

# **Lang**<sup>TM</sup>

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

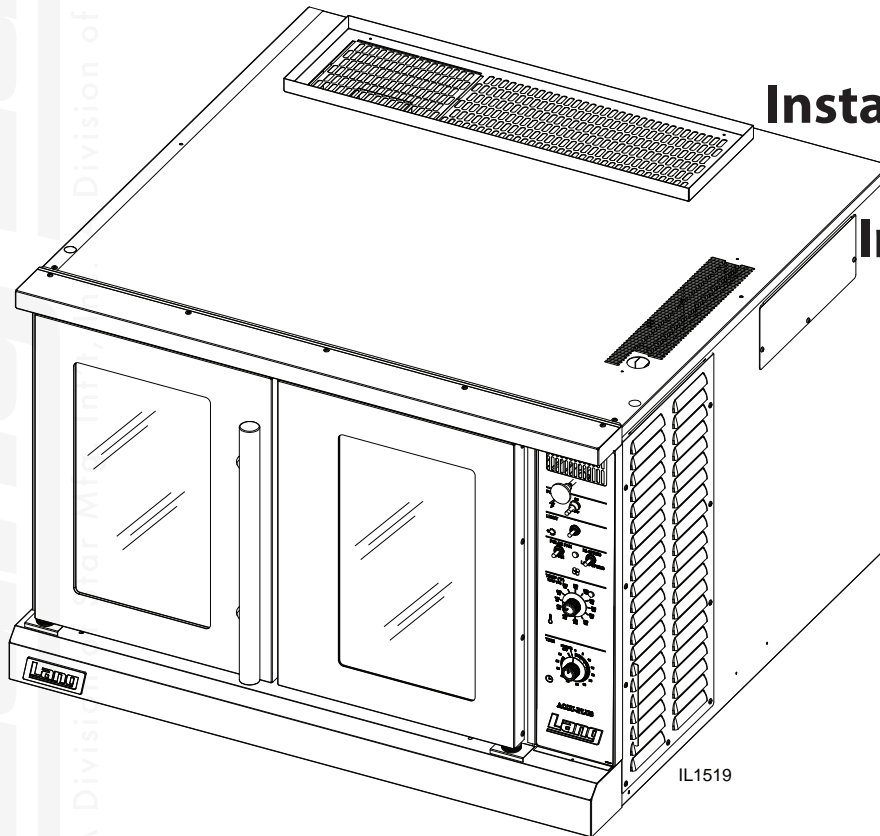
## **ELECTRIC FULL SIZE COMPUTERIZED CONVECTION OVEN**

ECOD-AP

ECOF-AP

### **Installation and Operation Instructions**

2M-W488 Rev.D 2/5/09



ECOF-AP



## SAFETY SYMBOL



These symbols are intended to alert the user to the presence of important operating and maintenance instructions in the manual accompanying the appliance.

### FOR YOUR SAFETY

**DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINTY OF THIS OR ANY OTHER APPLIANCE.**

### POST IN 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, OPERATION & MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.**



### WARNING

**RISK OF FIRE OR ELECTRIC SHOCK  
DO NOT OPEN**



**WARNING, TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE CONTROL PANEL. NO USER-SERVICABLE PARTS INSIDE. REPAIRS SHOULD BE DONE BY AUTHORIZED SERVICE PERSONNEL ONLY.**

### NOTICE

Using any part other than genuine Lang factory supplied parts relieves the manufacturer of all liability.

Star reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.

Due to periodic changes in designs, methods, procedures, policies and regulations, the specifications contained in this sheet are subject to change without notice. While Star Manufacturing exercises good faith efforts to provide information that is accurate, we are not responsible for errors or omissions in information provided or conclusions reached as a result of using the specifications. By using the information provided, the user assumes all risks in connection with such use.

## MAINTENANCE AND REPAIRS

Contact your local dealer for service or required maintenance. Please record the model number, serial number, voltage and purchase & Installation Information in the area below and have it ready when you call to ensure a faster service.

Model No.: \_\_\_\_\_

Purchased From: \_\_\_\_\_

Serial No.: \_\_\_\_\_

Location: \_\_\_\_\_

Voltage: \_\_\_\_\_

Purchase Date: \_\_\_\_\_

1-Phase or 3 Phase: \_\_\_\_\_

Installed Date: \_\_\_\_\_



## PROBLEMS, QUESTIONS or CONCERNS

Before you proceed consult you authorized Lang service agent directory  
or  
Call the Lang Technical Service & Parts Department at 1-800-807-9054.

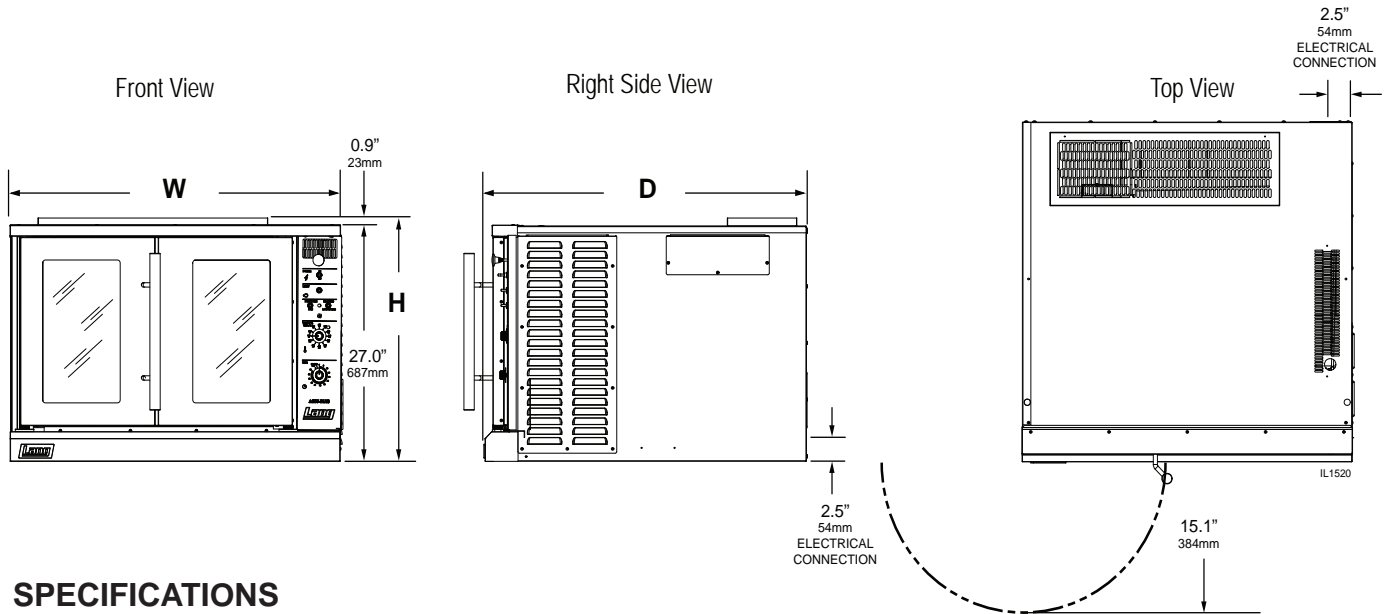
### TABLE OF CONTENTS

Specifications . . . . .	4
Equipment Description . . . . .	5
Unpacking . . . . .	6
Installation	
Leg Installation . . . . .	7
Leg Pad Adapter Installation . . . . .	8
Stacking the Oven. . . . .	9
Ventilation & Clearence . . . . .	10
Electrical Connection . . . . .	11
Oven Voltage . . . . .	11
Initial Start-Up	
Pre-Power On . . . . .	12
Power On . . . . .	12
General Operation & Programming	
Control Panel . . . . .	13
Typical Operation Sequence . . . . .	13
Hints & Suggestions. . . . .	14
Loading . . . . .	14
Maintenance	
Cleaning. . . . .	15
Troubleshooting	
Symptoms / Possible Causes / Test. . . . .	16
Wiring Diagram	
208/240VAC . . . . .	17
220V/308VAC 4 Wire & 240V/415VAC 4 Wire . . . . .	18
380V/480VAC . . . . .	19
Exploded View & Parts List . . . . .	20-27

**NOTICE** Service on this or any other Lang appliance must be performed by qualified personnel only. Consult your Lang Authorized Service Agent Directory. You can call our toll free number 1-800-807-9054 or visit our website [WWW.STAR-MFG.COM](http://WWW.STAR-MFG.COM) for the service agent nearest you.

## SPECIFICATIONS

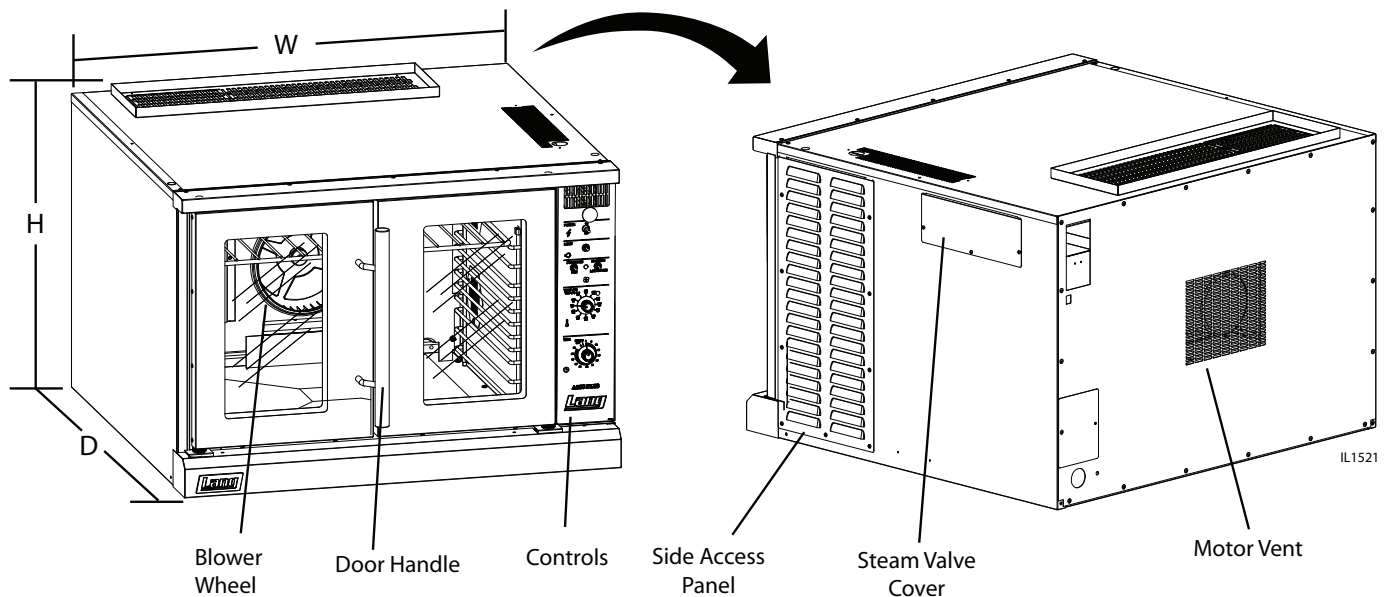
Model	Height x Width x Depth (without optional stand)	Clearance from combustible surface	Weight Installed Shipping Freight Class		
<b>ECOF</b>	27.9" x 40.1" x 39.1" 708mm x 1019mm x 994mm	Side:6", Back: 6", Floor: 6"	380 lbs. (173 kg)	420lbs (191 kg)	70
<b>ECOD</b>	27.9" x 40.1" x 46.0" 708mm x 1019mm x 1168mm	Side:6", Back: 6", Floor: 6"	460 lbs. (209 kg)	500lbs (227 kg)	70



## SPECIFICATIONS

Current Number	Previous Model	VOLTS AC	Oven Qty	H <sub>z</sub> .	MOTOR AMPS	PHASE	AMPS 3PH / NEUTRAL	KW TOT.	SUPPLY WIRE 1 PH	L1	L2	L3	SUPPLY WIRE 3 PH
ECOD-AP	ECCO-APXD-C	208V	1	50/60	3.3	1/3		11.5	6 GA.	6.0	2.7	2.7	8 GA.
			2			1/3		23	1 GA.	8.8	8.8	5.5	4 GA.
		240V	1			1/3		11.5	6 GA.	4.2	3.7	3.7	10 GA.
			2			1/3		23	2 GA.	7.8	7.8	7.3	4 GA.
ECOD-AP-480V	ECCO-APXD-U	480V	1	60		3		11.5		15.6	15.6	10.5	14 GA.
ECOF-AP	ECCO-AP-C	208V	1	60	3.3			11.5	6 GA.	6.0	2.7	2.7	8 GA.
			2	60	3.3			23	1 GA.	8.8	8.8	5.5	4 GA.
		240V	1	60	3.3			11.5	6 GA.	4.2	3.7	3.7	10 GA.
			2	60	3.3			23	2 GA.	7.8	7.8	7.3	4 GA.
ECOF-AP-380V	ECCO-AP-K	380V	1	50		3		11.5		19.7	19.7	12.2	12 GA.
ECOF-AP-480V	ECCO-AP-U	480V	1	60		3		11.5		15.6	15.6	10.5	14 GA.
ECOF-AP-M	ECCO-AP-CM	208V	1	50/60	3.3	1/3		11.5	6 GA.	6.0	2.7	2.7	8 GA.
			2			1/3		23	1 GA.	8.8	8.8	5.5	4 GA.
		240V	1			1/3		11.5	6 GA.	4.2	3.7	3.7	10 GA.
			2			1/3		23	2 GA.	7.8	7.8	7.3	4 GA.
ECOF-AP2/4FA	ECCO-AP2/4FA	240/415V	1	50		3PH-4 WIRE	17.8	11.5		17.8	15.3	15.3	12 GA.
ECOF-AP380FA	ECCO-AP-KFA	380V	1	50		3		11.5		19.7	19.7	12.2	12 GA.
ECOF-AP440VM	ECCO-AP-SM	440V	1	60		3		11.7		17.5	17.5	10.8	12
ECOF-AP480VM	ECCO-AP-UM	480V	1	60		3		11.5		15.6	15.6	10.5	14

## EQUIPMENT DESCRIPTION



### Exterior Construction

The oven exterior dimensions are listed in the Specification Section. The Top, Front, Back, and Sides are constructed of heavy duty 430 stainless steel, with an attractive No. 4 finish.

The ovens simultaneous-opening heavy duty doors come standard with double pane windows.

The door handle is constructed of Stainless Steel and Phonolic Tubing.

The oven cavity is insulated with high temperature insulation for efficiency and reduced heat loss.

### Interior Construction

The ECOF oven cavity dimensions are 29" (72.5 cm) Wide, 20" (50.84 cm) High, 21" (53.38 cm) Deep.

The ECOD oven cavity dimensions are 29" (72.5 cm) Wide, 20" (50.84 cm) High, 27" (53.38 cm) Deep.

The interior of the oven is constructed of porcelainized stainless steel.

### Operation

The ECOD-AP and ECOF-AP ovens are forced air convection ovens with a vented oven cavity.

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

### Controls

Easy to use manual control knobs.

Solid state temperature sensing and controls.

Pulse and two-speed fan.

### Technical

The ECOD-AP and ECOF-AP ovens come in voltages of 208/240V, 380V, 440V or 480V.

This must be specified when ordering.

Floor space required is 48" (122.6 cm) wide, 44" (112.5 cm) deep.

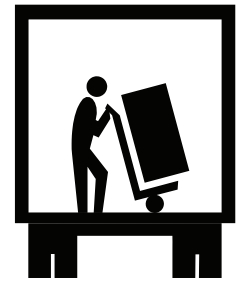
The oven weighs 430 lbs.

**NOTICE** The data plate is on the back side of the oven above the power cord. 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.

## 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 it 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 to 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 and strapped to a skid. Cut the straps and remove the wood frame.

The oven can now be removed from the skid.

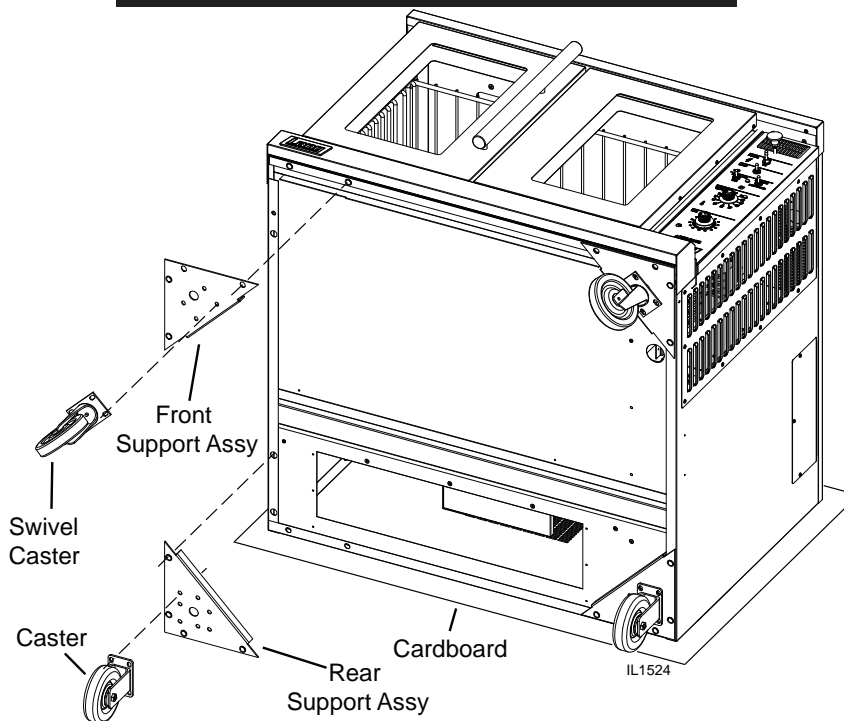


**EACH UNIT WEIGHS 420 or 500 LBS. FOR SAFE HANDLING, INSTALLER SHOULD OBTAIN HELP AS NEEDED, OR EMPLOY APPROPRIATE MATERIALS HANDLING EQUIPMENT (SUCH AS A FORKLIFT, DOLLY, OR PALLET JACK) TO REMOVE THE UNIT FROM THE SKID AND MOVE IT TO THE PLACE OF INSTALLATION.**

**ANY STAND, COUNTER OR OTHER DEVICE ON WHICH OVEN WILL BE LOCATED MUST BE DESIGNED TO SUPPORT THE WEIGHT OF THE OVEN.**

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

# INSTALLATION



**Above:** typical leg and caster installation.

**Below:** accessory options, legs, casters & equipment carts sold separately. Follow installation instructions with the each specific kit.

## Leg Installation

Legs are available separately for both the single and double deck installations. Single deck installations require a 27-inch leg or equipment cart. Double deck installations require 6-inch legs or casters. All these are available separately.

Place some cardboard on the ground and with assistance carefully lay the unit on its back. In stacked

The adjustable feet may be screwed in or out as necessary to level the oven. A torpedo level placed on an oven rack will assist in leveling the oven.

## Double-Stack Ovens

To install the 6-inch legs, adj. feet or casters on the lower unit, follow the Leg Pad instructions in the following section or in the instructions included with the leg pads.

## Single Oven

To install 27" legs or cart to your unit, place the unit laying on its back onto a piece of cardboard. Be sure to read all instructions & follow the instructions provided with the kit.

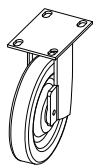
## 27" Leg Installation

With unit in position, fasten the two legs to the front corner pads then to the oven's front corners using the four 5/16 inch bolts provided in the leg kit. See leg pad adapter illustration to determine differences between front & rear support assemblies.

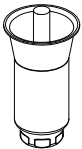
Lift the oven onto its front legs and block the back up using one of the 27-inch legs set upside down in the center rear of the oven body. Install the third 27-inch leg onto the oven body on the control side rear. Gently lift the oven rear, remove the temporary support leg & install it on the last rear corner.

## Accessory Options

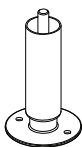
### Stacked Units



Caster Sets

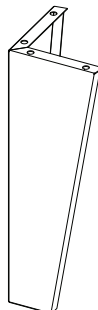


6" Adj. Leg Sets

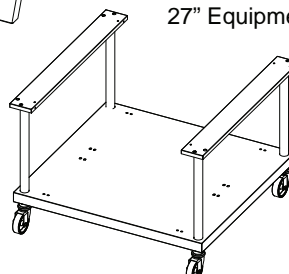


6" Adj. Bolt Down Leg Sets  
(marine only)

### Single Units



27" Leg Set  
(marine also)

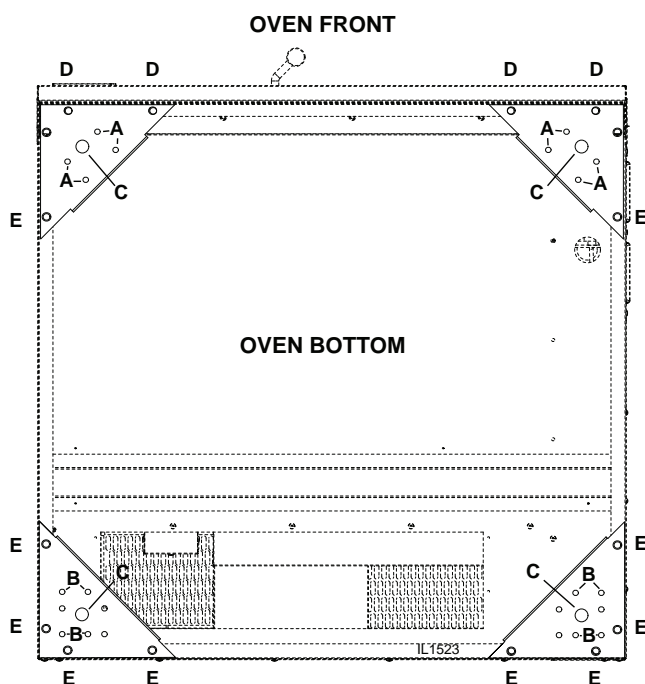


27" Equipment Cart

IL1525



## INSTALLATION cont.



**Above:** Bottom on unit showing the placement of the leg adapters and their hole assignment.

labeled "B". NOTE: There are two sets of "B" holes set at 90° from the each other. One set will create a left rear adapter and the other set will create a right rear adapter.

Install four 5/16-inch bolts through the caster base and the adapter holes labeled "B" then install 5/16-inch nuts with lock washers and flat washers.

### Adapter to Oven Installation:

Gently tip the oven onto its back. Place the front leg adapter into the front corners of the oven. The holes without the threaded inserts face the front of the oven and the flange on the adapter points toward the bottom of the oven.

The edge of the leg adapter with the threaded insert slips under the flange on the oven side, while the edge without the inserts sits on top of the threaded angle on the oven front.

Install two 3/8-inch bolts with lock washers and flat washers through the front holes "D" in the leg adapter and into the threaded inserts on the oven.

Thread one 3/8-inch bolt with lock washer and flat washer into the rear threaded hole labeled "E" on each of the leg adapters.

The forward threaded hole on the front leg adapter does not get a bolt installed.

Place the rear leg adapters into the rear corners of the oven so that the adapter is under the flange of the oven side and back.

**NOTE:** If installing a caster place the adapter on the oven so that the casters roll forward.

Install for 3/8-inch bolts with lock washers and flat washers through the holes labeled "E" in the flange of the oven and into the threaded inserts of the leg adapter.

## Leg Pad Adapter

Identify the front and rear leg adapters (the front adapters have two threaded inserts, the rear has four). The leg adapters are included with each specific accessory kit.

### Leg to Adapter Installation:

Install the leg's threaded stud through the hole in the adapter labeled "C" with the bent flange of the adapter facing away from the leg.

Screw the 3/4-inch nut supplied in the adapter kit onto the leg stud and tighten. Secure to oven using hardware provided.

### Caster to Adapter Installation:

Place the swivel caster against the front leg pad adapter with the flange of the adapter facing away from the caster.

Install the four 5/16 inch bolts through the caster base and the adapter holes labeled "A" then install the 5/16 inch nuts with washer and lock washers.

Place the rigid casters against the rear leg adapter with the flange of the adapter facing away from the caster.

Align the caster to the holes in the adapter



## INSTALLATION cont.

### Stacking the Ovens

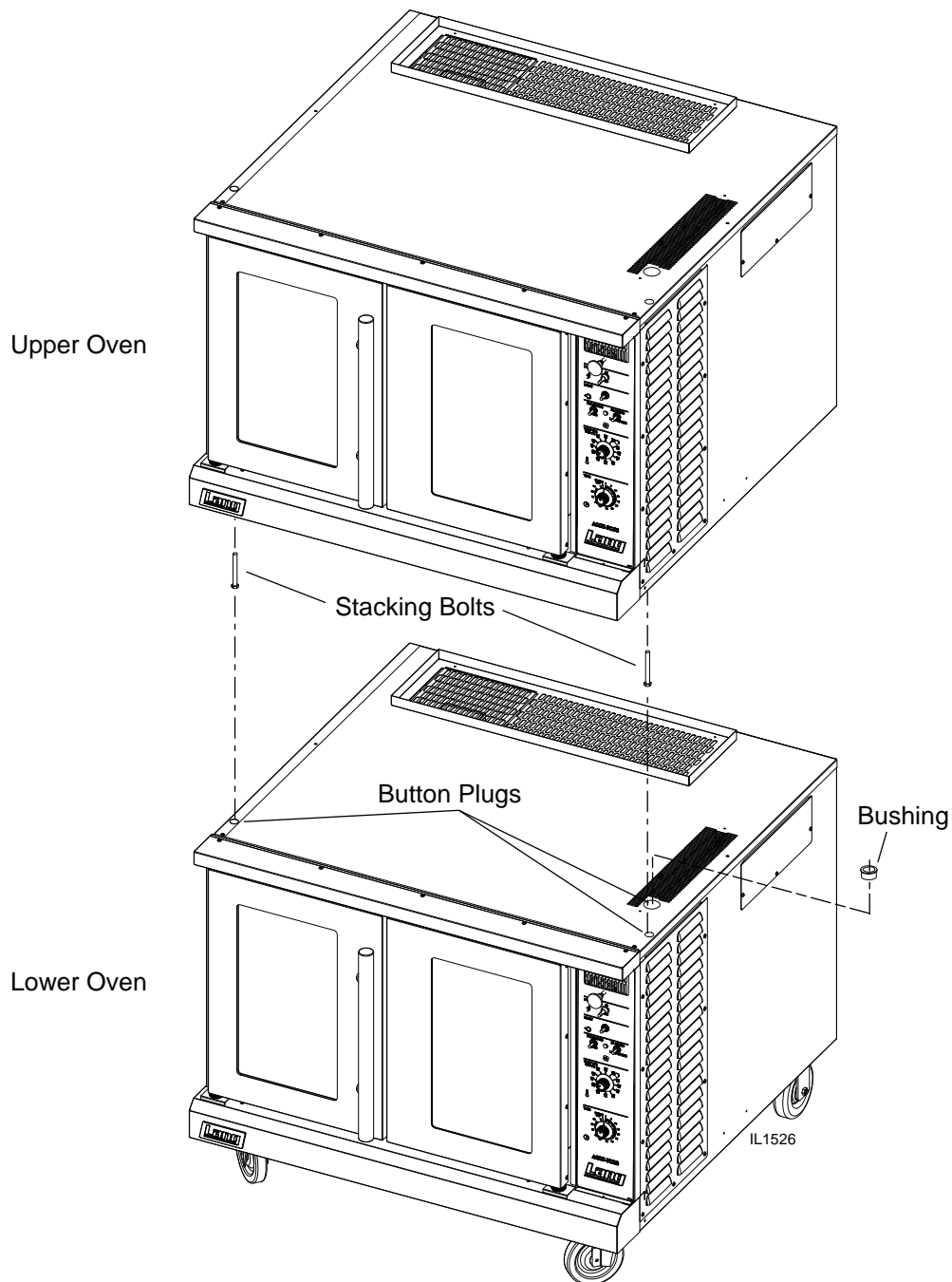
Remove all the plug buttons from the top of the lower oven.

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.

**NOTE:** Each unit must have separate electrical connections



## INSTALLATION continued

### Ventilation and Clearances

Standard minimum clearance from combustible construction is as follows.

4" from side

4" from back

6" from floor

- These ovens may be set directly, without legs, on a curbed base or non-combustible floor.
- If the oven is set without legs on a non-combustible floor or a curbed base, maintain a 4-inch back clearance.
- If the oven is set directly against a non-combustible back wall, maintain a 6-inch clearance to the floor.
- Do not install the oven closer than 4 inches from another oven on the right hand side (control panel side).
- Do not install the oven closer than 12 inches from an uncontrolled heat source (char broiler etc.) on the right side.
- Keep the area free & clear of combustible material, and do not obstruct the flow of combustion or ventilation air.
- The installation of any components such as a vent hood, grease extractors, and/or fire extinguisher systems, must conform to the applicable nationally recognized installation standards.

**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.**

## INSTALLATION continued

### 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 under the control compartment behind the bottom trim piece. As well as changing the transformer input wire to the 240V, color on the primary side of transformer (see illustration below).

With 380V, 440V & 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 or in the specifications section on page 4..

208/240V ovens can be installed on both single and three-phase supplies and is shipped from the factory for three-phase. To phase the oven to match the power supply, follow the charts on the wiring diagram located at the back of the manual.

Certain units are provided with or can be purchased with a Cord & Plug kit (Part number 9Q-ECOF-CK). This kit includes a 48" cord with a NEMA L15-50P plug and is for 208/240V units ONLY. In stacked situations each units needs to have separate cord & plug assemblies.

### Oven Voltage

The Lang Model ECOF & ECOD ovens can be operated on 208, 240-volt (single or three phase), or 380/440/480V (three phase only) source. The Amp draw, KW rating, and phasing can be found in specification section of this manual.



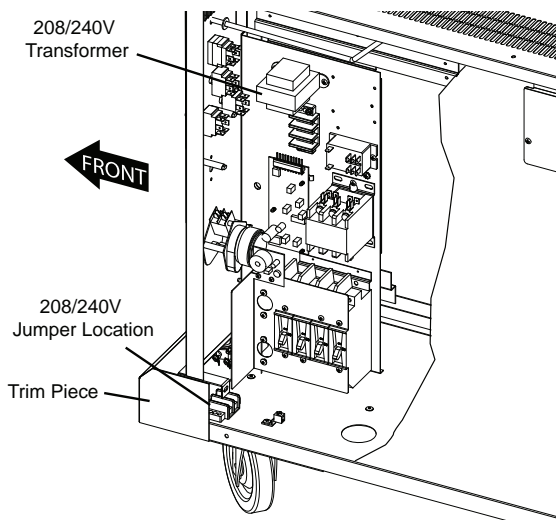
**WARNING**

**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.**



*Left: 208/240V Dual Volatage units are shipped as 208V and must be field converted to 240V.*

## INITIAL START UP

### Pre-Power On

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

- The doors open and close freely.
- All racks are in the oven correctly.
- All packing materials have been removed from the inside of the oven.

### Power On

Once oven has been turned on verify that the blower wheel is spinning freely in a clockwise position and that the elements are heating properly.

Confirm that both thermostat knob and timer knob move freely and that the timer beeps..

**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.**

## General Operation & Programming

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.

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.

Do not open the oven door 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.

A convection oven 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 changes in the product preparation.

### ECOF-AP / ECOD-AP Control Panel

The Control panel consists of the following items.  
Detailed operational descriptions are given later in this section.

**Vent Knob:** When open, allows moisture to escape the cooking chamber, allowing a dryer bake. (*ex: crispy fries*)

**Power:** Turns the oven on and off

**Pulse Fan:**

*Pulse Setting:* Fan will only turn ON, when the oven is calling for heat.

*Fan Setting:* Fan is on continuously, speed is determined by the Hi/Low switch.

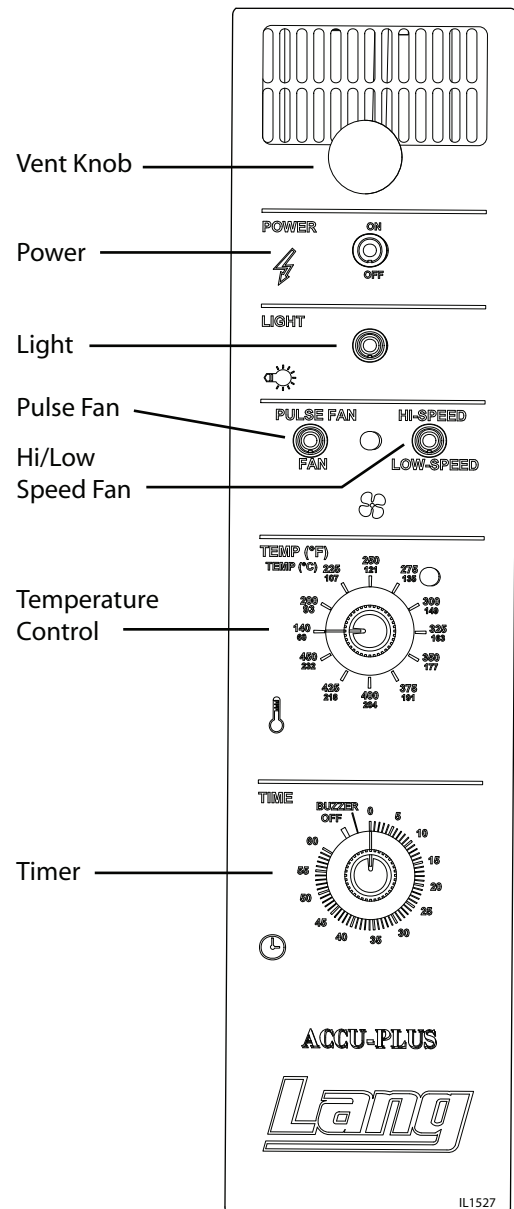
**Hi/Low Speed Fan:** Dual speed switch. Toggles the fan between high & low speed.

**Temperature Control:** Allows temperature to be set in 25°F increments from 140°F to 450°F

**Timer:** Electronic on-hour timer with continuous beeper,

### Typical Operation Sequence

Action	Result
Turn Power Switch to ON	Control panel heat call light comes on.
Adjust temperature, between 140°F & 450°F and allow 20 minutes for preheating	Oven begins heating
Open oven door and insert product, set timer up to 60 minutes.	Timer begins counting down.
Timer beeps continuously when done.	Product should now be done.



IL1527

ACCU-PLUS

## General Operation & Programming cont.

### Hints & Suggestions

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.

Opening the vent will allow moisture to escape the cooking chamber during part or all of the cooking process. This will allow a more crispy product, example: french fries, fish, crispy crusts. Close the vent for dough products like cinnamon rolls, breads. This is something to experiment with to determine what is best for your specific menu.

### Loading

Here are some things to remember when loading your oven.

- When loading and unloading the oven, stage products and racks so the oven door is 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. That 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.



### CAUTION

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

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

## MAINTENANCE

- Oven interiors should be wiped down daily and thoroughly cleaned weekly using warm water and mild detergent. **DO NOT use caustic cleaners.**
- The appliance should be thoroughly checked at six-monthly intervals by a qualified technician (heating unit, mechanical stability, corrosion...) with particular emphasis on all control and safety devices.

## CLEANING

- 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 fan wheel.
- The oven racks, rack slides, may be cleaned outside the oven cavity using oven cleaner.
- Using any harsh chemicals will result in the removal of the ETC coating and etching of the porcelain below it. The oven interior should only be cleaned using a mild soap and a non metal scouring pad. **DO NOT use caustic cleaners.**
- Always apply stainless steel cleaners when the oven is cold and rub in the direction of the metal's grain.



### 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.**

**NEVER LEAVE A CHLORINE SANITIZER IN CONTACT WITH STAINLESS STEEL SURFACES LONGER THAN 10 MINUTES. LONGER CONTACT CAN CAUSE CORROSION.**



## Troubleshooting

### Symptoms & Possible Causes

The following are charts of Symptoms and Possible Causes to aid in diagnosing faults with your unit.

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 test to identify test procedures. Test indicated with an “\*” should be done by a Lang factory authorized service representative.

Symptoms	Possible Cause	Possible Cause	Test
Power indicator is not lit	No power to cord outlet	Product is cooked too long	No test available, operational condition
	Oven unplugged from outlet	Failed Probe	Check probe for proper resistance*
	Failed Power cord or plug	Failed Circuit board	Confirm that Circuit board is getting correct voltage and putting out correct voltage*
	Failed power switch	Failed Transformer	Check both Primary and Secondary coils for correct voltage*
	Failed indicator light	Failed 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*
Oven will not heat	Power Switch is not “ON”	Failed Motor	Confirm that motor is getting correct voltage*
	Failed Transformer	Failed or disconnected safety thermostat	Check across the thermostat connectors for continuity*
	Failed Probe	Failed Element	Confirm that Elements are getting correct voltage and have continuity*
	Failed Circuit board		
	Failed Contactor		
	Failed Over-temperature Thermostat		
Oven motor will not run	Failed Element		
	Power Switch is not “ON”		
	Failed Transformer		
	Failed Contactor		
Product burning	Failed Motor		
	Product is cooked too long		
	Failed Probe		
Product is under done	Failed Circuit board		
	Product is not cooked long enough		
	Failed Probe		
	Failed Circuit board		

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



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

**NOTICE** Service on this or any other Lang appliance must be performed by qualified personnel only. Consult your Lang Authorized Service Agent Directory. You can call our toll free number 1-800-807-9054 or visit our website [WWW.STAR-MFG.COM](http://WWW.STAR-MFG.COM) for the service agent nearest you.

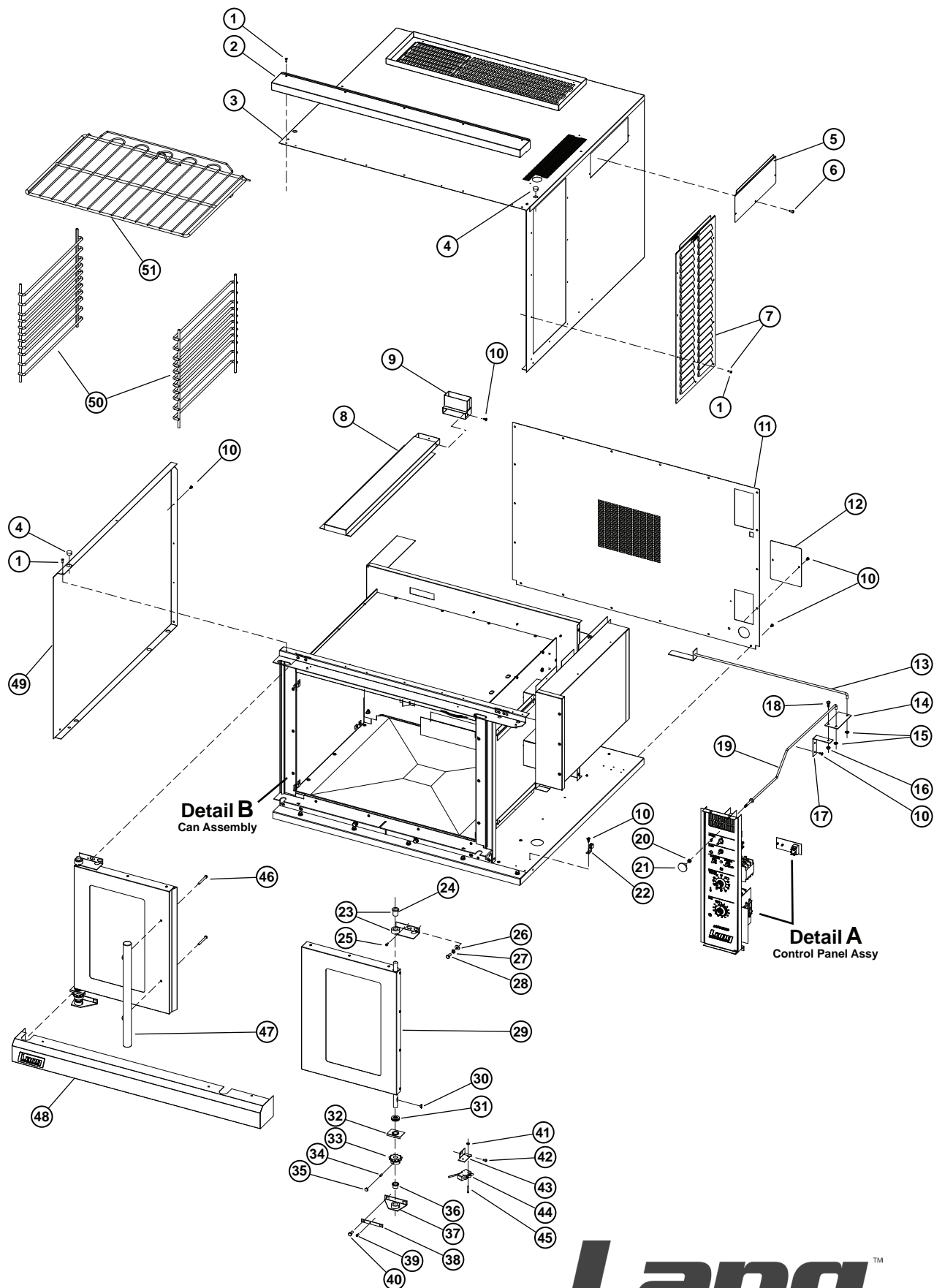


**BOTH HIGH AND LOW VOLTAGES ARE PRESENT INSIDE THIS APPLIANCE WHEN THE UNIT IS PLUGGED/WIRED INTO A LIVE RECEPTACLE. BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRIC POWER SUPPLY.**









ECOF Main Assembly

**Lang**™

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

SK2366

Rev

4/21/2008

# PARTS LIST

February 9, 2009, Rev. C

## Model No: ECOF & ECOD Main Assembly Commercial & Marine Full Size Electric Convection Oven

Key Number	Part Number	Qty Per	Description	
1	2C-20102-04	39	SCRW PHD ST 8-32X.5 PLTD	ECOF-AP-380V, ECOF-AP-480V, ECOF-AP2/4FA, ECOF-AP380FA, ECOF-AP440VM, ECOF-AP480VM
	2C-20102-04	40	SCRW PHD ST 8-32X.5 PLTD	ECOF, ECOD
2	Q9-ECCO-230-1	1	TOP PANEL ASSEMBLY	ECOF, ECOD
3	Q9-ECCO-176-2	1	BODY SPOTWELD STD.	ECOF
	Q9-ECCO-177-3	1	BODY SPOTWELD DEEP	ECOD
4	2P-70901-06	2	PLGBTNBLKPLSTC 5/8DP625	ECOF, ECOD
5	Q9-ECCO-176-4	1	STM VALVE COVER	ECOF, ECOD
6	2C-20102-08	9	SCRW PHD ST 8-32X.375	ECOF, ECOD
	2C-20102-08	13	SCRW PHD ST 8-32X.375	ECOF-AP-380V, ECOF-AP-480V, ECOF-AP2/4FA, ECOF-AP380FA, ECOF-AP440VM, ECOF-AP480VM
7	Q9-60102-904	1	ACCESS COVER - ECCO/GCCO	ECOF, ECOD
8	Q9-ECCO-124	1	TOP VENT SPOTWELD	ECOF
	Q9-ECCO-124-1	1	ASSY - DEEP	ECOD
9	Q9-ECCO-128	1	DAMPER BODY SPOTWELD	ECOF, ECOD
10	2C-20103-02	3	SCRW SM PLT 10 X .5 PHLSL	ECOF, ECOD
11	Q9-ECCO-182-3	1	BODY BACK S/S W/MOTOR	ECOF, ECOD
12	Q9-ECCO-182-4	1	BODY BACK S/S COVER	ECOF, ECOD
13	Q9-ECCO-133	1	DAMPER ROD B WELD	ECOF, ECOD
14	Q9-ECO-437	1	DAMPER PIVOT	ECOF, ECOD
15	2C-20602-02	2	TINNERMAN CLIP 1/4	ECOF, ECOD
16	2C-20301-20	1	NUT LOCK STOVER 1/4-20	ECOF, ECOD
17	Q9-ECCO-136	1	DAMPER BRACKET ANGLE	ECOF, ECOD
18	2C-20104-41	6	SCRW MACH. 1/4-20X5/8 H/H	ECOF, ECOD
19	Q9-ECCO-131	1	DAMPER ROD A WELD	ECOF
	Q9-ECCO-131-1	1	DAMPER ROD WELD - DEEP	ECOD
20	2C-20303-01	4	NUT HX SS 1/4-20	ECOF, ECOD
21	2R-70701-25	1	KNOB DAMPER BLACK PLAIN	ECOF, ECOD
22	2E-31200-02	1	LUG GROUNDING UL APPROVED	ECOF, ECOD
23	Q9-60102-99-1	1	BEARING BRACKET ASSY TOP	ECOF, ECOD
24	2P-70201-07	2	BRNZ BR FLN 5/8IDX3/4ODX1	ECOF, ECOD
25	2C-20115-01	8	SCRW S/S 8-32X1/2 P/H S/T	ECOF, ECOD
26	2C-20203-03	4	WSHR FLT SS 5/16 USS	ECOF, ECOD
27	2C-20204-06	4	WSHR S/S 5/16 SPLIT LOCK	ECOF, ECOD
28	2C-20111-07	4	SCRW SCKTHD 5/16-18X5/8	ECOF, ECOD
29	Q9-50312-43	1	RH DOOR ASSY E/GCCO	ECOF, ECOD
29	Q9-50312-44	1	LH DOOR ASSY E/GCCO	ECOF, ECOD
30	2C-71802-01	1	KEY WOODRUFF 3/16 X 5/8	ECOF, ECOD
31	2C-20201-15	5	WSHR FLT 960-C-1016 PLTD	ECOF, ECOD
32	Q9-50312-67	1	PIVOT BEARING ASSY	ECOF, ECOD
33	2P-73000-03	1	SST SPRKT40B11 5/8 BORE	ECOF, ECOD
34	2C-20105-04	1	SCRW SET 1/4-20X1/2	ECOF, ECOD
35	2C-20301-07	1	NUT ACORN 1/4-20 PLTD	ECOF, ECOD
36	2P-70201-06	2	BRNZBRFLN5/8IDX3/4ODX5/8	ECOF, ECOD
37	Q9-50312-41	1	BEARING BRACKET ASSY	ECOF, ECOD
38	Q9-GCCO-185-4	2	HINGE BRACKET RETAINER	ECOF, ECOD
39	2C-20115-01	4	SCRW S/S 8-32X1/2 P/H S/T PHDR	ECOF, ECOD
40	2C-20111-07	4	SCRW SCKTHD 5/16-18X5/8	ECOF, ECOD
41	2C-20301-10	2	NUT HEX 6-32 PLTD	ECOF, ECOD
42	2C-20102-12	2	SCRW PHD ST 10-32X3/8	ECOF, ECOD
43	Q9-ECCO-145-1	1	MICRO SWITCH BRACKET	ECOF, ECOD
44	2E-30301-02	1	SWITCH, MICRO	ECOF, ECOD
45	2C-20101-17	2	SCRW RND MS 6-32X1 PLTD	ECOF, ECOD
46	2C-20104-50	2	SCRW HXHD 1/4-28X2-1/4	ECOF, ECOD
47	Y9-50312-05	1	HANDLE ASSY 1 HANDLE	ECOF, ECOD
48	Q9-60102-1092	1	BOTTOM PANEL ECCO	ECOF, ECOD

**IMPORTANT: WHEN ORDERING, SPECIFY VOLTAGE OR TYPE GAS DESIRED  
INCLUDE MODEL AND SERIAL NUMBER**

PAGE 1  
OF 2

Some items are included for illustrative purposes only and in certain instances may not be available.



**Star Manufacturing International, Inc.**

# PARTS LIST

June 30, 2008, Rev. C

**Model No: ECOF & ECOD Main Assembly  
Commercial & Marine Full Size Electric Convection Oven**

Key Number	Part Number	Qty Per	Description
49	Q9-ECCO-176-6	1	L/H BODY SIDE ECOF
	Q9-ECCO-177-1	1	L/H BODY SIDE - DEEP ECOD
50	2B-50200-93	2	RACK SLIDE 11 POS ECOF
	2B-50200-94	2	RACK SLIDE 11 POS E&GCCO-T ECOD
51	2B-50200-20	5	RACK ECCO/GCCO OVEN ECOF
	2B-50200-31	5	RACK ECO DEEP OVEN ONLY ECOD

**IMPORTANT: WHEN ORDERING, SPECIFY VOLTAGE OR TYPE GAS DESIRED  
INCLUDE MODEL AND SERIAL NUMBER**

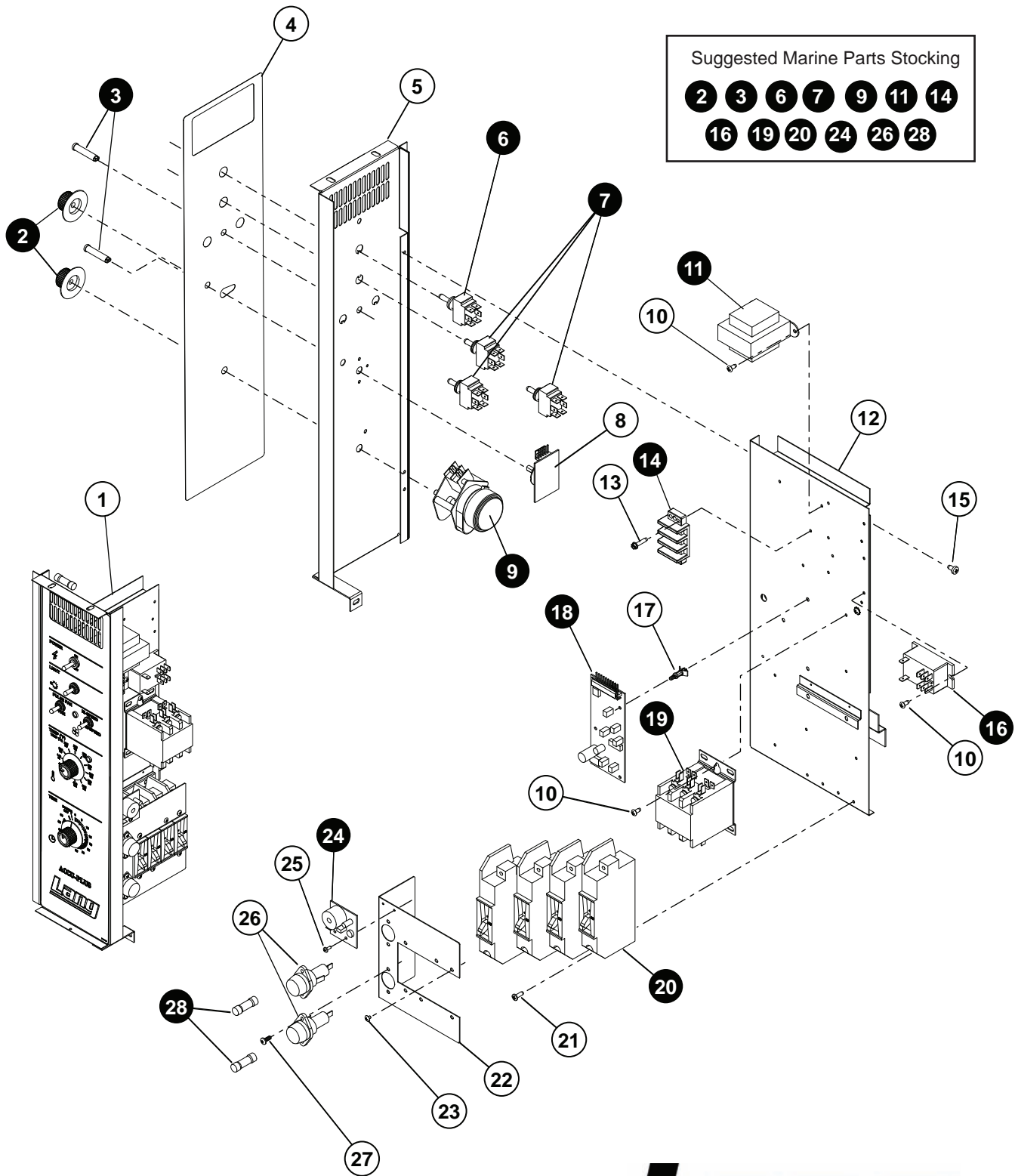
PAGE 2  
OF 2

Some items are included for illustrative purposes only and in certain instances may not be available.



**Star Manufacturing International, Inc.**





## Detail A

**Model:**  
ECOF/D "ACCU-PLUS" Control Panel Assy  
Electric Full Size Convection Oven

**Lang**™

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

SK2353

Rev. A 4/25/08

# PARTS LIST

June 30, 2008, Rev. C

## Model No: ECOF-AP, & ECOD-AP CONTROLS PANEL Commercial & Marine Full Size Electric Convection Oven

Key Number	Part Number	Qty Per	Description
1	Q9-ECCOPAP-C Q9-ECCOPAP-JFA Q9-ECCOPAP-K Q9-ECCOPAP-KFA Q9-ECCOPAP-U	1 1 1 1 1	PANEL ECCO 208/240V PANEL ECCO 380V ACCU-PLUS PANEL ECCO 380V ACCU-PLUS PANEL ECCO 380V ACCU-PLUS PANEL ECCO 480V ACCU-PLUS ECOD-AP, ECOF-AP, ECOF-AP-M ECOF-AP2/4FA ECOF-AP-380V ECOF-AP380FA ECOD-AP-480V, ECOF-AP-380/480V, ECOF-AP440VM/480VM
2	2R-70701-28 2R-70701-28	2 3	KNB BLK 1/4BUSH2SETSCW@90 KNB BLK 1/4BUSH2SETSCW@90 ECCOPAP-C, ECCOPAP-K, ECCOPAP-U ECCOPAP-JFA, ECCOPAP-KFA
3	2J-31601-01 2J-31601-07	1 2	PILOT LT 250V 6LEAD BLK PILOT LT 28V 6 LEAD WHT ECCOPAP-JFA, ECCOPAP-KFA ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-U
4	2M-60301-100  2M-60301-120	1  1	PANEL LABEL-  LABEL SWITCH FOR R/S INF ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-U ECCOPAP-JFA, ECCOPAP-KFA
5	Q9-50312-131 Q9-50312-132	1 1	SPOT PANEL E & GCCO T & SPOT PANEL ECCO AP FAMOUS ECCOPAP-C, ECCOPAP-K, ECCOPAP-U ECCOPAP-JFA, ECCOPAP-KFA
6	2E-30303-16	1	SWT TOG ON-ON BLK MOM ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
7	2E-30303-06 2E-30303-06 2E-30305-01	2 3 1	SWT TOG ON-ON DPDT BLK SWT TOG ON-ON DPDT BLK SWT INF 240V 15AMP ECCOPAP-JFA, ECCOPAP-KFA ECCOPAP-C, ECCOPAP-K, ECCOPAP-U ECCOPAP-JFA, ECCOPAP-KFA
8	2E-30304-16	1	CIR.BD.SWITCH 140'-450'F ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
9	Q9-30800-05-11	1	TIMER ELECTRIC 1-HR 24V ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
10	2C-20102-08 2C-20102-08	6 10	SCRW PHD ST 8-32X.375 SCRW PHD ST 8-32X.375 ECCOPAP-C ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
11	2E-31400-07 2E-31400-15 2E-31400-18	1 1 1	XFORMR120-208-240/24V40VA XFRMR 480/24VAC XFORM 380/24VAC 40VA U/L ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-KFA ECCOPAP-U ECCOPAP-K
12	Q9-ECCO-285-2	1	SPOT COMPONENT MOUNT SII ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
13	2C-20102-05	2	SCRW HXHD ST 8-32X.75 ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
14	2E-30501-02	1	TRM STRP 3 POLE W/PUSH ON ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
15	2C-20102-12	2	SCRW PHD ST 10-32X3/8 ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
16	2E-30701-05	1	CONTC 2POLE 30A 24VAC P & ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
17	2K-70801-07	3	SPACER SUPPORT 1/2LG ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
18	2E-40101-19	1	CIRBD SI TEMP CNTRL NO ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
19	2E-30700-06	1	CONTC3POLE35A24VAC50/60HZ ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
20	2E-31800-01 2E-31800-04	4 1	CB 250V50A 1 POLE CRLNGSW CB 480V 50A 3 POLE ECCOPAP-C ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U

**IMPORTANT: WHEN ORDERING, SPECIFY VOLTAGE OR TYPE GAS DESIRED  
INCLUDE MODEL AND SERIAL NUMBER**

PAGE 1  
OF 2

Some items are included for illustrative purposes only and in certain instances may not be available.



**Star Manufacturing International, Inc.**

# PARTS LIST

June 30, 2008, Rev. C

## Model No: ECOF-AP, & ECOD-AP CONTROLS PANEL Commercial & Marine Full Size Electric Convection Oven

Key Number	Part Number	Qty Per	Description
21	2C-20102-04	3	SCRW PHD ST 8-32X.5 PLTD ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
	2C-20102-04	4	SCRW PHD ST 8-32X.5 PLTD ECCOPAP-C
22	Q9-ECCO-289	1	FUSE MOUNT - SII 208-240V ECCOPAP-C
	Q9-ECCO-289-1	1	FUSE MOUNT - SII 480V ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
23	2C-20101-26	4	SCRW MS PLT 6-32 X .25 ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
	2C-20101-26	6	SCRW MS PLT 6-32 X .25 ECCOPAP-C
24	2J-30802-04	1	BUZZER ELEC 24V AC PIEZIO ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
25	2C-20103-06	2	SCRW SM PLT 6 X 3/8 PHL ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
26	2E-30901-08	2	FUSE HLDR FOR SC FUSE ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
27	2C-20101-52	4	SCRW RHD MS 8-32 X 1/2 ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
28	2E-30900-10	2	FUSE 15AMP 300V (SC-15) ECCOPAP-C, ECCOPAP-JFA, ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U
NI	2E-30600-10	1	RELAY 2PDT 240V ECCOPAP-JFA, ECCOPAP-KFA
NI	2E-30705-03	1	CONTC 2-SPD MTR ABB ECCOPAP-K, ECCOPAP-KFA, ECCOPAP-U

**IMPORTANT: WHEN ORDERING, SPECIFY VOLTAGE OR TYPE GAS DESIRED  
INCLUDE MODEL AND SERIAL NUMBER**

PAGE 2  
OF 2

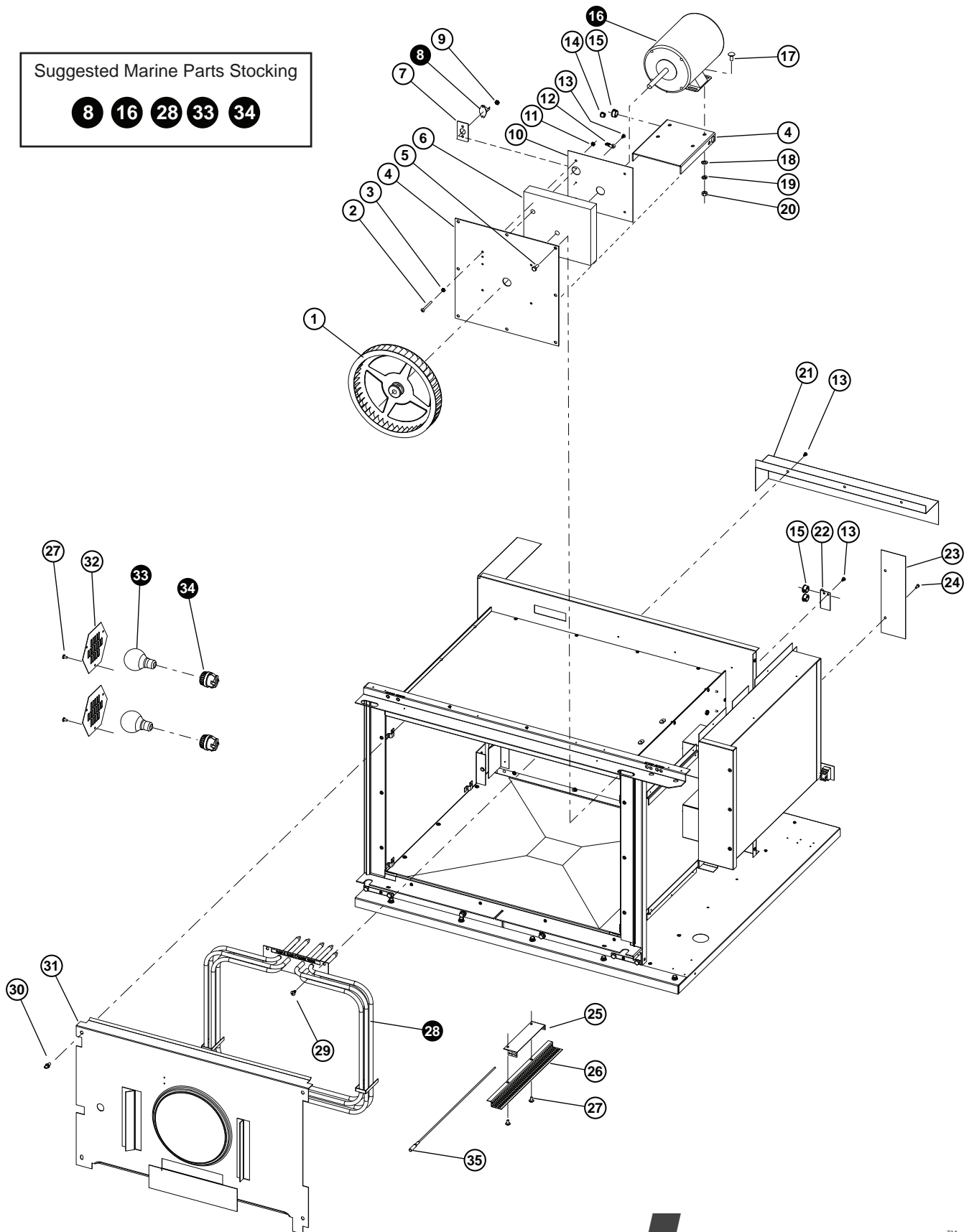
Some items are included for illustrative purposes only and in certain instances may not be available.



**Star Manufacturing International, Inc.**

Suggested Marine Parts Stocking

8 16 28 33 34



**Detail B**

ECOF: CAN & MOTOR ASSEMBLY

**Lang**™

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

SK2367

Rev. A

6/03/08

# PARTS LIST

June 30, 2008, Rev. C

## Model No: ECOF & ECOD CAN & MOTOR ASSEMBLY Commercial & Marine Full Size Electric Convection Oven

Key Number	Part Number	Qty Per	Description
1	2U-71500-05	1	BLOWER WHEEL ECCO/GCCO ECOF, ECOD
2	2C-20101-42	4	SCRW THD MS 10-24X2 PLTD ECOF, ECOD
3	2C-20301-09	2	NUT HEX 10-24 PLTD ECOF, ECOD
4	Q9-ECCO-168	1	MOTOR MOUNT WELD ECOF, ECOD
5	2C-20111-02	8	SCRW HXHD CAP 1/4-20X3/4 ECOF, ECOD
6	2H-ECCO-172	1	MOTOR INSULATION ECOF, ECOD
7	Q9-GCCO-166-2	1	SPACER - SAFETY STAT ECOF, ECOD
8	2T-30401-09	1	STAT FXD 500 DEG OPEN ECOF, ECOD
9	2C-20301-10	2	NUT HEX 6-32 PLTD ECOF, ECOD
10	Q9-GCCO-167	1	MOTOR SHIELD ECOF, ECOD
11	2C-20301-09	2	NUT HEX 10-24 PLTD ECOF, ECOD
12	2C-31900-03	1	CABLE STRAPS 3/16X7 ECOF, ECOD
13	2C-20103-02	4	SCRW SM PLT 10 X .5 PHLSL ECOF, ECOD
14	2K-70801-01	1	SNAP BUSH 7/16 SB437-5 ECOF, ECOD
15	2K-70801-04	1	SNAP BUSH 3/4 SB750-10 ECOF, ECOD
16	2U-30200-16	1	MTR 1/3HP 460V/1/60HZ 2SP ECOF-AP-480V, ECOF-AP440VM, ECOF-AP480VM, ECOD-AP-480V
	2U-30200-17	1	MTR 1/3HP208/240V1PH2SPD ECOF-AP, ECOD-AP
	2U-30200-53	1	MTR 1/3HP240/254V50HZ2SP ECOF-AP2/4FA
	2U-30200-60	1	MTR 1/3HP380V1PH50HZ2SP ECOF-AP-380V, ECOF-AP380FA
17	2C-20118-01	4	SCRW CARRAGE PLT 5/16X.75 ECOF, ECOD
18	2C-20201-09	4	WSHR PLT 5/16 FLAT SAE ECOF, ECOD
19	2C-20202-08	4	WSHR PLT 5/16 LOCK SPLIT ECOF, ECOD
20	2C-20301-06	4	NUT HEX 5/16-18 PLTD ECOF, ECOD
21	Q9-ECCO-122	1	ELEMENT TOP COVER ECOF, ECOD
22	Q9-GCCO-115-1	1	MOTOR WIRE HOLDER ECOF, ECOD
23	Q9-ECCO-123	1	ELEMENT SIDE COVER ECOF, ECOD
24	2C-20102-04	40	SCRW PHD ST 8-32X.5 PLTD ECOF, ECOD
25	Q9-GCCO-247	1	PROBE HOLDER [ECCO & ECOF, ECOD
26	Q9-50312-34	1	PROBE COVER ECCO/GCCO ECOF, ECOD
27	2C-20109-04	4	SCRW THD MS SS 10-32X3/8 ECOF, ECOD
28	2N-11090-16	1	ELE ECCO OVN 208/240V11KW ECOF-AP, ECOF-AP2/4FA, ECOD-AP
	2N-11090-18	1	ELMNT ECCO 480V 11KW ECOF-AP-480V, ECOF-AP480VM, ECOD-AP-480V
	2N-11090-30	1	ELE 415 440V11KW ECOF-AP-380V, ECOF-AP380FA, ECOF-AP440VM
29	2C-20103-02	8	SCRW SM PLT 10 X .5 PHLSL ECOF, ECOD
30	2C-20112-02	4	SCRWSHLDRTHUM 1/4-20X3/8 ECOF, ECOD
31	Q9-ECCO-163	1	REAR BAFFLE SPOTWELD ECOF, ECOD
32	Q9-GCCO-431	2	LIGHT RING - CORRECTIONAL ECOF, ECOD
33	2S-31603-04	2	LAMPS INC 250V 50W ECOF, ECOD
34	2E-31602-04	2	LAMP SKT SNAP-IN WHT ECOF, ECOD
35	2E-41100-08	1	SENSOR OVEN TEMP CONTROL ECOF, ECOD

**IMPORTANT: WHEN ORDERING, SPECIFY VOLTAGE OR TYPE GAS DESIRED  
INCLUDE MODEL AND SERIAL NUMBER**

PAGE 1  
OF 1

Some items are included for illustrative purposes only and in certain instances may not be available.



**Star Manufacturing International, Inc.**

**STAR MANUFACTURING**

10 Sunnen Drive, St. Louis, MO 63143 U.S.A.

(800) 807-9054    (314) 781-2777

Parts & Service (800) 807-9054

[www.star-mfg.com](http://www.star-mfg.com)