Installation

Operation

Maintenance

Model: ECCO-C

Electric Full Size Convection Oven

Lang Manufacturing Company
Part Number 60800-02 Revision B
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Everett, WA 98203
July 1995

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INSTALLATION

RECEIVING THE OVEN

Upon receipt, check for freight damage, both visible and concealed. Visible damage should be noted on the freight bill at the time of delivery and signed by the carrier's agent. Concealed loss or damage means loss or damage which does not become apparent until the merchandise has been unpacked. If concealed loss or damage is discovered upon unpacking, make a written request for inspection by the carrier's agent within 15 days of delivery. All packing material should be kept for inspection. Do not return damaged merchandise to Lang Manufacturing Company. File your claim with the carrier.

Uncrate the appliance as near its intended location as practical. The crating will help protect the unit from the physical damage normally associated with moving it through hallways and doorways.

The installation of any components such as vent hood, grease extractors, fire extinguisher systems, must conform to their applicable nationally recognized installation standards.

DATA PLATE INFORMATION

A data plate is located inside the control compartment above the control. Look through the perforated opening above the control panel and to the left to view the data plate. A flashlight my be helpful.

The oven voltage, wattage, serial number, wire size, and clearance specifications are on the data plate.

This information should be carefully read and understood before proceeding with the installation.

The oven is field settable for voltages 208 and 240. 480 volt ovens require being manufactured for 480 volt. The phase of the oven is field settable for single and three phase.

Refer to the ELECTRICAL section for the instructions on setting voltage and phase.

CLEARANCES

Standard minimum clearance from **combustible** construction is as follows:

2 inches from sides
4 inches from back
6 inches from floor

If the oven is set without legs on a **noncombustable** floor or a curbed base maintain a 4 inch back clearance.

If the oven is set directly against a **noncombustible** back wall maintain a 6 inch clearance to the floor.

Do not install the oven closer than 12 inches from an uncontrolled heat source, such as open flame burners or char broilers, on the right side (control side) unless a *Hi Temperature Spacer* is installed. With the spacer installed the distance to an uncontrolled heat source can be reduced to 3 inches.

Do not install the oven closer than 3 inches from another oven on the right hand side (control side).

LEGS

Legs are available for both the single and double deck installations. Single deck installations require a 27 inch leg. Double deck installations require a 6 inch leg or caster.

To install the 27 inch legs, place some cardboard on the floor and gently tip the oven onto its back. Fasten two legs to the oven's front corners using the four 5/16 inch bolts provided in the leg kit. Lift the oven onto its front legs and block the back up using one of the 27 inch legs set upside down in the center rear of the oven body. Install the last 27 inch leg onto the oven body on the control side rear. Gently lift the oven rear, remove the leg set to support the oven center and install it on the last rear corner.

To install the 6 inch legs or casters, attach the leg or caster to the leg supports supplied in the oven by following the instructions in the box, then attach the leg support to the oven.

The adjustable feet on the bottom of each leg may be screwed in or out as necessary to level the oven.

A spirit level placed on an oven rack will assist in leveling the oven.

STACKING THE OVENS

Remove all the plug buttons from the top of the lower oven.

Remove the stacking kit from the oven compartment of one oven and install the 1 1/4 inch plastic bushing into the top of the lower oven.

Tip the top oven backwards and install two 3/8 inch socket head bolts, found in the stacking kit, into the two front leg holes that match the holes in the top of the lower oven. Install the socket head bolts with the heads of the bolt pointing away from the oven.

Lift the top oven and gently set on top of the lower oven so that the heads of the socket head bolts nest into the holes in the top of the lower oven.

IMPORTANT

IF THE SERVICE CONNECTION IS TO BE MADE AT THE FRONT OF THE OVEN, BE SURE TO FEED THE TOP OVENS SUPPLY WIRES DOWN THROUGH THE BUSHING INSTALLED IN THE TOP OF THE LOWER OVEN. ALL THE WIRES SHOULD THEN TERMINATE NEAR THE CIRCUIT BREAKERS OF THE LOWER OVEN.

The ovens may now be set into position. Be careful if sliding the ovens, they were not designed to slide over cracks or obstructions in the floor.

ELECTRICAL CONNECTION

The electrical connection must be made in accordance with local codes or in the absence of local codes with NFPA No. 70 latest edition (in Canada use: CSA STD. C22.1)

The electrical service entrance is provided by a 1 1/4 inch knockout in the bottom right front corner of each oven, or at the oven back directly behind the control compartment. Grounding lugs are provided at both the front and rear service entrances.

The 208/240 volt oven is a dual voltage oven and is shipped from the factory as 208 volt. The oven must be field converted to operate on a 240 volt power supply.

To convert the oven to 240 volt, remove the jumper wire located on a terminal strip located inside the lower portion to the control compartment.

With 480 volt installations check to be sure that the motor rotates in a clockwise direction as viewed from the front of the oven.

To reverse the motor rotation, switch any two incoming power supply leads and recheck the rotation.

Supply wire size must be large enough to carry the amperage load for the number of ovens being installed. Wire size information can be found on the oven DATA PLATE.

This oven can be installed on both single and three phase supplies and is shipped from the factory unphased.

To phase the oven to match the power supply, follow the charts below for proper wire size and grouping.

AMPERAGE AND KW CHART									
MODEL	VOLT	KW				AMPERAGE			
						3 PHASE			1 PHASE
		L1 TO L2	L2 TO L3	L3 TO L1	TOTAL	LINE 1	LINE 2	LINE 3	
1 OVEN	208	6.0	2.7	2.7	11.5	36.5	36.5	22.9	55.3
1 OVEN	240	4.2	3.7	3.7	11.5	28.3	28.3	26.5	47.9
1 OVEN	480	6.0	2.7	2.7	11.5	15.6	15.6	10.5	N/A
2 OVENS	208	8.8	8.8	5.5	23.0	59.4	72.9	59.4	110.6
2 OVENS	240	7.8	7.8	7.3	23.0	54.8	56.6	54.8	95.8
2 OVENS	480	8.8	8.8	5.5	23.0	25.5	31.2	25.5	N/A

SERVICE CONNECTION					
MODEL	FRONT CONNECTION WIRE NUMBERS				
	3 PHASE			1 PHASE	
	LINE 1	LINE 2	LINE 3	LINE 1	LINE 2
1 OVEN	1,4	2	3	1,3	2,4
2 OVENS	1,4,7	2,5,8	3,6	1,3,5,7	2,4,6,8
	REAR CONNECTION WIRE NUMBERS				
1ST OVEN	5,8	6	7	5,7	6,8
2ND OVEN	7	5,8	6	5,7,5,7	6,8,6,8

GENERAL

Convection ovens constantly circulate air over and around the product. This strips away the thin layer of moisture and cool air from around the product allowing heat to penetrate more quickly.

Cooking times can be shortened and cooking temperatures can be reduced.

To convert standard deck oven recipes, reduce the temperature 50 degrees and the time by 25%. Make minor adjustments as necessary.

The lower the oven temperature the more even the bake.

Check the product near the end of the initial cooking cycle by turning on the oven light and looking through the oven door windows.

Do not open the oven doors during baking as this will change the baking characteristics of the oven and make it difficult to determine a final program.

If the product is overdone on the outside and underdone on the inside, reduce the baking temperature.

If the product is pulling away from the edge of the pan, the temperature is too high or the cooking time too long.

Load each shelf evenly. Spaces should be maintained equally between the pan and oven walls, front and back.

For best baking results, load the oven from the top to the bottom during random loading.

CONTROL PANEL

The control panel consist of the following items:

LIGHT SWITCH Turns the oven interior lights on and off.

POWER SWITCH Turns the oven on and off.

STATUS READOUT Displays the oven status (EntEr, REAdY, DonE etc.) and is the count down timer.

TIER LIGHTS Displays the tier that the program is running, mainly used during programming.

PRODUCT BUTTONS Numbered 0 to 9 these buttons contain the programs that, when selected, will run the oven.

SHELF BUTTONS Labeled A to E these buttons indicate which shelf the product is placed on, A being the top shelf.

"MAN PROG" Short for Manual Program, this button allows the operator to enter a time and temperature without being required to enter the programming code. The program is lost once the oven is turned off.

"TEMP" When pushed this button will display the current operating temperature of the oven in the STATUS READOUT.

"READ/CLEAR" Pressing this button twice then pressing a Product button instructs the oven to "read back" the times and temperatures for that product button in the STATUS READOUT. It will also switch the oven from a running program to "EntEr" when pressed and held until "88888" appears in the STATUS READOUT

MANUAL OVERRIDE Located below the control panel, behind the louvered access door. In the event of a computer failure, this switch takes control of the oven away from the computer and directs the temperature control to a manual thermostat located next to the switch.

BACK-UP THERMOSTAT Activated when the MANUAL OVERRIDE switch it set to ON. This thermostat controls the oven temperature in the event of a computer failure.

STATUS READOUT DISPLAY

The STATUS READOUT informs the operator of the oven's status.

It can be used as a countdown timer, shelf in use or internal oven temperature display during the cooking cycle (see seperate PROGRAMMING instructions).

The STATUS READOUT display informs the operator when the oven is ready to bake, or if the oven is above or below the progroammed temperature.

Below is a list of displays and their definitions:

"EntEr"	The oven is energized and ready for an operator command.
"PrEht"	Stands for PREHEAT. A product has been selected and the oven is heating to the set temperature.
"COOL"	The oven's internal temperature is below what is programmed.
"HOt"	A product change has been made and the oven's internal temperature is above what is programmed.
"ShELF"	A product selection has been made after the oven has preheated and the computer is asking which shelf the product is placed on.
"hELP"	There is a fault in the control system, the computer will not operate until service is performed.
"COnt"	Stands for CONTINOUS. The oven has been programmed without a time being entered. The oven will operate continuously at the programmed temperature.
"ErrOr"	An entry has been made during the programming which is outside the parametes of the computer.

PRODUCT AND SHELF BUTTONS

Once the PRODUCT BUTTONS are programmed, all of the oven's operation is controlled by the computer.

To select a product simply push any of the programmed PRODUCT BUTTONS which is labeled for the product you wish to cook.

Once a product button is selected, the oven will preheat to the preprogrammed temperature.

The control will not allow the operator to select a shelf until it has reached its programmed temperature.

Once the programmed temperature is reached the STATUS READOUT will display "REAdY" and the beeper will sound briefly.

Only the PRODUCT BUTTONS programmed at the oven's temperature will now be activated (the button lamp will be on).

To cook, place the product into the oven cavity and shut the oven doors. Select the PRODUCT BUTTON labeled for that product.

The STATUS READOUT will then display "ShELF", at that time press the SHELF BUTTON(S) that match the shelf position(s) the product was placed on (A equals the top shelf, E equals the bottom shelf).

If the product program is a MULTIPLE TIERED program, the operator has only one opportunity to enter a PRODUCT and SHELF selection. The computer will not allow a second selection during the cooking cycle (see seperate PROGRAMMING instructions).

When the product is done the STATUS READOUT will display "DOnE", the beeper will sound, and a SHELF BUTTON will flash indicating which product has finished baking.

Pressing the SHELF BUTTON will turn off the beeper and allow the oven to continue baking or go to stand-by with the STATUS READOUT displaying "REAdY".

PRODUCT CHANGING

If you wish to change to a product which is programmed at a different temperature you must first press the **READ/CLEAR** button until "88888" is displayed in the STATUS READOUT. Release the **READ/CLEAR** button and the STATUS READOUT will display "EntEr" and allow the selection of the new product.

When a product which is programmed at a different temperature is selected, the STATUS READOUT will display "HOt" or "COLd" until the oven has reached the programmed temperature. The computer will not allow a shelf selection until the STATUS READOUT displays "rEAdy".

Once the computer reaches the programmed temperature the beeper will sound briefly and the STATUS READOUT will display "rEAdY"

When the STATUS READOUT displays "rEAdY" any PRODUCT BUTTON which is programmed at the same temperature will also light up.

When a PRODUCT button is selected, that button will flash slowly, indicating which product is being baked.

TIME RECALL

To check the remaining cook time on a product that is baking, press the corresponding SHELF button, the STATUS READOUT will display the remaining time on the cook cycle.

CANCEL SHELF

Press the **READ/CLEAR** button twice then press the shelf to be canceled. The STATUS READOUT will display . DOnE" or the time for the next to time to done.

MANUAL PROGRAMMING

The button on the control panel labeled **MAN PROG** is the MANUAL PROGRAM button.

The MANUAL PROGRAM (MAN PROG) button allows the operator in create a short-term program for one time products.

The program will be erased when the oven is turned off or the **READ/CLEAR** button is pushed.

The MANUAL PROGRAM button is active only when the STATUS READOUT displays "EntEr".

To operate the MANUAL PROGRAM feature press the **MAN PROG** button.

The STATUS READOUT will display "000 F".

Select the desired temperature using the PRODUCT buttons **0** through **9** to a maximum of 450 degrees.

Once a temperature is entered the STATUS READOUT will display "0:00:00". The control is asking for a cooking time input.

Enter the desired cooking time using the PRODUCT buttons **0** through **9** to a maximum of 9:59:59.

If the program does not require a time, press the flashing **E** button when the STATUS READOUT displays "0:00:00". The oven will run continuously at the programmed temperature with the STATUS READOUT displaying "COnt".

No other buttons will be activated until the oven has reached the programmed temperature.

Once the oven has reached the programmed temperature the STATUS READOUT will display "rEAdY", the buzzer will sound briefly and all PRODUCT buttons which are programmed at the same temperature will also flash.

To run the MANUAL PROGRAM, load the product to be baked.

Press the **MAN PROG** button, the STATUS READOUT will display "ShELf" and the shelf lights will flash.

Press the SHELF button(s) which correspond to where the product is loaded in the oven (A equals the top shelf).

When the product is finished baking the beeper will sound continuously, the STATUS READOUT will display "dOnE", and a SHELF button will flash indicating which shelf is to be removed from the oven.

Press the flashing SHELF button to turn the beeper off.

To erase a MANUAL PROGRAM press and hold the **READ/CLEAR** button until the STATUS READOUT displays "88888" then release.

TEMPERATURE RECALL BUTTON

When pressed, the **TEMP** button will display the actual oven temperature in the STATUS READOUT.

During the preheat cycle the **TEMP** button cannot be used.

READ/CLEAR BUTTON

The **READ/CLEAR** button will change the oven from a run mode to "EntEr", allowing the operator to select another product which is programmed at a different temperature.

To change from "rEAdY" to "EntEr" or cancel a running program, push and hold the **READ/CLEAR** button until "88888" appears in the STATUS READOUT then release the button. The STATUS READOUT will display "EntEr" and the control is ready to accept a new operator command.

The READ/CLEAR button can also be used to "read" and existing program.

To "read" and existing program, press the **READ/CLEAR** button twice and then press the PRODUCT button to be read.

The STATUS READOUT will scroll through the product program one entry at a time.

Always start the "read" sequence with the STATUS READOUT displaying "EntEr".

It is used during the initial programming to back up a step if an error is made during the programming sequence.

MANUAL CONTROL OVERRIDE

Should the computer control system develop a fault causing it not to function, the MANUAL OVERRIDE switch, when energized, will bypass the computer and change the oven control to a mechanical thermostat allowing the oven to continue to operate in a manual mode until service can be performed on the computer.

The MANUAL OVERRIDE control can also be used to run the oven until the computer is programmed.

The switch for the MANUAL OVERRIDE is located behind the louvered door, below the control panel.

With the switch in the Off (down) position the oven is operated by the computer.

With the switch in the On (up) position the oven is operated by the mechanical thermostat located just to the left of the switch.

Rotate the thermostat knob clockwise until the desired temperature appears at the top of the knob.

When the MANUAL OVERRIDE switch is energized, the computer control panel will turn off all displays and will not time the product.

If service is required on the Lang computer, refer to the Lang Authorized Service Agency Directory for the nearest repair agency.

CLEANING

Always start with a cold oven.

The porcelain or stainless interiors can easily be cleaned using most domestic or commercial oven cleaners.

Follow the manufacturer's instructions when using any cleaner.

Care should be taken to prevent caustic cleaning compounds from coming in contact with the blower wheel or the aluminized steel panel located directly behind the fan baffle.

The oven racks and rack slides may be cleaned by removing them from the oven and soaking them in a solution of ammonia and water.

The stainless steel door liners and oven front should normally be cleaned with a soap and water solution.

The painted surfaces should also be cleaned with a mild soap and water solution.

Discoloration or heat tint may be removed with any of the following cleaners: Penny Brite®, Copper Brite®, Du-Bois Temp®, or Past Nu-Steel®.

Always apply these cleaners when the oven is cold and rub in the direction of the metal's grain.

DOOR CHAIN ADJUSTMENT

WARNING

DISCONNECT THE OVEN FROM POWER

The door chain assembly is located directly beneath the oven doors, inside the lower trim piece.

To reach the door chain assembly remove the three screws holding the bottom trim piece in place.

Pull the trim piece forward off of the oven.

Adjustment to the door chain assembly is made by loosening the lock nut on the turnbuckle then turning the turnbuckle until the door chain is tight and the door without the handle closes just ahead of the door with the handle.

WARNING

SERVICE ON THIS, OR ANY OTHER, LANG APPLIANCE MUST BE PERFORMED BY QUALIFIED PERSONNEL ONLY. CONSULT YOUR AUTHORIZED SERVICE STATION DIRECTORY OR CALL THE FACTORY AT 206-881-7569 FOR THE SERVICE STATION NEAREST YOU.

CALIBRATION

The Lang Computerized Convection Oven is electronically controlled. Calibration of the control is not necessary nor is it available.

CONTROL PANEL REMOVAL

WARNING

DISCONNECT THE OVEN FROM POWER

Remove the two sheet metal screws going vertically into the top of the control panel.

Open the oven doors and remove the two screws holding the lower trim piece in place.

Remove the one sheet metal screw holding the bottom of the control panel to the lower trim piece.

Remove the lower trim piece from the oven.

Remove the one sheet metal screw from the lower right corner of the control panel behind the trim piece.

Grasp the control panel assembly and gently pull it forward on its slide until access is gained to the control components.

Take care when sliding the control assembly in or out so as not to snag any wires or kink the manual thermostat capillary tube.

Reverse the above procedure for installation.

ELEMENT REMOVAL

WARNING

DISCONNECT THE OVEN FROM POWER

Remove the oven racks and rack slides from the oven cavity.

Remove the four thumb screws located at the corners of the fan baffle. Remove the fan baffle from the oven.

Remove the six sheet metal screws holding the element plate to the back oven wall.

Grasp the oven element and pull the element forward into the oven cavity.

Remove the wires from the element terminals. Be sure to note the wire color for proper replacement on the element.

Reverse the above procedures for installation.

MOTOR REMOVAL

WARNING

DISCONNECT THE OVEN FROM POWER

Remove the oven racks and rack slides from the oven cavity.

Remove the four thumb screws located at the corners of the fan baffle. Remove the fan baffle from the oven.

Remove the eight 1/4 X 20 bolts from the motor plate located behind the blower wheel.

Grasp the motor plate and slide the entire motor assembly into the oven compartment.

Remove the wires from the motor and safety thermostat. Be sure to mark the wires for proper replacement.

Loosen the set screws holding the blower fan to the motor shaft.

Using a three finger wheel puller, grasp the puller ring on the blower wheel hub and tighten the puller until the blower comes off of the motor shaft.

Remove the four 5/16 bolts holding the motor to the motor mount.

Reverse the above procedure for replacement.

IMPORTANT NOTE

When replacing the blower wheel onto the motor shaft, locate the blower so the blower hub is flush with the end of the motor shaft. Adjust the motor so the blower spins straight with the motor plate before tightening the motor to the motor mount.

SAFETY THERMOSTAT REMOVAL

WARNING

DISCONNECT THE OVEN FROM POWER

Remove the oven racks and rack slides from the oven cavity.

Remove the four thumb screws located at the corners of the fan baffle. Remove the fan baffle from the oven.

Remove the eight 1/4 X 20 bolts from the motor plate located behind the blower wheel.

Grasp the motor plate and slide the entire motor assembly into the oven compartment.

Remove the wires from the safety thermostat. Be sure to mark the wires for proper replacement.

Remove the screws holding the safety thermostat bracket to the motor plate.

Remove the safety thermostat bracket from the motor plate.

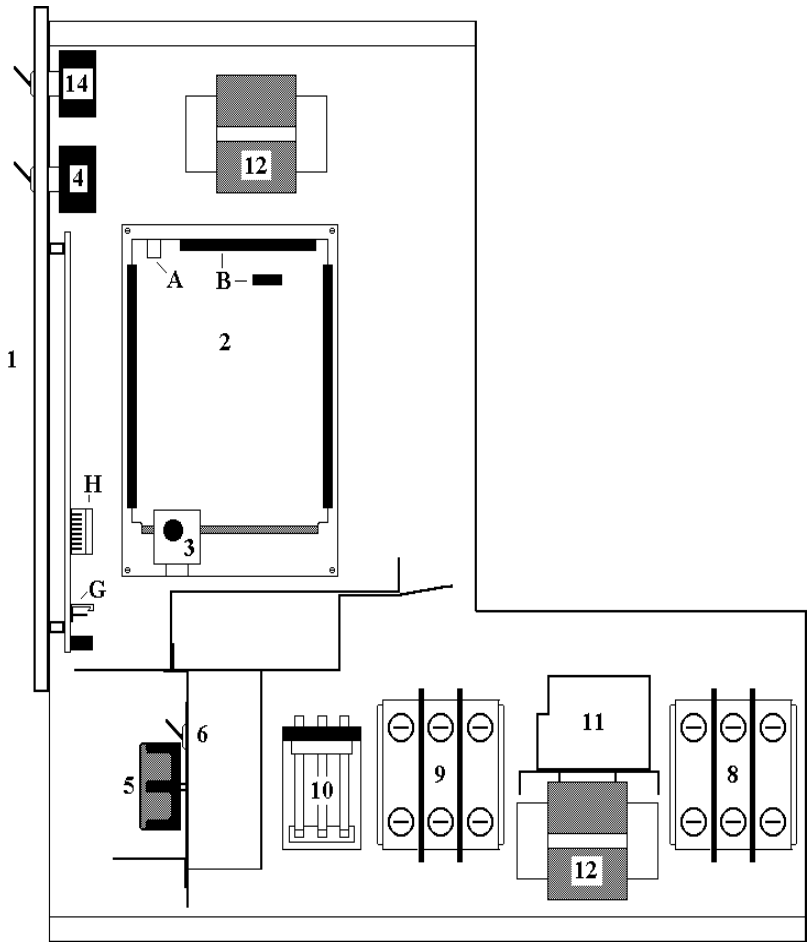
Remove the screws holding the safety thermostat to the bracket.

Remove the safety thermostat from the bracket.

Reverse the above procedure for replacement.

CONTROL PANEL LAYOUT

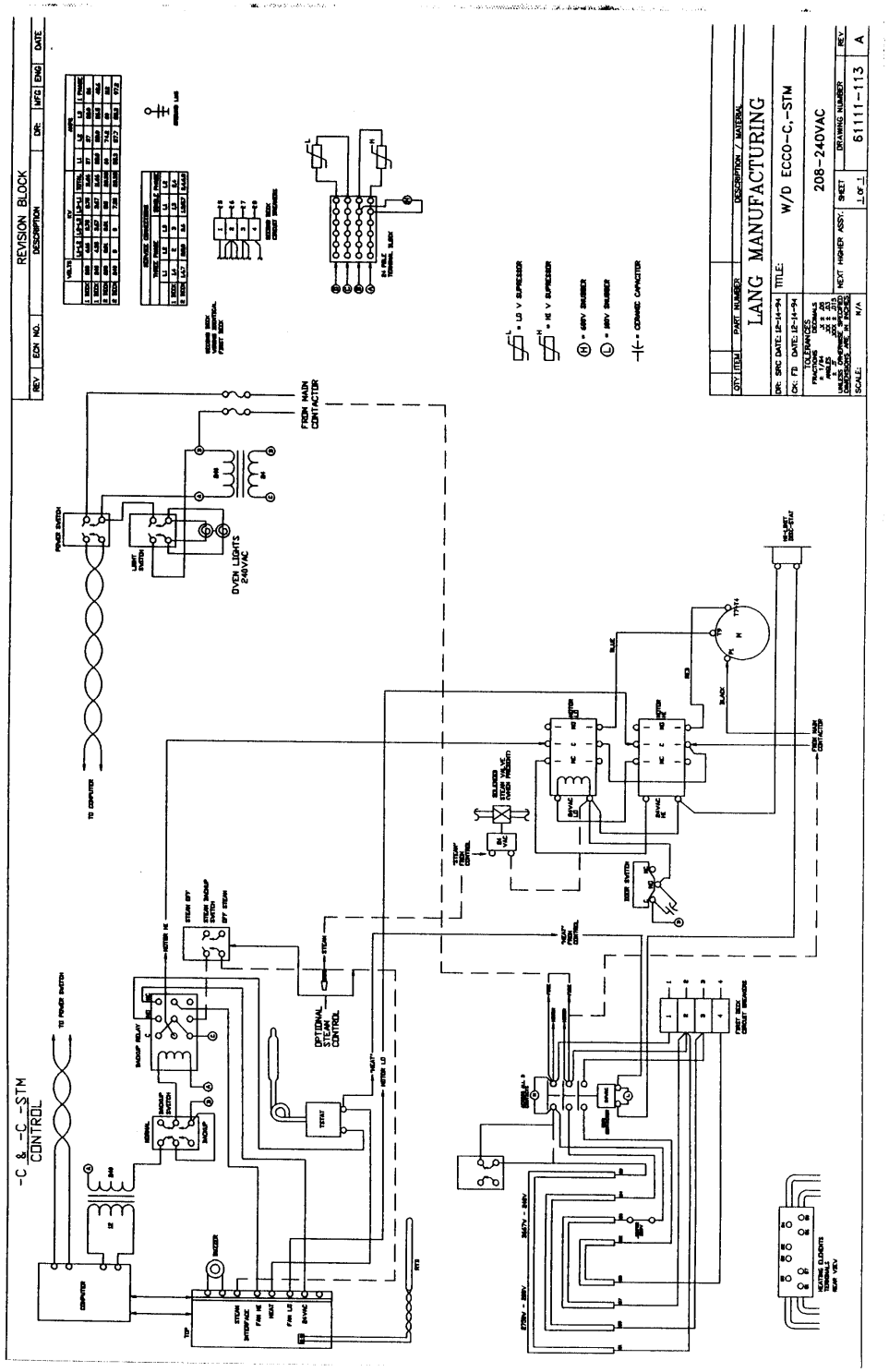
ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	Touch control panel G - Temperature sensor connection H - Output to contactors	6	Manual override switch
2	Microprocessor A - 12 volt supply B - Ribbon connectors	8	Heat contactor
3	Beeper board	9	Motor contactor
4	Power switch	10	Manual override relay
5	Manual override thermostat	11	Terminal block
		12	12 volt transformer
		13	24 volt transformer
		14	Light switch



PARTS LIST

DESCRIPTION	PART #
Bulb Socket: Oven Lamp	31602-04
Bulb: Oven Lamp	31603-04
Circuit Board Assembly: Buzzer	40102-10
Circuit Board Assembly: Front Panel	40102-08
Circuit Board Assembly: Microprocessor	40102-11
Circuit Breaker: 1 Pole	31800-01
Circuit Breaker: 3 Pole (480 Volt Units Only)	31800-04
Contactor: 2 Pole, 24 Volt Coil, 2 Speed Motor	30701-05
Contactor: 3 Pole, 24 Volt Coil, Motor/Element	30700-06
Element: Oven Heating, 208/240 Volt	11090-16
Element: Oven Heating, 480 Volt	11090-18
Fan: Convection Blower	71500-05
Fuse Holder: 15 Amp Fuse	30901-08
Fuse: Control, 15 Amp	30900-10
Handle: Oven Door	70603-15
Knob: Damper	70701-25
Knob: Manual Override Thermostat	70701-19
Motor: Convection Fan, 208/240 Volt	30200-17
Motor: Convection Fan, 480 Volt	30200-16
Rack Slide: Oven Interior	50200-32
Rack: Oven Interior	50200-59
Relay: Manual Override	30600-02
Sensor: Oven Temperature	41100-08
Switch: Micro, Oven Door	30301-02
Switch: Toggle, On-Off	30303-06
Switch: Toggle, Oven Lights	30303-07
Switch: Toggle, Manual Override	30303-06
Thermostat: Hi Limit	30401-09
Thermostat: Manual Override	30402-27
Transformer: 240/12	31400-12
Transformer: 240/24	31400-10
Transformer: 480/240 (480 Volt Units Only)	31400-04
Window: Oven Door	71301-04

208 /240 VOLT


LANG MANUFACTURING
W/D ECCO-C,-STM
208-240VAC
61111-113
-C & -C -STM CONTROL

480 VOLT OVEN