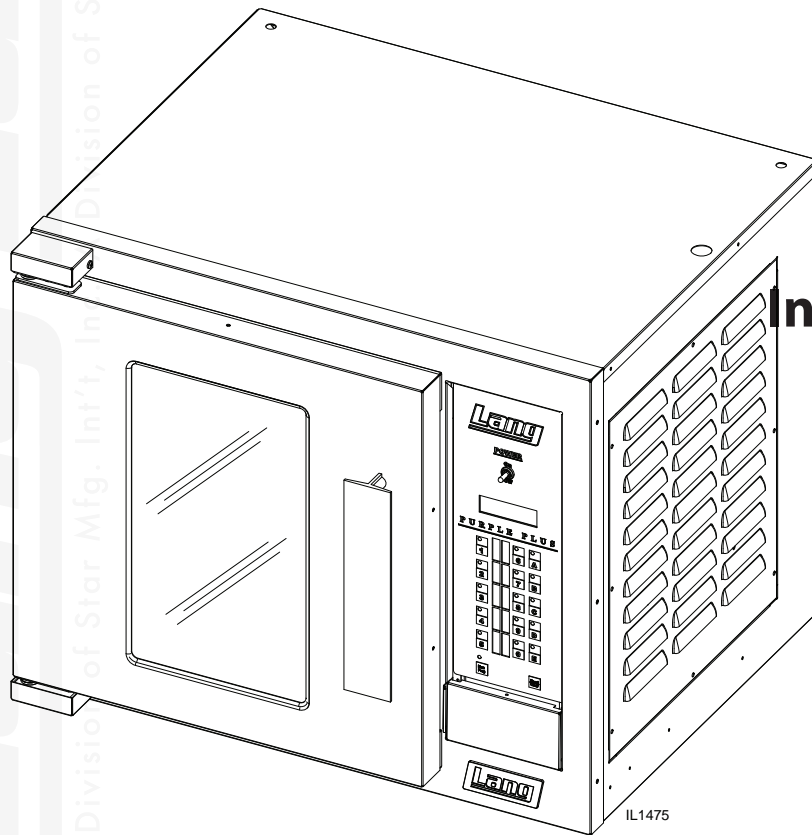


# **Lang**<sup>TM</sup>

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

## **ELECTRIC HALF SIZE COMPUTERIZED CONVECTION OVEN ECOH-PP**



### **Installation and Operation Instructions**

2M-W494 Rev.C 2/18/08

ECOH-PP



## 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.

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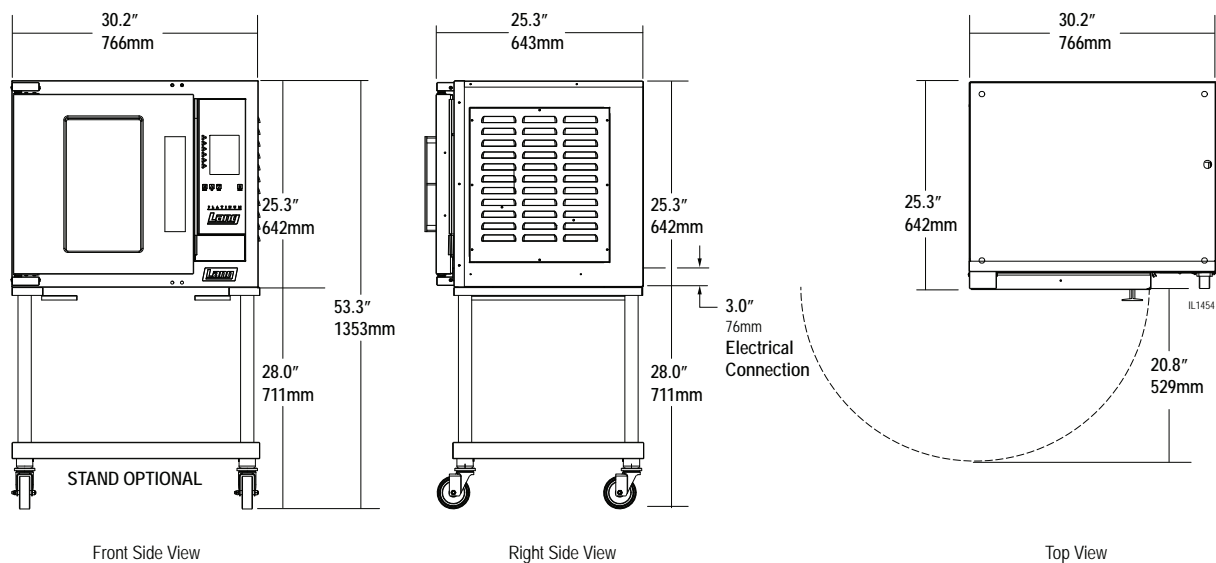
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#### NOTICE

**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
ECOH	25.3" x 30.2" x 25.3" 642mm x 766mm x 643mm	Side: 6", Back: 6", Floor: 6"	185 lbs. (84 kg)	225lbs (102 kg)	85



## SPECIFICATIONS

Star Number	Previous Model	VOLTS AC	Hz.	MOTOR AMPS	PHASE	AMPS 3PH/ NTRAL	KW TOT.	AMPS 1 PH	WIRE 1 PH	L1	L2	L3	WIRE 3 PH
ECOH-PP208BK	EHS-PP-ABK	208	60	3.3	1/3		7.8	38	8	23	21	23	10
ECOH-PP-208V	EHS-PP-A	208	60	3.3	1/3		7.8	38	8	23	21	23	10
ECOH-PP208WB	EHS-PP-AWB	208	60	3.3	1/3		7.8	38	8	23	21	23	10
ECOH-PP240BK	EHS-PP-IBK	240	60	2.6	1/3		7.8	33	8	20	18	20	12
ECOH-PP240WB	EHS-PP-IBK	240	60	2.6	1/3		7.8	33	8	20	18	20	12

## EQUIPMENT DESCRIPTION

### Exterior Construction

The Top, Front, Back, and Sides are constructed of stainless steel with an aluminized bottom.

The oven exterior dimensions are:

30" (76.2 cm) Wide,  
25.25" (74.3 cm) High,  
26.5" (67.31 cm) Deep.

The oven door comes standard with a high temperature insulated window equipped with a polycarbonate handle.

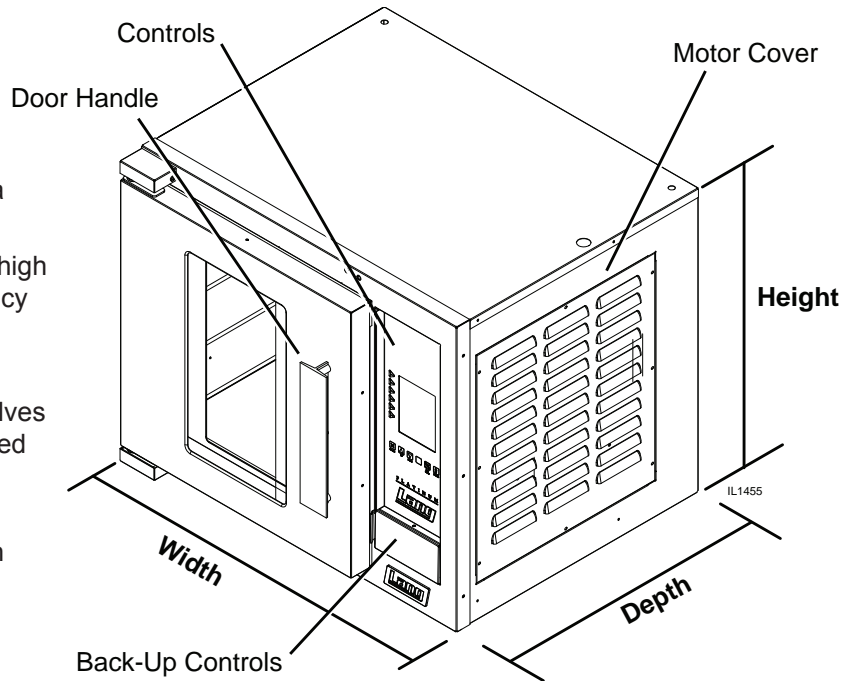
The oven cavity is insulated with high temperature insulation for efficiency and reduced heat loss.

### Interior Construction

The oven is designed for five shelves and comes with five Chrome Plated Racks.

The interior cooking chamber is constructed of stainless steel with dimensions of:

15" (38.1 cm) Wide,  
20" (50.84 cm) High,  
21" (53.38 cm) Deep.



### Operation

The ECOH oven is a forced air convection oven with a vented oven cavity.

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

### Controls

Pre-Programmable Product Selections

Independent Shelf Timers for each Shelf.

Shelf Compensation Timing for uniform baking.

### Technical

Oven operates as shipped 208V, or 240V (single or three phase), or 480V (three phase).

The oven can be shipped with a Power Cord and Plug attached, but must be specified upon ordering (*part number is listed in the Parts portion of this manual*).

Floor space required is 42" (106.68cm) Wide, 32.5" (82.55cm) Deep.

The oven weighs approximately 225 lb. (102.5 Kilograms).

The ovens are stackable, stacking kit available upon request.

**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.



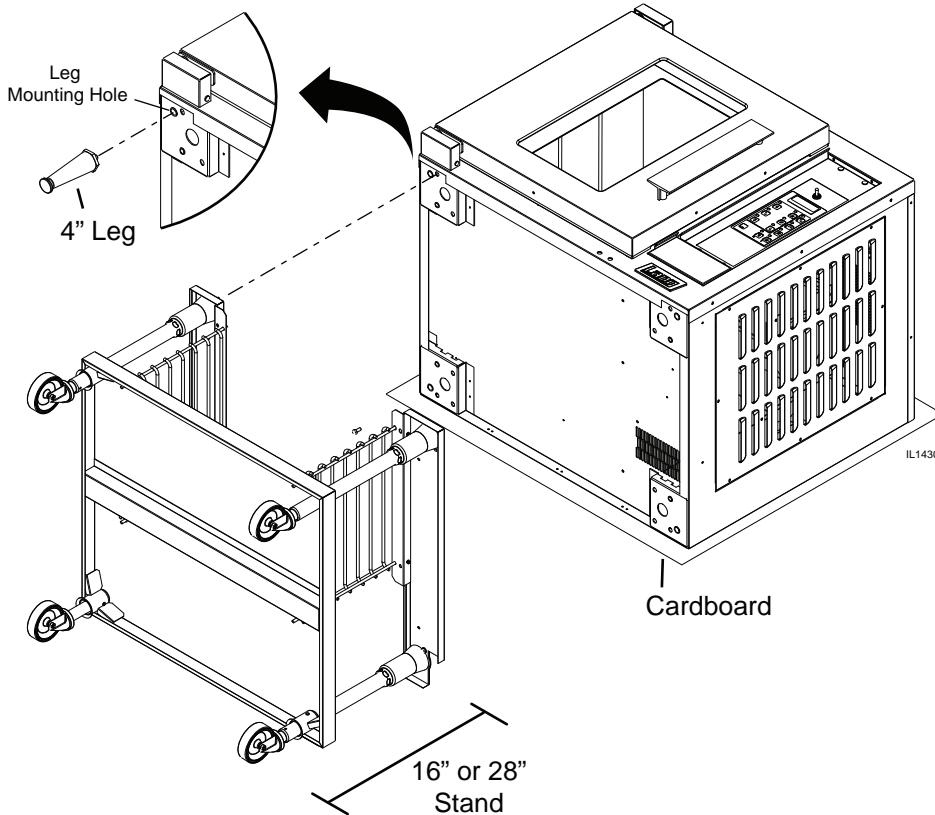
**CAUTION**

**THE UNIT IS EXTREMELY HEAVY. 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



## Leg Installation

4" legs are available for single countertop installations. Single and double deck installations require 16" or 28" stand installation, casters may also be used in certain situations.

To install the 4" legs, place some cardboard on the floor and gently tip the unit onto its back. Fasten the four, 4" legs into the threaded holes located on the bottom of the unit. Gently lift the oven into its operating position.

16" & 28" stand installation, after following the assembly instructions that were provided with the stand, gently lower unit on to some cardboard as shown here. Align the stand with the bottom of the unit and secure with the hardware provided. With the assistance of carefully raise the unit to its vertical position.

## Stacking the Ovens

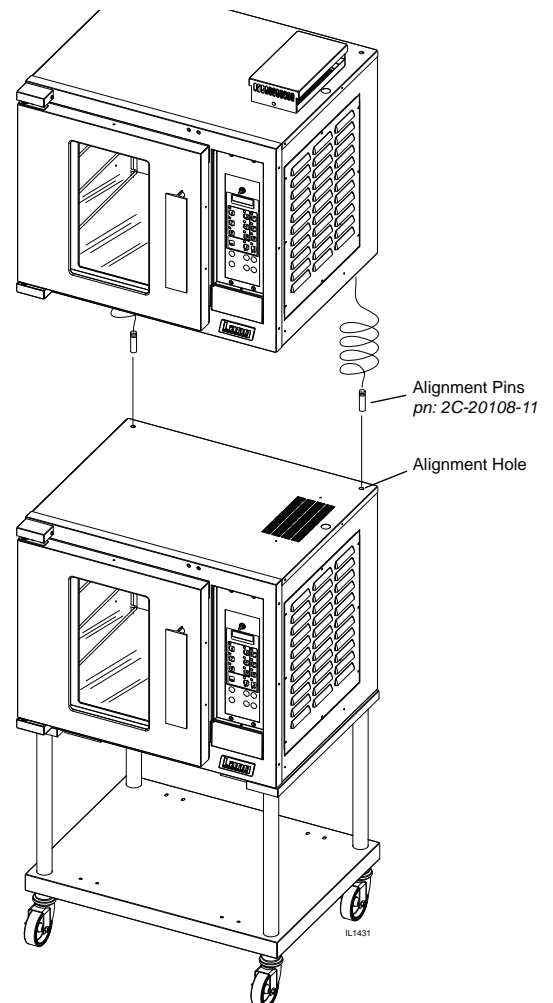
Two alignment pins (pn: 2C-20108-11) are needed if you intend on stacking two ECOH on each other as shown. These pins must be requested at the time of purchase, or call your Lang authorized service agent, or Lang parts department at 1-800-807-9054.

Having completed the previous step remove any and all button plugs from the lower unit, so the upper unit will lay properly.

Lay the upper unit on its back and screw the alignment pins into the two rear holes.

With assistance lift the upper unit onto the lower unit, being certain that the alignment pins go into the alignment holes, as shown here.

**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.**

### 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 at the oven back directly behind the control compartment. A grounding lug is provided at the rear service entrance.

Certain units are provided with or can be purchased with a Cord & Plug kit (*Part number 9Q-ECOH-CK*). This kit includes a 48" cord with a NEMA L15-30P plug and is for 3 Phase units ONLY. In stacked situations each units needs to have separate cord & plug assemblies.

### Oven Voltage

The Lang Model ECOH ovens can be operated on 208, 240-volt (single or three phase), or 480-volt (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.**



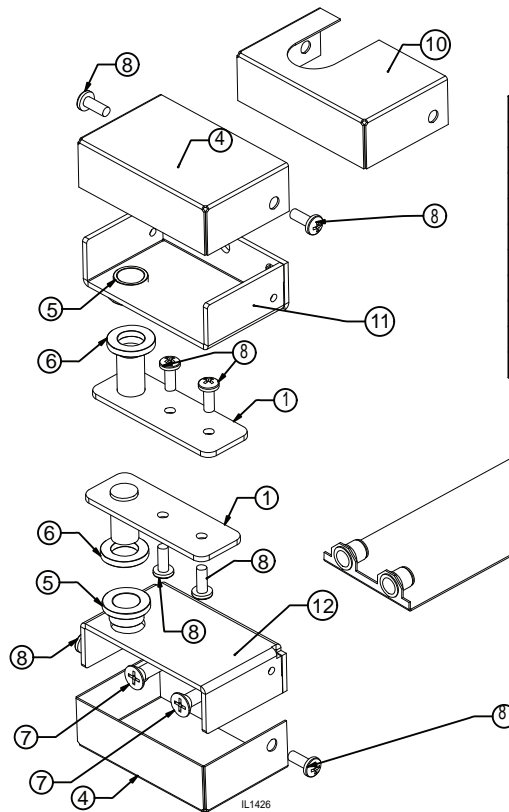
**WARNING**

**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.**



## Reversing the door

1. Disconnect oven from power.
2. Remove the top and bottom door hinge covers (4) by removing the two 10-32 Phillip head screws (8).
3. Remove the top door hinge bracket (1) from the oven by removing the two ¼-20 Phillip head screws (7). The hinge should now slide off of the door pin (this will now be your right hand lower hinge)
4. Lift the door off the bottom pin and set aside.
5. Remove the bottom door hinge bracket (2) by removing the two ¼-20 Phillip head screws (7) (this will now be your upper right hand hinge).
6. Remove the lower hinge mounting plate (9) by pulling it from behind the leg pad adapter on the bottom of the oven.
7. Remove the two Phillips head screws in the bottom right corner of the oven, where the new hinge will be placed.
8. Slide the hinge mounting plate (9) into place and mount the hinge bracket (this should be your old upper hinge) using two ¼-20 (7) Phillips head screws.
9. Remove the two Phillips head screws in the upper right corner of the oven where the new hinge will be placed.
10. Rotate the door 180° and slide the door pin into the bottom hinge bracket.
11. Slide the upper door hinge (1) onto the upper door pin and then screw into place using two ¼-20 Phillip head screws.
12. Place the top and bottom door hinge covers (4) back on the oven using two 10-32 Phillip head screws (8).



### ECOH HINGE RELPACEMENT KIT

pn: Q9-50313-030

ITEM NO.	QTY.	PART NO.	DESCRIPTION
3	2	50313-031	HINGE PIN WELDMENT
4	2	EH-267	EH HINGE COVER
5	2	70201-19	
6	2	70201-01	
7	2	20109-43	
8	8	20109-15	
9	1	eh-198-1	BOTTOM HINGE PLATE ASSY
10	1	CR30-148	UPPER HINGE COVER FOR EH
11	1	EH-265-1	EH HINGE - TOP - FOR SVC KIT
12	1	EH-266-1	EH HINGE - BOTTOM - FOR SVC KIT

INSERT BEARINGS (ITEMS "5") INTO THE HINGES (ITEMS "1" & "2") AS SHOWN THEN REAM WITH A .508 REAMER.

## 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 racks are in the oven correctly
- All packing materials have been removed from the inside of the oven

### Power On

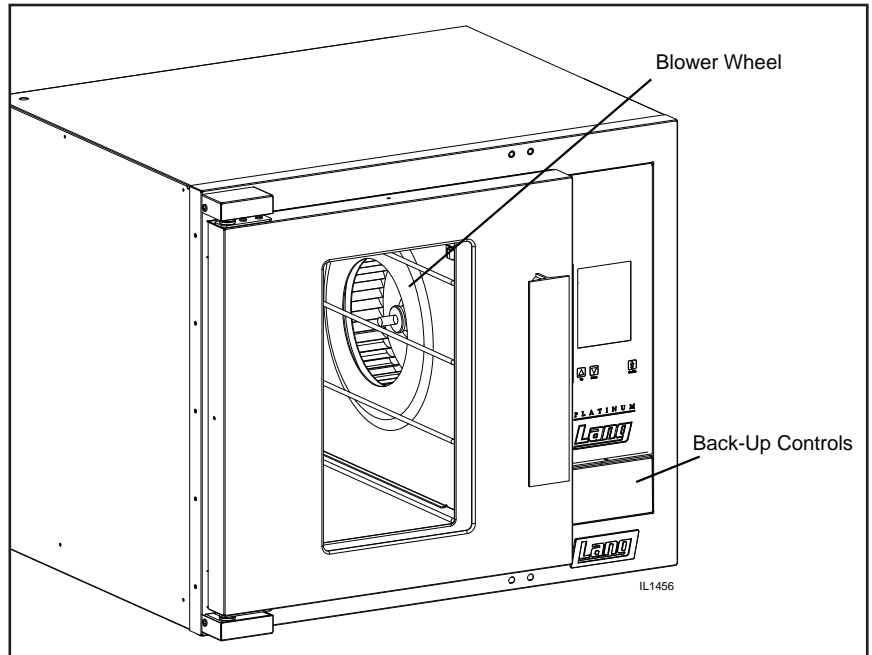
Once the oven has been turned on verify that the blower wheel is spinning freely in a clockwise position and that the elements are heating properly.

Switch the back-up controls on and make certain it can run the unit,

Confirm that the thermostat knob in the back-up controls is move freely.

### AP units

Confirm that all knobs move freely and the timer beeps.



### NOTICE

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

## General Operation & Programming cont.

### ECOH-PP Control Panel

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

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

**Alpha Numeric Display:** Displays your interface with the computer.

**Product Select Button:** Each button can be programmed for a specific menu, see programming section to see how.

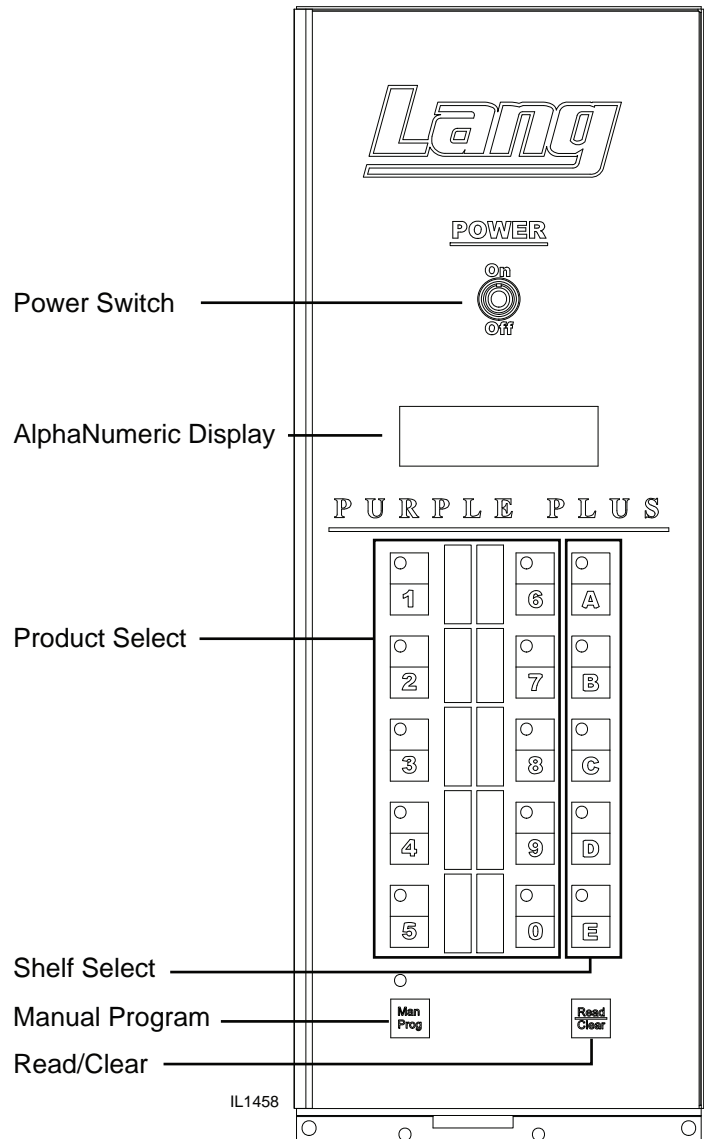
**Shelf Select Button:** Press to select which shelf the product will be placed on. "A" is the top position, "E" is the bottom position.

**Manual Program Button:** Used when product being cooked is for one time only.

**Read / Clear Button:** Used to read programs, clear programs, and to access program menus.

### Typical Operation Sequence

Action	Result
Turn power switch to ON.	Control panel comes on; display says "SELECT PRODUCT or READ/CLEAR TO PROGRAM."
Press a product button.	Display says "PRODUCT X PREHEATING TO XXX F". Motor starts and oven begins preheating to the programmed temperature.
Beeper sounds briefly.	Display says "READY SELECT PRODUCT TO START".
Open the oven doors and load the product. Close the door and press the product button again.	Beeper sounds briefly and display says, "SELECT OVEN SHELVES PRODUCT X".
Press the shelf button(s) which correspond to the shelf positions, which the product is loaded (A equals the top shelf and E equals the bottom shelf).	Display shows a countdown timer and begins to count toward zero.
Beeper sounds continuously.	Display shows "DONE PRESS SHELF BUTTON X, REMOVE PRODUCT", shelf button(s) flash.
Press the flashing shelf button(s).	Beeper stops. Display shows "READY SELECT PRODUCT TO START" if no other shelves carry product or resume count down for shelves that still have product cooking.
Open oven door and remove the product, which corresponds to flashing shelf button(s).	



P U R P L E P L U S

## General Operation & Programming cont.

### 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.



**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.**

## DAILY OPERATION PURPLE PLUS CONVECTION OVENS

ECOH-PP, ECOF-PP, GCOF-PP,  
*EHS-PP, ECCO-PP, GCCO-PP*

### Daily Operation

**Step 1:** Turn the Power Switch on by switching the toggle switch to the up position.

**Step 2:** Screen will appear as below.  
Select the product you wish to bake by pressing the number key (0-9) for that product.

SELECT PRODUCT OR  
READ/CLEAR TO PROGRAM  
XX:XX PM XXX F

IL1459

**Step 3:** Screen will display:

When the oven reaches the desired temperature, the screen will display:

PRODUCT 1  
PREHEATING TO XXX F  
XX:XX PM XXX F

IL1460

**Step 4:** Open the oven door, place product in the oven. Close the oven door and press the program key you are using.

READY  
SELECT PRODUCT TO START  
XX:XX PM XXX F

IL1461

**Step 5:** The display will now read:

Press the lettered keys indicating what shelves

SELECT OVEN SHELVES  
PRODUCT 1  
XXX F XX:XX:XX  
XX:XX PM XXX F

IL1462

you placed product on to bake  
(A is the top shelf).

If you do not select a shelf, the oven will beep and the following display will appear:

NO SHELF SELECTED  
PRESS E TO CONTINUE

IL1463

Press the E Key and the previous display will appear, again asking to select oven shelves

**Step 6:** Once a shelf or shelves have been selected, the display will now read:

COOKING PRODUCT XX  
TIER #1 XX:XX:XX  
SELECT PRODUCT  
XX:XX PM XXX F

IL1462

At this time, you may select any other pre-set product program which has the same oven temperature. A lighted red light next to a numbered product key indicates that the program is compatible with the program selected, and can be run at the same time.

**Step 7:** When the bake time is concluded, the oven will beep and the display will read:

DONE  
PRESS SHELF BUTTON  
REMOVE PRODUCT  
XX:XX PM XXX F

IL1465

**Step 8:** Once you have completed baking on one pre-set program, you may change to another pre-set program by pressing the Read/Clear Key.

The display will now read:

SELECT PRODUCT OR  
READ/CLEAR TO PROGRAM

IL1466

## CONVECTION OVENS

EHS-PP, ECCO-PP, GCCO-PP

## Record Your Menus Before Entering Your Program

into your units program. Keep for your records.

[illegible]

## PROGRAMMING PURPLE PLUS CONVECTION OVENS

ECOH-PP, ECOF-PP, GCOF-PP,  
EHS-PP, ECCO-PP, GCCO-PP

### Before You Begin Programming

1. For programming new ovens, you must program at least one button (position 2 through 0) before you can delete or replace the sample program in position one.
2. If you are programming for the first time after installing a new computer board, or blanking the EPROM, you must first complete the "CPU Start Up Procedure" that came with the new computer board before programming the product buttons
3. In preparation of programming you Purple Plus Oven, first determine the cooking parameters you will be using for each product to be programmed. Use the table on the following page to record your programs prior to entering them into your unit.

### CPU Start Up Procedures

If you are programming for the first time after installing a new computer board, or needed to blank the EPROM, you will be asked to complete the "CPU Start Up Procedures". You will be asked to identify the oven you are using, answer NO to questions regarding Steam and Rack Rotation, and 650°F max temperature.

### Programming Procedures

ACTION	DISPLAY
Turn the power switch on. If the oven is already on, press the Read / Clear key until the following screen is displayed.	SELECT PRODUCT OR READ/CLEAR TO PROGRAM XX:XXPM    XXXF
Enter access code "1 6 2 7 3 8".	ENTER PASSWORD OR READ/CLEAR TO DISPLAY PRODUCT
Select "C".	A: SET TIME B: SET DATE C: PROGRAM PRODUCTS D: NEXT MENU
Select a number from 0-9 and press the key corresponding to that number.  NOTE: If a product Key selected already has a program, the screen will read.	PRODUCT PROGRAM MODE  SELECT PRODUCT NUMBER 0-9
If a product Key dose not have a program, the screen will read.	EDIT PRODUCT? 1=EDIT OR 2=DELETE NXX TX XXXF CX XX:XX:XX PXXX F-XX
Enter a desired cooking / baking temperature. The screen will automatically advance to the next display.	ENTER COOKING TEMP  100 TO 450 F NOX    T1    XXXF

## PROGRAMMING PURPLE PLUS CONVECTION OVENS

ECOH-PP, ECOF-PP, GCOF-PP,  
EHS-PP, ECCO-PP, GCCO-PP

### Programming Procedures continued

Enter the cooking time and then press "E" to advance to the next screen.	<p>ENTER COOKING TIME</p> <p>HR:MIN:SEC</p> <p>NOX T1 XXXF CO</p>
Enter the desired cooking curve. (Refer to sections 6.3 and 6.7 for more detail)	<p>ENTER COOKING CURVE</p> <p>0 TO 100%</p> <p>NOX T1 XXXF CXX</p> <p>XX:XX:XX PXXX F-XX</p>
Select Fan speed. (Hi=1700 rpm, Low=1400)	<p>ENTER FAN SPEED</p> <p>1=HI 2=LOW</p> <p>NOX T1 XXXF CXX</p> <p>XX:XX:XX PXXX F-XX</p>
<p>Select Fan Pulse rate. (0 to 100%). 0=off unless calling for heat. 100=on at all time.</p> <p><b>NOTE:</b> Any number between 0-100 means that the fan will be on that many number of seconds in a 100-second block. (E.g. 67%= on for 67 seconds in a 100 second block)</p>	<p>ENTER FAN PULSE RATE</p> <p>1 TO 100%</p> <p>NOX T1 XXXF CXX</p> <p>XX:XX:XX PXX F-XX</p>
If your press 1 you will go through the same sequence as outlined above. If you press 2 the next display will automatically appear.	<p>CONTINUE TO TIER 2</p> <p>1=YES 2=NO</p> <p>NOX T1 XXXF CXX</p> <p>XX:XX:XX PXXX F-XX</p>
If you wish to continue programming a separate menu item, press "C" and repeat the sequence. If you have completed your programming requirments, press Read/Clear butotn until the next display appears	<p>A: SET TIME</p> <p>B: SET DATE</p> <p>C: PROGRAM PRODUCTS</p> <p>D: NEXT MENU</p>
To begin using your oven, press the appropriate Product Select button. Refer to your Daily Operations Section of your Operations Manual to learn how to use your program.	<p>SELECT PRODUCT OR</p> <p>READ/CLEAR TO</p> <p>PROGRAM</p> <p>XX:XXPM XXXF</p>



## 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*
Oven will not heat	Power Switch is not “ON”		Ensure the contactor moveable points move freely up and down*
	Failed Transformer	Failed Motor	Confirm that motor is getting correct voltage*
	Failed Probe	Failed or disconnected safety thermostat	Check across the thermostat connectors for continuity*
	Failed Circuit board	Failed Element	Confirm that Elements are getting correct voltage and have continuity*
	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.

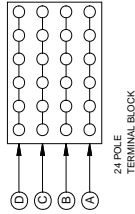


**BOTH HIGH AND LOW VOLTAGES ARE PRESENT INSIDE THIS APPLIANCE WHEN THE UNIT IS PLUGGED/WIRED INTO A LIVE RECEPTACLE. BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRIC POWER SUPPLY.**



REVISION BLOCK					
REV	ECN NO.	DESCRIPTION	DR	MFG	ENG
C		ADDED SAFETY CONTACTOR	BJM		1-18-99
D	6485	ADDED FAN PICTORIALLY	JMM		1/14/2008

JP11 = HEAT  
 JP12 = HI SP MOTOR  
 JP13 = LO SP MOTOR  
 JP14 = OPT STEAM  
 JP21 = RTD  
 JP35 = DOOR SW  
 JP37 = ON-OFF  
 GP3 = CHASSIS GROUND  
 GP4 = CHASSIS GROUND  
 JP41 = RS232 CONNECTOR

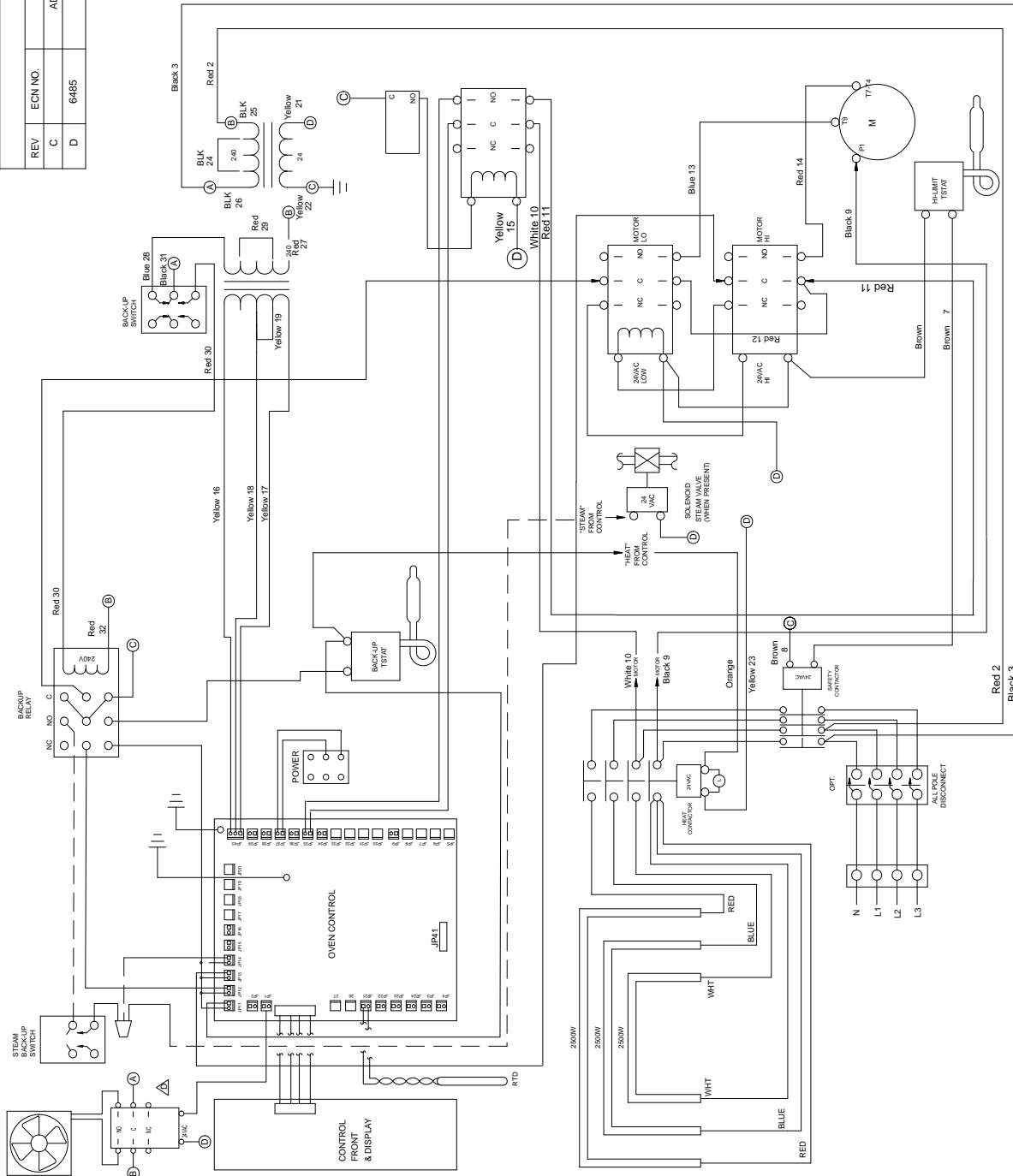


Three Phase

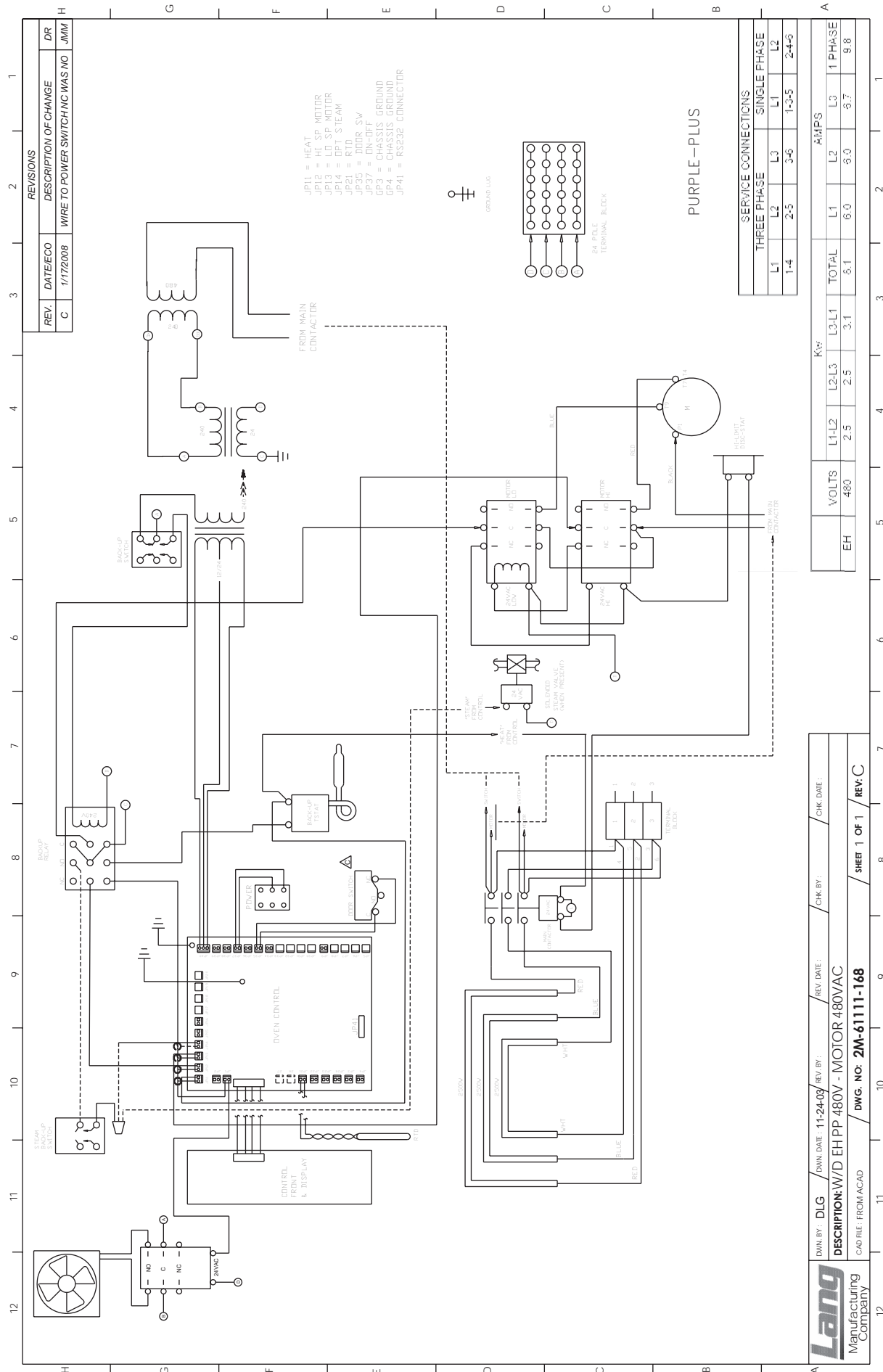
VOLTS		KW				AMPS			
		L1	L2	L3	N	L1	L2	L3	N
220/380		2.3	1.9	1.9	.75	10.7	8.6	8.6	3.4
240/415		3.0	2.2	2.2	.99	12.5	9.7	9.7	4.15

## PURPLE-PLUS

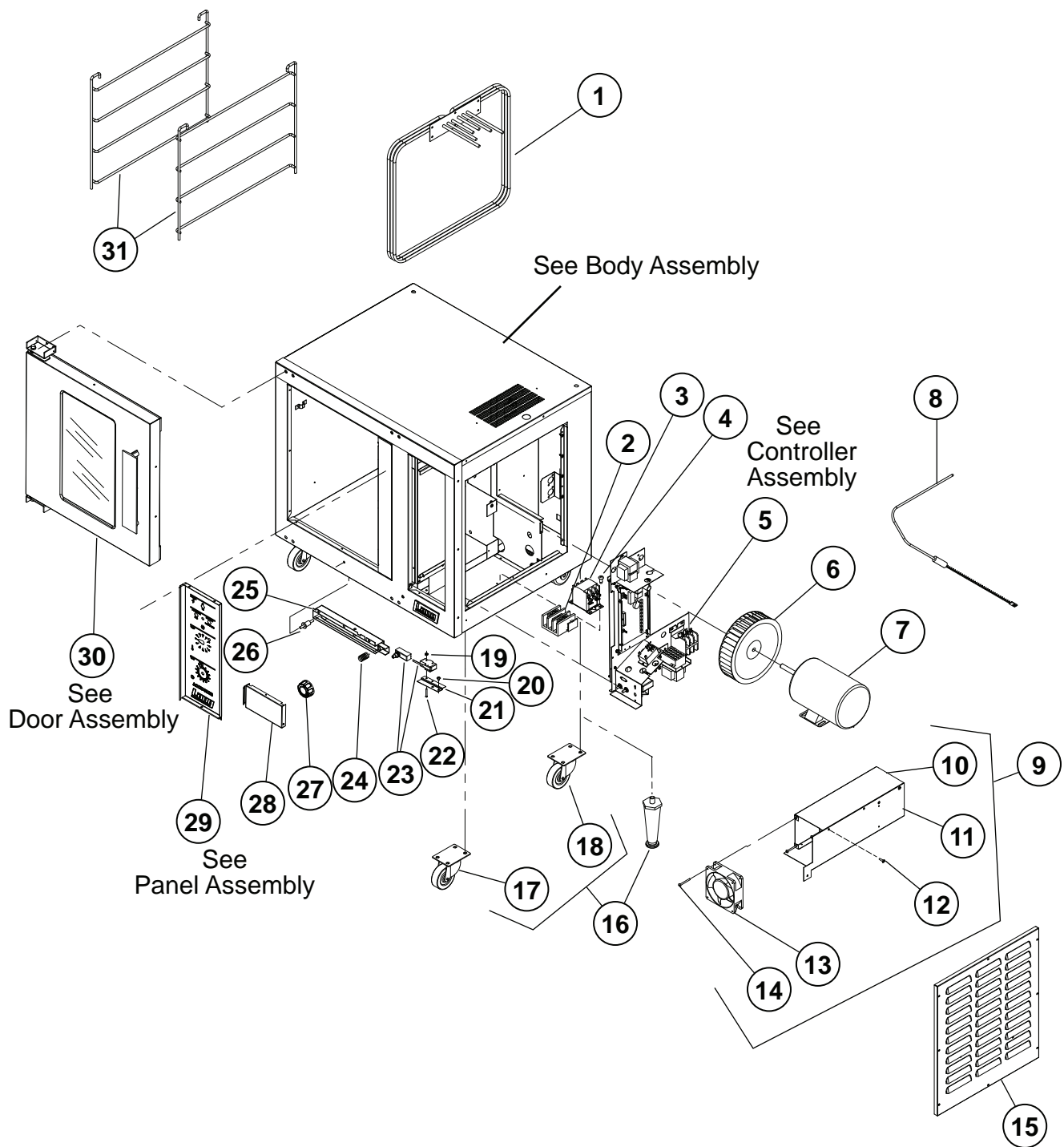
QTY	ITEM	PART NUMBER	DESCRIPTION / MATERIAL
<b>LANG MANUFACTURING</b>			
DR:	EDM DATE:	10-4-98	
CK:	DC DATE:	10-29-98	
TITLE: W/D EH PP WITH 2 SPEED CE			
TOLERANCES DECIMALS			
FRACTIONS			
DIMENSIONS ARE IN INCHES			
NEXT HIGHER ASSY:			
DRAWING NUMBER			
220/380 & 240/415 VAC			
TO FIT			
SCALE:			
1 OF 1			
D			











ECOH Complete Assembly

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

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

SK2320

Rev. B

6/1/2009



# PARTS LIST

June 1, 2009 Rev C

## Model No: ECOH & RCOH, AP, PP & PT CONTROLS Commercial & Marine Half Size Economy Convection Oven

Key Number	Part Number	Qty Per	Description
1	2N-11090-20	1	ELMNT EHS 208V 7.5KW
	2N-11090-21	1	ELMNT EHS 240V 7.5KW
	2N-11090-22	1	ELMNT EHS OVEN 480VAC 7.5KW
	2N-11090-23	1	ELMNT EHS OVEN 208VAC 5.0 KW
2	2E-30500-07	1	TRM BLOCK 3PLELRGE 125AMP
	2E-30500-09	1	TRM BLOCK 3 POLE SMALL 95
3	3E-30700-06	1	CONTC3POLE35A, 24VAC
4	2C-20102-08	2	SCRW PHD ST 8-32X.375
5	Q9-60101-767	1	PANEL EH 208/240V
	Q9-EHPAP-GFA	1	PANEL EH 220/380V ACCU-PLUS FA
	Q9-EHPAPRT-C	1	PANEL EH 208/240V AP W/RT30
	Q9-EHPAP-U	1	PANEL EH 480 VOLT ACCU-PLUS
	Q9-EHPPP-C	1	PANEL EH 208/240V PURPLE w/COOLING FAN ASSY
	Q9-EHPPP-C-S	1	PANEL EH 208/240V PURPLE w/o COOLING FAN ASSY
	Q9-EHPPT-C	1	PANEL ASSY EHS-PT 208/240/480V
6	2U-71500-06	1	BLOWER WHEEL EHS OVEN
7	2U-30200-16	1	MOTOR 1/3HP 460V/1/60HZ 2SP
	2U-30200-17	1	MTR 1/3HP208/240V1PH2SPD
8	2U-30200-53	1	MOTOR 1/3HP 240/254V 50HZ 2 SP
9	2E-41100-12	1	SENSOR EHS OVEN 450 DEG
	Q9-EH-268	AR	EH COOLING FAN ASSY
10	Q9-EH-268-2	1	AIR DUCT BACK
11	Q9-EH-268-1	1	AIR DUCT FRONT

**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 1, 2009 Rev C

## Model No: ECOH & RCOH, AP, PP & PT CONTROLS Commercial & Marine Half Size Economy Convection Oven

Key Number	Part Number	Qty Per	Description
12	2C-20103-02	6	SCRW SM PLT 10 X .5 PHLSL ECOH-PP-208/240V, ECOH-PT-208/240/480V, RCOHPT-208/240CF/480CF
13	2U-30200-46	1	MTR W/FAN AXIAL 220VAC70C ECOH-PP-208/240V, ECOH-PT-208/240/480V, RCOHPT-208/240CF/480CF
14	2C-20109-31	4	SCRW S/S 8-32 X 1-3/4 T/H PHIL ECOH-PP-208/240V, ECOH-PT-208/240/480V, RCOHPT-208/240CF/480CF
15	Q9-60102-1368		MOTOR COVER EH (EH-141) & HRDW ALL
16	2A-72500-02	4	LEG 4 SS MM ECOH-AP208DR, ECOH-PT208V7
	2A-72500-05	4	LEG 4 W/BOLT DOWN ADJ ECOH-AP-208M, RCOHAP-440/480VM, RCOHRAP-480M
	9Q-ECOH-C4		CASTERS (SET OF 4) sold as an accessory with most units
	Q9-EHS-4C	1	CASTERS (SET OF 4) RCOHAP-208KR, RCOHAP-208V, RCOHAP-480V, RCOHPT-208CF, RCOHPT-208V, RCOHPT-240CF, RCOHPT-480CF
17	2P-72901-17	2	CSRT SWVL W/BRK 35/16TRD RCOHAP-208KR, RCOHAP-480V, RCOHPT-208CF
18	2P-72900-04	2	CSTER RIGID 3,5/16WTRD RCOHAP-208KR, RCOHAP-480V, RCOHPT-208CF
19	2C-20301-10	2	NUT HEX 6-32 PLTD ECOH, RCOH
20	2C-20101-65	2	SCRW MS PLT 10-32 X .25 THD ECOH, RCOH
21	Q9-EH-356	1	SWITCH BRACKET ECOH, RCOH
22	2C-20101-17	2	SCRW RND MS 6-32X1 PLTD ECOH, RCOH
23	2E-30301-17	1	SWT MICRO PLUNGER XLH V-27971 & W-48418,
	Q9-EH-363	1	SWITCH ARM, MICRO ECOH, RCOH
24	2P-51001-12	1	SPRING COMPRSN.665ID X 1.4 LONG ECOH, RCOH
25	Q9-EH-250	1	WELD SWITCH ARM ECOH, RCOH
26	Q9-EH-350	1	SWITCH PLUNGER - ASSY ECOH, RCOH
27	Y9-70701-18	1	KNOB ASSY 450° ECOH-AP, ECOH-PT, ECOH-PP, RCOH-AP, RCOH-PT
28	Q9-60102-112	1	SWITCH DOOR - ASSY EH 9Q-ECOH-PP-208V
29	Q9-60101-765	1	ECOH-PT / EHS-PT CONTROL FRONT ECOH-PT, RCOH-PT
	Q9-60101-766	1	ECOH-PP / EHS-PP CONTROL FRONT ECOH-PP
30	Q9-51100-53	1	COMPLETE DOOR ASSY EHS/GHS WINDOW ALL
31	2B-50200-83	2	RACK SLIDE EHS ECOH-AP, ECOH-PT, ECOH-PP, RCOH-AP, RCOH-PT
NI	2B-50200-34	5	RACK HALF SIZE OVENS ECOH-AP, ECOH-PT, ECOH-PP, RCOH-AP, RCOH-PT
NI	2C-20108-01	2	STACKING PINS ALL
NI	2E-31200-02	1	LUG GROUNDING UL APPROVED ALL
NI	2E-31800-01	6	CB 250V50A 1 POLE CRLNGSW RCOHAP-208KR, RCOHAP-208V, RCOHPT-208CF
NI	2E-31800-04	2	CB 480V 50A 3 POLE RCOHAP-480V
NI	2E-31800-04	1	CB 480V 50A 3 POLE RCOHPT-440VM
NI	2E-60101-75	1	EHS CORD KIT BK/DENNY'S ECOH-PP208BK
NI	2K-70801-03	1	SNAP BUSH 3/8 SB375-4 BLK ECOH-PP-208V
NI	2K-70801-04	AR	SNAP BUSH 3/4 SB750-10 ECOH
NI	2M-61111-135	1	WD EHS-AP 208V-240VAC ECOH-AP-208V
NI	2M-61111-148	1	WD EHS-PP 208-240VAC 2SPD ECOH-PP-208V
NI	2M-61111-163	1	WD EHS-AP 480V ECOH-AP-480M
NI	Q9-60102-97	1	DOOR SEAL EH w/ mounting hardware
NI	Q9-EH-550	1	WIRING HARNESS, ELEMENT ALL
NI	Q9-EH-551	1	WIRING HARNESS, HIGH VOLTAGE CONTROL ALL
NI	Q9-EH-553	1	WIRING HARNESS, LOW VOLTAGE CONTROLALL
NI	Q9-EH-554	1	WIRING HARNESS, POWER SWITCH ALL

**IMPORTANT: WHEN ORDERING, SPECIFY VOLTAGE OR TYPE GAS DESIRED  
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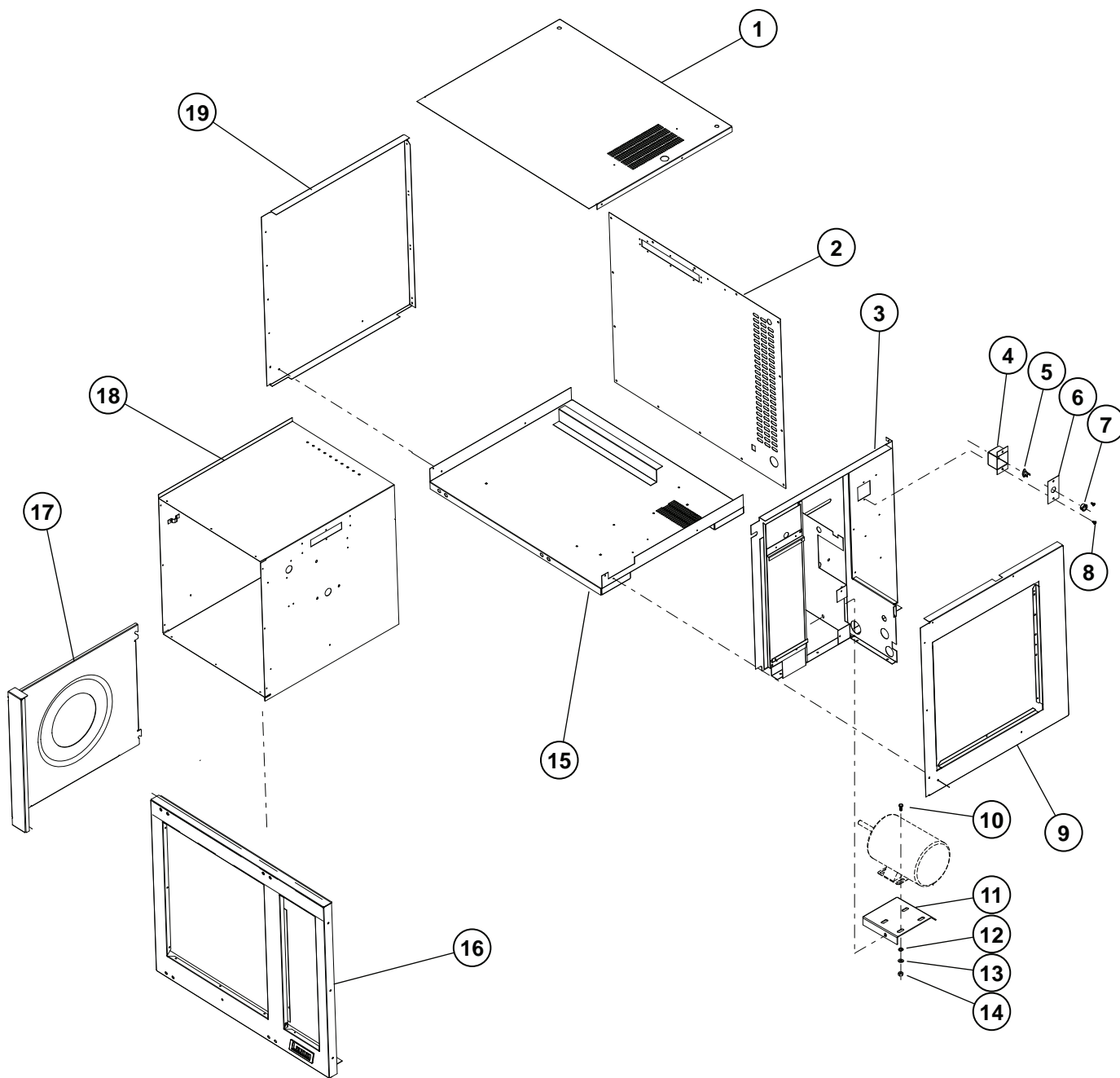
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**Star Manufacturing International, Inc.**





ECOH Body Assembly

**Lang**™

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

SK2325

Rev. A

1/9/2008

# PARTS LIST

June 1, 2009 Rev C

**Model No: ECOH & RCOH, AP, PP & PT BODY PANELS  
Commercial & Marine Half Size Economy Convection Oven**

Key Number	Part Number	Qty Per	Description
1	Q9-60102-136	1	BODY TOP EH & HRDW ALL
2	Q9-60102-1361	1	BODY BACK EH & HRDW ALL
3	Q9-EH-119-2	1	FIREWALL - ASSY ALL
4	Q9-EH-135	1	SAFETY STAT BOX ALL
5	2T-30401-09	1	STAT FXD 500° DEG OPEN ALL
6	Q9-EH-136	1	SAFETY STAT COVER ALL
7	2K-70801-04	1	SNAP BUSH 3/4 SB750-10 BLK ALL
8	2C-20103-02	2	SCRW SM PLT 10 X .5 PHLSL ALL
9	Q9-60102-1364	1	BODY R/H SIDE EH & HRDW ALL
10	2C-20104-41	4	SCRW MACH 1/4-20X5/8 H/H ALL
11	Q9-EH-209	1	MOTOR MOUNT ALL
12	2C-20202-08	4	WSHR PLT 5/16 LOCK SPLIT ALL
13	2C-20201-09	4	WSHR PLT 5/16 FLAT SAE ALL
14	2C-20301-06	4	NUT HEX 5/16-18 PLTD ALL
15	Q9-EH-104-2	1	BOTTOM SPOT WELD ALL
16	Q9-EH-215-2	1	FRONT - ASSY REVERSIBLE ALL
17	Q9-EH-452-2	1	BAFFLE STD ALL
17	Q9-EH-452-3	1	BAFFLE ASSY STEAM STEAM
18	Q9-EH-374-3	1	CAN ASSY STD -[NEW RACK ALL
19	Q9-60102-1365	1	BODY L/H SIDE EH & HRDW ALL

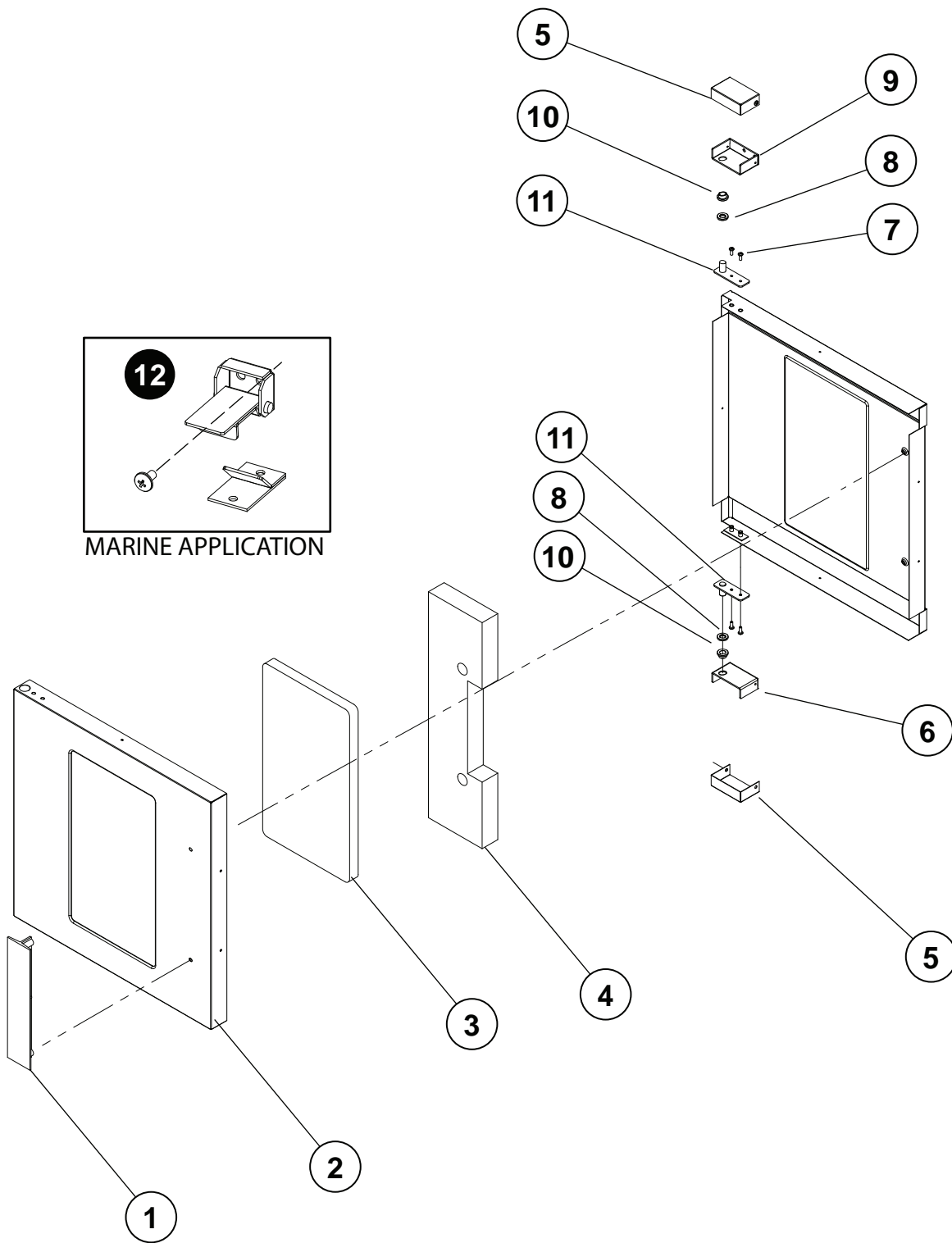
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**Star Manufacturing International, Inc.**



ECOH, RCOH Door Assembly

# PARTS LIST

June 1, 2009 Rev C

**Model No: ECOH & RCOH, AP, PP & PT DOOR ASSEMBLY  
Commercial & Marine Half Size Economy Convection Oven**

Key Number	Part Number	Qty Per	Description
1	2R-50800-12	1	DOOR T HANDLE 11 1/2 LNG ALL
2	Q9-60102-1362	1	OUTER DOOR EH NO/LOGO ALL
3	2Q-71301-04	1	WINDOW ASSY 9-5/8X16-5/8 ALL
4	2H-60106-17	1	INSULATION KIT EHS DOOR - ALL
5	Q9-EH-267	2	HINGE COVER ALL
6	Q9-EH-266	1	HINGE BOTTOM ALL
7	2C-20109-15	4	SCRW PHD MS SS 10-32X1/2 ALL
8	2P-70201-01	2	BRNZBR.505IDX.8750DX.175 ALL
9	Q9-EH-265	1	HINGE TOP ALL
10	2P-70201-19	2	BRNZBRFLN1/2IDX5/8ODX3/8 ALL
11	Q9-50313-031	2	HINGE PIN - WELD ALL
12	Q9-60102-370	1	DOOR LATCH ASSY MARINE MODELS

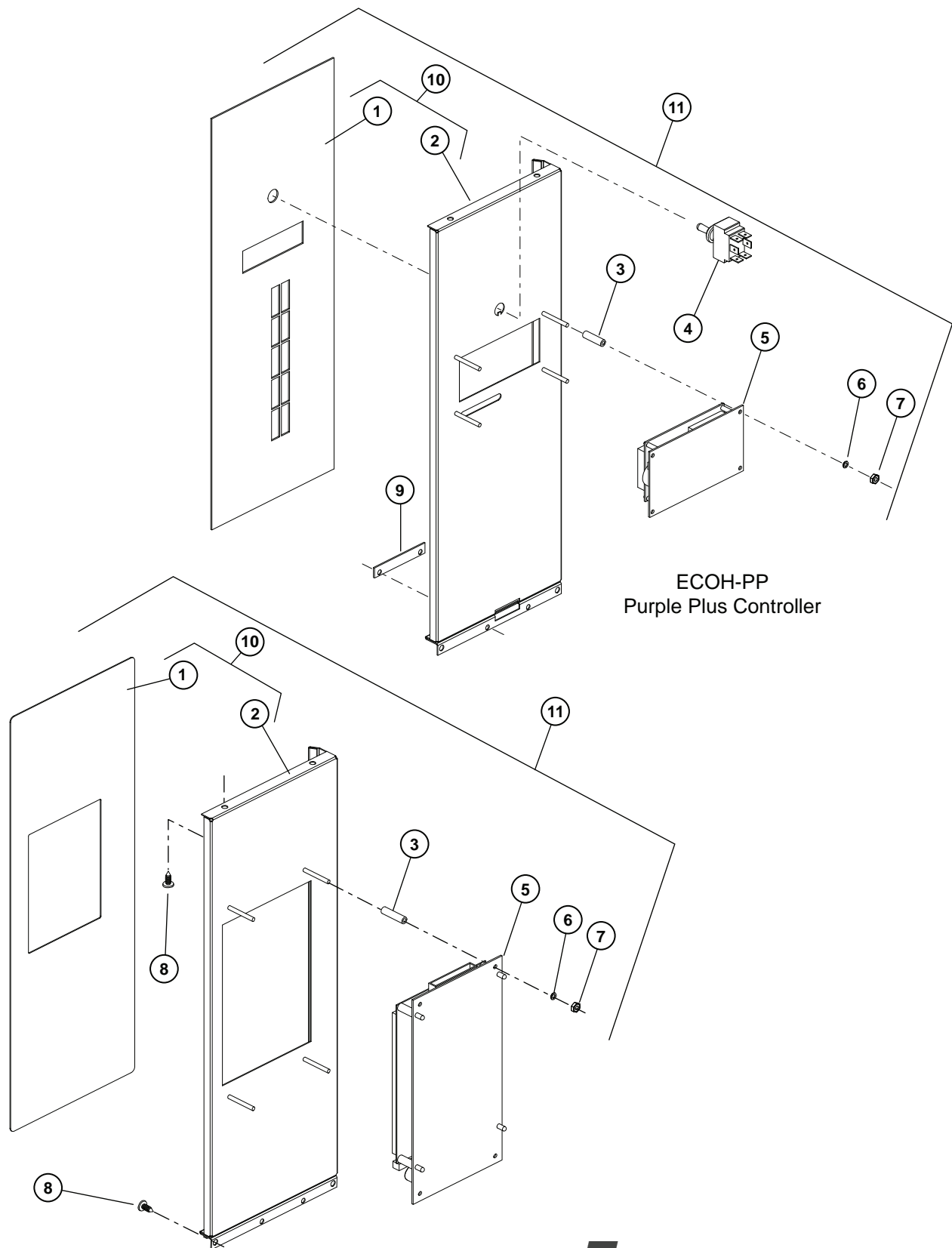
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**Star Manufacturing International, Inc.**



ECOH-PP  
Purple Plus Controller

ECOH-PT & RCOH-PT  
Platinum Controller



# PARTS LIST

February 18, 2008, Rev C

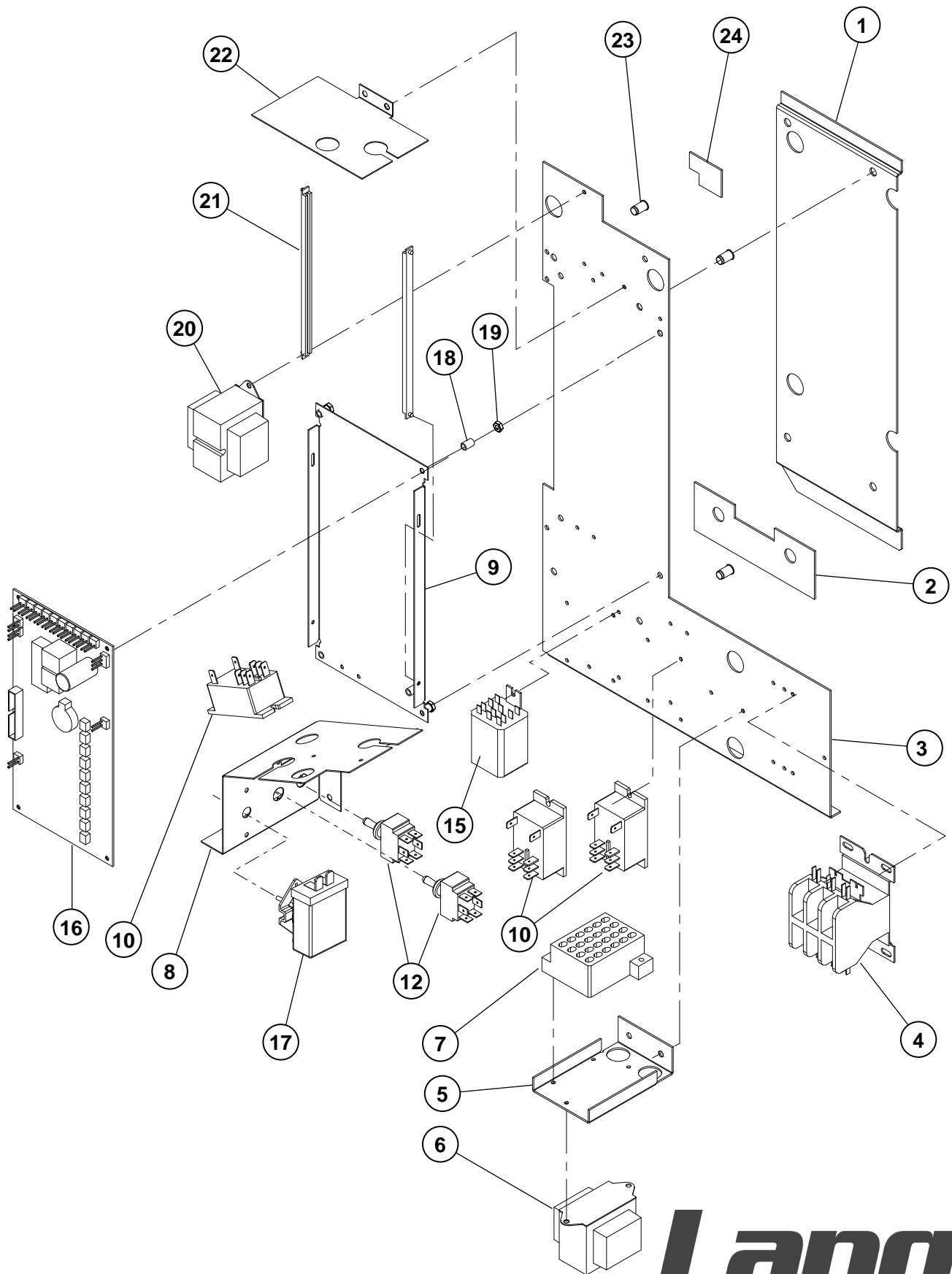
**Model No: ECOH & RCOH, PP & PT CONTROL ASSEMBLY  
Commercial & Marine Half Size Economy Convection Oven**

Key Number	Part Number	Qty Per	Description
1	2M-60301-117	1	SWITCH LBL EH 4X20 ECOH-PP
	2M-60301-118	1	SWITCH LBL EH PLATINUM ECOH-PT, RCOHPT
2	Q9-60101-7665	1	ECOH-PP / EHS-PP CNTRL FRNT W/PROTO ECOH-PP
	Q9-EH-516-1	1	CONTORL PANEL - EH-PT ECOH-PT-208V
3	2A-20504-01	4	SPACER NYLON #6 1/4 X 7/8 ECOH-PP
	2A-20504-02	4	SPACER NYLON #6 1/4 X 1" ECOH-PT, RCOHPT
4	2E-30303-06	1	SWT TOG ON-ON DPDT BLK ECOH-PP, ECOH-PT, RCOH-PT
5	2J-40102-24	1	DSPLY 4X20 MDL.DA170-001 ECOH-PP
	2J-40102-25	1	DSPLY 320X240 DB170-001 ECOH-PT, RCOHPT
6	2C-20205-02	4	.140#6IDX.2500DX.032 ALL
7	2C-20301-10	2	NUT HEX 6-32 PLTD ECOH-PP
	2C-20301-10	4	NUT HEX 6-32 PLTD ECOH-PT, RCOHPT
8	2C-20103-02	4	SCRW SM PLT 10 X .5 PHLSL TP A ALL
9	Q9-EH-519	1	COMPUTER STRIP HOLDER ECOH-PP
10	Q9-60101-7661	1	ECOH-PP / EHS-PP FRNT W/LABEL ECOH-PP
	Q9-60101-7662	1	ECOH-PT / EHS-PT FRNT W/LABEL ECOH-PT, RCOHPT
11	Q9-60101-765	1	ECOH-PT / EHS-PT CONTROL FRONT ECOH-PT, RCOHPT
	Q9-60101-766	1	ECOH-PP / EHS-PP CONTROL FRONT ECOH-PP
NI	2M-60301-128	1	PRODUCT STRIP PURP COMP ECOH-PP
NI	OB-60301-46	1	OBS PRDCT STRIP-BLU/PURP COMPH ECOH-PP

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PAGE 1  
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ECOH PP/PT Controller Panel

**Lang**™

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

SK2323

Rev

10/2/2007

# PARTS LIST

February 18, 2008, Rev C

## Model No: ECOH & RCOH, PP & PT CONTROL PANEL ASSEMBLY Commercial & Marine Half Size Economy Convection Oven

Key Number	Part Number	Qty Per	Description
1	Q9-EH-495	1	COMPUTER CONTROL SLIDE
2	Q9-EH-495-1	1	SLIDE CLIP A
3	Q9-EH-505	1	COMPONENT MOUNT C,P,PP
4	2E-30700-06	1	CONTC3POLE35A24VAC50/60HZ
5	Q9-EH-507	1	TERMINAL BLOCK MOUNT
6	2E-31400-04	1	XFRMR 480/240VAC 100VA
	2E-31400-07	1	XFORMR120-208-240/24V40VA
7	2E-30503-01	1	TRM BLOCK 24 POS QK CON
8	Q9-EH-509	1	SWITCH BRACKET
9	Q9-50307-47	1	CPU MOUNT
10	2E-30701-05	3	CONTC 2POLE 30A 24VAC P &
12	2E-30303-06	2	SWT TOG ON-ON DPDT BLK
15	2E-30600-02	1	RELAY 240VAC 3FORMC FLNG
16	2J-40102-26	1	MAIN BOARD, MDL.CA170-001
17	2T-30402-27	1	STAT ADJ 450 DEG 48 PILOT
18	2A-20501-01	5	SPCR FBR 1/4 OD #8 ID 3/8
19	2C-20301-10	2	NUT HEX 6-32 PLTD
20	Y9-31400-26-1	1	XFORMR 208-240/24-12 40VA
21	2E-41800-02	2	PCB GUIDE 6.675 LG
22	Q9-EH-513	1	24V TRANSFORMER SHIELD
23	2C-20306-03	4	AVK CAD 10-32 1ST GRP
24	Q9-EH-495-2	1	SLIDE CLIP B
NI	Q9-40102-51-1	1	FILTER BOARD PHANTOM -
NI	Q9-ECCOPPP-C	1	PANEL ECCO 208/240V
NI	Q9-ECCOPPT-C	1	PANEL ECCO 208/240V
NI	Q9-ECCOPPT-U	1	PANEL ECCO 480V PLATINUM

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**Star Manufacturing International, Inc.**

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