle
Bottom Screws

Figure 11

REMOVING A HALOGEN LAMP HOLDER

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

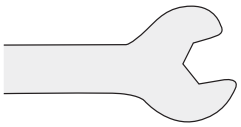
Refer to Figure 12 for the following steps.

1. Turn off the electrical power to the oven.
2. Remove the oven racks.
3. Remove the oven rack support for the halogen lamp holder you are removing.

CAUTION: Make sure that the halogen bulb is cool before you remove it in the next step.

4. Pull the lamp cover out of the halogen lamp holder and remove the bulb.
5. Pry the lamp holder out of the oven liner and cut the wires approximately 2" from the lamp holder body. **CAUTION: Be careful not to chip or scratch the oven liner when you pry the lamp holder out of the cut-out.**
6. Cut the plug off the new lamp holder.
7. Connect the cut wires to the new lamp holder with two red inline splices. After you connect the wires, pull on them to make sure that the inline splices are secure.
8. Gently pull the lamp holder wires up into the plenum area until you can see the red wire splices in the plenum area.
9. Reassemble the oven.

TECH TIP!!



Make sure that the two red inline splices are in the top plenum area and not in the oven heat zone.

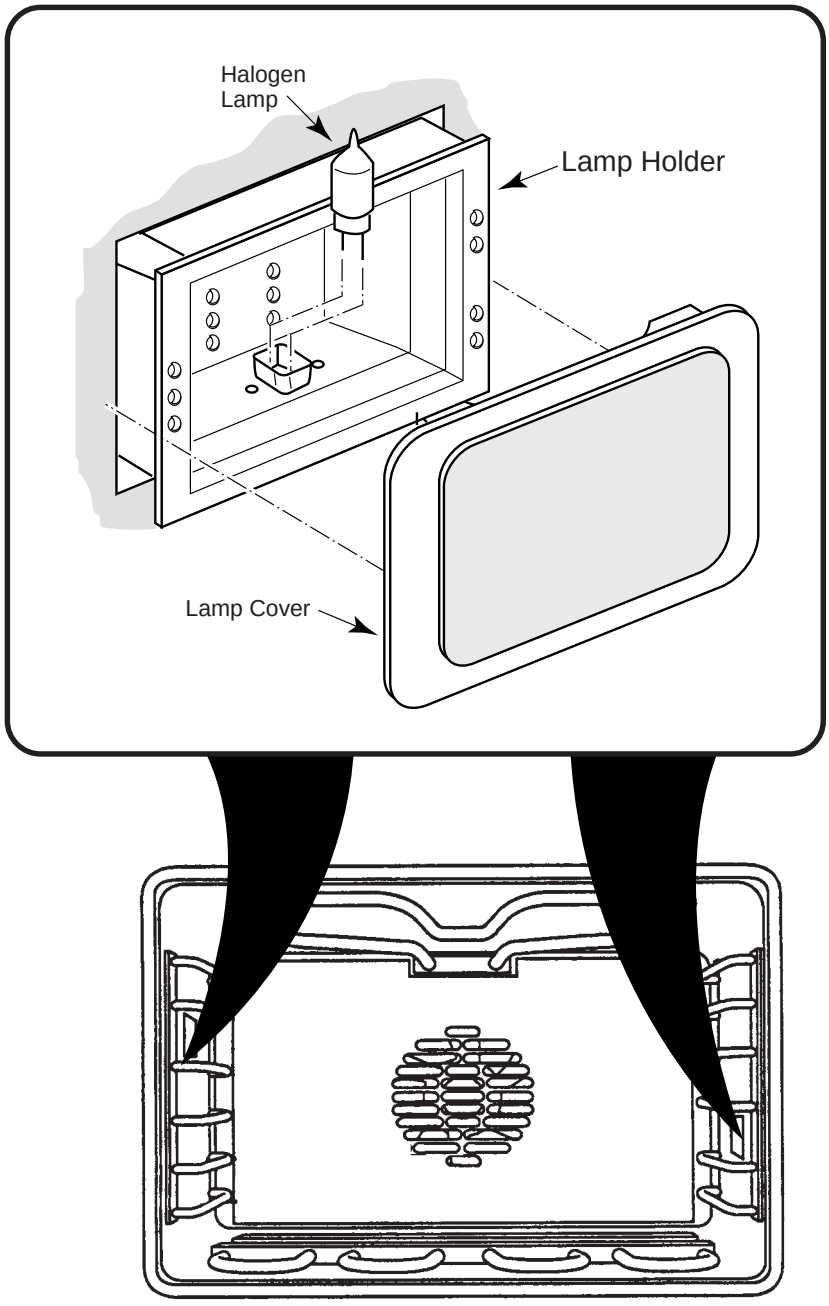


Figure 12

REMOVING THE CONTROL PANEL & DISPLAY HEAD

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

Refer to Figure 13 for the following steps.

1. Turn off the electrical power to the oven.
2. Open the upper oven door.
3. **To remove the control panel:**
   a) Remove the two bottom end screws from the control panel frame.

IMPORTANT: To prevent pulling 4-wire connector P2 from the control panel plug in the next step, support the control panel with both hands.

   b) Using both hands, pull the top of the control panel forward and unsnap the posts on both sides of the panel from the catches in the subpanel (see inset 1).
   c) Being careful not to bend the pins, grasp the ribbon cable connector, (not the ribbon cable), and pull it off the circuit board pins (see inset 2).
   d) Unplug the 4-wire connector from the circuit board connector (see inset 3).
4. **To remove the display head (see inset 4):**
   a) Remove the three screws from the plastic frame and pull the display forward.

IMPORTANT: Ribbon cable J3 is not indexed. Note the orientation before you disconnect it in the next step so that you can position it the same way when you reconnect it.

   b) Pull up on the end tabs of the locking strip and remove the ribbon cable from its connector at J3.
   c) Disconnect connectors J1 and J2.
5. Install the replacement control panel or display head.
6. Reassemble the oven

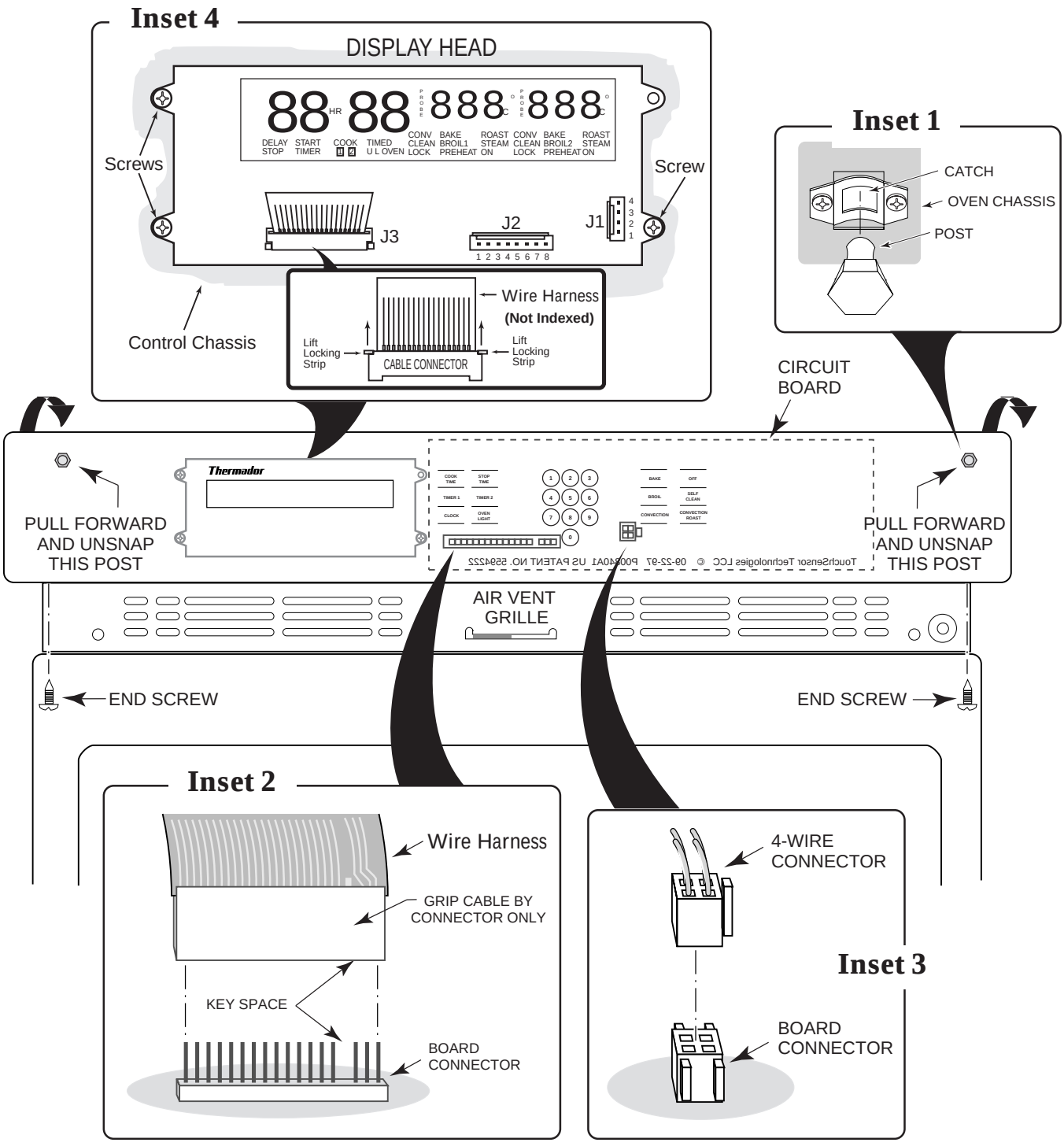

Inset 4
DISPLAY HEAD
Screws
Screw
J3
J2
J1
Control Chassis
Wire Harness
(Not Indexed)
Lift Locking Strip
CABLE CONNECTOR
Lift Locking Strip
Inset 1
CATCH
OVEN CHASSIS
POST
CIRCUIT BOARD
PULL FORWARD AND UNSNAP THIS POST
PULL FORWARD AND UNSNAP THIS POST
AIR VENT GRILLE
END SCREW
END SCREW
Inset 2
Wire Harness
GRIP CABLE BY CONNECTOR ONLY
KEY SPACE
BOARD CONNECTOR
4-WIRE CONNECTOR
Inset 3
BOARD CONNECTOR

Figure 13

REMOVING THE OVEN LIGHT SWITCH, THE OVEN DOOR LATCH ASSEMBLY, & THE HI-TEMP CUTOUT

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

Refer to Figure 15 on the next page for the following steps.

1. Turn off the electrical power to the oven.
2. Open the oven door for the component you wish to remove.
3. **To remove the lower air vent grille,** remove the two front oven door latch screws, (see Figure 14), then pull the posts on the ends of the air vent grille out of the catches in the chassis.
4. **To remove the oven light switch,** disconnect the wires from the terminals, press in on the locking arms, and push the switch out of the vent (see inset 1).
5. **To remove the oven door latch assembly (see inset 2):**
   a) Use a 1/4″ ratchet and a 1/4″ thin-wall socket and remove the two front hex-head screws from the latch bracket.
   b) Pull the latch assembly to the right so that the flange on the left side clears the bracket, and then pull it forward as far as the wires will allow.
   c) Remove the wires from the switch connectors and the motor wires from the main harness.
   d) **To replace a door lock or door unlock switch on the latch assembly,** remove the two screws from the switch body, and remove the switch.
6. **To remove the hi-temp cutout (see inset 3):**
   a) Remove the two 1/4″ hex-head screws from the bracket.
   b) Remove the hi-temp cutout and disconnect the wires.
7. Install the replacement component.
8. Reassemble the oven.

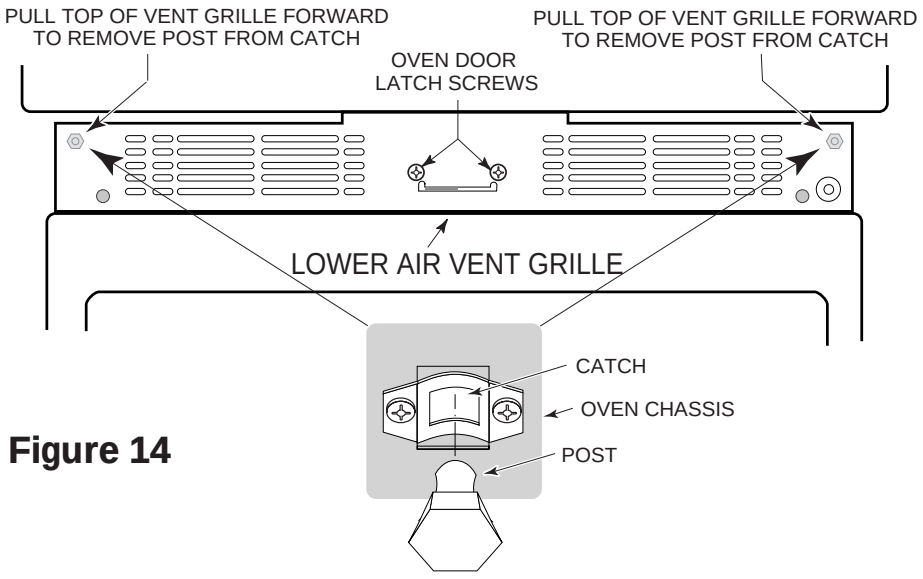


Figure 14

TECH TIP!!

You will need the following tools to remove the components:

- 1/4" ratchet
- 1/4" thin-wall socket
- #2 Phillips Offset Screwdriver

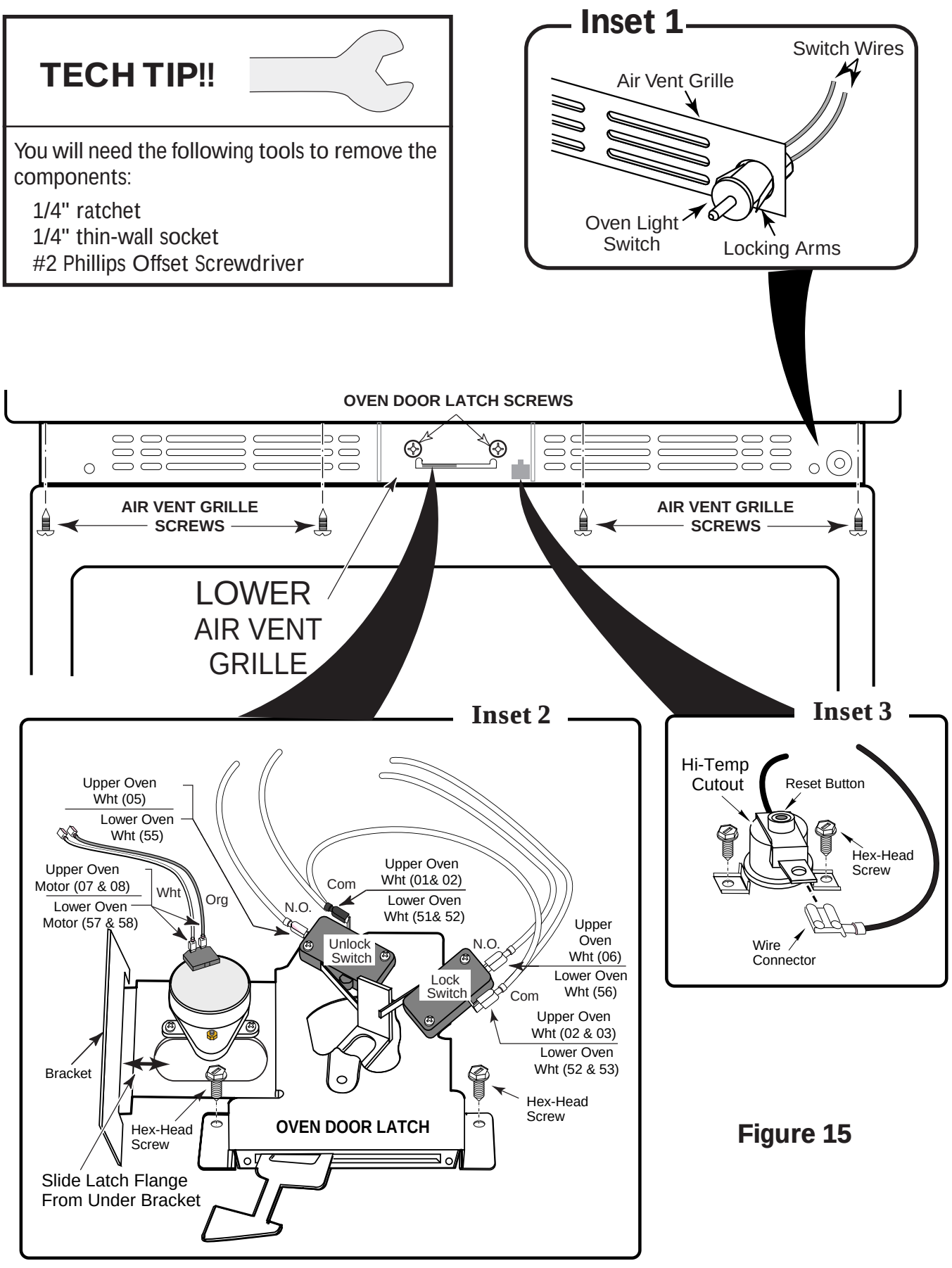


Figure 15

REMOVING A RELAY BOARD

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

⚠ CAUTION

The Oven Relay Boards are subject to failure if static electricity is transferred to the solid state components during handling. The replacement boards are packaged in antistatic bags. When removing the boards from their bags, use a grounding strap, or touch a grounded metal surface (appliance chassis) prior to handling the boards. When you handle a board, handle it by the edges of the plastic frame. DO NOT TOUCH the connector pins or the microprocessor chip.

IMPORTANT NOTE: Repack the old boards in the antistatic bags before returning them to a parts distributor.

Refer to Figure 16 below, and Figure 17 on the next page, for the following steps.

1. Turn off the electrical power to the oven.
2. Open the upper oven door.
3. Remove the control panel and display head from the oven (see Pages ?? and ?? for the procedure).
4. Remove the front subpanel (see Figure 16).
5. Remove the wiring from the relay board (see Figure 17).
6. Remove the screw from the board holder, slide the holder to the right to unhook it from the slot in the chassis, and remove the board and holder.

TECH TIP!!

The board and holder comes as an assembly. **DO NOT** remove the relay boards from their holders.

7. Install the new relay board and holder and reconnect the wiring.
8. Reassemble the oven.

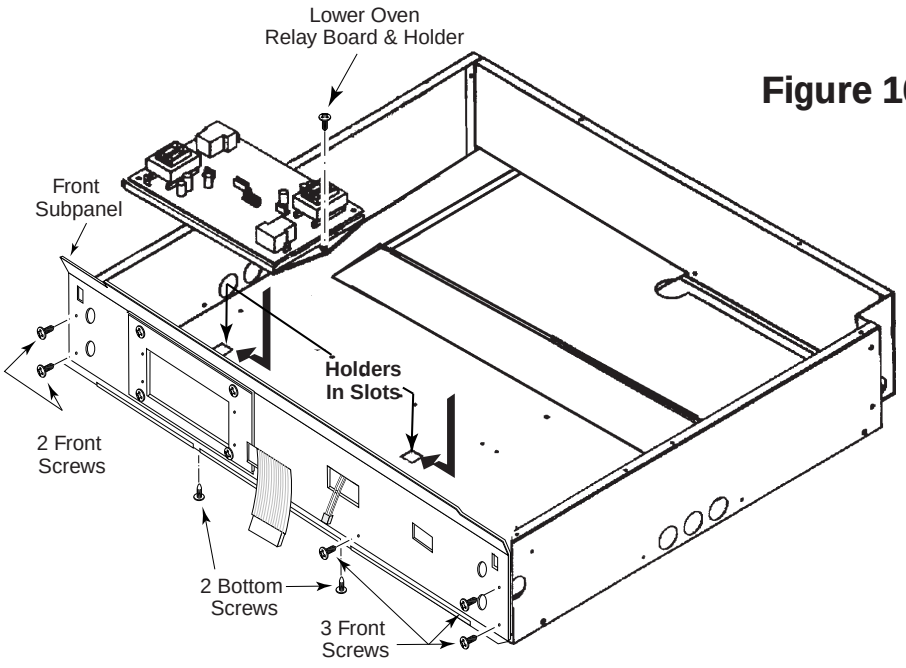


Figure 16

Lower Oven Relay Board

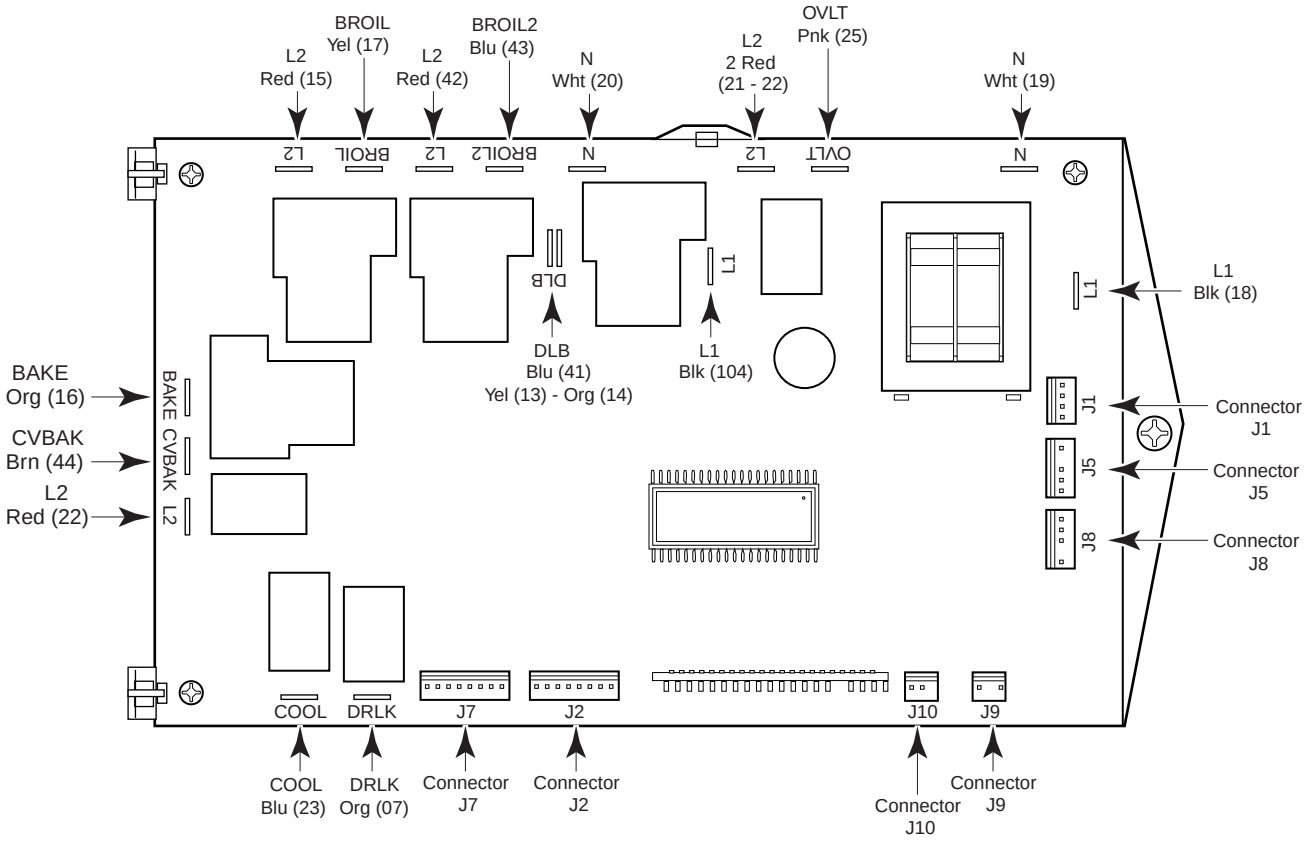


Figure 17

REMOVING THE AIR SWITCH

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

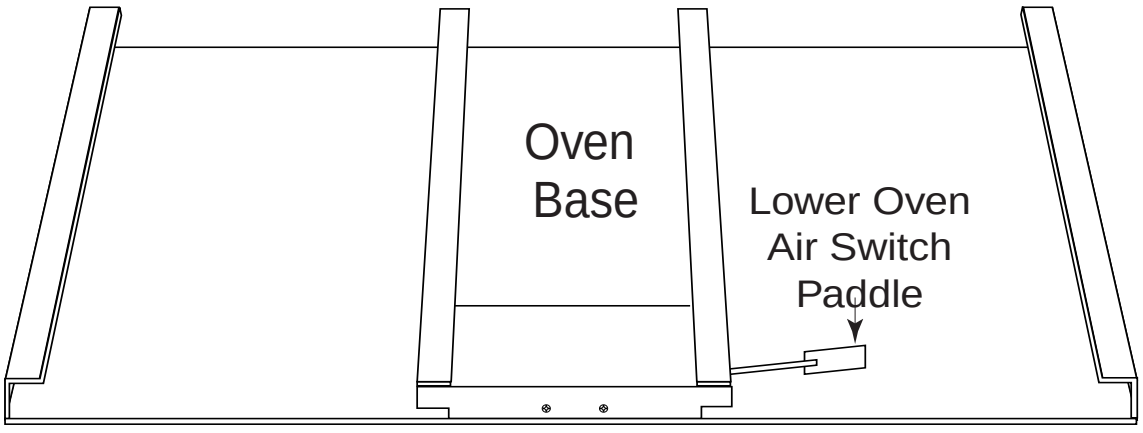
When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

NOTE: The air flow to the air switch in the lower oven base compartment of all 27" S-Series ovens has been improved with the addition of an air diverter (#16-10-101). The new air diverter is located on the right side of the lower oven base compartment (see Figure 18 below).

Refer to Figure 19 on the next page for the following steps.

1. Turn off the electrical power to the oven.
2. Open the lower oven door. The bottom trim mounting screws (see inset 1) are visible at each side of the oven door, below the left and right hinges.
3. Remove the two screws from the bottom trim, pull it forward, and remove it.
4. Remove the two front switches from the air switch bracket and flange, and pull the air switch bracket assembly forward so you can access the switches (see inset 2).
5. To remove an air switch from the bracket, remove the two screws from the switch body, and disconnect the wires from the terminals (see inset 3).
6. Install the new air switch in the mounting bracket.
7. If you intend to install the air switch diverter, do so at this time. Make sure that the spacing between the air switch paddle and the end of the diverter is as shown below.
8. Reassemble the oven.

Figure 18



NOTE: After mounting the air diverter, bend the arm, as necessary, so that the space between the air switch paddle and the end of the arm is as shown.

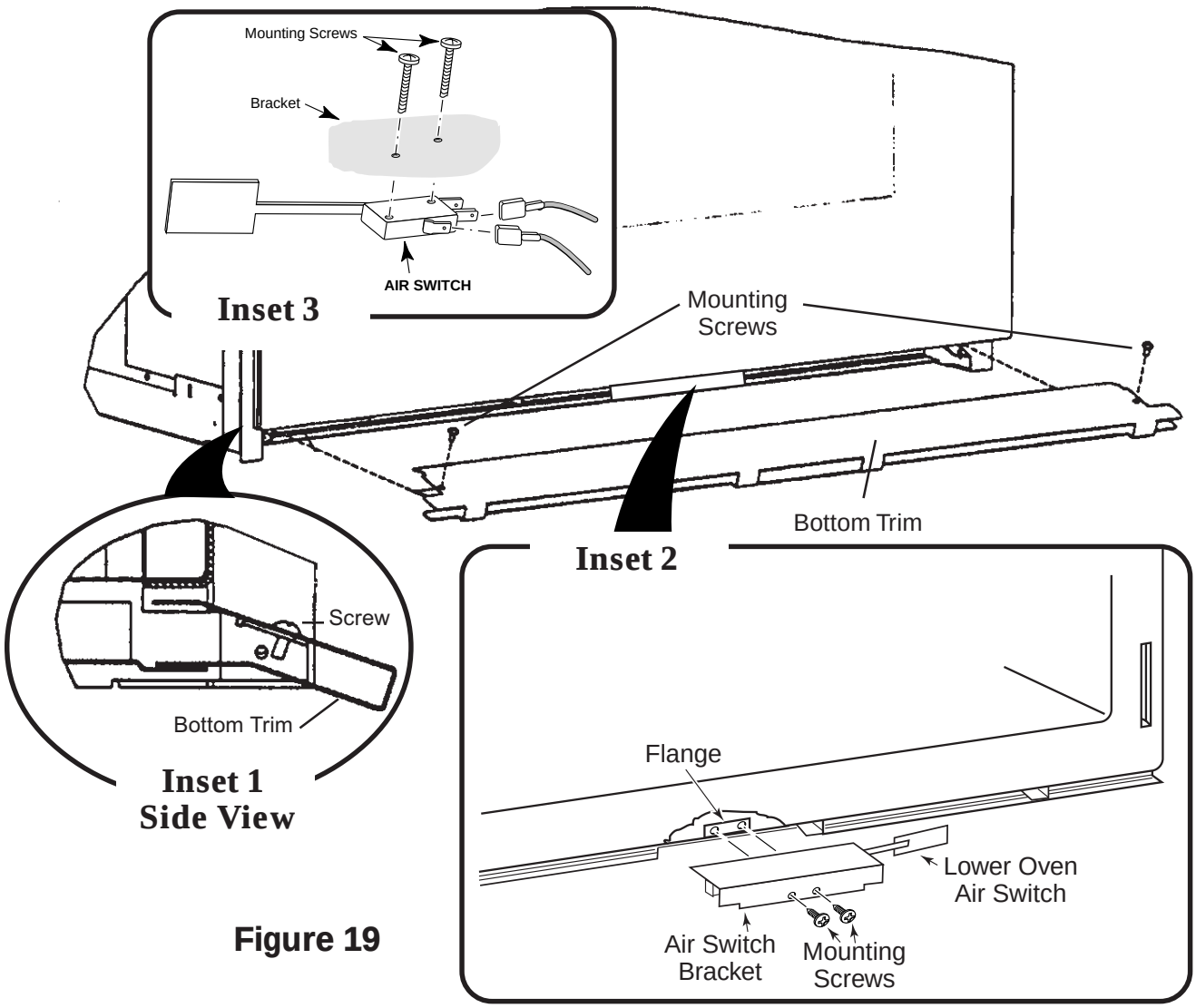

Mounting Screws
Bracket
AIR SWITCH
Inset 3
Mounting Screws
Bottom Trim
Inset 2
Screw
Bottom Trim
Inset 1
Side View
Flange
Lower Oven Air Switch
Air Switch Bracket
Mounting Screws

Figure 19

REMOVING A BLOWER

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

1. Turn off the electrical power to the oven.
2. To make servicing easier, remove the oven door (see Page 57).
3. **To remove the lower blower (see Figure 20):**
   a) Remove the oven from the wall.
   b) Remove the rear panel from the oven.
   c) Remove the four bracket screws (1,2,6, & 7) from the back of the oven.
   d) Remove the three blower screws (3, 4, & 5) from the bracket and remove the motor.
   e) Loosen the wire ties and remove the two motor wires from the rest of the wire harness.
   f) Install the new blower in the mounting bracket, mount the assembly to the back of the oven, and connect the wires.
   g) Install the motor wires in the wire harness ties with the rest of the wires and dress them neatly.
4. Reassemble the oven.

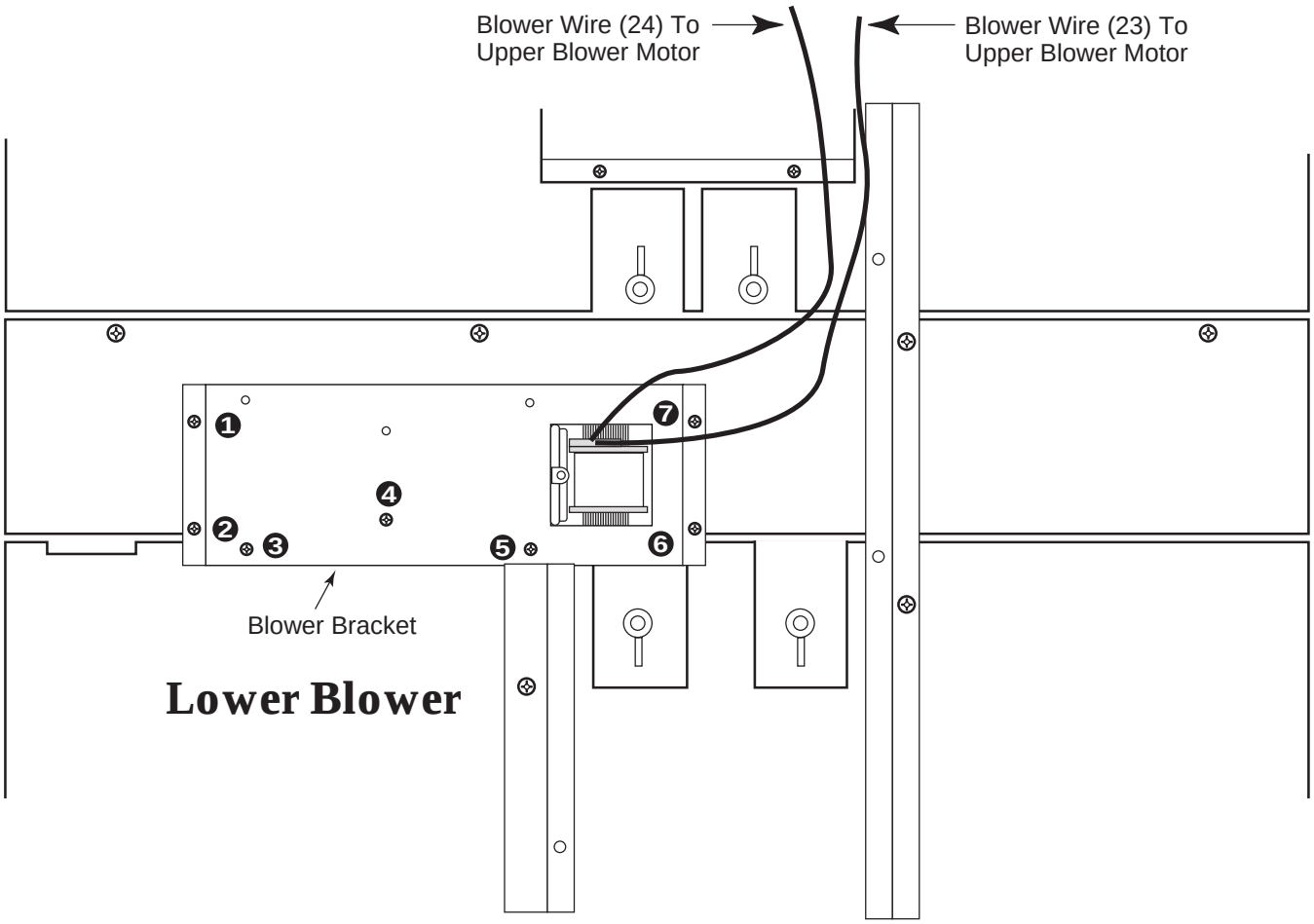

Blower Wire (24) To
Upper Blower Motor
Blower Wire (23) To
Upper Blower Motor
1
2
3
4
5
6
7
Blower Bracket
Lower Blower

Figure 20

REMOVING THE LAMP TRANSFORMER & THE LOWER OVEN STALLED FAN RELAY

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

1. Turn off the electrical power to the oven.
2. Open the upper oven door.
3. Remove the control panel and display head (see Pages 46 and 47 for the procedure).
4. Remove the front subpanel.
5. **To remove the lamp transformer (see Figure 21):**
   a) Remove the screws and disconnect the wires from the terminals.
   b) Install the new lamp transformer and reconnect the wiring.

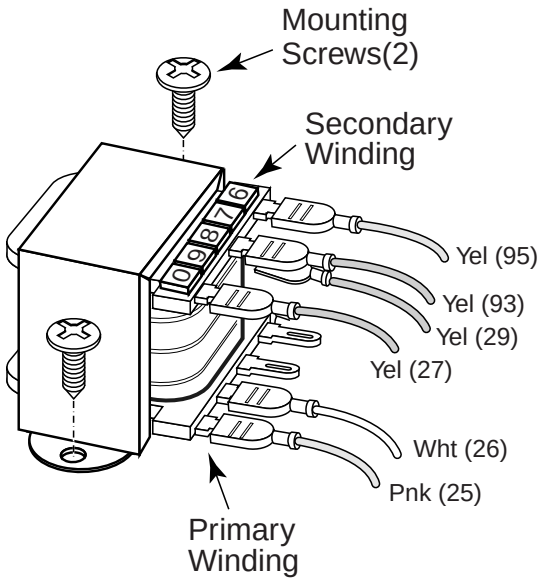


Figure 21

6. **To remove an oven stalled fan relay (see Figure 22):**
   a) Remove the screws and disconnect the wires from the relay terminals.
   b) Install the new oven stalled fan relay with the terminals positioned as shown and reconnect the wiring.

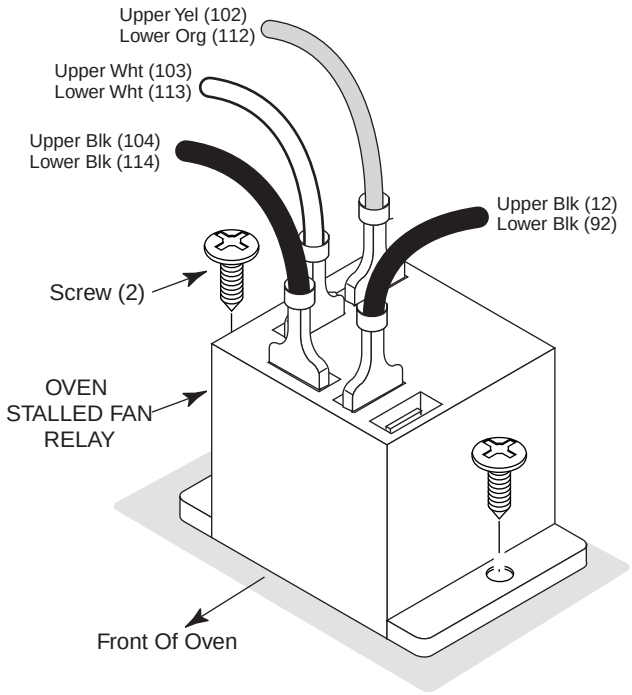


Figure 22

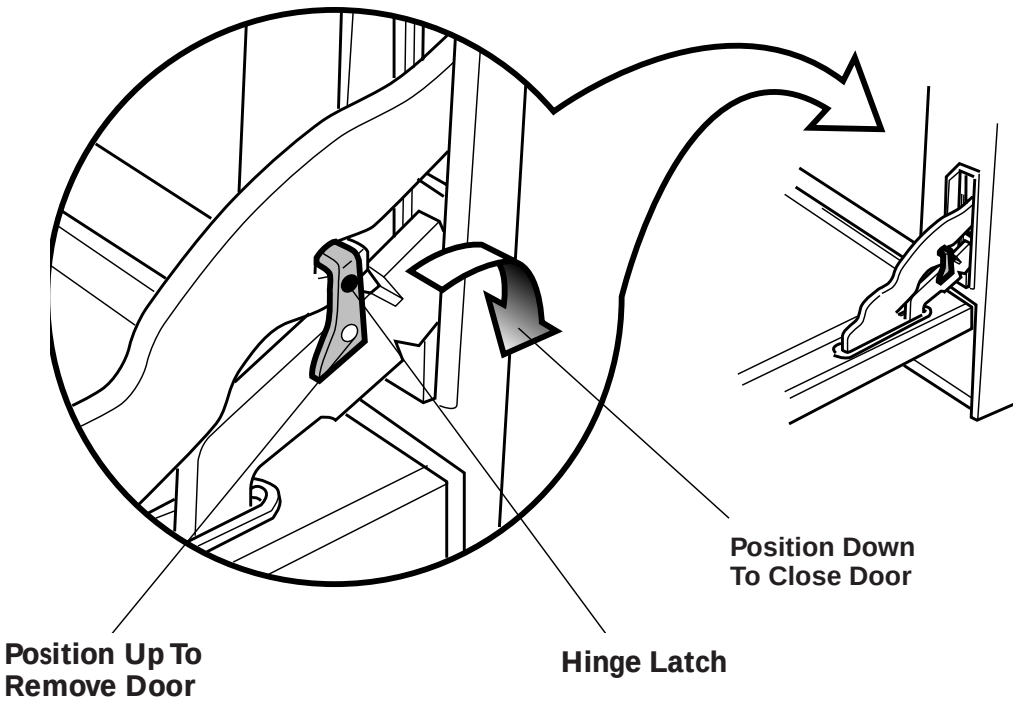
7. Reassemble the oven.

REMOVING AN OVEN DOOR

Refer to Figure 30 for the following steps.

1. Open the door to its fully open position.
2. Raise the hinge latch over the hook on each of the hinges.
3. **To remove the door:**
   a) Grasp the door by the sides toward the back and raise the front of the door several inches (there will be some resistance in the spring mechanism because the hinge is locked).
   b) When the door is high enough, lift it until the hinges clear the indents, and pull it out of the slots in the front frame.

Figure 23



REMOVING THE OVEN DOOR GASKET

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

CAUTION: Before you replace the fiberglass gasket on the oven door, make sure that the oven control is turned OFF, and that the oven is cool.

Refer to Figure 24 for the following steps.

1. Open the oven door to its fully open position.
2. Pull the ends of the old gasket out of the holes in the door (see inset 1 on the illustration).
3. Working from one end of the gasket to the other, carefully pull the clips that are attached to the gasket out of the holes in the oven door (see inset 2 on the illustration).
4. Position the new fiberglass gasket around the oven door so that the clips are near the holes.
5. Working from one end of the gasket to the other, insert the gasket clips into the holes in the oven door. NOTE: Once inserted, gently pull on the clip to make sure that it is locked into place.
6. Using the eraser end of a pencil, push the ends of the gasket fully into the holes in the oven door.
7. Check the entire gasket to make sure that all of the clips are properly inserted, and that it is flush and even with the surface of the door.
8. Close the oven door and check to make sure that the gasket fits firmly and evenly with the front of the oven.

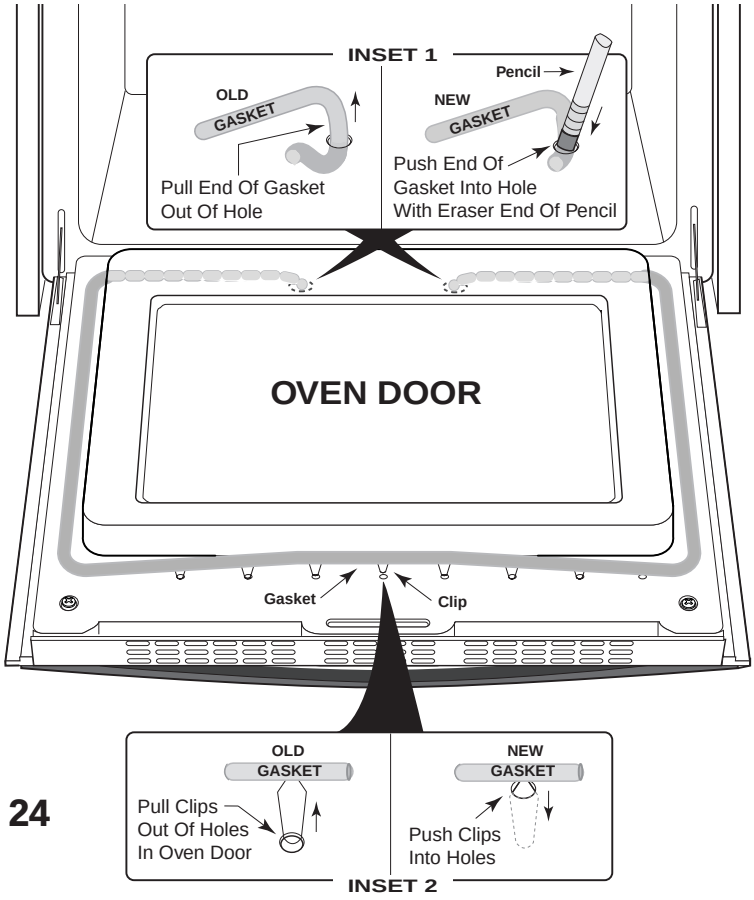


Figure 24

REMOVING THE OVEN DOOR COMPONENTS

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

1. To remove any of the oven door components, remove the oven door from the oven (see Page 57).
2. Refer to Figure 25 as you remove the door components. The illustration shows the order of removal.

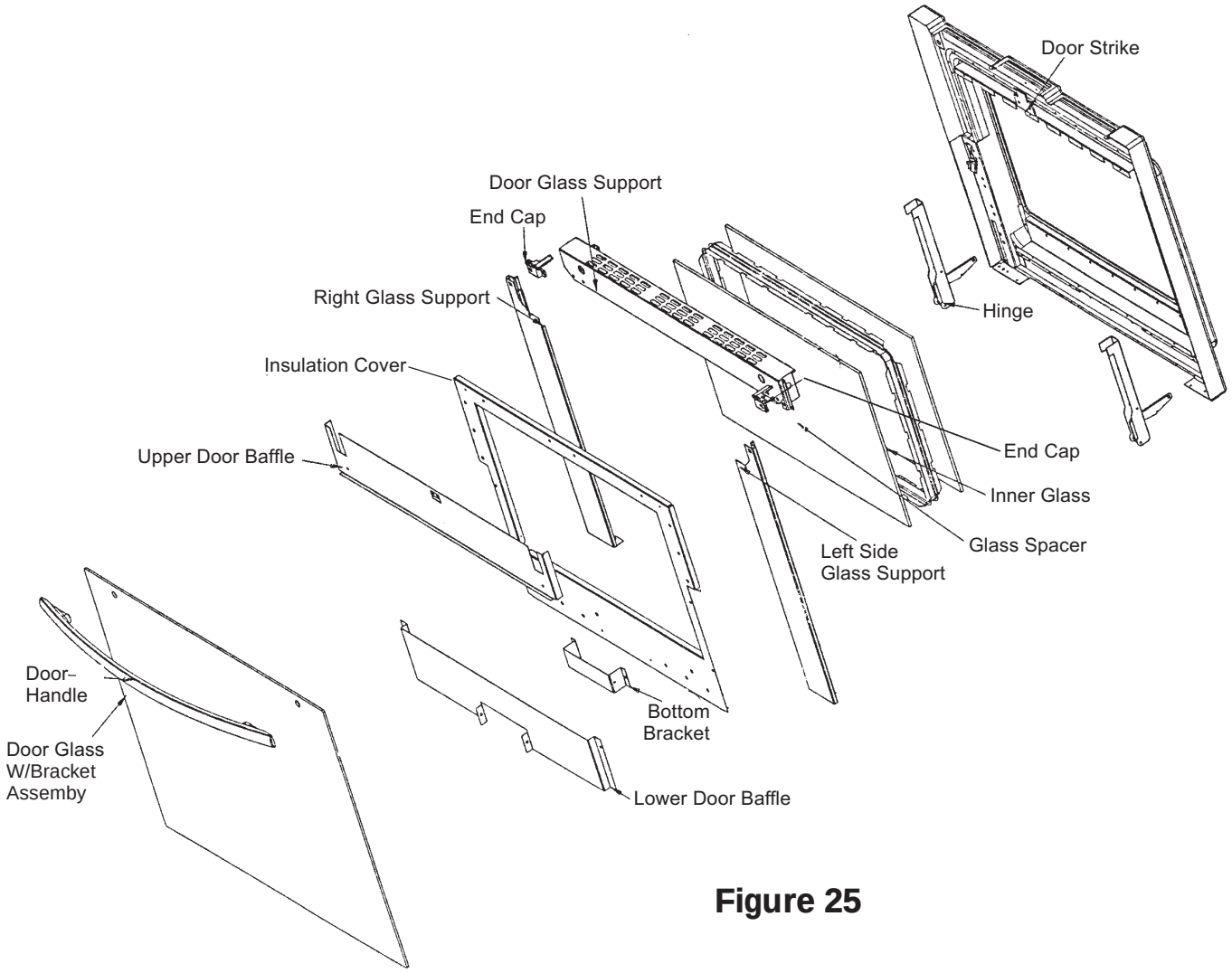


Figure 25

REMOVING THE LOWER OVEN MODULE

(27") Convection Kit—#35-00-661

⚠ WARNING

Turn off the electrical power circuit to the oven at the main junction box before servicing this unit.

⚠ CAUTION

When you work on the oven, be careful when handling the sheet metal parts. There are sharp edges present and you can cut yourself if you are not careful.

1. Turn off the electrical power to the oven.
2. To make servicing easier, remove the oven door (see Page 57).
3. Remove the oven from the wall.
4. Remove the components from the oven, shown in Figure 26. Refer to the sections in this manual for the procedures on removing the components.
5. With all of the oven components removed, remove the six screws (three on each side) from the front sides of the oven can.
6. Pull the oven can forward and remove it.

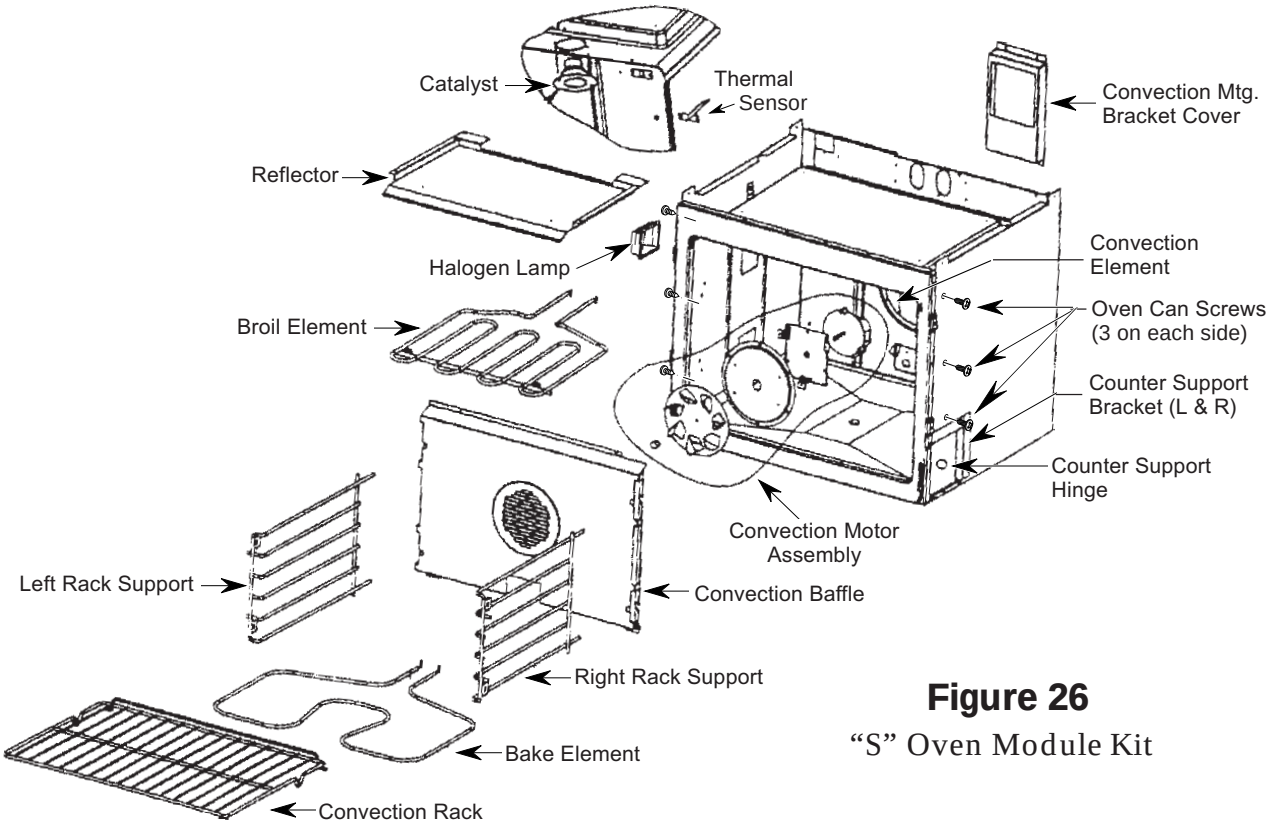


Figure 26
"S" Oven Module Kit

TROUBLESHOOTING

TESTING THE COMPONENTS

⚠ WARNING

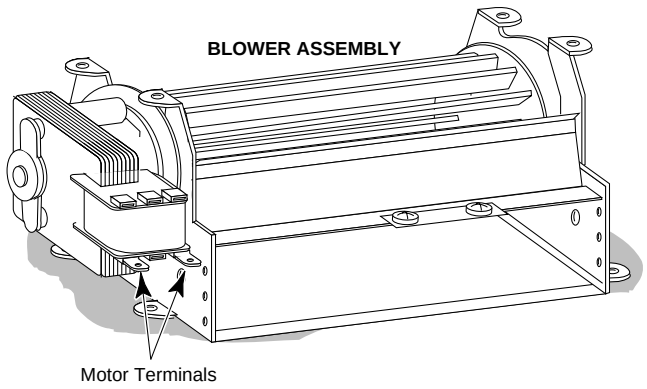
TO AVOID ELECTRICAL SHOCK

- **DISCONNECT THE POWER TO THE APPLIANCE BEFORE SERVICING.**
- **FOR THOSE CHECKS REQUIRING THE USE OF ELECTRICAL POWER, EXERCISE EXTREME CARE.**
- **DO NOT PERFORM HIGH-VOLTAGE TESTS.**

THE BLOWER MOTOR

Refer to Page 54 to access the blower motor.

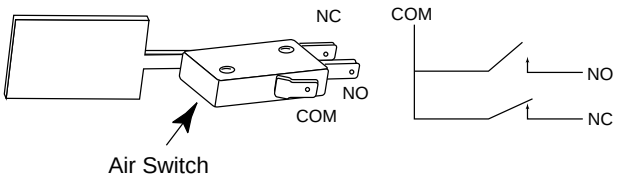
1. With no power applied, disconnect the motor wire connectors from their terminals.
2. Set the ohmmeter to the R x 1 scale.
3. Touch the ohmmeter leads to the motor terminals. The meter should indicate 13 Ω.
4. If the reading is not correct, remove and replace the blower motor.



THE AIR SWITCH

Refer to Page 52 to access the air switch.

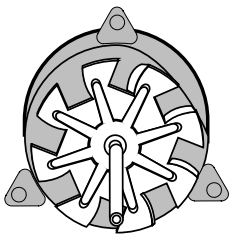
1. With no power applied, remove the wire connectors from the terminals.
2. Set the ohmmeter to the R x 1 scale.
3. Connect one of the ohmmeter leads to the common (C) terminal of the switch (the terminal callouts are stamped on the switch).
4. Touch the free ohmmeter lead to the N.O. (normally-open) switch terminal. The meter should show no continuity with the switch in its normal position, and continuity when it is activated.
5. If the readings are not correct, remove and replace the switch.



THE CONVECTION FAN MOTOR

Refer to Page 42 to access the convection fan motor.

1. With no power applied, disconnect the motor wire connectors from their terminals.
2. Set the ohmmeter to the R x 1 scale.
3. Touch the ohmmeter leads to the motor terminals. The meter should indicate 12 Ω.
4. If the reading is not correct, remove and replace the convection fan motor.

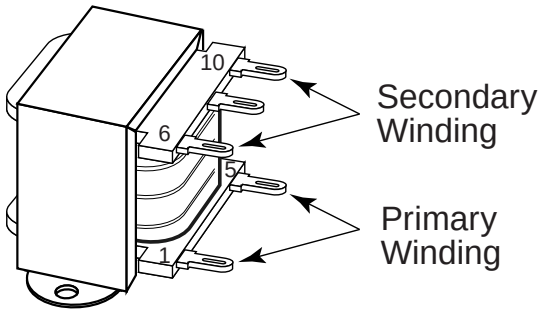


Convection Fan Motor

THE LAMP TRANSFORMER

Refer to Pages 56 to access the lamp transformer.

1. With no power applied, remove the wires from the terminals of the lamp transformer.
2. Set the ohmmeter to the R x 1 scale.
3. Touch the ohmmeter leads to the primary terminals. The meter should indicate 9 Ω.
4. Touch the ohmmeter leads to the secondary terminals. The meter should indicate 2 Ω.
5. If the readings are not correct, remove and replace the lamp transformer.

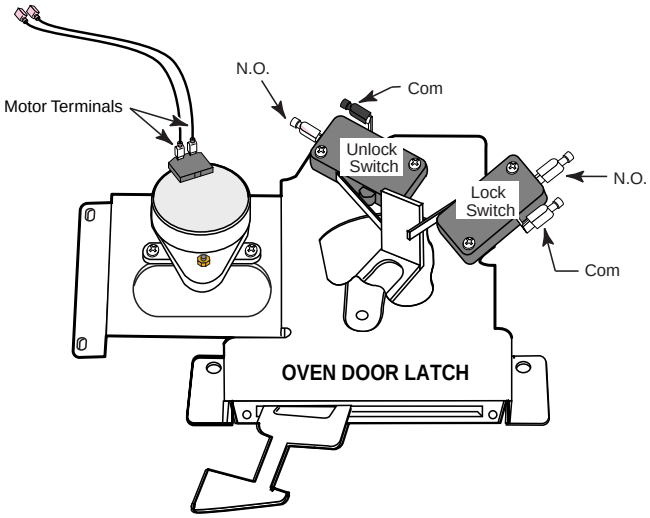


THE OVEN DOOR LATCH ASSEMBLY

The oven door latch locks the oven door during the *CLEAN* cycle (see the illustration at the bottom of the next column for the various latch positions). Refer to Page 57 to access the oven door latch assembly.

To test one of the latch switches:

1. With no power applied, remove the wire connectors from the switch terminals.
2. Set the ohmmeter to the R x 1 scale.
3. Connect one of the ohmmeter leads to the common (C) terminal of the switch.
4. Touch the other ohmmeter lead to the N.O. (normally-open) switch terminal. The meter should indicate no continuity with the switch in its normal position, and continuity when it is activated.



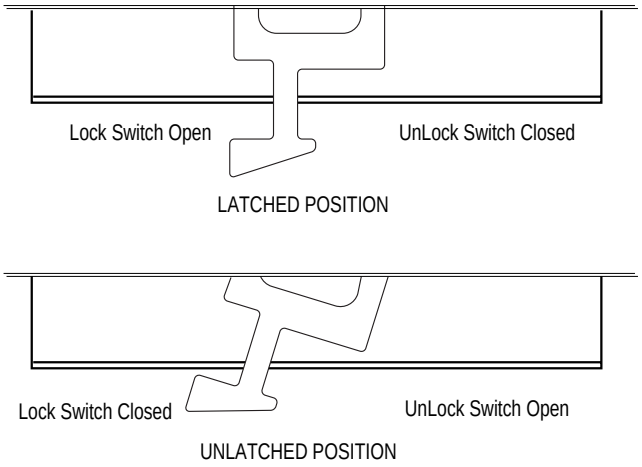
Latch Position	Lock Switch	Unlock Switch
Unlatched	Closed	Open
Latched	Open	Closed

5. If the reading is not correct, remove and replace the switch.

To test the door latch motor windings:

1. With no power applied, disconnect the motor wires from the terminal block and main harness connector.
2. Set the ohmmeter to the R x 100 scale.
3. Touch the ohmmeter leads to the motor wire connectors. The meter should read between 700 Ω and 750 Ω .
4. If the reading is not within this range, remove and replace the door latch assembly.

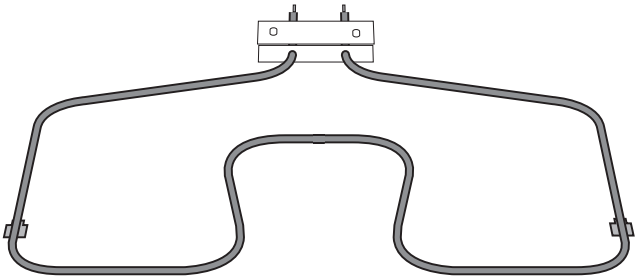
Door Latch Positions



THE BAKE ELEMENT

Refer to Page 38 to access the bake element.

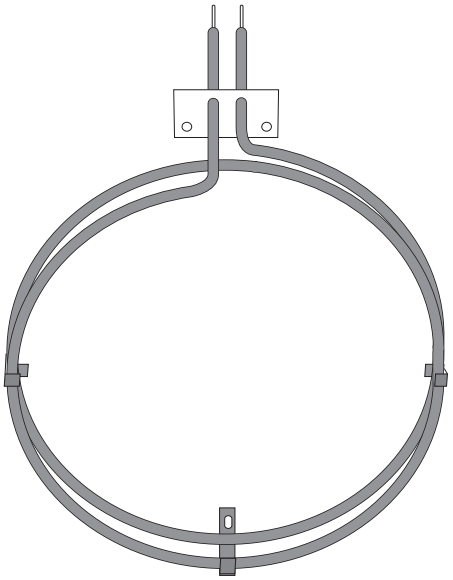
1. With no power applied, remove the wires from the terminals of the bake element.
2. Set the ohmmeter to the R x 1 scale.
3. Touch the ohmmeter leads to the bake element terminals. The meter should indicate 19 Ω (27″ Models).
4. If the reading is not correct, remove and replace the bake element.



THE CONVECTION BAKE ELEMENT

Refer to Page 41 to access the convection bake element.

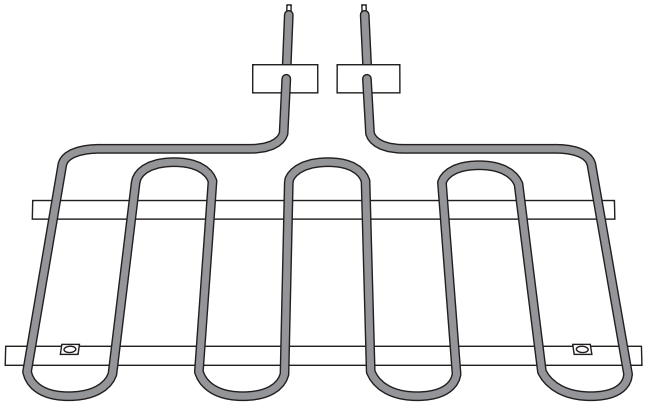
1. With no power applied, remove the wires from the terminals of the convection bake element.
2. Set the ohmmeter to the R x 1 scale.
3. Touch the ohmmeter leads to the convection bake element terminals. The meter should indicate 18 Ω.
4. If the reading is not correct, remove and replace the convection bake element.



THE BROIL ELEMENT

Refer to Page 38 to access the broil element.

1. With no power applied, remove the wires from the terminals of the broil element.
2. Set the ohmmeter to the R x 1 scale.
3. Touch the ohmmeter leads to the broil element terminals. The meter should indicate 15 Ω.
4. If the reading is not correct, remove and replace the broil element.

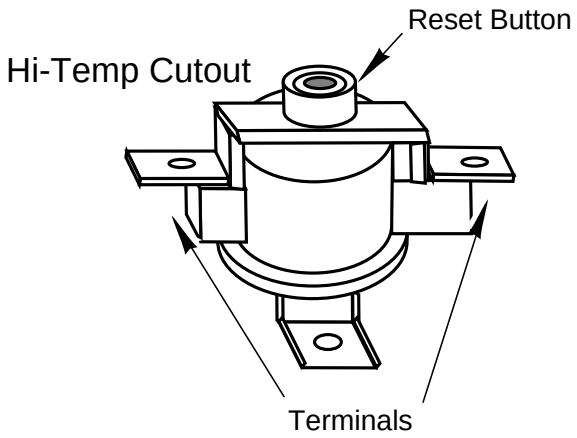


THE HI-TEMP CUTOUT

The hi-temp cutout contacts open at or above 350˚F ±8˚, and are manually reset by pressing the reset button.

Refer to Page 49 to access the hi-temp cutout.

1. With no power applied, remove the wires from the terminals of the hi-temp cutout.
2. Set the ohmmeter to the R x 1 scale.
3. Touch the ohmmeter leads to the terminals. The meter should indicate continuity.
4. If the reading is not correct, remove and replace the hi-temp cutout.



CONNECTORS

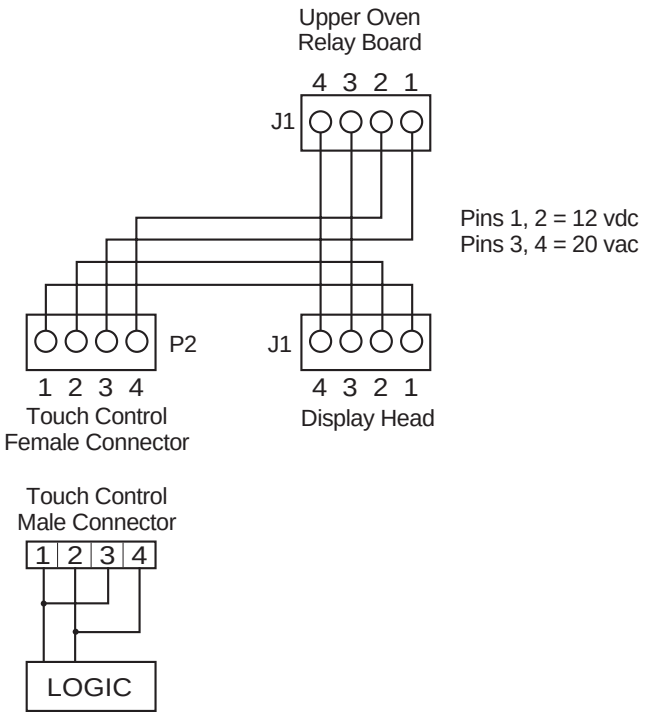
Wire Harness

A ribbon connector is used to connect the touch control board to the display head. The ribbon has eighteen carbon traces (conductors) that transfer the signals from control board connector P1 to display head connector J3 (see the illustration). The number four (#4) trace is not used.

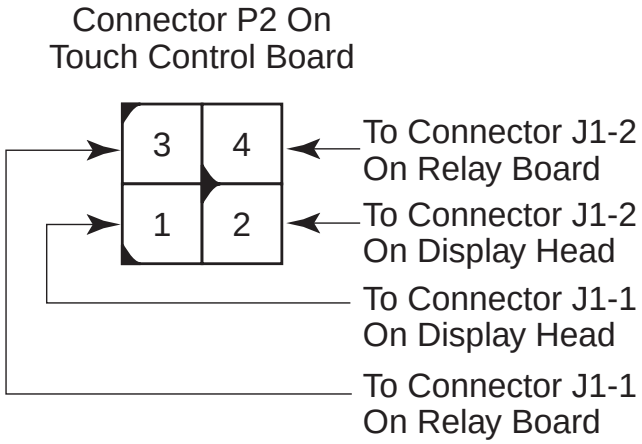
One end of the ribbon connector has an indexed edge so that it can be inserted into the touch control board socket P1 only one way.

The other end of the ribbon connector that goes to the display head has no markings and is not indexed. This end will be connected properly as long as the ribbon connector is not reversed or twisted. If it is, an **F7** error will appear on the display.

CONNECTORS J1 & P2



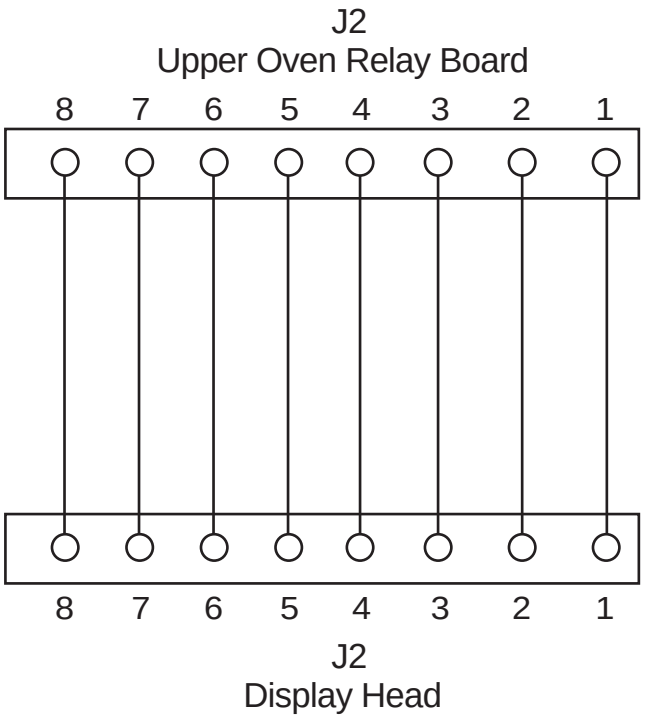
CONNECTOR P2



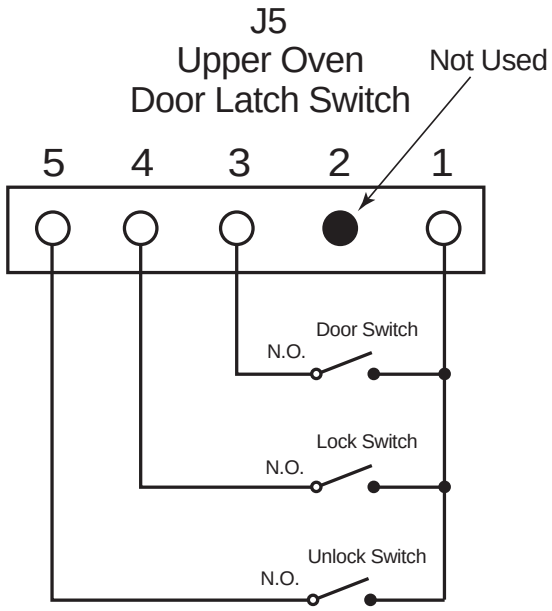
J1-1 = Connector J1, Terminal 1

J1-2 = Connector J1, Terminal 2

CONNECTOR J2

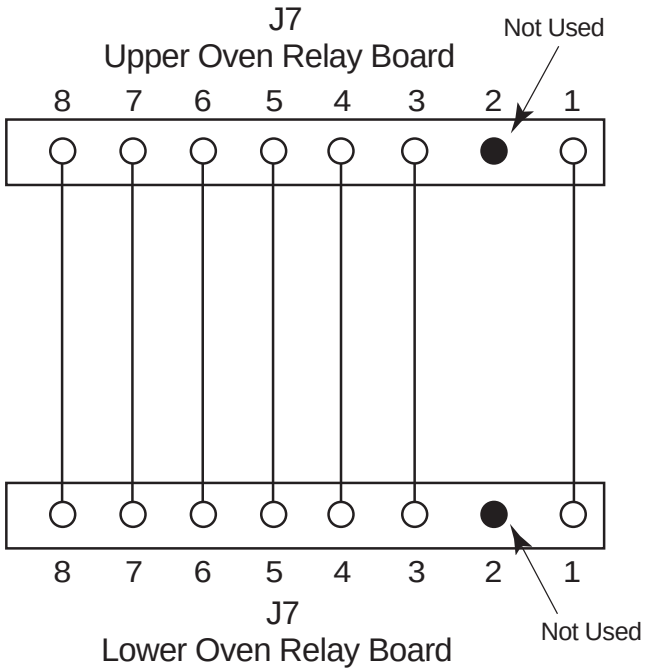


CONNECTOR J5

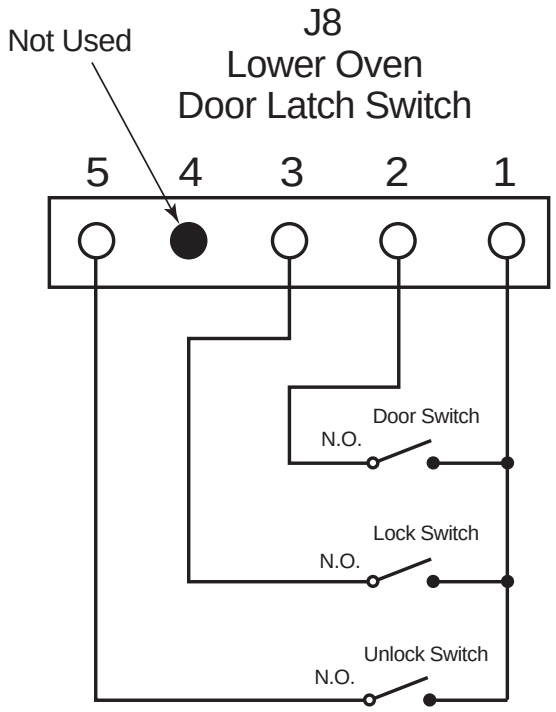


NOTE: The #2 pin is missing to avoid miswiring connectors J5 and J8.

CONNECTOR J7

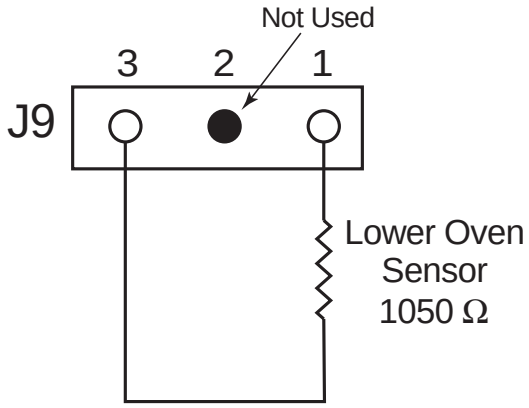


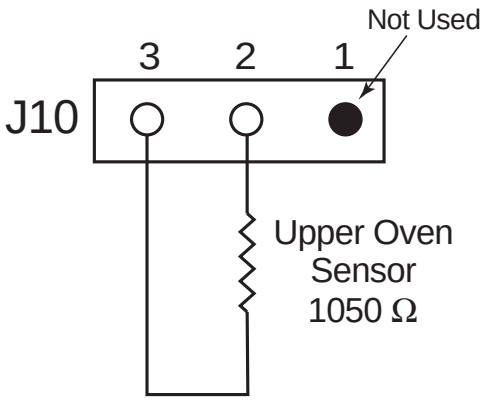
CONNECTOR J8



NOTE: The #4 pin is missing to avoid miswiring connectors J5 and J8.

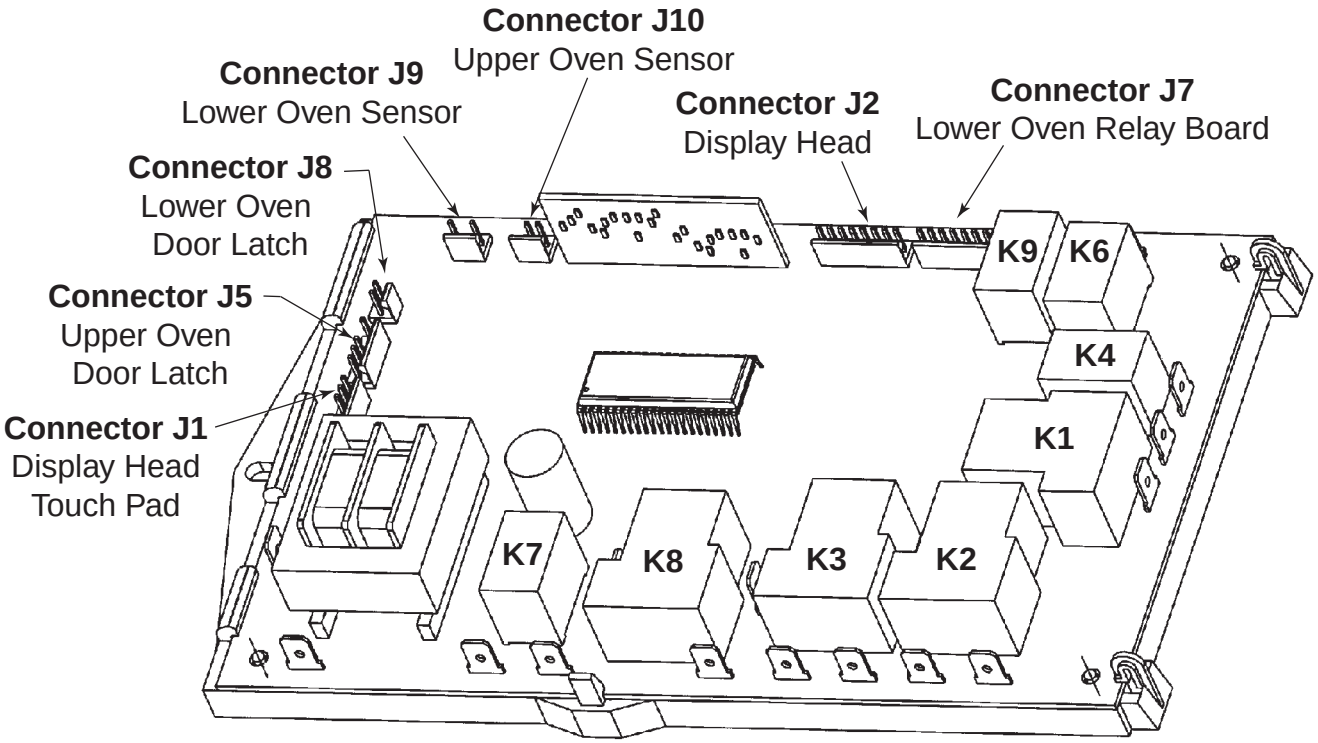
CONNECTORS J9 & J10





Convection Oven Relay Board

LowerOven — #16-10-660



Relay	Function
K1	Bake
K2	Broil
K3	Convection Element
K4	Convection Motor
K6	Cooling Fan
K7	Oven Lights
K8	L1 Relay
K9	Oven Door Latch

⚠ CAUTION

The Oven Relay Boards are subject to failure if static electricity is transferred to the solid state components during handling. The replacement boards are packaged in antistatic bags. When removing the boards from their bags, use a grounding strap, or touch a grounded metal surface (appliance chassis) prior to handling the boards. When you handle a board, handle it by the edges of the plastic frame. DO NOT TOUCH the connector pins or the microprocessor chip.

IMPORTANT NOTE: Repack the old boards in the antistatic bags before returning them to a parts distributor.

Oven Relay Board Matrix

Relay	Item
K1	Bake
K2	Broil
K3	Convect. Element
K4	Convect. Motor
K5	None
K6	Fans
K7	Both Oven Lights
K8	L1
K9	Oven Door Latch

ERROR CODE MESSAGES

Error Code	Cause	Example	Corrective Action
F1	Element supervisor is enabled.	Bad main relay board.	Replace main relay board.
F2	Over temperature detected.	Intermittent temperature sensor or bad main relay board.	Replace temperature sensor. If control still displays **F2**, replace main relay board.
F3	Open temperature sensor.	An open circuit in the oven sensor wiring.	Check all connections. Check resistance of sensor (approx. 1050 ohms at room temperature).
F4	Shorted sensor.	A short circuit in the oven sensor wiring.	Check all connections. Check resistance of sensor (approx. 1050 ohms at room temperature).
F5	Element supervisor is disabled (single / upper oven).	Intermittent single/upper oven temperature sensor or bad main relay board.	Replace single/upper oven temperature sensor. If control still displays **F5**, replace main relay board.
F7	The control is reading a shorted key. Possible bad connection to the touch control board or a bad touch control board.	Bad touch control board.	Check all connections between the display head and the touch control board. Check voltage across touch control board test pads. Voltmeter should read 5 VDC when a key is touched and 0 VDC when no key is touched.
F8	Shorted meat probe (C-model ovens only).	Bad main relay board.	Replace main relay board.
F9	Invalid door lock switch status (single / upper oven).	Defective or jammed single / upper oven latch switches.	Make sure single / upper oven latch switches are operating properly.

Error Code	Cause	Example	Corrective Action
FC	Communication error detected by display head.	Lower oven relay board not powered up.	Check all power connections to the oven relay boards and the display head. Check all communication connections to the oven relay boards and the display head.
FF	Bad analog-to-digital (A/D) converter.	Intermittent temperature sensor or bad main relay board.	Replace temperature sensor. If control still displays **FF**, replace main relay board.
F-	Communication error detected by main relay board.	Bad display head.	Check all power connections to the oven relay boards and the display head. Check all communication connections to the oven relay boards and the display head.
Fr	Invalid door lock switch status (lower oven).	Defective or jammed lower oven latch switches.	Make sure lower oven latch switches are operating properly.
	Communication error detected by main relay board.	Bad display head.	Check all power and communication connections to the oven relay boards and the display head.
	Element supervisor is disabled (lower oven).	Intermittent lower oven temperature sensor or bad lower oven relay board.	Replace lower oven temperature sensor. If control still displays **Fr**, replace lower oven relay board.

ELECTRONIC OVEN CONTROL TEST MODES

HANDLING THE BOARDS

The Touch Control Board and the Display Head are subject to failure if static electricity is transferred to the components during handling. When handling these parts, use a grounding strap, if available. If not, touch any grounded metal surface, (e.g. the appliance chassis), prior to handling these components.

The replacement Touch Control Board and the Display Head are packaged in antistatic bags. When removing the boards from their bags, handle them as follows:

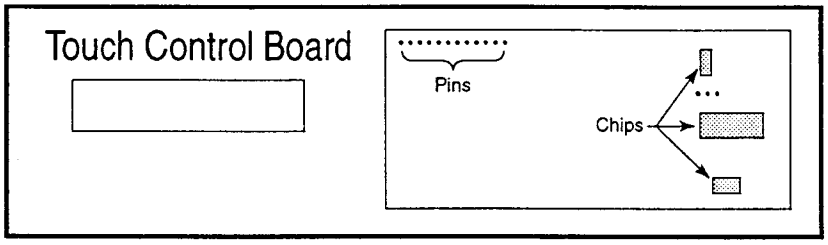
Touch Control Board

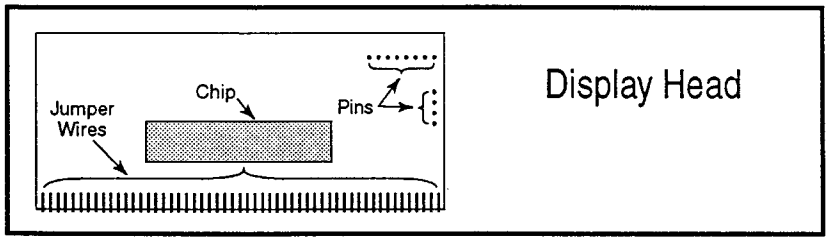
Handle the Touch Control Board only by the edges of the glass and the plastic frame. DO NOT TOUCH the connector pins, or the microprocessor chips (see Figure A).

Display Head

Handle the Display Head only by the edges of the plastic frame. DO NOT TOUCH the connector pins, the microprocessor chip, or jumper wires (see Figure B).

IMPORTANT NOTE: Repack the old boards in the antistatic bags before returning them to a parts distributor.





The test mode is designed to allow quick testing of the control inputs and outputs.

The test mode is accessed by holding the STOP TIME key down at power up or by holding the STOP TIME key for 10 seconds within 5 minutes of power up, provided no other key is pushed prior to STOP TIME. The control will immediately enter the test mode. When keys are released, all display digits will display "-" to indicate that the test mode is active.

The following will occur when a button is pressed:

KEY PRESSED	ACTION
Bake Keys **Broil Keys**	Corresponding bake relay closes (bake element turns on). Corresponding broil and convection relays close (broil and convection elements turn on). Note: The total current drawn by the broil and convection elements may exceed the rating of the power supply circuit breaker, which will cause the circuit breaker to trip open.
Convection Keys	Corresponding convection fan relay closes (convection fan turns on).
Convection Roast Keys	No action.
Oven light	Oven light and cooling fan relays close (oven lights and cooling fans turn on).
Timer 1	If the upper oven element supervisor is not active, a four digit EEPROM CRC checksum is displayed in the blue digits. If the CRC is incorrect, 4 F's will be displayed. The oven temperature for each oven is displayed in the appropriate red digits. If the upper oven element supervisor is active, all the display segments are lit.
Timer 2	If the lower oven element supervisor is not active, a four digit EEPROM CRC checksum is displayed in the blue digits. If the CRC is incorrect, 4 F's will be displayed. The oven temperature for each oven is displayed in the appropriate red digits. If the lower oven element supervisor is active, all the display segments are lit.
Clean Keys	Corresponding door latch status number indication shown in the blue digits.

Display	Unlock Switch	Lock Switch	Door Switch	Latch Status
7	closed	closed	closed	invalid
6	open	closed	closed	latched
5	closed	open	closed	unlatched, door closed
4	open	open	closed	in transition
3	closed	closed	open	invalid
2	open	closed	open	invalid
1	closed	open	open	unlatched, door open
0	open	open	open	invalid

KEY PRESSED	ACTION
Stop Time	Speaker will beep.
Clock	All the display segments are lit.
Cook Time	Any error codes stored in the EEPROM will be displayed. The time digits will display the last display head error code. The upper oven temperature digits will display the last upper oven relay board error code. The lower oven temperature digits will display the last lower oven relay board error code. If no error codes exist, F0 is displayed. The error codes stored in the EEPROM can be cleared by pressing and holding both the COOK TIME and STOP TIME keys for 5 seconds while in the test mode.
0 - 9 Keys	Corresponding number is displayed in the blue digits.

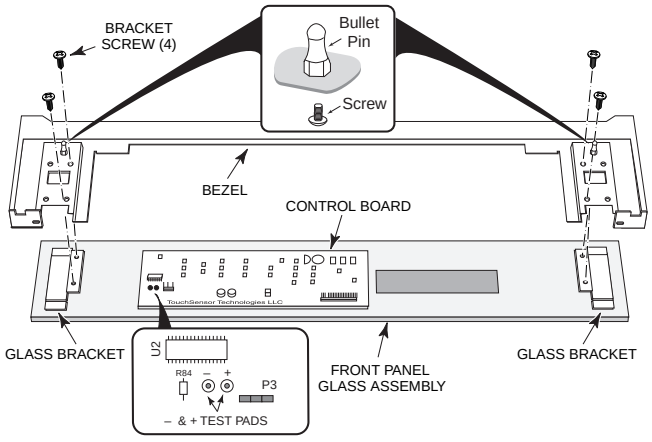
The control will exit the test mode by two methods. First, by pressing either OFF key, and second, by using a 16 second timer. Sixteen seconds after the last key action, the test mode will be cancelled.

TESTING THE TOUCH CONTROL PADS

The control panel is comprised of the following (see the illustration):

- ***Control Panel Frame*** (black, white, stainless steel). The control panel brackets are mounted on the frame and a bullet pin (see the small inset at the top of the illustration) is screwed onto the brackets.
- ***Control Panel Glass.*** The control board and brackets are glued to the control glass.

The S-Model oven control panel is mounted to the front subpanel with two bullet pins and four screws (see **Page 46** in this manual for the removal procedure).



A ribbon cable connects the control board to the touch control board. One end of the cable has an edge connector that connects to the touch control board pins. The pin connector on the board and the edge connector are both indexed (the #4 pin is missing and the corresponding #4 pin opening is plugged) to prevent the connector from being reversed.

The touch control board has 28 touch pads, however, not all of the pads are active. For example, a unit with no lower oven convection feature will not have a position on its control panel glass for that function. Thus, the control board touch pad at that location will not be used.

The touch pads operate as follows:

1. An electromagnetic field surrounds each touch pad so that when the glass over a pad is touched, the field is disturbed.
2. The disturbance in the field is sensed by the microprocessor on the touch control board as a mode, or a command.

The touch control board has a positive and a negative test pad (see the small inset at the bottom of the illustration). To test the board:

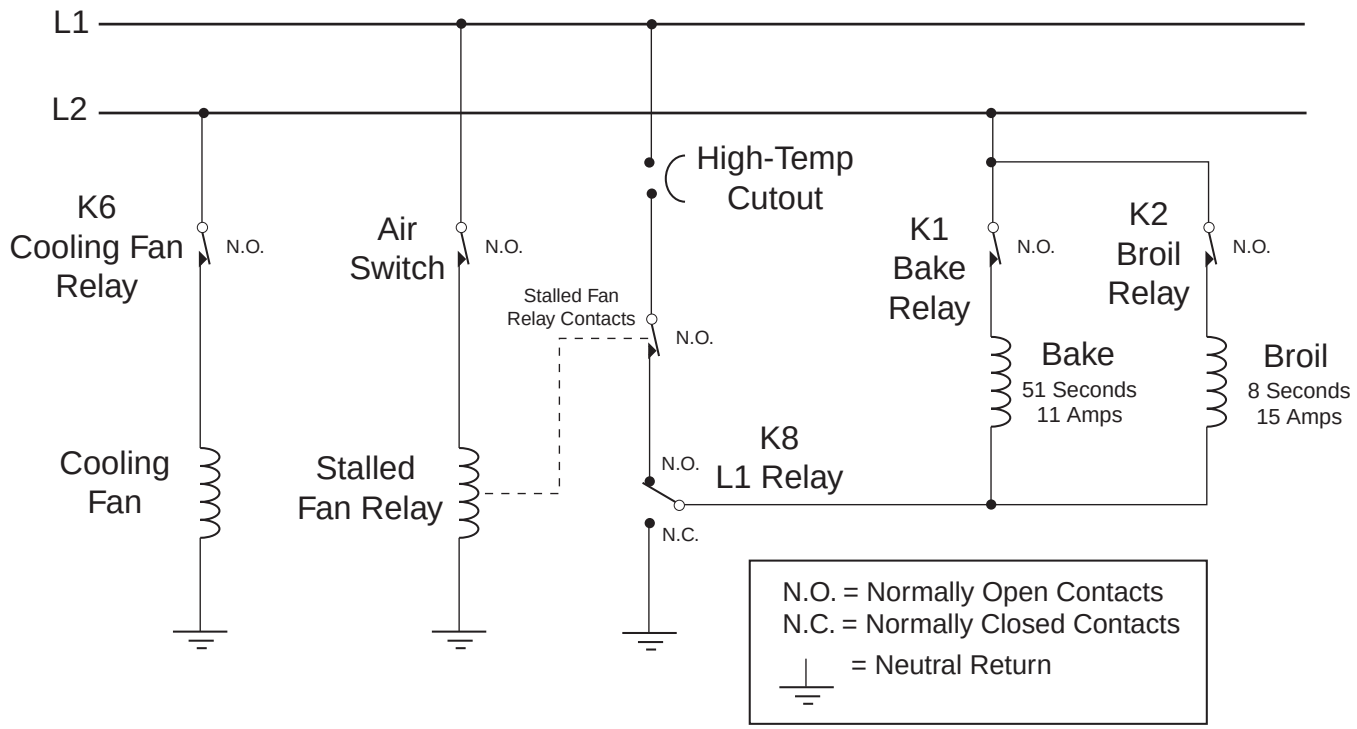
1. Set a volt meter to read 10-volts D.C.
2. Touch the meter test probes to the **bare foil circles** of the touch control board's positive and negative test pads (do not touch the green solder resist area at the centers).
   - The meter should indicate 0-volts when a touchpad is activated.
   - The meter should indicate 5-volts D.C. when no touchpad is activated.

SEQUENCE OF OPERATION

Lower Oven
Bake Cycle — Bake Preheat & Bake Mode

Press the BAKE keypad and select an oven temperature and the following events will occur on the relay board:

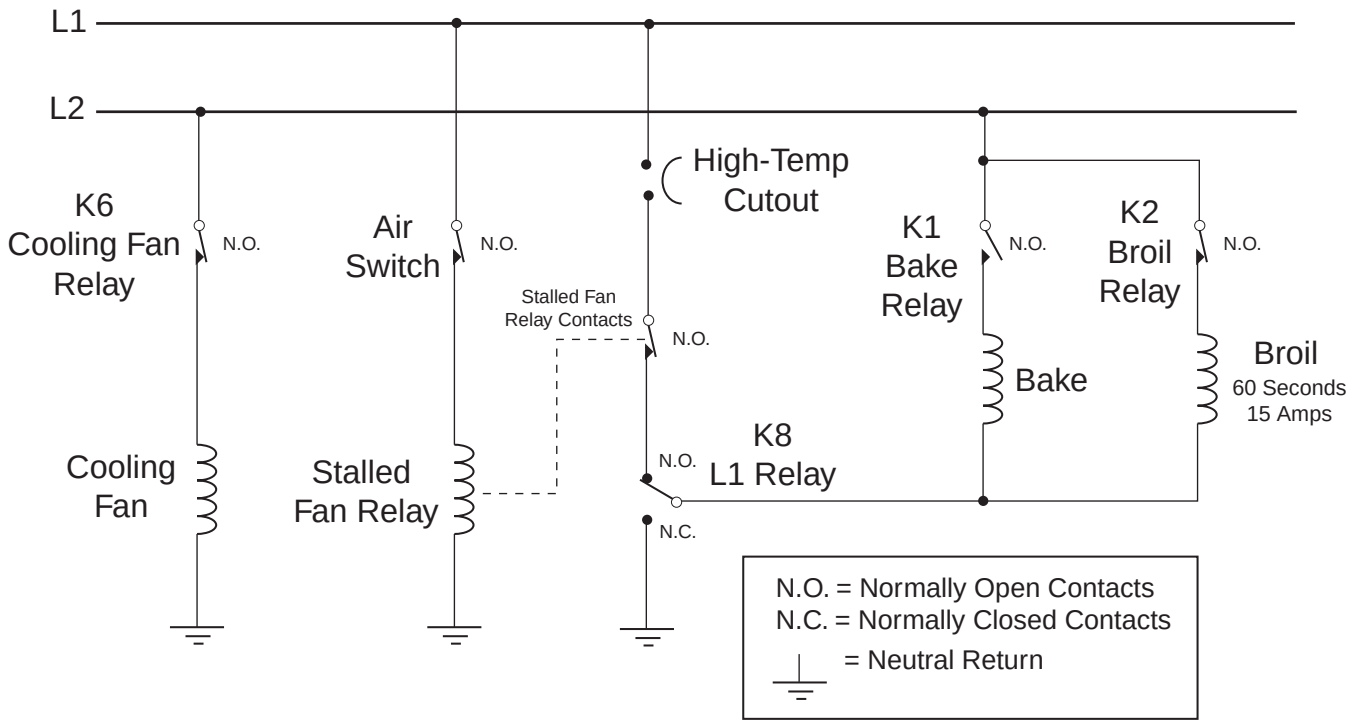
- Line Relay **K8** closes.
- Cooling Fan Relay **K6** closes and turns the Cooling Fan on.
- Cooling Fan air flow closes the Air Switch and activates the Stalled Fan Relay.
- The Stalled Fan Relay contacts close and supply L1 to one side of Relay **K8 (already activated).**
- The **L1** Relay connects L1 line voltage to the Bake and Broil Elements.
- Bake Relay **K1** and Broil Relay **K2** alternately open and close, and connect the L2 (120-volt) line to the Bake and Broil elements. NOTE: The Bake Element is on for 51-seconds, and draws 11-amperes during each 1-minute cycle. The Broil Element is on for 8-seconds and draws 15-amperes during each 1-minute cycle.



Broil Cycle — Broil Preheat & Broil Mode

Press the BROIL keypad and select an oven temperature and the following events will occur on the relay board:

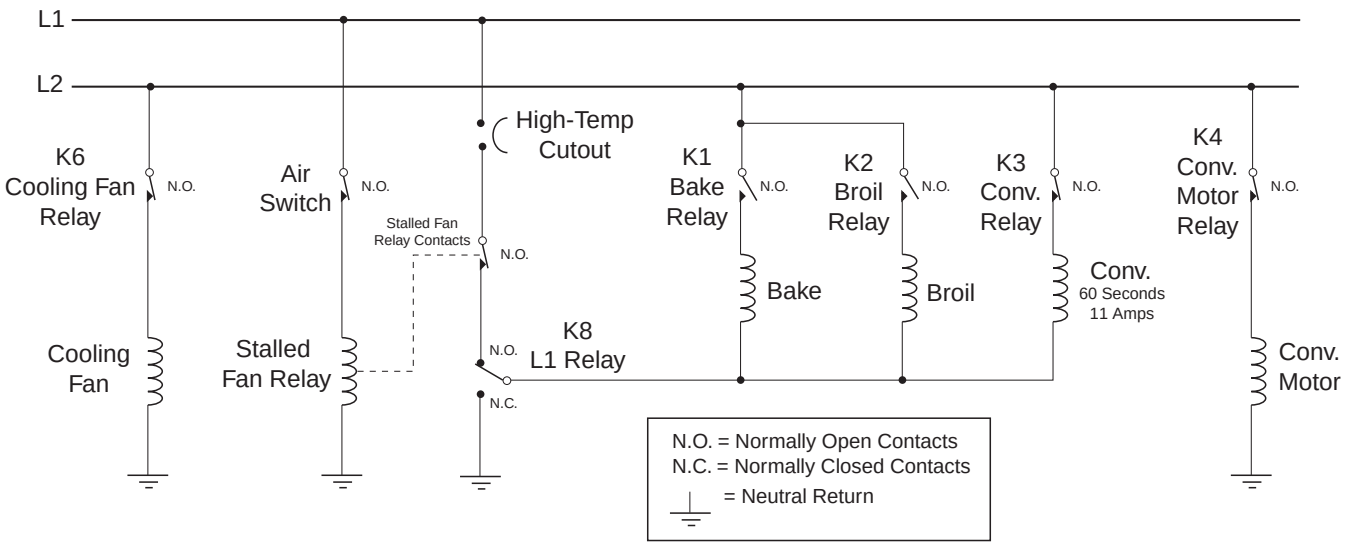
- Line Relay **K8** closes.
- Cooling Fan Relay **K6** closes and turns the Cooling Fan on.
- Cooling Fan air flow closes the Air Switch and activates the Stalled Fan Relay.
- The Stalled Fan Relay contacts close and supply L1 to one side of Relay **K8 (already activated)**.
- The **L1** Relay connects L1 line voltage to the Broil Element.
- Broil Relay **K2** closes and connects the L2 (120-volt) line to the Broil element. NOTE: The Broil Element is on for 60-seconds and draws 15-amperes during each 1-minute cycle.



Convection Cycle – Convection Preheat & Convection Mode

Press the CONVECTION keypad and select an oven temperature and the following events will occur on the relay board:

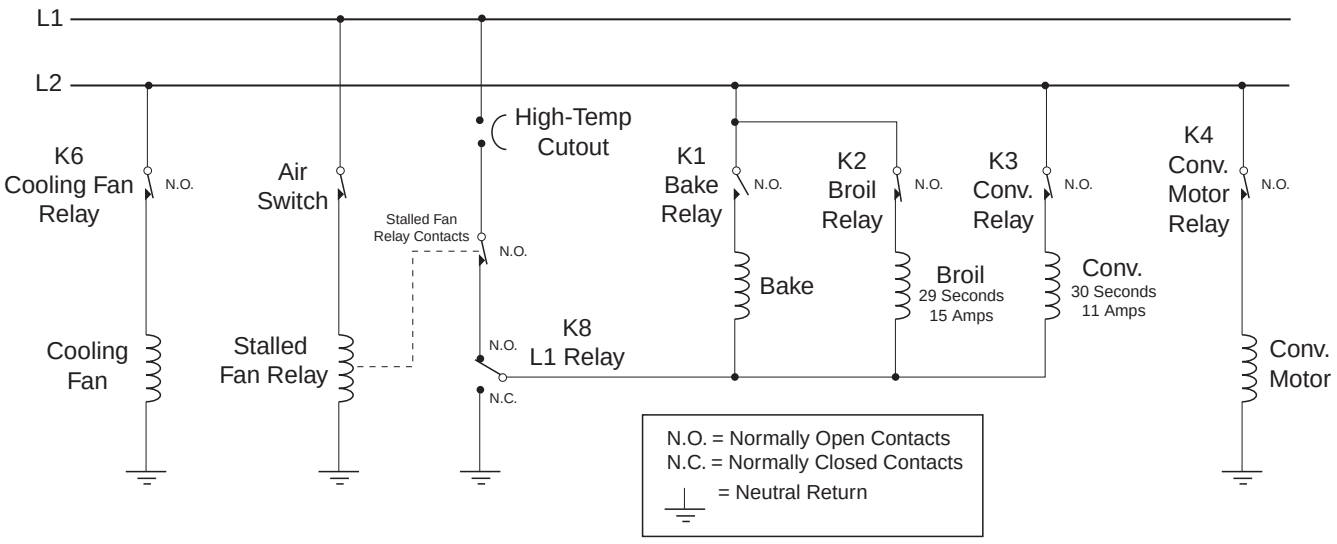
- Line Relay **K8** closes.
- Cooling Fan Relay **K6** closes and turns the Cooling Fan on.
- Cooling Fan air flow closes the Air Switch and activates the Stalled Fan Relay.
- The Stalled Fan Relay contacts close and supply L1 to one side of Relay **K8 (already activated)**.
- The **L1** Relay connects L1 line voltage to the Convection Element.
- Convection Relay **K3** closes and connects the L2 (120-volt) line to the Convection element. NOTE: The Convection Element is on for 60-seconds, and draws 11-amperes during each 1-minute cycle.
- Convection Motor Relay **K4** closes and activates the Convection Motor.



Convection Roast Cycle — Convection Roast Preheat

Press the CONVECTION ROAST keypad and select an oven temperature and the following events will occur on the relay board:

- Line Relay **K8** closes.
- Cooling Fan Relay **K6** closes and turns the Cooling Fan on.
- Cooling Fan air flow closes the Air Switch and activates the Stalled Fan Relay.
- The Stalled Fan Relay contacts close and supply L1 to one side of Relay **K8 (already activated)**.
- The **L1** Relay connects L1 line voltage to the Convection and Broil Elements.
- Broil Relay **K2** and Convection Relay **K3** alternately open and close, and connect the L2 (120-volt) line to the Convection and Broil elements. NOTE: The Convection Element is on for 30-seconds, and draws 11-amperes during each 1-minute cycle. The Broil Element is on for 29-seconds and draws 15-amperes during each 1-minute cycle.
- Convection Motor Relay **K4** closes and activates the Convection Motor.

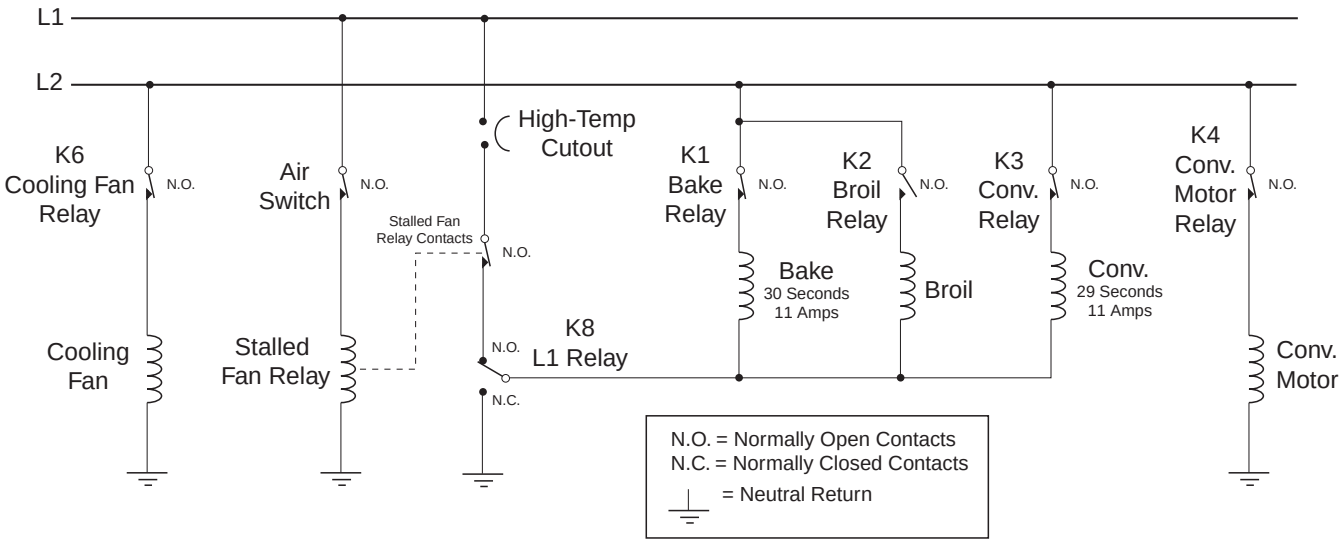


Convection Roast Cycle

NOTE: The Convection Roast cycle is a continuation of the Convection Roast Preheat cycle.

Press the CONVECTION ROAST keypad and the following events will occur on the relay board:

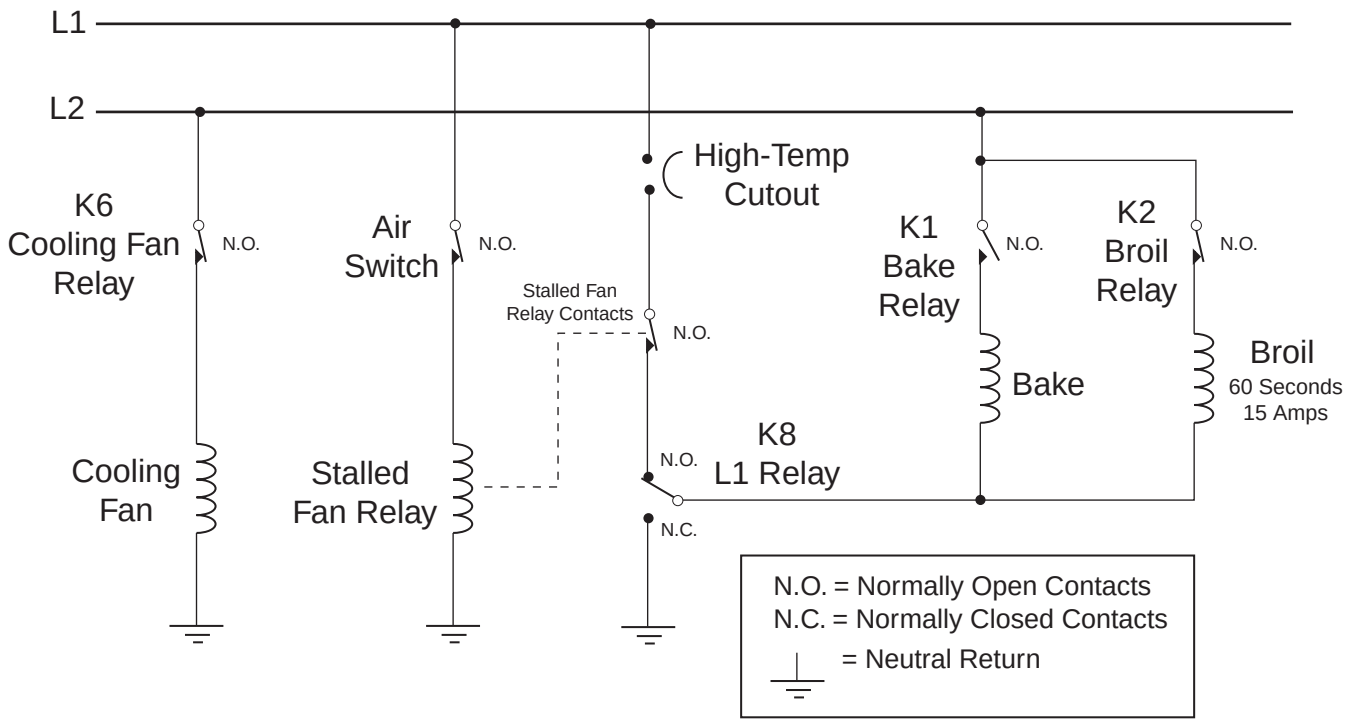
- The **L1** Relay connects L1 line voltage to the Convection and Bake Elements.
- Bake Relay **K1** and Convection Relay **K3** alternately open and close and connect the L2 (120-volt) line to the Bake and Convection elements. NOTE: The Convection Element is on for 29-seconds, and draws 11-amperes during each 1-minute cycle. The Bake Element is on for 30-seconds, and draws 11-amperes during each 1-minute cycle.
- Convection Motor Relay **K4** closes and activates the Convection Motor.
- After the Convection Roast Preheat temperature has been reached, Relays K2 and K3 cycle off (open). When the thermostat cycles back on, the circuit switches from Relays K2 and K3, to Relays K1 and K3, for the rest of the selected temperature and cooking time. Relays K1 and K3 will cycle on and off to maintain the selected temperature.



Self-Clean Cycle — Preheat Below 840°

Press the SELF-CLEAN keypad and select a self-clean time period and the following events will occur on the relay board:

- Line Relay **K8** closes.
- Cooling Fan Relay **K6** closes and turns the Cooling Fan on.
- Cooling Fan air flow closes the Air Switch and activates the Stalled Fan Relay.
- The Stalled Fan Relay contacts close and supply L1 to one side of Relay **K8 (already activated)**.
- The **L1** Relay connects L1 line voltage to the Broil Element.
- Broil Relay **K2** closes and connects the L2 (120-volt) line to the Broil element. NOTE: The Broil Element is on for 60-seconds, and draws 15-amperes during each 1-minute cycle. It is also on continuously for the first 55-minutes of the Self-Clean cycle, or unil the oven reaches 850°F.

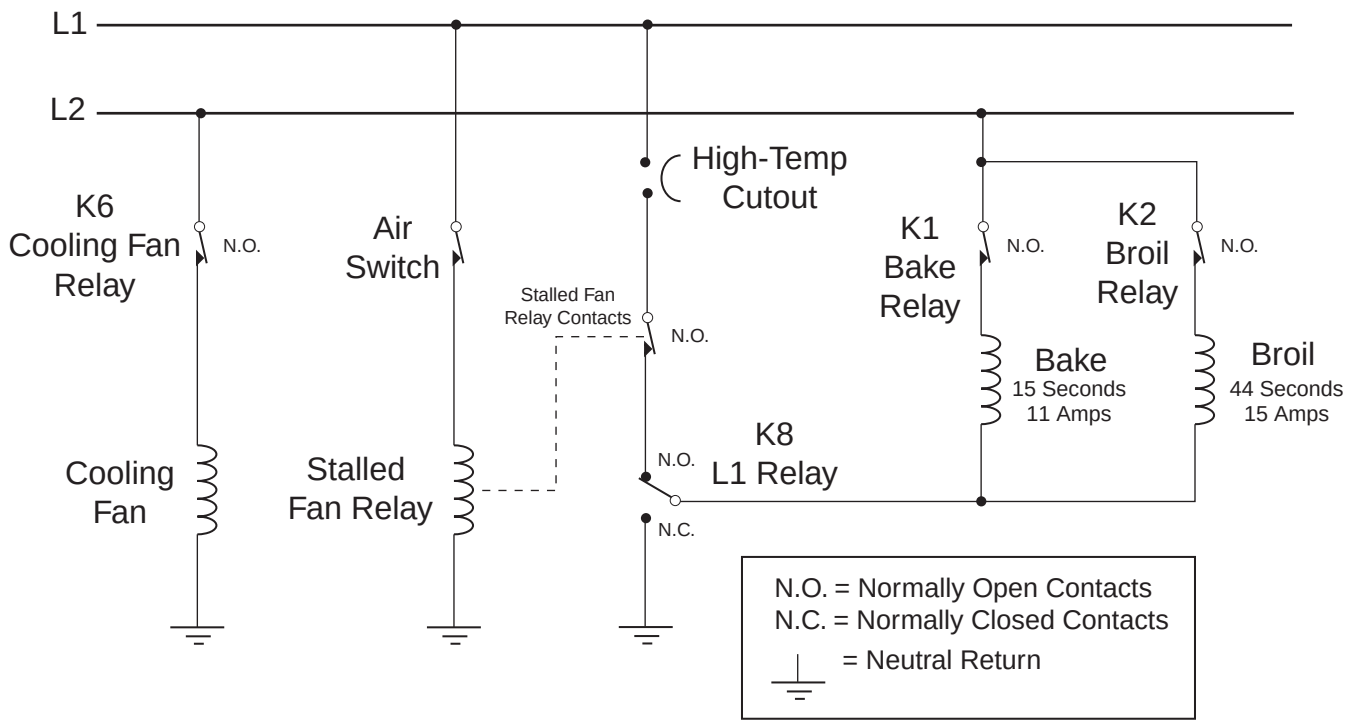


Self-Clean Cycle

NOTE: The Self-Clean cycle is a continuation of the Self-Clean Preheat cycle.

Press the SELF-CLEAN keypad and the following events will occur on the relay board:

- The **L1** Relay connects L1 line voltage to the Bake and Broil Elements.
- Bake Relay **K1** and Broil Relay **K2** close and connect the L2 (120-volt) line to the Bake and Broil elements. NOTE: The Broil Element is on for 44-seconds, and draws 15-amperes during each 1-minute cycle. The Bake Element is on for 15-seconds, and draws 11-amperes during each 1-minute cycle.
- After Self-Clean Preheat, Relay K2 cycles off, via the thermostat. When the thermostat cycles back on, (to maintain the 850˚F self-clean temperature), Relays K1 and K2 are alternately used to maintain the self-clean temperature until its time has expired, at which point, the oven turns off.



Thermador®

Thermador Customer Support Call Center, 5551 McFadden Avenue, Huntington Beach, CA 92649 • 800/735-4328
ECO12436 • 94-30-008A • © 2000 Thermador • Litho U.S.A. 2/00