

MAYTAG

Maytag

**Wallovens
30" Electric
Service Manual**

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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 an adequately grounded AC outlet capable of supplying 120 volts at 15 amperes.

This service information is intended to be used by a qualified service technician, who is familiar with proper and safe procedures to be followed when repairing any electrical appliance. All tests and repairs should be performed by a qualified service technician who is equipped with proper tools and measuring devices. All component replacements should be made by a qualified service technician, using only MAYCOR parts.

Repairs and servicing attempted by uninformed persons can result in hazards developing due to improper assembly or adjustment. While performing such repairs, persons not having the proper background may subject themselves to the risk of injury or electrical shock which can be serious or even fatal.

GENERAL SAFETY PRECAUTIONS

Information contained in this manual is intended for use by a qualified service technician, possessing electrical and mechanical backgrounds, familiar with proper and safe procedures to be followed when repairing an electrical appliance.

All test and repairs should be performed by a qualified service technician equipped with proper tools and measuring devices. All component replacements should be made by a qualified service technician, using only MAYCOR replacement parts.

Improper assembly or adjustment may occur if service or repair is attempted by persons other than qualified service technicians or if parts other than MAYCOR replacement parts are used. Improper assembly or adjustment can cause hazardous conditions.

There can be risk of injury or electrical shock while performing services for repairs. Injury or electrical shock can be serious or even fatal.

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INTRODUCTION

The CWE900 and ECWE900 is an Electric 30" Undercounter/Wall Oven, Self Clean, equipped with an Electronic Clock.

This service manual is printed in a loose leaf format. Each part is divided into sections relating to a general group of components and each section is subdivided into various parts describing a particular component or service procedure.

This publication was issued August 1990.

Model numbers covered in this manual:

CWE900
ECWE900

SECTION 1. SAFETY

ELECTRICAL SAFETY

Whenever the appliance is being serviced, the electrical supply must be disconnected from the appliance to avoid contact with live terminals.

The circuit breakers should be switched to the off position or the fuses removed from the branch electrical supply circuit which supplies electrical power (voltage) to the appliance.

Prior to initial service, an electrical check (voltage check) for the absence of power (voltage) at the appliance should be done, either at the main terminal block or available electrical supply inlet on the unit, to insure that the correct circuit breakers have been thrown or the correct fuses removed and no power (voltage) is present at the appliance.

If electricity is required for a test to check for power or wattage at a component, the electricity should be turned off, the necessary connections or adjustments made and then the electricity restored for the test. As soon as the test is completed, the appliance should be disconnected from power before the electrical connections are removed or further service is performed.

- Disconnect the appliance from power before making or breaking electrical connections.

- Disconnect the appliance from power before making adjustments.
- Disconnect the appliance from power before replacing components or performing service.

PROPER SERVICE PROCEDURE

When testing, removing, replacing component or components or performing service:

1. Disconnect the appliance from electrical power.
2. Note the location of electrical wiring attachments and disassembly order for ease in reassembly.
3. Reassemble in the reverse order of removal unless specified otherwise.
4. Be sure that electrical connections are attached and secure.
5. Be sure that wiring is secured away from sharp edges and moving parts.
6. Do not bypass or disconnect any part or device designed into the appliance.
7. Be sure that ground wiring is connected and secure.
8. Be sure that access panels and covers are installed.

SECTION 3. INSTALLATION

Note: Instructions shown below are for service reference purposes only and not for installation purposes. For installation purposes, refer only to all Installation Instructions supplied with the unit.

Warning: Interrupt the source of electricity to the unit by disconnecting the fuse or circuit breaker when attempting to repair or service the oven. Failure to do this could result in a dangerous or even fatal shock.

IMPORTANT

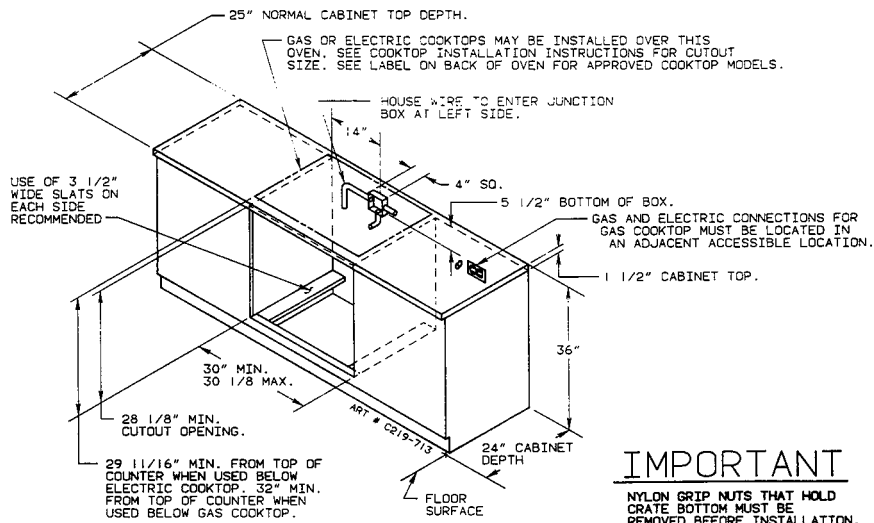
1. Cut hole in cabinet to mount oven. Cut-out in cabinet should be level and straight.

Note: There are no provisions to level the unit after it is installed. An oven that is not level could cause poor baking results.

2. Install cabinet in floor per instructions.
3. Remove nylon grip nuts that held crate bottom before installation.
4. Assemble unit to the cabinet with four No.6x1/2" screws supplied with unit inside of envelope containing these instructions. Pre-drill holes in cabinet for attachment screws using 3/32" drill. Oven mounting holes are in each corner of front panel.
5. See instructions for electrical hook-up.
6. See Use & Care Manual for operating instructions.

UNDERCOUNTER INSTALLATION

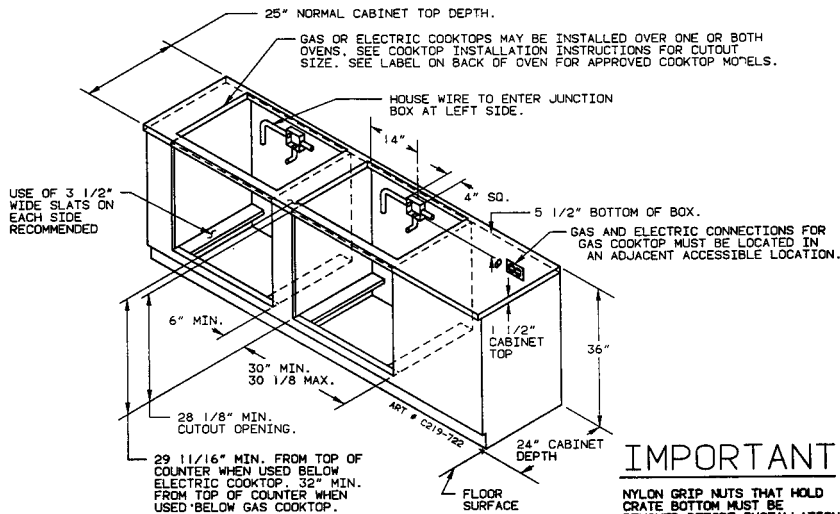
SINGLE 30" UNDERCOUNTER INSTALLATION



IMPORTANT

NYLON GRIP NUTS THAT HOLD CRATE BOTTOM MUST BE REMOVED BEFORE INSTALLATION.

DUAL 30" UNDERCOUNTER INSTALLATION



IMPORTANT

NYLON GRIP NUTS THAT HOLD CRATE BOTTOM MUST BE REMOVED BEFORE INSTALLATION.

SECTION 2. TESTING

ELECTRICAL TESTING

Most of the electrical circuits of an appliance consist of loads, controls and conductors. Most of the electrical testing consists of resistance and continuity checks. The appliance must be disconnected from power before performing and during a resistance or continuity check on any electrical load (electrical component which requires a voltage to perform an intended function), control (electrical switch which makes or breaks an electrical circuit) or conductors (appliance circuit wiring). The wiring to a component should be removed from the terminals of the component, with the location noted for ease in reattachment after the test, before the resistance or continuity check is performed. Remove the ohmmeter from the component or circuit under test before reattaching wiring. After wiring is reattached, restore power to the appliance.

When performing a resistance or continuity check, at least one end of the load, control, conductor or circuit under test must be removed from the appliance circuit (by disconnection at terminals, etc.) to prevent parallel circuits which are external and common to the test exist. If in doubt, remove both ends from the appliance and test.

In the event that a resistance or continuity check of an electrical load, control, conductor or appliance circuit is not sufficient and no other alternative is available, then and only then should

a voltage or wattage check be performed. To perform a voltage or wattage check, disconnect the appliance from power, make the necessary test equipment connections, connect the appliance to power, perform the test and then disconnect the appliance from power before removing test equipment connections or performing service. A voltage or wattage test should only be performed with the electrical load in the circuit.

If full power (voltage) is applied to an electrical load and the electrical load does not operate, then suspect the electrical load.

If full power (voltage) is not applied to the electrical load the the remaining power (voltage) is dropped by a resistance in series in the electrical circuit when full power is available. If no power (voltage) is applied to an electrical load when it should be, then an open condition (no continuity) exists in the electrical circuit when full power is available.

Electrical components are normally voltage and wattage rated at 120 and 240 volts, although the appliance may be rated for 120/240 and 120/208 power. When the appliance is supplied by 120/208 power, expect wattage of 240 volt rated resistive electrical loads to be in a range of approximately 75% of the 240v wattage value for the component. For any voltage applied to the unit less than 240 and greater than 208 volts, expect a wattage somewhere between 75% and the full value. For an

applied voltage less than 208 volts, expect wattage values below 75% of the rated wattage. A wattage check to a load requires a voltage check to the load at the same time to determine what voltage value is applied to the load.

TEST EQUIPMENT:

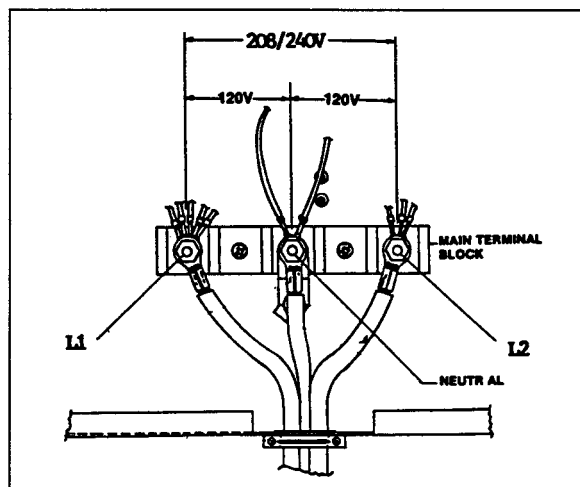
Service test equipment should be equipped with insulated alligator clips or similar device to prevent personal body contact with the circuits under test. Test equipment leads should be of a sufficient voltage and heat rating capacity to prevent damage to the leads in the event of contact with excessive voltage or excessive heat.

SAFETY NOTE:

An electrical test, adjustment, component replacement or service to the appliance should only be performed fol-

lowing all safety procedures and the procedures listed above.

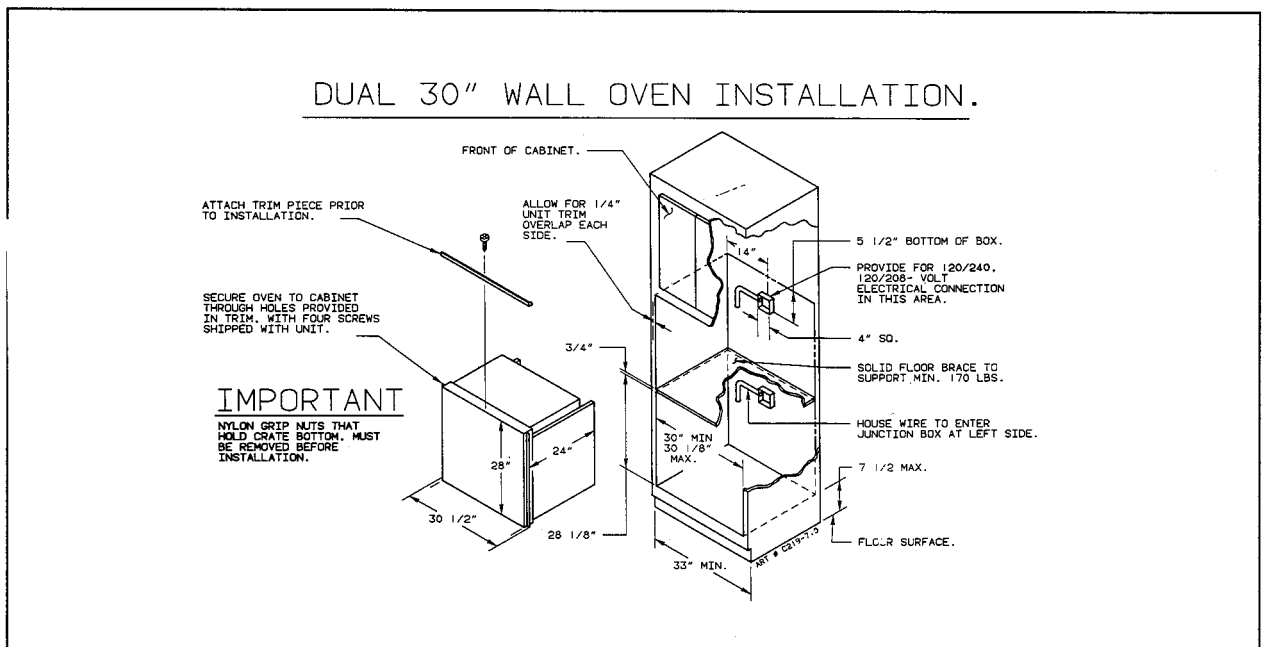
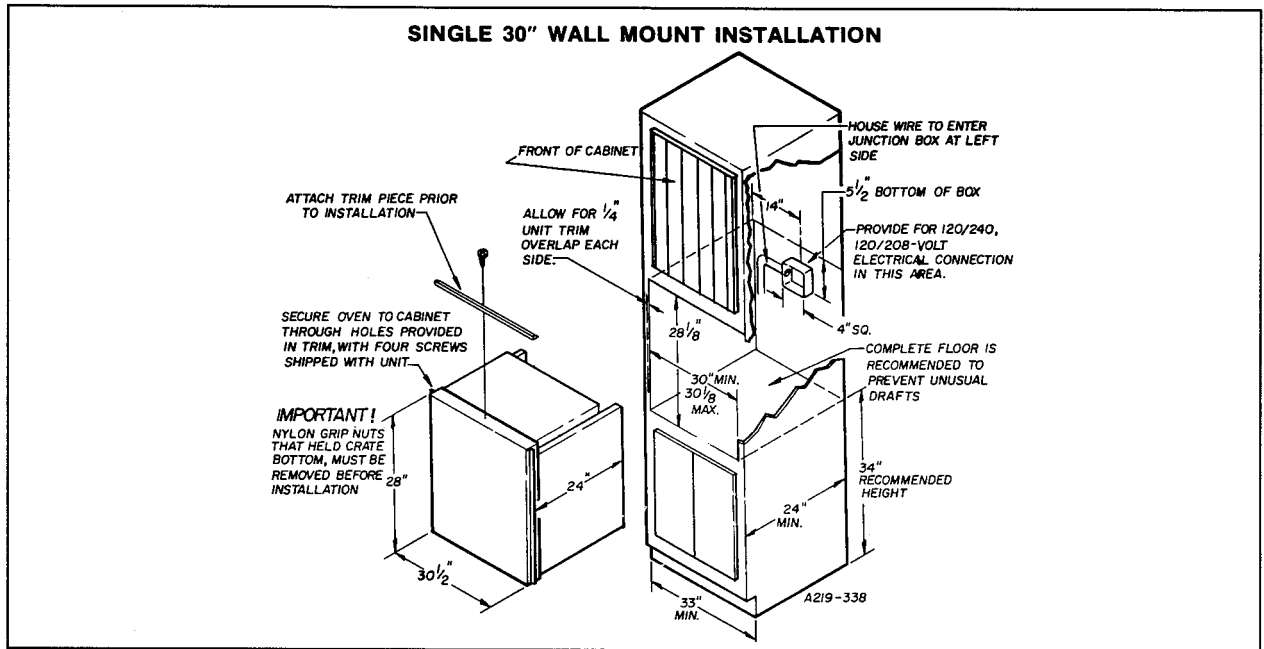
ELECTRICAL CONNECTIONS/VOLTAGE



With the unit connected to power, voltage at the main terminal block from L1 to L2 should be approximately either 208 or 240 volts A.C. Voltage from L1 to Neutral or L2 to Neutral should be approximately 120 volts A.C.

WALL MOUNT INSTALLATION

Note: Instructions shown below are for service reference purposes only and not for installation purposes. For installation purposes, refer only to all Installation Instructions supplied with the unit.



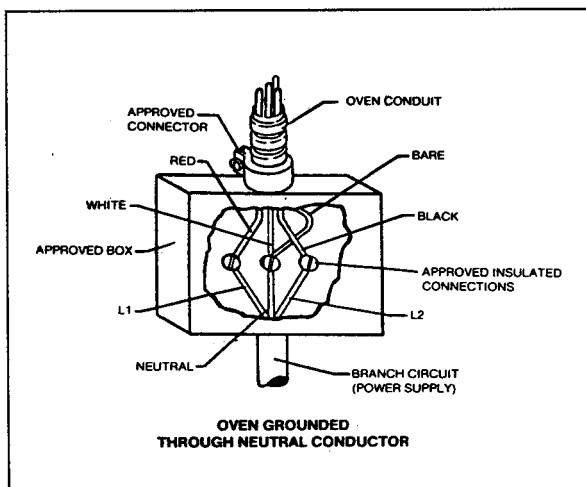
PROPER ELECTRIC SUPPLY

You must provide an adequate electrical supply and junction box as required for your oven. Check with local utility for governing electrical codes and ordinances. In the absence of local electrical codes, the National Electrical Code, NFPA No. 70, can be obtained by writing to:

NATIONAL FIRE PROTECTION ASSOC.
Batterymarch Park
Quincy, Massachusetts 02269

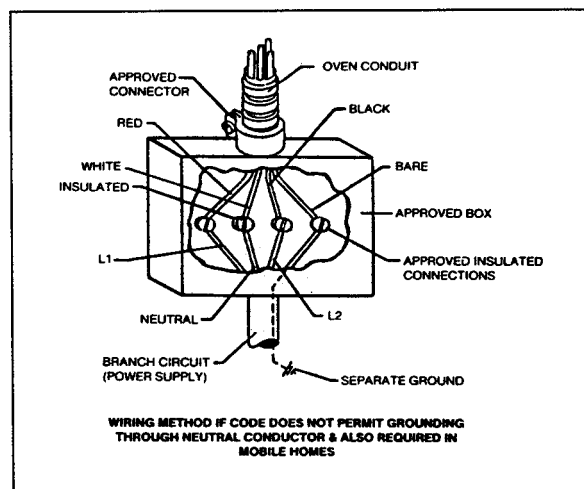
A three-wire, single phase, A.C. 120/208-240 volt, 60 cycle electrical system (properly fused to meet NFPA No. 70) must be provided. All wire connections must be in accordance with local codes and properly insulated. Be sure to check local codes for wire size and installation requirements. Unit must be properly grounded in accordance with local wiring codes. Wattage (K.W. rating) load for oven is specified on oven serial plate.

It is advisable that the electrical wiring and hookup be accomplished by a competent electrician.



OVEN CONNECTIONS

The flexible armored conduit supplied with the oven must be connected to an approved electrical junction box by means of an approved conduit to box connector. **The frame of the oven is grounded to neutral only when the white and bare wires at the end of oven conduit are joined together.** Connect the white and bare wire at the end of the oven conduit to the neutral (white) wire of the branch circuit. **If used in a MOBILE HOME or if LOCAL CODE does not permit grounding through the neutral conductor, the white and bare wires at the end of the oven conduit shall NOT be connected. Use bare wire to ground range in accordance with local code.** The white wire must be connected to the neutral wire of the branch circuit. The red and black wires must be connected to the remaining two conductors of the branch circuit. Connect all wires to the branch circuit with approved connectors. Use only COPPER wire for the branch circuit.



Warning: Frame of the unit grounded to electrical neutral of appliance circuit through a bonding strap (link) at main terminal block of range. When used in a mobile home or where local codes do not permit grounding through the neutral, (1) disconnect bond strap from range. (2) Cut bonding strap from terminal block and use green screw that was used at bond strap to ground unit in accordance with local codes. (3) Connect neutral terminal to neutral branch circuit in usual manner (if appliance is to be connected by means of a cord kit, must use 4 conductor cord for this purpose). On models provided with 3 conductor cord, cord must be replaced with 4 conductor cord. See Addendum To Instructions For Connecting The Range,below.

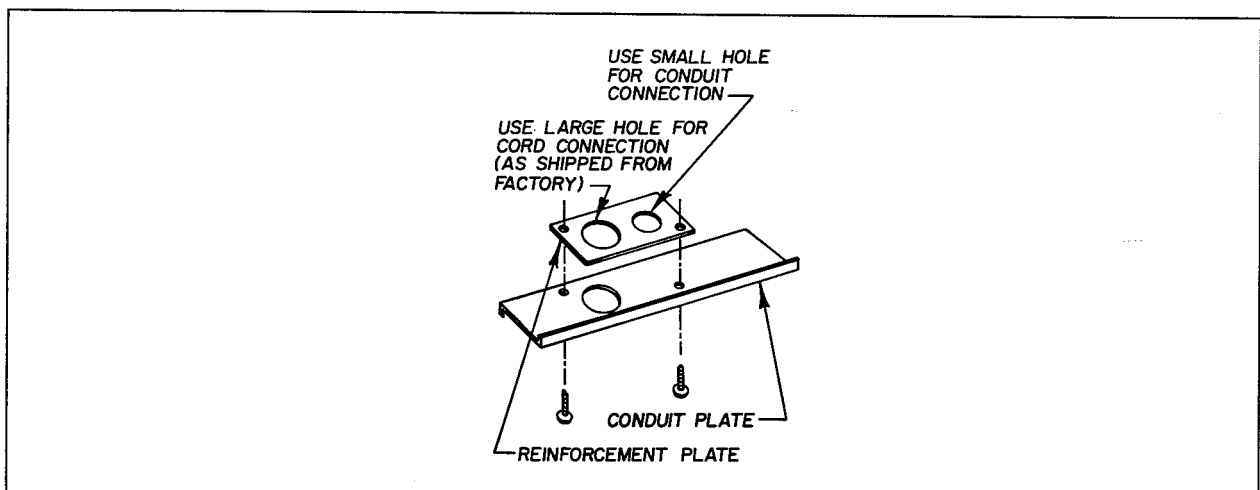
Note: USE COPPER WIRE ONLY The main terminal block is recognized for **COPPER** wire connections **ONLY**. If aluminum house wiring is to be used, follow the suggested procedure.

1. Connect length of copper building wire to range terminal block.
2. Splice copper wires to aluminum wiring using special connectors designed, and Underwriters' Laboratories listed for joining copper to aluminum and follow the connector manufacturer's recommended procedures.
3. Wire used, location and enclosures of splices, etc., must conform to good wiring practices and local codes.

ADDENDUM TO INSTRUCTIONS FOR CONNECTING THE RANGE:

When connecting or replacing a **3 or 4 wire service cord**, and for conversion from a 3-wire service cord to a **4-wire service cord**, use only the power supply cords or cord kits described in (A) or (B) below.

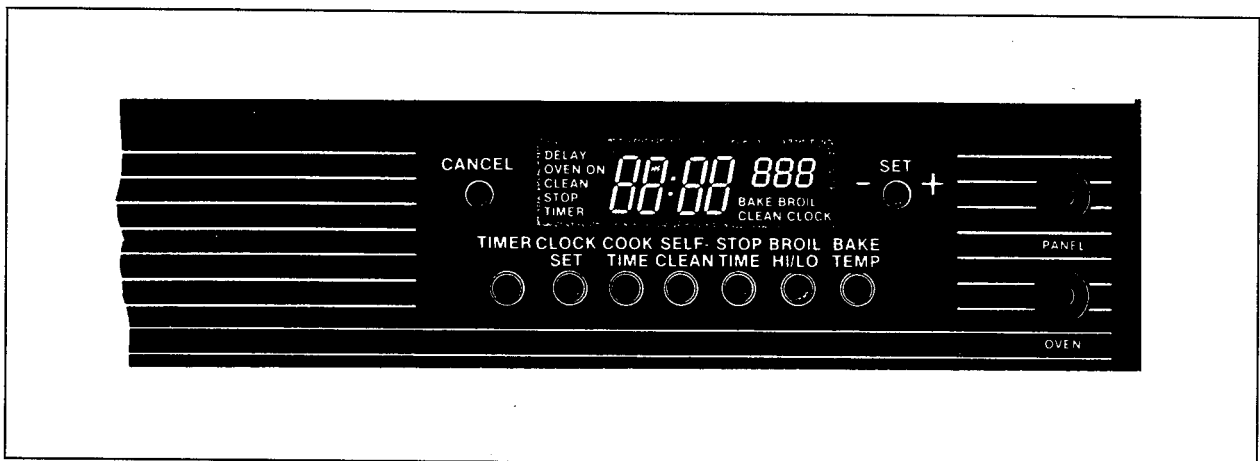
- Power supply cord kit rated at 250 volts minimum, 40 amperes, with closed loop terminals and marked for use with ranges. Or,
- Power supply cord rated at 250 volts minimum, 50 amperes, with a strain relief designed to fit the small hole of the range conduit reinforcement plate shown in illustration, with closed loop terminals and marked for use with ranges. (Note the conduit reinforcement plate must be repositioned to use the small hole.)



SECTION 4. OVEN FUNCTIONS

ELECTRONIC CONTROL SYSTEM

The electronic control system selects and controls the bake, broil and clean functions of the oven. Components of the electronic control system consist of the electronic control, relay board, oven sensor and door lock switch.



Operating Instructions

A beep will sound each time a function button is pressed. At the end of an operation, three consecutive beeps will sound.

When in doubt, press the CANCEL button and start over. The CANCEL button clears everything except the time-of-day clock and the timer.

Function Buttons

CANCEL BUTTON: Press to cancel all operations except the time-of-day clock and timer.

SET KNOB: Turn in either direction to enter time or temperature. Knob is also used to select HI or LO broil.

TIMER (Minute Minder): The timer can be set from 5 seconds to 9 hours, 50 minutes. It will count down by minutes (1 hour or more time) or seconds (less than 1 hour of time), then signal at the end of the set time.

CLOCK SET (Time of Day): Use this button to set the time of day or recall current time of day.

SELF CLEAN: This button is pressed to set the oven for a clean cycle.

COOK TIME: The oven can be set to automatically cook for a set length of time.

STOP TIME: The oven can also be set to automatically start and stop at preset times, either immediately or at a delayed time.

BROIL HI/LO: Two heat selections are available for broiling - HI and LO.

BAKE TEMP: The bake temperature is set by pressing this button and turning the SET knob.

To Set Time-Of-Day Clock:

1. Press CLOCK SET button. "TIME" will light in the display.
2. Turn SET knob to the correct time-of-day. After one minute, the word "TIME" will disappear and the clock will advance.

When power is first supplied to the range, or if there is a power failure, the display will blink. Follow instructions to set the clock.

To Set Timer:

1. Press TIMER button. "TIMER" will light in the display.
2. Turn SET knob to the desired time. The timer will start automatically.

TO CANCEL, turn SET KNOB TO 00:00, or press and hold the TIMER button.

AUTOMATIC OVEN COOKING

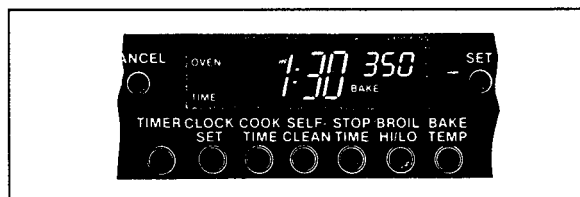
The automatic cooking feature is used to turn the oven on and off at a preset time-of-day. This feature can be used to delay the start of a cooking operation or a self clean cycle.

The automatic cooking feature will not operate unless the range clock is functioning and is set at the correct time-of-day.

To Bake By Time With Immediate Start:

1. Place food in the oven.
2. Press COOK TIME button. "OVEN" and "TIME" will light in the display.
3. Enter cooking time (how long you wish the food to cook) with the SET knob. The time will appear in hours and minutes.
4. Press BAKE TEMP button. "BAKE" will light in the display. Enter oven temperature with the SET knob. If this step is not done within 7 seconds after entering the cook time, the control will beep until another button is pushed.
5. The oven will automatically turn on and begin to heat. "ON" will light in the display. The display will begin to count down.

At the end of the preset cooking time, the oven will automatically turn off and beep three times.



EXAMPLE

Food is to cook for one and a half hours at 350 degrees F.

1. Press COOK TIME button.

2. Turn SET knob until 1:30 (1 hour, 30 minutes) appears in the display.
3. Press BAKE TEMP button.
4. Turn SET knob until 350 degrees appears in the display. The oven will turn on immediately.

To Bake By Time With Delayed Start:

1. Place food in oven.
2. Press COOK TIME button. "OVEN" and "TIME" will light in the display.
3. Enter cooking time with SET knob.
4. Press STOP TIME button. "STOP TIME" will light in the display.
5. Enter the time you wish the oven to turn off by setting the SET knob. "DELAY OVEN" will light in the display.
6. Press BAKE TEMP button. "BAKE" will light in the display.
7. Enter oven temperature with the SET knob.

The oven will automatically turn on in time to have the food ready by the pre-selected STOP TIME.



EXAMPLE

Food is to cook two and a half hours at 300 degrees F. You wish the food to be cooked by 6:00.

1. Press COOK TIME button.

2. Turn SET knob until 2:30 (2 hours, 30 minutes) appears in the display.
3. Press STOP TIME button.
4. Turn SET knob until 6:00 appears in the display.
5. Press BAKE TEMP button.
6. Turn SET knob until 300 degrees appears in the display.

The oven will turn on at 3:30, cook the food for 2 1/2 hours and will automatically turn off at 6:00.

ADDITIONAL INFORMATION:

1. The electronic control will continuously beep if you delay in entering a complete program. If you hear the beeps, just continue entering the program as described. When the control is set, the beeps will stop.
2. To reset or cancel the program, press the CANCEL button.
3. After setting the Automatic Cooking feature, press the CLOCK button and the time-of-day will reappear in the display. "DELAY OVEN" and the present oven temperature will remain in the display as a reminder that the oven is set for a delayed cooking operation.

SELF CLEAN OVEN

PREPARE OVEN FOR SELF CLEANING:

1. Remove all pans from the oven. Oven racks should be washed by hand. If left in during the self-clean cycle, they may gradually discolor.
2. Clean oven frame, door frame and around the oven vent with a nonab-

rasive cleaning agent such as Bon Ami. These areas are not exposed to cleaning temperatures and should be cleaned to prevent soil from baking on during the clean cycle.

3. Wipe up excess grease or spillovers from the oven bottom to prevent excessive smoking during the clean cycle.
4. **Do not use oven cleansers or oven liner protective coatings of any kind on the self clean oven finish or around any part of the oven.**
5. To prevent damage, do not clean or rub the gasket around the front oven frame. The gasket is designed to seal in heat during the clean cycle..

To Operate Self Clean Cycle With Immediate Start:

1. Close oven door and move door lock lever to the right until it rests in the locked position.
2. Press SELF CLEAN button. "CLEAN TIME 3:00" will appear in the display. Also, "CLEAN ON" will light as the oven begins to heat.

The oven will automatically set a clean cycle of three hours. A shorter (2 hours) or longer (4 hours) clean cycle can be selected by turning the SET knob.

If the door is not in the locked position as described, "door" will flash in the display and a beep will sound.

To Operate Self Clean Cycle With Delayed Start:

1. Close door and move door lock lever to the right until it rests in the lock position.

2. Press STOP TIME button.
3. Turn SET knob until the time you wish the oven to turn off appears in the display.
4. Press SELF CLEAN button. "DELAY CLEAN TIME" will appear in the display. When the clean cycle begins, "DELAY" will disappear and the "ON" symbol will light.

DURING THE SELF CLEAN CYCLE:

The oven automatically begins to heat up when the door lock lever is pulled to the right and the SELF CLEAN button is pressed. After the oven has heated for 10-15 minutes, the door will lock. At this point, the oven door cannot be manually opened, and lock will appear in the display.

The first few times the oven is cleaned, some smoke and odor may be detected. This is normal and will reduce or disappear with use. If the oven is heavily soiled, or if the broiler pan is accidentally left in the oven, smoke and odor may occur.

TO INTERRUPT OR RESET THE CLEAN CYCLE:

If the door has not locked, the lock lever can be pulled completely to the left to cancel the cycle.

If the door has locked, push the cancel button.

AFTER SELF CLEAN:

1. About one hour after the clean cycle is completed, the door lever can be returned to its original position and the door opened.

2. Some soil may leave a light gray, powdery ash which can be removed with a damp cloth. If stain remains, it indicates that the clean cycle was not long enough. The stain will be removed during the next clean cycle.

If the oven racks were left in during self clean and do not slide smoothly, wipe racks and embossed rack supports with a small amount of vegetable oil to restore ease of movement.

3. Fine, hair-like lines may appear in the oven interior or oven door. This is a normal condition resulting from heating and cooling of the porcelain finish. These lines do not affect the performance of the oven.

PREHEATING OVEN

Preheating is necessary for baking. It is not necessary to preheat for broiling or roasting. Allow oven to heat until the desired oven temperature is reached as shown in the digital display. A short beep will sound at the end of the preheat time.

Selecting a temperature higher than desired will NOT preheat the oven any faster. Preheating at a higher temperature may have a negative effect on baking results.

IMPORTANT

DO NOT MOVE DOOR LATCH TO THE RIGHT DURING BROILING OR BAKING. Range door may lock, elements turn off, and the door may stay locked until oven cools.

HOW TO BAKE

1. When cool, position rack in oven depending on what you are baking.
2. Press BAKE TEMP button. BAKE DEGREE will appear in the display. Turn the SET knob to the desired oven temperature. The temperature reading will increase by 5 degree increments up to 550 degrees.

The "ON" indicator will light and the temperature display will read 100 degrees. The temperature display will raise in 5 degree increments while the oven is preheating. When the preheat temperature is reached, a short beep will sound and the display will read the preset bake temperature.

3. Place food in center of oven, allowing a minimum of 2 inches between utensil and oven walls.
4. Check food for doneness at minimum time in recipe. Cook longer if necessary. Turn oven off by pressing CANCEL button. Remove food from oven.

TO BROIL

1. Before broiling, trim excess fat to prevent excessive spattering and cut slashes in the outer edges of the meat to prevent curling during cooking.
2. Press the BROIL HI/LO button and turn the SET knob to either HI or LOW temperature. HI BROIL is used for most broil operations. LO BROIL

should be selected when cooking foods for very short periods of time and when cooking foods to the well-done stage to prevent excessive browning. Cooking times may increase if LO BROIL is selected.

3. Place broiler pan on the recommended rack position. If food is placed too close to the element overbrowning and smoking may occur. Generally for brown exterior and rare interior, the meat should be close to the element. Place further down if you want meat well done.
4. Place food in oven. Leave oven door opened to the broil "stop" position during broiling.
5. Follow suggested times in broiling chart.
6. Check doneness by cutting a slit in meat near center for desired color.
7. To cancel or end broil, press the CANCEL button.

OVEN BAKE TEMPERATURE

During bake, the electronic control regulates the bake and broil element on and off times to maintain the proper temperature range in the oven cavity. The broil element is cycled on and off at intervals to produce quarter top heat during the bake function.

If a customer complains that the oven is not baking properly then bear in mind that the cooking times and temperatures of a previous range may still be in use and may be the basis for the source of the complaint, especially on a

newly installed range. If this is the case then an adjustment of the cooking times and temperatures by the customer may be necessary until familiarity and experience are gained. Recommended cooking times, temperatures and baking problems are outlined in the Use & Care Manual supplied with the oven.

If further servicing is necessary then check the oven temperature.

OVEN TEMPERATURE PRELIMINARY

INSTRUMENTS:

A thermocouple type test instrument is recommended for checking the oven temperature. A mercury thermometer is not recommended because of inaccuracies which may exist with the thermometer and its use.

The instrument should be checked for accuracy before making an oven temperature check. This can be done by immersing the thermocouple probe in boiling water. The reading indicated should be within a few degrees of 212 degrees F, depending upon altitude.

The thermocouple used should be "weighted". Weighting the thermocouple (adding mass to the tip) reduces the amount of temperature swing which occurs at the thermocouple. Reducing the amount of temperature swing enables the thermocouple to indicate values which, when calculated, more accurately represent the actual average oven temperature.

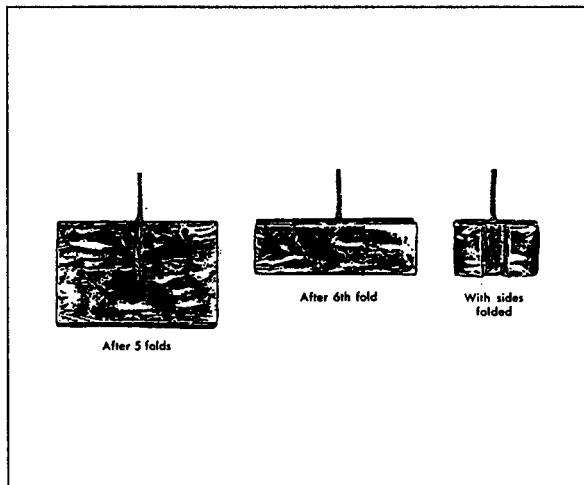
To Weight The Thermocouple:

A thermocouple can be weighted in one of two ways:

- Two (2) one-inch (1") squares of 1/16" thick aluminum can be clamped to the thermocouple tip.
- A 5" x 8" piece of aluminum foil can be attached to the thermocouple tip.

To Attach the Aluminum Foil:

1. Fold the foil five (5) times, doubling the thickness with each fold.
2. Place the thermocouple tip in the center of the aluminum piece and fold once more.
3. Fold the sides so that the foil clings to the thermocouple tip.

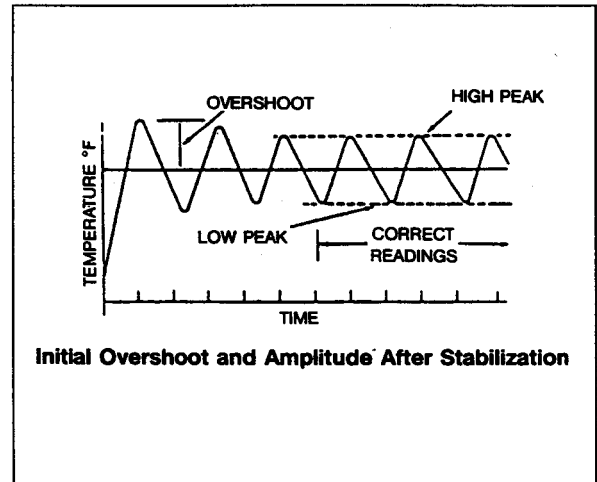


To Test Oven Temperature

1. Place the weighted thermocouple probe in the center of the oven cavity, centered from front to back, top to bottom, and side to side.
2. Program the control for bake at a temperature setting of 350 degrees F.
3. Allow the oven to heat for at least 15 minutes or until the high and low

temperature readings stabilize and become consistent.

Overshooting of the oven temperature occurs on the first cycle of the control because components have not reached operating temperature. Two (2) or three (3) full cycles are required before beginning a check of the oven temperature.



4. Calculate the average oven temperature. Add the high and low temperature reading peaks together and then divide by two (2).

EXAMPLE:

$$\text{High Peak} = 375^\circ$$

$$\text{Low Peak} = 325^\circ$$

$$375 \text{ plus } 325 = 700$$

$$700 \text{ divided by } 2 = 350$$

$$\text{Average oven temperature} = 350^\circ$$

Several readings should be taken to provide an accurate indication.

If the average oven temperature does not correspond to 350 degrees F., then

an adjustment of the temperature difference to the electronic control may be necessary.

OVEN TEMPERATURE ADJUSTMENT

The electronic control contains a scale ranging from -35 to +35 in 5 degree F. increments for oven temperature adjustment.

If the average oven temperature is less than or greater than the ability of the scale to allow readjustment and the oven temperature test performed is correct then suspect the oven sensor if and only if the remaining components of the oven heat producing system are known to be in proper working order and condition. This includes bake and broil elements, circuit continuity to bake and broil elements and high limit switch, if equipped. If no fault can be found in the remaining components of the oven heat producing system then suspect the oven sensor.

To Adjust The Oven Temperature:

1. Depress the BAKE TEMP function button.
2. Within one (1) second of each other, perform the following:
 - Rotate the SET knob to a temperature of 500 degrees F. or greater.
 - Depress and hold the BAKE TEMP button in the depressed position until the present oven temperature adjustment value appears in the display (approximately five (5) seconds). A value of 00 may appear in the display to denote an adjustment value of zero (0).
3. To raise the oven temperature, add the temperature difference to the value in the display. Example: If the present adjustment value is "0" and it is necessary to raise the temperature by 10 degrees F. then the correct value to enter into the display is "10."
 - To lower the oven temperature, subtract the temperature difference from the value in the display. Example: If the present adjustment value is "0" and it is necessary to lower the temperature by 10 degrees F. then the correct value to enter into the display is "-10."
4. Rotate the set knob until the desired value appears in the display.
5. Depress the CANCEL button to retain the new value.

A new oven temperature adjustment value may be entered in the future or the existing value checked by following the above procedure.

COMPONENTS OF ELECTRONIC CONTROL

Electronic Control

The electronic control is located in the control section attached to the clock lens.

FAULT CODES:

If a fault code appears in the display and a continuous beep sounds then press the CANCEL button. If the fault code reappears then:

1. Note the particular fault code which appears in the display
2. Disconnect the appliance from power.

FAULT CODE DIAGNOSIS:

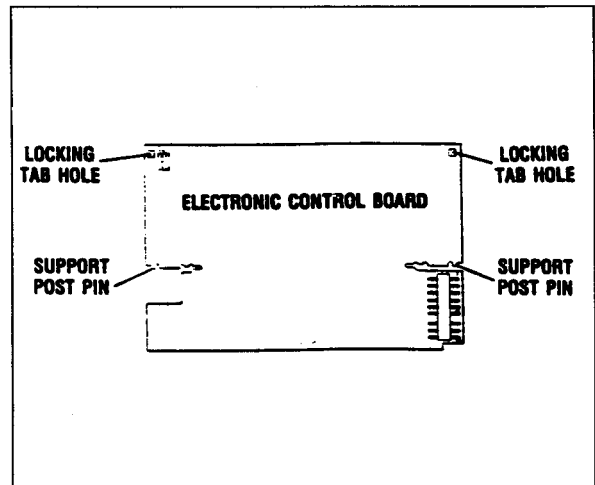
F-2 The electronic control has received an indication from the oven sensor that the oven has reached excessive temperatures. If the oven is in a run-away condition, suspect the oven sensor.

F-3 Suspect an open oven sensor or oven sensor wiring

F-4 Suspect a shorted oven sensor or oven sensor wiring.

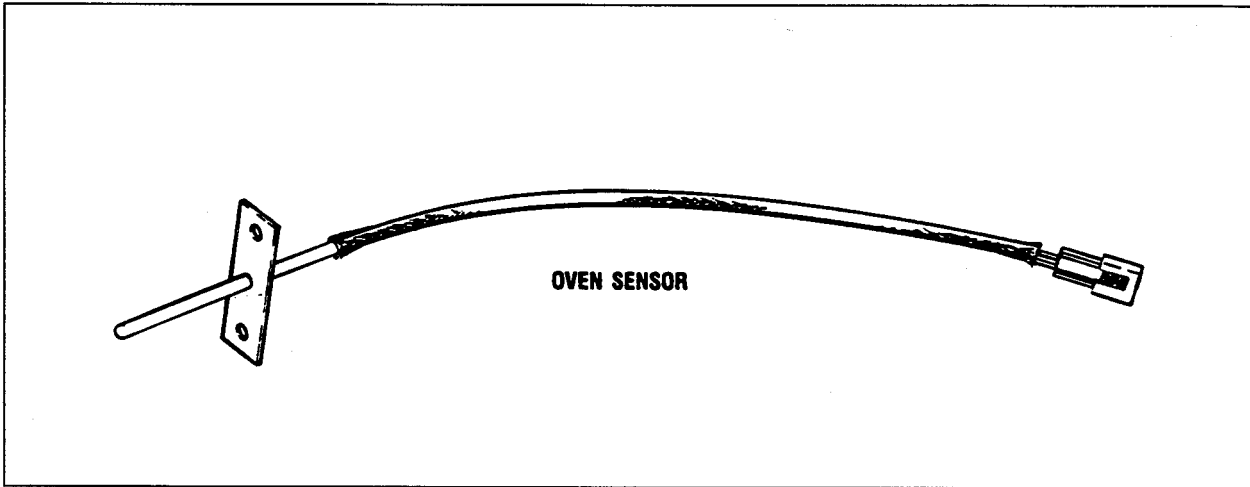
F-7 Suspect a function pad stuck in the depressed position or the electronic control.

F-0, F-1, F-5, F-6, F-8, F-9 Suspect the electronic control.



To Remove The Electronic Control Board:

1. Disconnect the appliance from power.
2. Remove the cancel button and set knob.
3. Remove the relay board wiring connector block and oven sensor wiring connector block from the junction blocks on the board.
4. Raise the locking tab at each top corner of the control until the tab clears the board.
5. Tilt the top edge of the board outward until the board clears the locking tabs.
6. Lift the board out of the support posts located at the center of each side of the board.
7. Reinstall in the reverse order of removal. Reattach wiring connector blocks to junction blocks with the locking tab on the connector block engaged by the locking cam on the junction block.



Oven Sensor

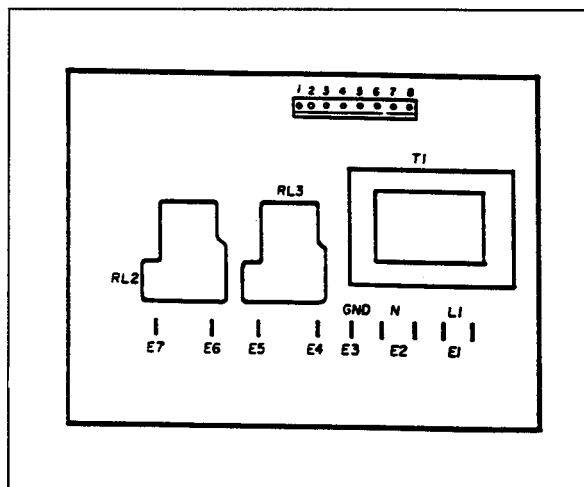
The oven sensor is located inside the oven cavity, attached to the rear wall of the cavity. As the oven temperature increases, the resistance of the oven sensor increases. The resistance is measured by the electronic control to determine the oven temperature.

To Check Oven Sensor Continuity:

1. Disconnect the appliance from power.
2. Allow the oven and the oven sensor to cool to room temperature.
3. Disconnect the oven sensor at the connector blocks.
4. Connect an ohmmeter across the terminals of the oven sensor connector block.
5. At room temperature of 60 to 80 degrees F., continuity in the range of approximately 1060 to 1100 ohms should be indicated.
6. Connect one ohmmeter lead to one of the terminals of the oven sensor connector block and the other lead to ground on the range.
7. If any resistance other than infinite resistance (open) is indicated then suspect the oven sensor.
8. Reattach the connector blocks and reassemble.

Relay Board

The relay board is located next to the electronic control. The board consists of two (2) relays, bake (RL2) and broil (RL3), and a transformer. Each relay completes the circuit to the respective bake or broil element when activated by the electronic control.



An approximate 21-24 volts DC is supplied from pins 5 and 9 of the electronic control to pins 1 and 2 on the junction block of the relay board to activate the bake element relay. An approximate 21-24 volts DC is supplied from pins 5 and 8 on the electronic control to pins 1 and 3 on the junction block of the relay board to activate the broil element relay.

The transformer on the relay board supplies two (2) sources of low voltage alternating current to power the electronic control. Pins 5 and 6 on the relay board supply an approximate 21 volts AC to pins 3 and 4 on the electronic control. Pins 7 and 8 on the relay board supply an approximate 3.2 volts AC to pins 1 and 2 on the electronic control.

CAUTION:

Do not contact the printed circuit side of the relay board when power is applied. Do not apply power to the appliance when the relay board is not securely mounted in position. Electrical contact surfaces may be exposed on the printed circuit side of the relay board and may result in the risk of accidental electric shock or damage to components.

To Remove The Relay Board:

1. Disconnect the appliance from power.
2. Remove the wiring from the relay board.
3. Squeeze the pins, allowing the board to slide clear.
4. Reassemble in the reverse order of removal. Reattach removed wires. Install the connector block with the locking tab on the connector

engaged by the locking cam on the junction block.

To Test Bake Element Relay Contacts Operation:

1. Disconnect the appliance from power.
2. Remove the wires from terminals E6 and E7 of the relay board.

CAUTION:

Insulate the exposed portion of the terminal connector on the removed wires with insulating electrical tape to prevent the risk of accidental electric shock or damage to the components.

3. Connect an ohmmeter to terminals E6 and E7 of the relay board with insulated alligator clips.
4. No continuity should be indicated.
5. Connect the appliance to power.
6. Program the electronic control for bake and select a temperature setting higher than the present oven temperature.
7. Continuity should be indicated when the relay is activated by the electronic control.
8. Press the CANCEL button to end the bake.
9. Disconnect the appliance from power.
10. Remove electrical tape before attaching removed wires.

To Check Bake Element Relay Coil Continuity:

1. Disconnect the appliance from power.

2. Remove the wiring harness connector from the junction block on the relay board.
3. Connect an ohmmeter to pins 1 and 2 of the junction block.
4. Continuity in the range of approximately 665 ohms should be indicated.
5. Reattach the harness connector with the locking tab engaged by the locking cam on the junction block.

To Test Broil Element Relay Contacts Operation:

1. Disconnect the appliance from power.
2. Remove the wires from terminals E4 and E5 of the relay board.

CAUTION:

Insulate the exposed portion of the terminal connector on the removed wires with insulating electrical tape to prevent the risk of accidental electrical shock or damage to components.

3. Connect an ohmmeter to terminals E4 and E5 of the relay board with insulated alligator clips.
4. No continuity should be indicated.
5. Connect the appliance to power.
6. To test operation for bake:
 - Program the electronic control for bake at a temperature setting higher than the present oven temperature.
 - Continuity should be indicated during intervals when the relay is activated by the electronic control
 - If operation for broil is not to be tested then proceed to step 8.

7. To test operation for broil:
 - Program the electronic control for broil and select the LO or HI broil setting.
 - Continuity should be indicated when the relay is activated by the electronic control.
8. Press the CANCEL button to end the bake or broil.
9. Disconnect the appliance from power.
10. Remove electrical tape before attaching removed wires.

To Check Broil Element Relay Coil Continuity:

1. Disconnect the appliance from power.
2. Remove the wiring harness connector from the junction block on the relay board.
3. Connect an ohmmeter to pins 1 and 3 of the junction block.
4. Continuity in the range of 665 ohms should be indicated.
5. Reattach the harness connector with the locking tab engaged by the locking cam on the junction block.

To Check Transformer Primary Winding Continuity:

1. Disconnect the appliance from power.
2. Remove the wires from dual terminals E1 and E2 of the relay board.
3. Connect an ohmmeter to terminals E1 and E2.
4. Continuity in the range of approximately 130 ohms should be indicated.

5. Reattach removed wires.

To Check Transformer Secondary Windings Continuity:

1. Disconnect the appliance from power.
2. Remove the wiring harness connector from the junction block of the relay board.
3. Connect an ohmmeter to pins 5 and 6 of the junction block on the relay board.
4. Continuity in the range of approximately 4.5 ohms should be indicated.
5. Connect an ohmmeter to pins 7 and 8 of the junction block on the relay board.
6. Continuity in the range of approximately 2 ohms should be indicated.
7. Reattach the harness connector with the locking tab engaged by the locking cam on the junction block.

Door Lock Switch

The door lock switch connected to pin 10 of the electronic control activates the display of "DOOR" when an improper function is selected in relation to the position of the door lock lever. The door lock switch is located in the area at the end of the door lock lever link.

When the door lock lever is to the left, in the unlocked position, the NO and COM contacts of the switch are open and ground is not applied to pin 10 of the electronic control. When the door lock lever is to the right, in the CLEAN position, the NO and COM contacts of the switch are closed and ground is

applied to pin 10 of the electronic control.

To Test The Door Lock Switch:

1. Disconnect the appliance from power.
2. Remove the wires from the door lock switch.
3. Connect an ohmmeter to the NO and COM terminals of the switch.
4. Continuity should be indicated when the switch lever is in the depressed position. No continuity should be indicated when the switch lever is not depressed.
5. Reassemble in the reverse order of removal. Reattach removed wires.

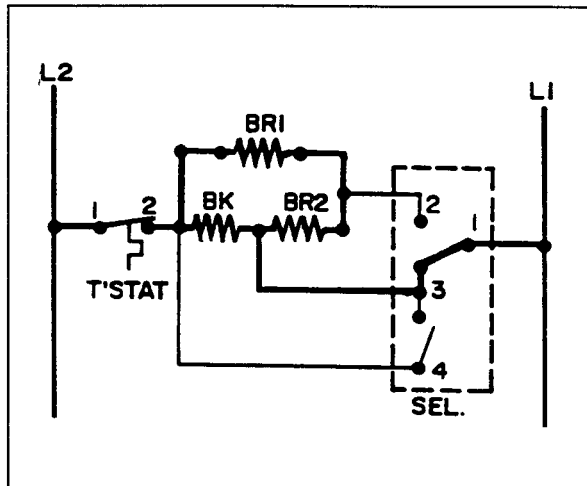
BAKE

Bake occurs when 240 volts is applied to the bake and broil elements. Applying 240 volts to the bake element will cause the bake element to glow red. The broil element(s) will not glow red but will produce quarter top heat.

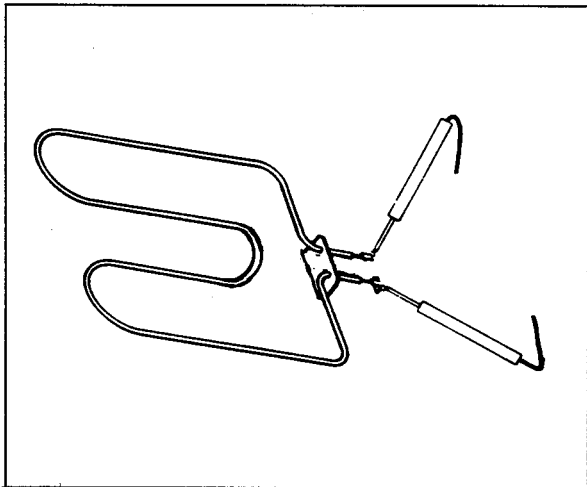
QUARTER TOP HEAT

Quarter top heat is the process of operating the broil element during bake at one-fourth (1/4) the normal wattage. Quarter top heat provides for more consistent heat distribution and top browning of food.

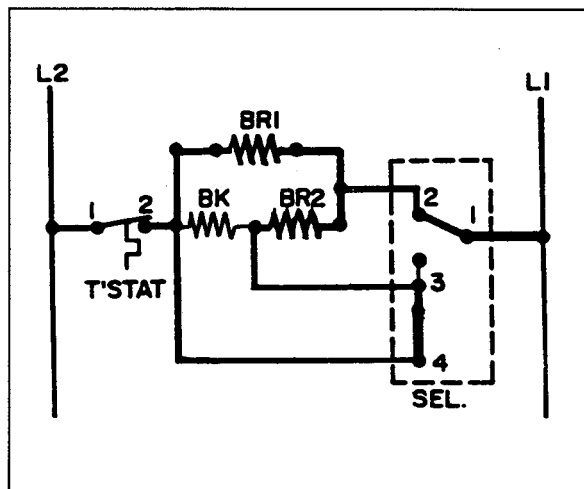
Quarter Top Heat Operation



The unit is equipped with a single section broil element. 240 volts is applied to the element during intervals (15 seconds on and 45 seconds off) to produce quarter top heat.

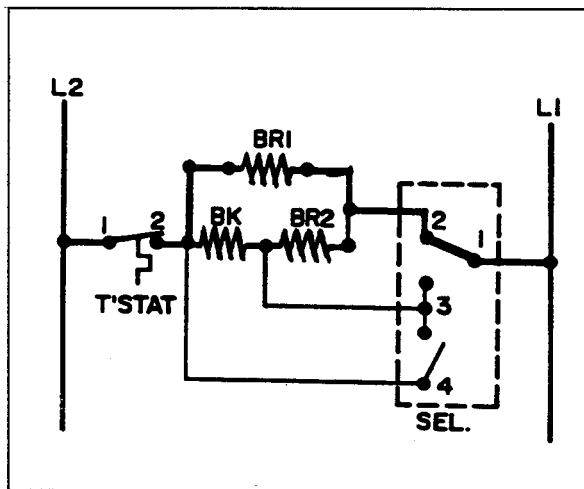


BROIL



Broil occurs when 240 volts is applied to the broil element. High broil operates at full rate. Low broil cycles at 80% rate.

CLEAN



Clean occurs when 240 volts is applied to the bake and broil elements.

The elements do not operate at the same time, and the elements may or may not cycle at intervals. The first 40 minutes the broil element is activated

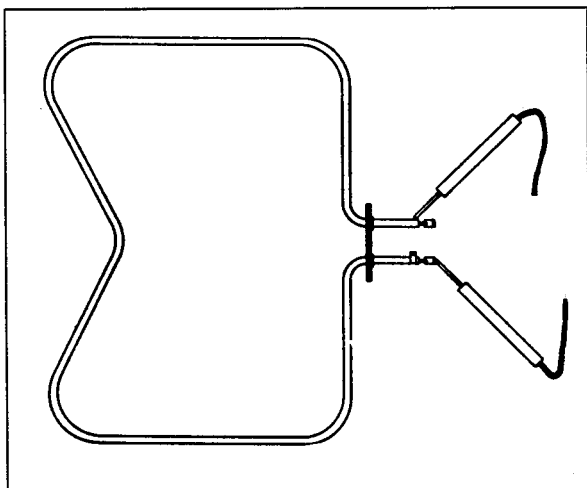
50 seconds on and 10 seconds off. After 40 minutes the broil element is off and the bake element is on the the rest of the clean cycle.

BAKE ELEMENT

Continuity of the bake element should be checked before performing an oven temperature test to make sure that a problem with continuity of the bake element does not affect the results of an oven temperature test.

Before, during or after an oven temperature test, the voltage applied to the element and amperage or wattage of the element should be checked to make sure that a problem with power (voltage applied to the element) or conductivity of the element (amperage or wattage) does not affect the oven temperature test.

Bake Element Continuity



- Bake element is rated at 2585 watts, 10.8 amps at 240 volts.
- bake element is rated at 1934 watts, 9.3 amps at 208 volts.

The amperage can be obtained by hooking an amp probe over the element in question. Be careful not to let the amp probe touch the hot element. If the amperage is incorrect and the voltage is at it should be the individual elements can be checked using an ohmmeter as described in the continuity test.

1. Disconnect the appliance from power.
2. Remove the access cover at the rear of the unit.
3. Remove one of the wires from the bake element.
4. Connect an ohmmeter to the bake element terminals.
5. Continuity in the range of approximately 22 ohms should be indicated.

BROIL ELEMENT

Continuity of the broil element should be checked before performing an oven temperature test to make sure that a problem with continuity of the broil element does not affect the results of an oven temperature test.

Before, during or after an oven temperature test, the voltage applied to the element and amperage or wattage of the element should be checked to make sure that a problem with power (voltage applied to the element) or conductivity of the element (amperage or wattage) does not affect the oven temperature test.

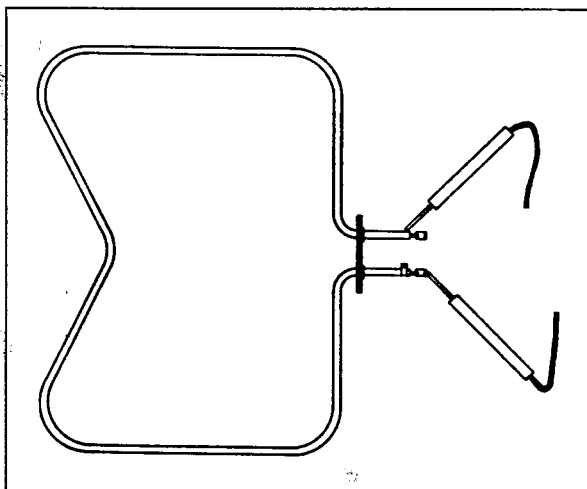
- Broil element is rated at 3200 watts, 13.3 amps at 240 volts.

- Broil element is rated at 2413 watts, 11.6 amps at 208 volts.

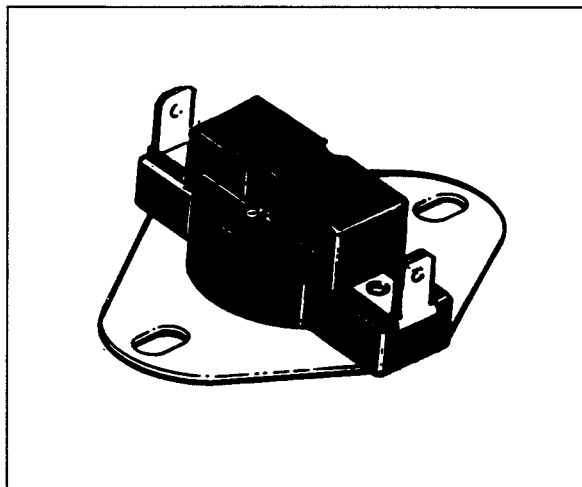
The amperage can be obtained by hooking an amp probe over the element in question. Be careful not to let the amp probe touch the hot element. If the amperage is incorrect and the voltage is at it should be the individual elements can be checked using an ohmmeter as described in the continuity test.

Single Section Broil Element Continuity

1. Disconnect the appliance from power.
2. Remove the access cover at the rear of the unit.
3. Remove one of the wires from the bake element.
4. Connect an ohmmeter to the bake element terminals.
5. Continuity in the range of approximately 18 ohms should be indicated.



HIGH LIMIT SWITCH

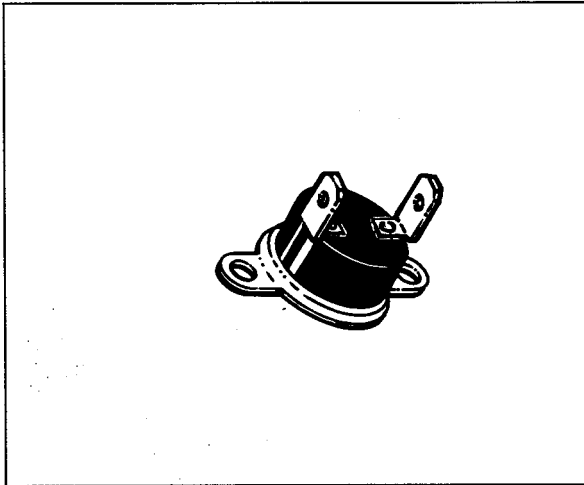


The unit may be equipped with a high limit switch. The switch is a normally closed single pole, single throw with an operating temperature in the range of approximately 270 degrees F. The switch is located on the thermo-disc support, located behind the lock mechanism.

The switch is in series with the bake and broil elements and oven signal light. When the operating temperature of the switch is reached, the switch opens and operation of the bake and broil elements and oven signal light is prevented. Power to operate the elements and oven signal light is restored when the switch cools to closing temperature and the contacts close.

Continuity should be indicated when the switch is below the operating temperature. When switch actuation at proper temperature is known to occur, then other sources for the switch actuation should be checked, such as proper oven thermostat operating temperature and blower fan operation.

FAN (BLOWER) SWITCH



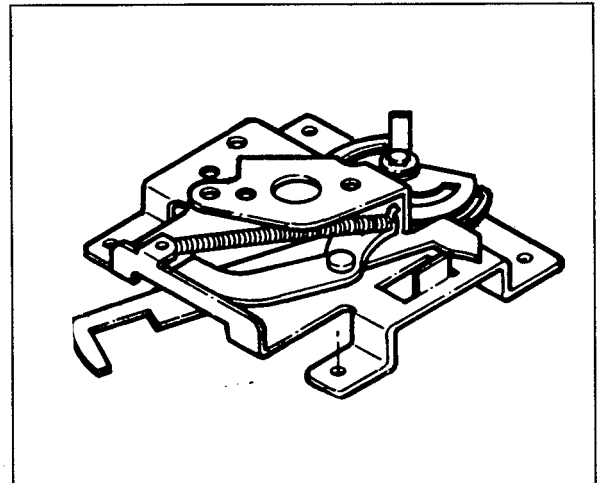
The unit is equipped with a fan switch (blower switch). The switch is a normally open single pole, single throw with an operating temperature to close at 170 degrees and opens at 120 degrees F. The switch is located next to the lock assembly and thermo-disc support, mounted to the top retainer.

The switch is in parallel with the 100 ohm dropping resistor in the blower motor circuit. The fan operates at a reduced speed anytime the oven is on or the oven temperature is over 400 degrees F. When the fan switch senses 170 degrees (surface temperature) it closes, bypassing the 100 ohm resistor, which causes the fan to run at max. speed. Anytime the oven temperature is over 400 degrees F. the fan will continue to operate.

Fan (Blower)

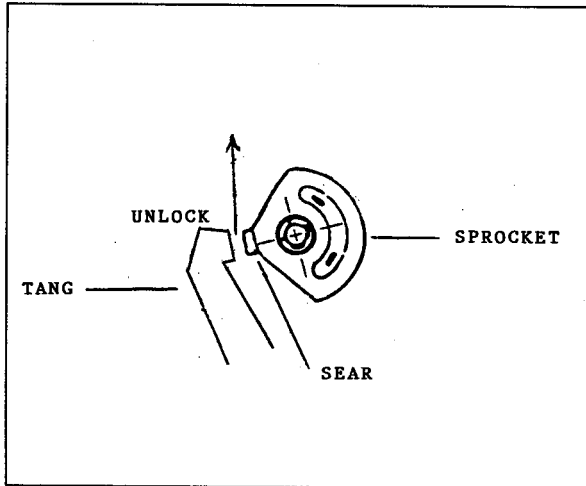
The fan is located at the top rear of the unit, mounted to the wire cover. Access is through the control panel area. Continuity of the fan motor is in the range of approximately 75 ohms.

LOCK ASSEMBLY



The lock assembly locks the oven door in the closed position for the clean cycle. When the door is closed and the door lock lever placed in the clean position the tang on the door lock is moved over to the clean position. The sprocket, connected to a spring coil, rotates counterclockwise when the spring coil is heated. The sear, the vertical post on the sprocket, is then in position to block the tang. Operation of the door lock lever is then prevented. When the spring coil cools, the sprocket and sear rotate clockwise. The tang is then free to clear the sear.

MANUAL UNLOCK:



To Manually Unlock The Door:

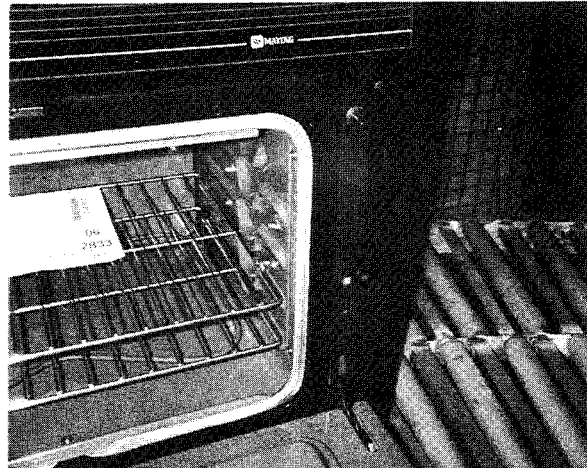
1. Disconnect the appliance from power.
2. Bend both ends of a stiff piece of wire over to a sharp 45 degree angle to form a jimmy for moving the sear.
3. Insert the jimmy into the door lock lever opening, over the lock mechanism and down to the sear. The top of the sear is approximately 3/4 inch below the top plate of the lock mechanism at the rear.
4. Push the sear to the rear approximately 1/2 inch or greater.

OVEN LIGHT

The oven light feature may be operated automatically or manually. The push switch (oven door light) is located at the top right corner of the inner side liner.

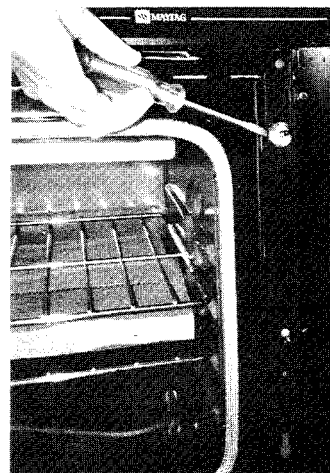
The oven light operates automatically when the oven door is opened and closed. The oven light may also be

turned on while the oven door is closed by pressing the push switch (oven light), located on the control panel.

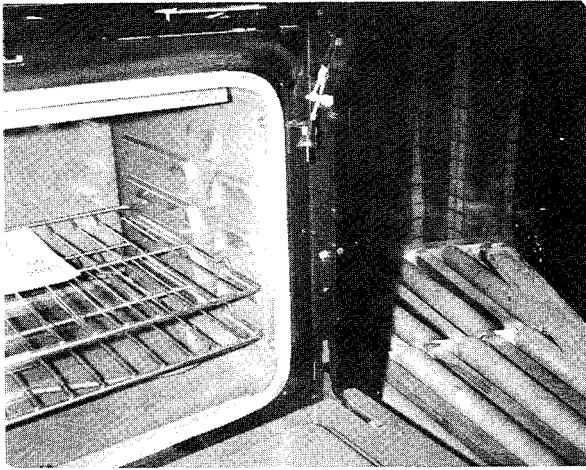


To Remove The Push Switch:

1. Disconnect the appliance from power.
2. Remove the push switch from the liner by using a flat screwdriver and inserting beneath the push switch, using a twist motion, pry switch out.

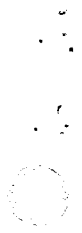


3. Pull the switch forward a sufficient distance to allow access to the terminals.



Note: Pull the switch no farther than necessary to prevent damage to wire terminals or wiring.

4. Insure that the connections are tight and secure.

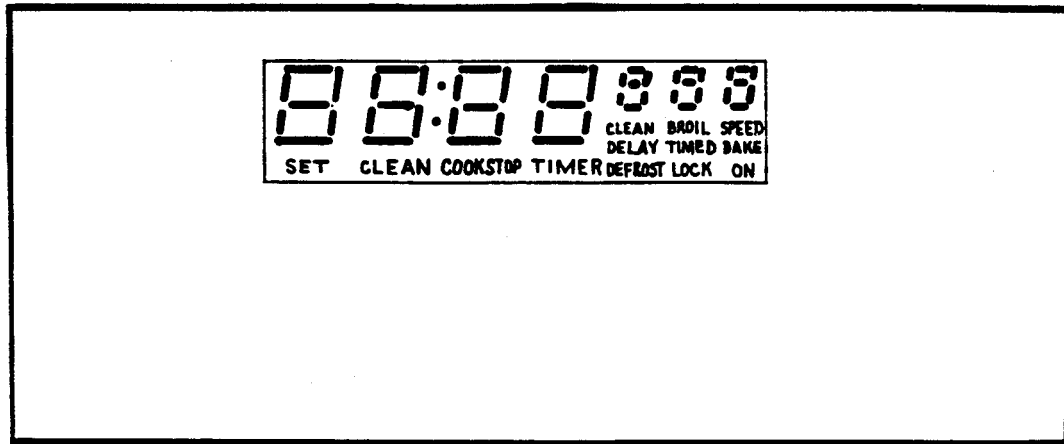


ELECTRONIC CONTROL (TYPE B)

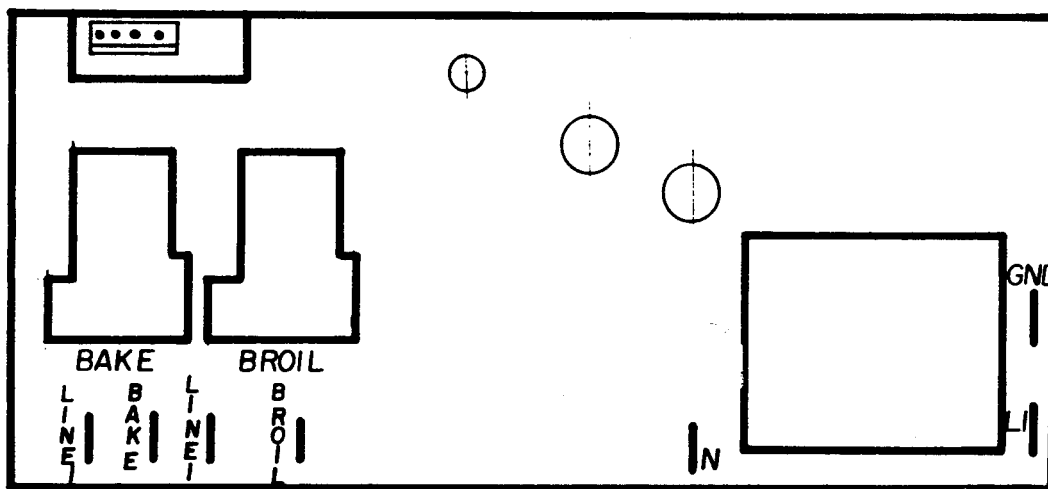
Commencing in the spring of 1991, models equipped with an electronic control will use the Type B control. Wall oven models will have the relay board mounted as an integral component of the clock. Operation, operating

parameters, and troubleshooting procedures are the same as the former electronic control.

Recognition: The Type B clock face will indicate defrost and speed bake in addition to the existing legends. Those features will not be used on current production units, nor will they be illuminated.



Typical Face of Type B Clock



Typical Relay Board

Fault Codes

The Type B Clocks will only have four (4) fault codes:

- F1 Clock
- F2 Excessive Oven Temperature
- F3 Shorted Sensor Circuit
- F4 Oven Sensor Circuit

Door:

Bake mode selected with door latched, or door with beeping sound and clean mode selected with door unlatched, or in either case door circuit.

There are no fault codes for stuck buttons. Buttons may be round, rectangular or triangular.

All fault codes will activate the cancel feature and sound the fault tone until the Stop/Clear or Cancel button is pressed or another function is selected. There is no check display function for the Type B clock.

When door is latched, lock light comes on after 400 degrees and goes out when oven cools to 200 degrees.

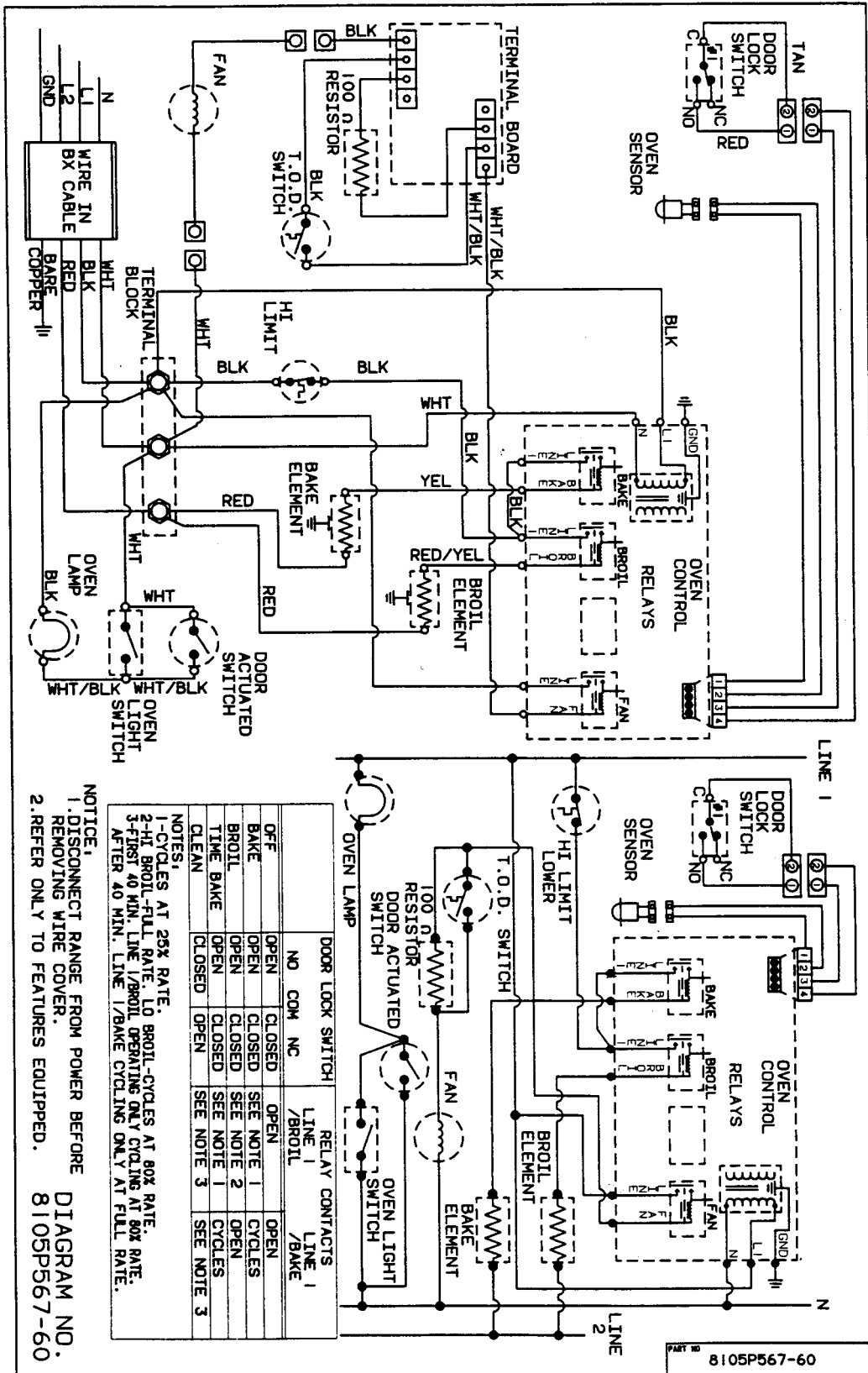
Self Clean Mode

The broil element is on the first 40 minutes, then the bake element is used the rest of the cycle.

Calibration

The Type B clock calibrates the same as the original series.

SCHEMATIC



Typical Type B Electronic Control Schematic.

SECTION 5. CHASSIS & COMPONENT SERVICE

COMPONENT ACCESS

Components on and behind the control panel may be accessed by removing the screws on top of the top front extrusion, removing the extrusion, knobs, switch nut, control glass, and screws and each side and top of the clock support.

BAKE OR BROIL ELEMENT REPLACEMENT:

The elements may be removed from the front of the unit with the following procedure:

1. Disconnect the appliance from power.
2. Remove the screws securing the element to the rear of the unit.
3. Pull the element forward a sufficient distance to allow access to the element terminals.

Note: Pull the element no farther than necessary to prevent damage to wire terminals or wiring. If the elements cannot be moved a sufficient distance, then removal of the unit from the installation is necessary. Disconnection should be done at the rear of the unit.

4. Insure that the connections are tight and secure.

LIFT OFF DOOR - LOCK LATCH EQUIPPED

To Remove The Door:

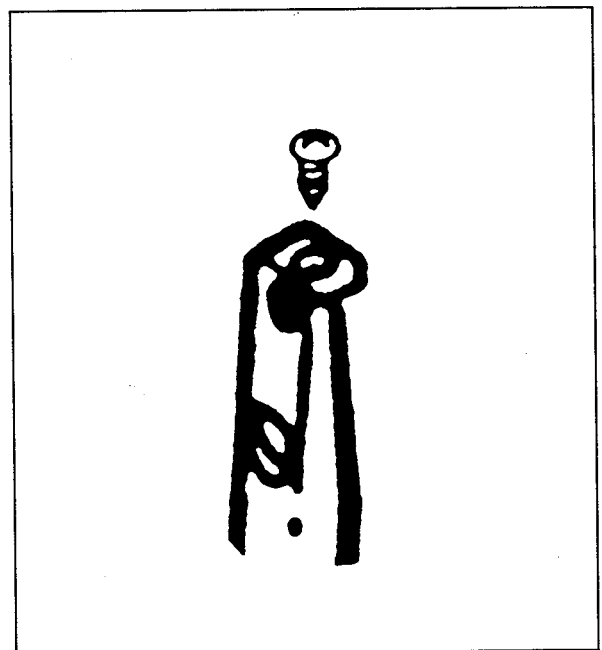
1. Open door to broil stop position.
2. Slowly lift door straight up.
3. Open door forward slightly.

Insure that latches swing down into notches on hinge arms.

To Install:

1. Align slots in door with hinge arms.
2. Open door forward slightly as door slides down onto hinge arms to disengage latches.
3. Allow door to bottom on hinge stops.

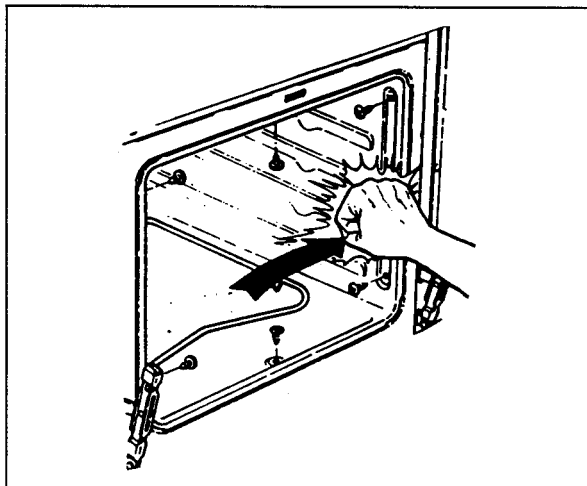
DOOR ADJUSTMENT:



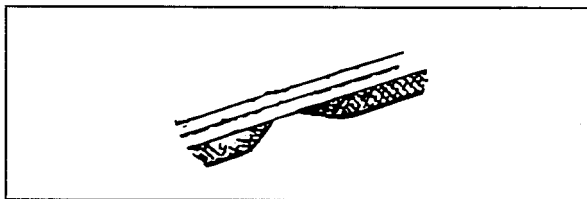
Each side of the door can be adjusted for vertical height by adjusting the screw located on top of the hinge arm.

SELF-CLEAN GASKET REPLACEMENT:

1. Remove the oven door.
2. Remove the six (6) screws around the front perimeter of the oven cavity.

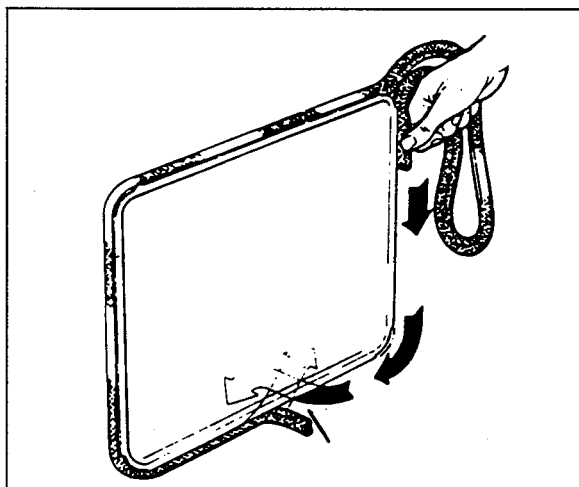


3. It may be necessary to hit the sides of the oven cavity to loosen the gasket.



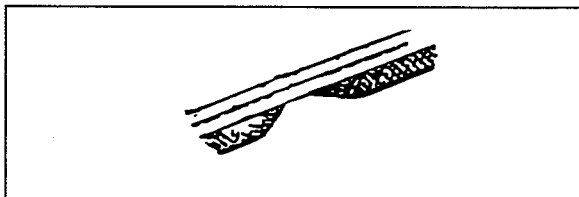
4. If the gasket is of the 2" air gap opening style, then sever the gasket next to the air gap and pull the gasket out. If the joined gasket ends at the 2" air gap opening and cannot be removed, then sever the other end of the gasket next to the 2" air

gap opening. Tuck the remnants inside the unit.



5. Thread the replacement gasket onto the cavity at either top corner and bring both ends around to meet at the bottom.

Note: The cross section of the gasket is not symmetrical. Suspending the gasket from the open ends will produce a convex and concave side. The concave side should be installed towards the front. If the gasket is joined at the ends by a staple, it will be necessary to first remove the staple before attempting to install the gasket onto the oven cavity.



6. To form a 2" air gap opening, the ends should be tucked under the cavity on each side of the bottom center.

SECTION 6. CIRCUIT DIAGRAMS

ELECTRICAL TROUBLESHOOTING

A thorough understanding of the information available on the ladder and wiring diagram, attached to each unit, is a prerequisite for quick and accurate electrical troubleshooting. The diagrams supply vital information needed to check out a circuit and pinpoint a malfunctioning electrical component.

CONTROL CHART

The control chart below the ladder diagram indicates the state (open, closed or cycling) of the control terminal contacts for each oven function. Controls are identified across the top of the chart. Beneath each control are shown the terminal contacts for that control. The list at the left side of the chart indicates the functions. The intersection of a pair of control terminal contacts to a particular function

(Control Chart - Cont'd)

indicates the state (open, closed or cycling) for a set of contacts. "O" in the chart indicates open contacts and no continuity between the contact pair should be indicated. "X" in the chart indicates closed contacts and continuity between the contact pair should be indicated. Cycling indicates that the contact pair may be either open or closed, depending upon temperature.

CIRCUIT TRACING

Both sides of the circuit from an electrical load can be traced, through conductors, controls and in some cases loads, back to the electrical supply (power). It will be necessary to determine from the ladder diagram what conductors, controls and loads are involved. The state of a pair of control terminal contacts can be determined from the control chart for a particular function.

WIRING DIAGRAM

