



A Division of Star Mfg. Int'l, Inc.

# **Installation, Operation, and Maintenance Instructions**

**Full Size Double Stack Convection Oven**

**Models:CCOF-AT**

**CCOFLF-AT**

**THIS MANUAL MUST BE RETAINED FOR FUTURE REFERENCE. READ, UNDERSTAND AND FOLLOW THE INSTRUCTIONS AND WARNINGS CONTAINED IN THIS MANUAL.**

**FOR YOUR SAFETY**  
**DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.**  
**POST IN A PROMINENT LOCATION**  
**INSTRUCTIONS TO BE FOLLOWED IN THE EVENT USER SMELLS GAS. THIS INFORMATION SHALL BE OBTAINED BY CONSULTING YOUR LOCAL GAS SUPPLIER. AS A MINIMUM, TURN OFF THE GAS AND CALL YOUR GAS COMPANY AND YOUR AUTHORIZED SERVICE AGENT. EVACUATE ALL PERSONNEL FROM THE AREA.**

**WARNING: IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH. READ THE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.**

<b>Model #:</b>	<b>Purchased From:</b>
<b>Serial #:</b>	<b>Location:</b>
<b>Date Purchased:</b>	<b>Date Installed:</b>
<b>Purchase Order #:</b>	<b>For Service, Call:</b>

# Table of Contents

<b>Chapter</b>	<b>Page</b>
1. Table Of Contents.....	3
2. Read First .....	4
3. Equipment Description.....	6
4. Unpacking .....	7
5. Installation.....	9
6. Initial Start-Up .....	10
7. Operation .....	11
8. Cleaning & Maintenance Procedures .....	12
9. Troubleshooting .....	13
10. Parts Lists .....	15
11. Wiring Diagrams .....	16

**CAUTION:** THE OVEN WEIGHS 430 LBS. (195 KILOGRAMS). FOR SAFE HANDLING, INSTALLER SHOULD OBTAIN HELP AS NEEDED, OR EMPLOY APPROPRIATE MATERIALS HANDLING EQUIPMENT (SUCH AS A FORKLIFT, DOLLY, OR PALLET JACK) TO REMOVE THE UNIT FROM THE SKID AND MOVE IT TO THE PLACE OF INSTALLATION.



**CAUTION:** ANY STAND, COUNTER OR OTHER DEVICE ON WHICH OVEN WILL BE LOCATED MUST BE DESIGNED TO SUPPORT THE WEIGHT OF THE OVEN (430 LBS.).



**CAUTION:** SHIPPING STRAPS ARE UNDER TENSION AND CAN SNAP BACK WHEN CUT.



**DANGER:** THIS APPLIANCE MUST BE GROUNDED AT THE TERMINAL PROVIDED. FAILURE TO GROUND THE APPLIANCE COULD RESULT IN ELECTROCUTION AND DEATH.



**WARNING:** INSTALLATION OF THE UNIT MUST BE DONE BY PERSONNEL QUALIFIED TO WORK WITH ELECTRICITY. IMPROPER INSTALLATION CAN CAUSE INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT. UNIT MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES.



**NOTICE:** The data plate is behind the access panel under the controls. 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.



**NOTICE:** The installation of any components such as a vent hood, grease extractors, fire extinguisher systems, must conform to their applicable National, State and locally recognized installation standards.



**NOTICE:** During the first few hours of operation, you may notice a small amount of smoke coming off the oven, and a faint odor from the smoke. This is normal for a new oven and will disappear after the first few hours of use.



**CAUTION:** ALWAYS KEEP THE AREA NEAR THE APPLIANCE FREE FROM COMBUSTIBLE MATERIALS.



**CAUTION:** KEEP FLOOR IN FRONT OF EQUIPMENT CLEAN AND DRY. IF SPILLS OCCUR, CLEAN IMMEDIATELY, TO AVOID THE DANGER OF SLIPS OR FALLS.



**IMPORTANT**

**READ FIRST**

**IMPORTANT**

**WARNING:** KEEP WATER AND SOLUTIONS OUT OF CONTROLS. NEVER SPRAY OR HOSE CONTROL CONSOLE, ELECTRICAL CONNECTIONS, ETC.



**CAUTION:** MOST CLEANERS ARE HARMFUL TO THE SKIN, EYES, MUCOUS MEMBRANES AND CLOTHING. PRECAUTIONS SHOULD BE TAKEN TO WEAR RUBBER GLOVES, GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING. CAREFULLY READ THE WARNING AND FOLLOW THE DIRECTIONS ON THE LABEL OF THE CLEANER TO BE USED.



**NOTICE:** Service on this, or any other, LANG appliance must be performed by qualified personnel only. Consult your LANG authorized service agent directory or call the factory at 1-800-807-9054, or WWW.STAR-MFG.COM for the service agent nearest you.



**WARNING:** BOTH HIGH AND LOW VOLTAGES ARE PRESENT INSIDE THIS APPLIANCE WHEN THE UNIT IS PLUGGED/WIRED INTO A LIVE RECEPTACLE. BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRIC POWER SUPPLY.



**CAUTION:** USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY STAR OR THEIR AUTHORIZED DISTRIBUTORS CAN CAUSE BODILY INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES.



# Equipment Description

## Model: F-11 Electric Full-Size Convention Oven

### Exterior Construction

- The oven exterior dimensions are 40" (101.6 cm) wide x 27" (68.6 cm) high x 39.5" (100 cm) Deep. The Top, Front, Back, Sides, and Bottom are all constructed of stainless steel.
- The oven doors are constructed of stainless steel.
- The door handles are constructed of stainless steel.
- The oven cavity is insulated with high temperature insulation for efficiency and reduced heat loss.

### Interior

- The oven cavity dimensions are 29" (73.5 cm) wide x 20" (50.8 cm) high x 23" (58.4 cm) deep.
- The oven comes standard with four chrome-plated racks.
- The interior of the oven is constructed of stainless steel.

### Operation

The F-11 is a forced air convection oven with a vented oven cavity.

The air is driven by a 1/3 HP fan motor.

### Controls

Power switch:	Turns the oven on and off.
Timer:	Allows for adjustment up to 60 minutes.
Thermostat:	Allows for easy temperature adjustment from 150°F-450°F.

### Technical

Oven operates as shipped on 440-volt three phase.

Floor space required is 46" (117cm) wide x 41" (104cm) deep.

The oven weighs 430 lb. (195 Kilograms).

The ovens are stackable and can include stacking kit if requested.

# Unpacking

## 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 STAR Manufacturing Company. File your claim with the carrier.

## Location

Prior to un-crating, move the oven 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.

## Un-crating

The oven will arrive completely assembled inside a wood frame covered by cardboard box and strapped to a skid. **Remove the cardboard cover, cut the straps and remove the wood frame.**

**CAUTION: OVEN WEIGHS 430 LBS. (195 kilograms). FOR SAFE HANDLING, INSTALLER SHOULD OBTAIN HELP AS NEEDED, OR EMPLOY APPROPRIATE MATERIALS HANDLING EQUIPMENT (SUCH AS A FORKLIFT, DOLLY, OR PALLET JACK) TO REMOVE THE UNIT FROM THE SKID AND MOVE IT TO THE PLACE OF INSTALLATION.**



**CAUTION: ANY STAND, COUNTER OR OTHER DEVICE ON WHICH OVEN WILL BE LOCATED MUST BE DESIGNED TO SUPPORT THE WEIGHT OF THE OVEN (430 LBS.).**



**CAUTION: SHIPPING STRAPS ARE UNDER TENSION AND CAN SNAP BACK WHEN CUT.**



Remove oven from skid and place in intended location.

## INSTALLING THE LEGS

Legs are available for single or double stack installations. Single deck installations require a 27-inch leg and double deck installations require a 6-inch leg.

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. 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, place some cardboard on the floor and gently tip the oven onto its back. Fasten the four 6-inch legs into the threaded holes provided on the bottom of the convection oven. Gently lift the oven onto the legs.

## Unpacking cont'd

### Stacking the Ovens

Stacking kits include:

- 4 each of 4' 150°C, 10 AWG copper wire.
- 4 each of locating pins (3/4"- IOUNC x 2 1/2" long).
- 1 each of 1 3/8" bushing.

Remove the five plug buttons from the top panel of the lower oven.

Install the insulating bushing in the hole provided on the top panel of the lower deck for the electrical leads to connect the top deck to the lower deck.

Install four locating pins into the threaded holes provided in the bottom of the upper deck. Screw in half way.

While aligning the locating pins with the holes, place the upper deck on top of the lower deck and lower the oven into position.

Wire is supplied for making the electrical connections between the upper and lower decks for 2F-11 installations. For three-phase connection, three wires are required between the upper and lower decks. The connection of the three wires from each deck is then made to lines L1, L2 and L3 at the lower deck per the wiring diagram.

Using the wire provided connect the top oven to the bottom oven through the 1 1/4 knock out in the bottom of the oven.



# Installation

**DANGER:** THIS APPLIANCE MUST BE GROUNDED AT THE TERMINAL PROVIDED. FAILURE TO GROUND THE APPLIANCE COULD RESULT IN ELECTROCUTION AND DEATH.



**WARNING:** INSTALLATION OF THE UNIT MUST BE DONE BY PERSONNEL QUALIFIED TO WORK WITH ELECTRICITY AND PLUMBING. IMPROPER INSTALLATION CAN CAUSE INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT. UNIT MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES.



**NOTICE:** The data plate is behind the access panel under the controls. 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.



**NOTICE:** The installation of any components such as a vent hood, grease extractors, fire extinguisher systems, must conform to their applicable National, State and locally recognized installation standards.



## 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 at the bottom of the oven. Power connections can be made at a service connection behind the access door.

## Oven Voltage

The Lang Model CCOF-AT/CCOFLF-AT oven is operated on 440-volt power source. The Amp draw, KW and rating are listed in the table below.

2F11-CLS-S	K.W Per Phase				Amps Per Line		
	L1-L2	L2-L3	L1-L3	Total	L1	L2	L3
	7.4	7.4	7.4	22.2	28.8	28.8	28.8

# INITIAL START UP

## PRE-POWER ON

After the oven is installed and connected to power, prior to turning on, verify the following:

- The door opens and closes freely.
- All four racks are in the oven correctly.
- All packing materials have been removed from the inside of the oven.

## POWER ON

When the oven is first turned on the motor will start to run and the indicator lights will light.

**NOTICE:** During the first few hours of operation you may notice a small amount of smoke coming off the oven, and a faint odor from the smoke. This is normal for a new oven and will disappear after the first few hours of use.



## INITIAL PREHEAT

Before the initial use of the range, the oven must be thoroughly allowed to dry itself out.

Set the thermostat to 350 degrees and allowing the oven to heat until all vapor and condensation has been eliminated. For best operating results allow the oven to thoroughly dry out. This may take up to 8 hours.

## TEMPERATURE-TIME CHART

The following table suggests temperature and time settings for various products. Next to the suggested settings, insert the time values that yields the best representation of your product.

Product	Temp	Time	Precise	Product	Temp	Time	Precise
Pizza	350°	15-20		Cookies	350°	8-12	
Open-Face Pies	350-375°	30		Cobbler	350°	30-35	
Two-crust Pies	350°	35		Baked Potato	400°	45-50	
Pie Shell	350°	15		Brownies	350°	10-15	
Meringue Pies	350°	10		Hamburger Patties	400°	8-10	
Layer Cake-sheet	325°	25		Chicken Parts	350°	30-40	
Sweet Rolls	300-325°	20		Meat loaf	325°	40-45	
Hamburger Buns	300-325°	20		Turkey-whole	325°	4-4.5 hr	
Dutch Apple Cake	325°	50		Roast Beef	300°	2.5-3hr	
Casseroles	275°	30-45		Fish Sticks	335°	16-18	
Cheese sandwich	400°	8-10					

## Hints & Suggestions

**CAUTION:** ALWAYS KEEP THE AREA NEAR THE APPLIANCE FREE FROM COMBUSTIBLE MATERIALS.



**CAUTION:** KEEP FLOOR IN FRONT OF EQUIPMENT CLEAN AND DRY. IF SPILLS OCCUR, CLEAN IMMEDIATELY, TO AVOID THE DANGER OF SLIPS OR FALLS.



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.

Always weigh your product. This will give you a more consistent size, color and quality.

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.

The convection is a mechanical piece of equipment. The same control settings will always give the same results. If the results vary, problems may be because of product preparation.

## Loading

When loading and unloading the oven, stage products and racks so the oven doors are opened for the least amount of time.

Be sure that racks are level within the oven.

Bent or warped pans can greatly affect the evenness of the cook or bake.

If using baker's parchment, be sure the parchment does not blow over the product. This will create an uneven bake.

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

Do not overload pan's this will create an uneven bake.

For best baking results, load the oven from the center out during random loading.

# Maintenance & Cleaning

## Cleaning

**WARNING:** KEEP WATER AND SOLUTIONS OUT OF CONTROLS. NEVER SPRAY OR HOSE CONTROL CONSOLE, ELECTRICAL CONNECTIONS, ETC.



**CAUTION:** MOST CLEANERS ARE HARMFUL TO THE SKIN, EYES, MUCOUS MEMBRANES AND CLOTHING. PRECAUTIONS SHOULD BE TAKEN TO WEAR RUBBER GLOVES, GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING. CAREFULLY READ THE WARNING AND FOLLOW THE DIRECTIONS ON THE LABEL OF THE CLEANER TO BE USED.



Always start with a cold oven.

The stainless exterior can easily be cleaned using stainless steel cleaner

Always follow the cleaner manufacturer's instructions when using any cleaner.

Care should be taken to prevent caustic cleaning compounds from coming in contact with the blower wheel.

The oven racks, rack slides, and interior may be cleaned using oven cleaner.

Discoloration or heat tint may be removed using a Carbon Release oven cleaner.

The oven interior should be cleaned using a mild soap and a non-metal scouring pad.

**DO NOT use caustic cleaners.**

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

## CALIBRATION

### Calibration Check

Place thermometer or thermocouple in the center of oven cavity.

Set thermostat to 350°.

Allow the oven to Preheat for at least half an hour.

Note cycle on temperatures and cycle off temperatures for 3 cycles. (Red indicator light indicates when oven is calling for heat)

After 3 cycles average the temperature. (Add all six temperatures and divide by 6)

### Calibration Adjustment

A 1/16" flat blade screwdriver with a 2" shaft is required to make adjustments on the thermostat.

Maintain the oven temperature at 350°.

Without turning the thermostat, remove the knob.

Locate the adjustment screw at the base of the shaft and insert the screwdriver.

Grasp the shaft and turn the screwdriver. Counter clockwise to increase and clockwise to decrease (1/8 of a turn will move the temperature 5-7 ° in either direction).

Reinstall the oven knob and recheck the oven temperature.

# Troubleshooting

## Symptoms

What follows is a chart of Symptoms and Possible Causes to aid in diagnosing faults with the oven.

Refer to the Symptoms column to locate the type of failure then to the Possible Cause for the items to be checked.

To test for a possible cause refer to the TEST section and locate the Possible Cause then refer to test to identify test procedures.

<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>
Power indicator is not lit	Tripped circuit breaker Failed power cord or plug Failed power switch Failed pilot indicator
Oven will not heat	Failed element Power switch is not ON Failed Thermostat Failed Contactor
Product burning	Product is cooked too long Failed Thermostat
Product under done	Product is not cooking long enough Failed thermostat

## Troubleshooting cont'd

### TESTS

**NOTICE:** Service on this, or any other, LANG appliance must be performed by qualified personnel only. Consult your LANG authorized service agent directory or call the factory at 1-800-807-9054, or [WWW.STAR-MFG.COM](http://WWW.STAR-MFG.COM) for the service agent nearest you.

**WARNING:** BOTH HIGH AND LOW VOLTAGES ARE PRESENT INSIDE THIS APPLIANCE WHEN THE UNIT IS PLUGGED/WIRED INTO A LIVE RECEPTACLE. BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRIC POWER SUPPLY.

If an item on the list is followed by an asterisk (\*), the work should be done by a factory authorized service representative.



Possible Cause	Test
Product is cooked too long	No test available, operational condition
Failed Thermostat	Confirm that thermostat is getting 240 volts*
Failed element	Remove the wires and check for continuity across the element
Failed heat contactor	Remove the wires from the contactor coil and check for continuity across the contactor coil connection  Ensure the contactor moveable points move freely up and down*  Check for 240 volts at the contactor coil when the computer is running*
Failed or disconnected safety thermostat	Check across the thermostat connectors for continuity

**CAUTION:** USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY STAR OR THEIR AUTHORIZED DISTRIBUTORS CAN CAUSE BODILY INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES.



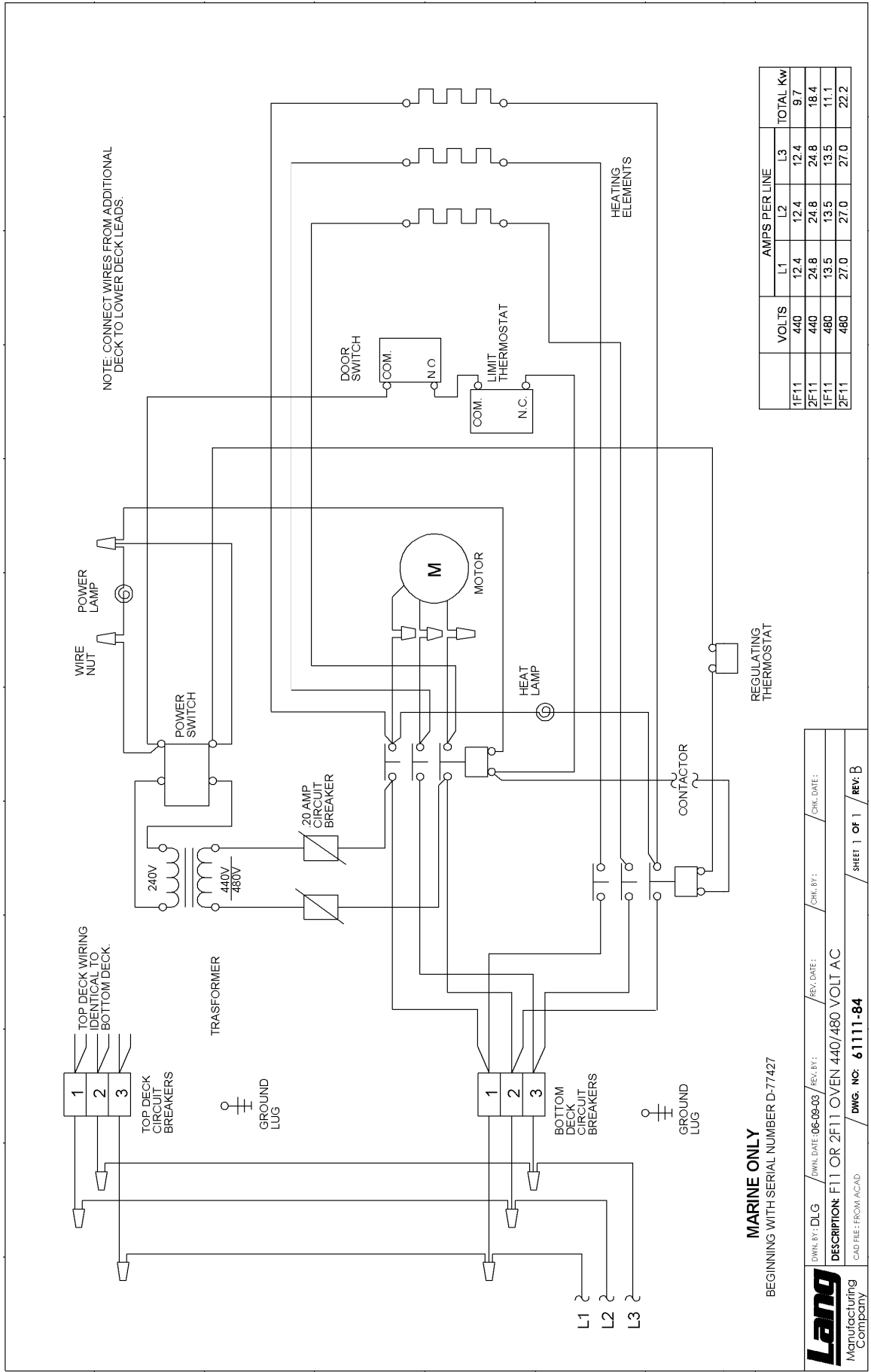
# PARTS LIST

May 21, 2007, Rev A

<b>MODELS CCOF-AT CCOFLF-AT</b> <b>Electric Convection Oven</b>
--------------------------------------------------------------------

Part No.	Description	Qty	Application
2A-72500-06	LEG 5 1/2W/BOLT DOWN ADJ	8	CCOFLF-AT440 & 480
2B-50200-51	RACK F-11 OVEN CRUISE	4	ALL
2B-50200-54	SLIDE F-11 OVEN CRUISE	2	ALL
2E-30301-02	SWT MICRO #2HLT-5 UNIMAX	1	ALL
2E-30303-06	SWT TOG ON-ON DPDT BLK	1	ALL
2E-30303-15	BOOT THREADED BLACK FOR	1	ALL
2E-30500-11	TRM BLOCK 2 PLE LG 175AMP	2	ALL
2E-30700-03	CONTC 3POLE 40A208-240VAC	2	ALL
2E-31400-04	XFRMR 480/240VAC 100VA	1	ALL
2E-31800-04	CB 480V 50A 3 POLE	1	ALL
2E-31800-07	CB 2/10 AMP 2 POLE	1	ALL
2F-70601-06	HINGE PIN, HALF HINGE	4	ALL
2F-70601-27	HINGE BRAKET UPPER LEFT	2	ALL
2F-70601-28	HINGE BRAKET LOWER LEFT	2	ALL
2J-31601-01	PILOT LT 250V 6LEAD BLK	1	ALL
2N-11090-14	ELMNT F11OVEN 480V 11KW	1	ALL
2P-51001-12	SPRNGCOMPRSN.665IDX1.4LNG	1	ALL
2R-70602-03	CATCH DOOR MAGNET 3 PC	2	ALL
2T-30401-09	STAT FXD 500 DEG OPEN	1	ALL
2T-30402-27	STAT ADJ 450 DEG 48 PILOT	1	ALL
2U-30200-03	MTR 1/3HP 480V 3PH 60HZ	1	ALL
2U-71500-01	BLOWER WHEEL PPP,F11,GPO	1	ALL
Q9-F11-162-CL	SWITCH DOOR	1	ALL
Q9-F11-179-CL	DOOR ASSY SET - NO WINDOW	1	ALL
Q9-F11-189-CL	DOOR HANDLE S/S CLS F11	2	ALL
Y9-70701-16-1	KNOB 450o A PHANTOM	1	ALL

# WIRING DIAGRAM



	AMPS PER LINE			TOTAL Kw
	L1	L2	L3	
1F11	12.4	12.4	12.4	9.7
2F11	44.0	24.8	24.8	18.4
1F11	48.0	13.5	13.5	11.1
2F11	48.0	27.0	27.0	22.2

**MARINE ONLY**  
 BEGINNING WITH SERIAL NUMBER D-77427

	DWN. BY: DLG / DWN. DATE: 06-09-03 / REV. BY: / REV. DATE: / CHK. BY: / CHK. DATE: /
	DESCRIPTION: F11 OR 2F11 OVEN 440/480 VOLT AC CAD FILE: FROM ACAD / DWG. NO: 61111-84 / SHEET 1 OF 1 / REV: B