

Lang[®]

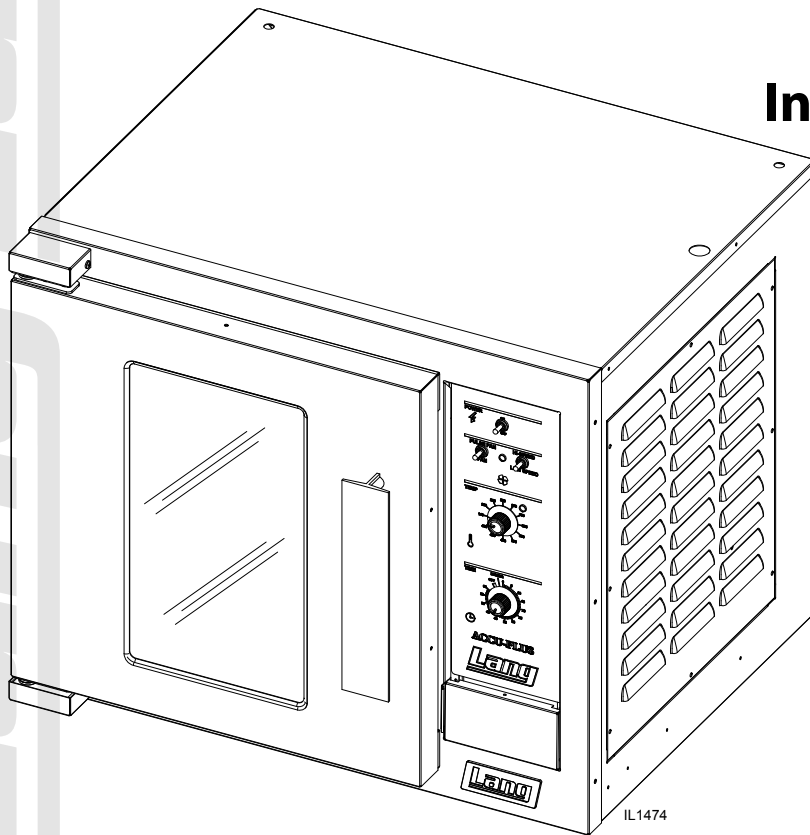
ELECTRIC HALF SIZE CONVECTION OVEN

ECOH-AP

RCOH-AP

Installation and Operation Instructions

2M-W491 Rev. G 3/24/15



ECOH-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 VICINTIY 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.

Lang 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 Lang 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 314-678-6315.

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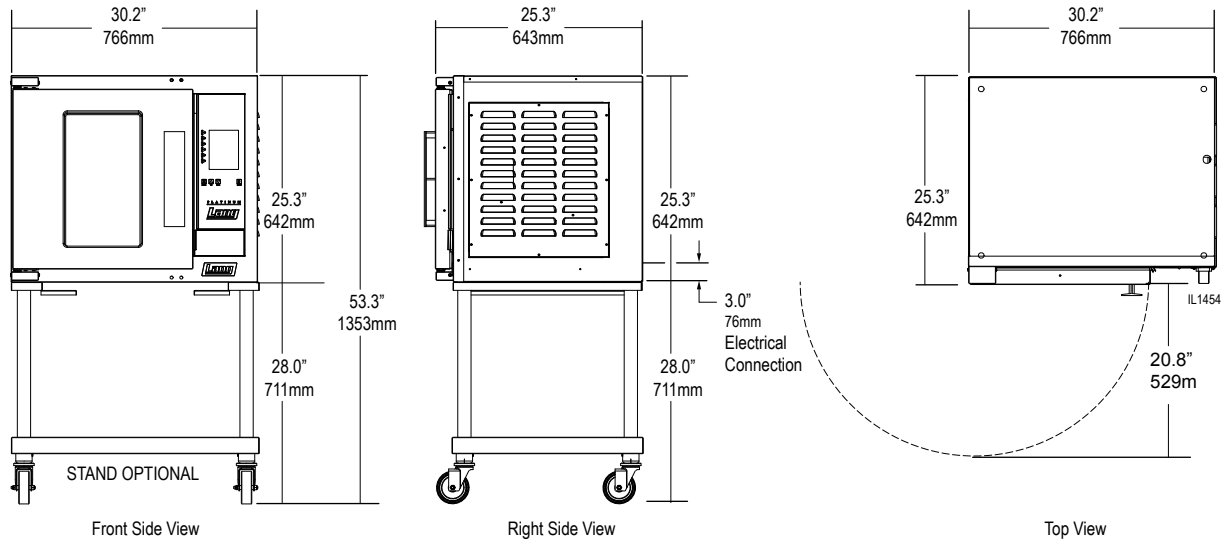
2M-W491 Half Size Convection Oven, ECOH-AP

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 tech service dept. at 314-678-6315 or visit our website www.langworld.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/ RCOH	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



ELECTRICAL SPECIFICATIONS

Lang Number	VOLTS AC	Hz.	MOTOR AMPS	PHASE	AMPS 3PH/ NEUTRAL	KW TOT.	AMPS 1 PH	WIRE 1 PH	L1	L2	L3	WIRE 3 PH
ECOH-AP-2/3	220/380	50/60	3.3	1/3PH-4WIRE	11	6.7	30	10	10	10	11	12
ECOH-AP2/3FA	220/380	50/60	3.3	1/3PH- 4WIRE	11	6.7	30	10	11	10	10	12
ECOH-AP208CF	208	60	3.3	1/3		5.3	25.5	10	25.5	25.5		10
ECOH-AP208DR	208	60	3.3	1/3		7.8	38	8	23	21	23	10
ECOH-AP208FA	220/380	50/60	3.3	1/3PH- 4WIRE	11	6.7	30	10	11	10	10	12
ECOH-AP-208M	208	60	3.3	1/3		7.8	38	8	23	21	23	10
ECOH-AP-208V	208	60	3.3	1/3		7.8	38	8	23	21	23	10
ECOH-AP240CF	240	60	3.3	1/3		5.3	22	10	22	22	-	10
ECOH-AP-240M	240	60	2.4	1/3		7.8	33	8	20	18	20	12
ECOH-AP240RS	240	60	2.6	1/3		7.8	33	8	20	18	20	12
ECOH-AP-240V	240	60	2.6	1/3		7.8	33	8	20	18	20	12
ECOH-AP-480M	480	60	1.0	3		7.8			10	9	10	12
ECOH-AP-480V	480	60	1.0	3		7.8			10	9	10	12
RCOHAP-2/3V	220/380	50/60	33	3		17			30	23	23	10
RCOHAP-208CF	208	60	3.3	3		5.3	25.5	10	25.5	25.5	-	10
RCOHAP-208KR	208	60	3.3	1/3		5.3	25.5	8	25.5	25.5	-	8
RCOHAP-208V	208	60	3	1/3		7.8	37.5		22	20.7	22	8
RCOHAP-240CF	240	60	2.6	1/3		5.3	22.1		22.1	22.1	-	10
RCOHAP-240V	240V	60	3.3	1/3		7.8	32.5	10	19.2	18.1	19.2	12
RCOHAP-240VM	240	60	3.3	1/3		7.8	32.5	10	32.5	32.5		RR
RCOHAP-440VM	440	60	1.4	3		6.6			8.8	8.3	8.8	12
RCOHAP-480CF	480	60	1.4	3		5.3			11	11	-	14
RCOHAP-480V	480	60	1.4	3		7.8			9.5	9	9.5	12
RCOHAP-480VM	480	60	1.4	3		7.8			9.5	9	9.5	12
RCOHRAP208KR	208	60	3.3	1/3		5.3	25.5	8	25.5	25.5	-	8
RCOHRAP-480M	480	60	33	3		8.1			9.7	9.7	9.7	12
RCOHRAP-480V	480	60	33	3		8.1			9.7	9.7	9.7	12

2M-W491 Half Size Convection Oven, ECOH-AP

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.

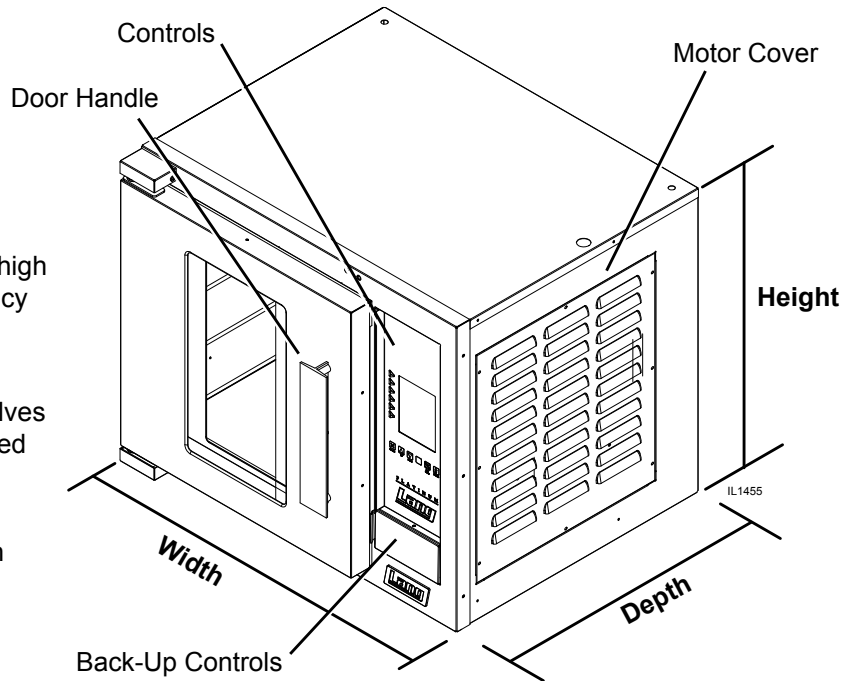
The oven cavity is insulated with high temperature insulation for efficiency and reduced heat loss.

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 on 208, or 240-volt (single or three phase), or 480-volt (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.



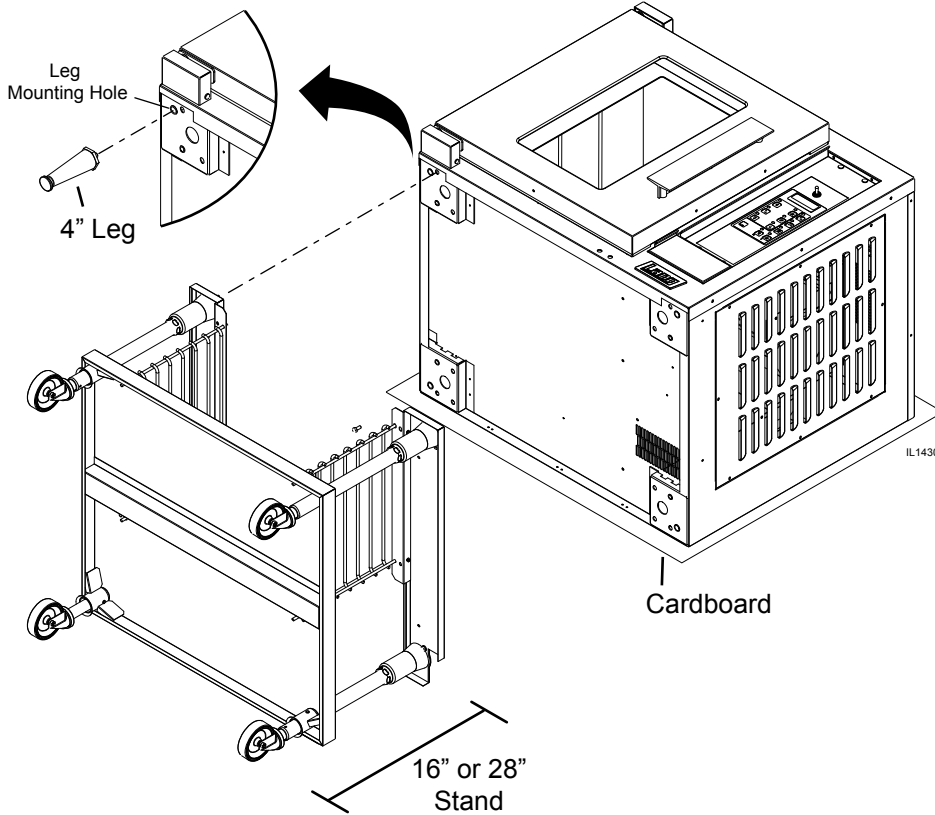
CAUTION

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 counter-top 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

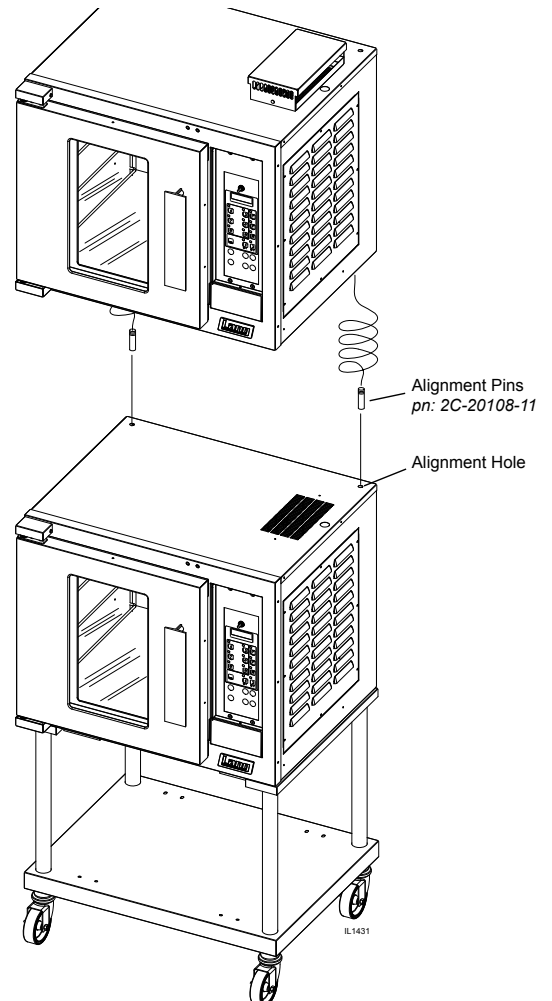
Two alignment pins (pn:2C-20108-11) are needed if you intend on stacking two ECOH on each other as shown. The stacking kit 9Q-ECOH-SK must be requested at the time of purchase, or call your Lang authorized service agent, or Lang parts department at 314-678-6315.

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 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 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.



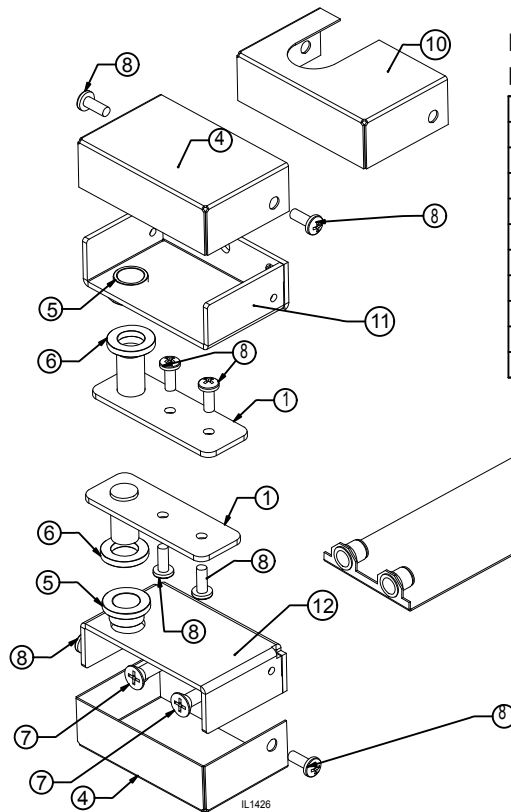
WARNING

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.

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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 1/4-20 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 1/4-20 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 1/4-20 (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 1/4-20 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

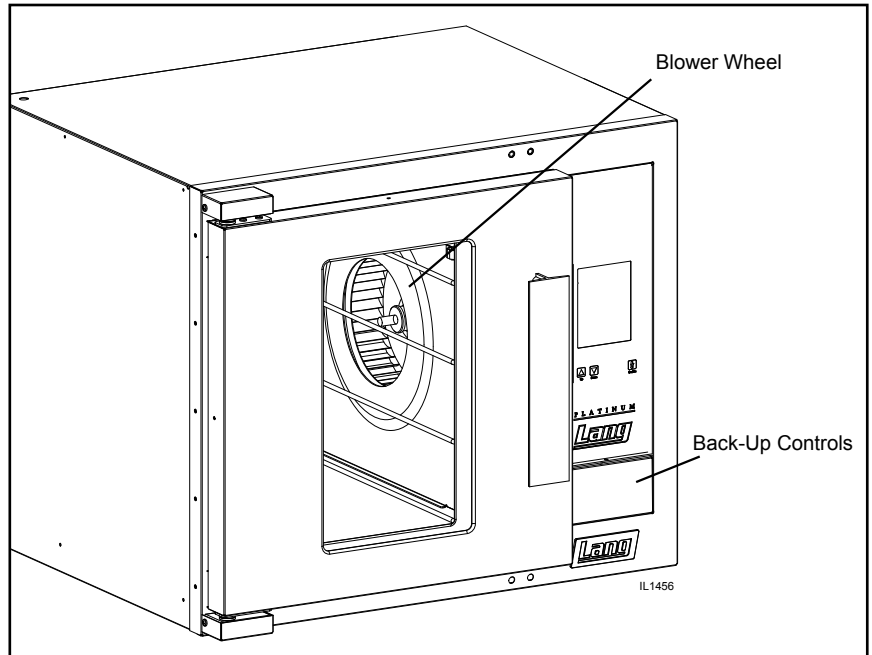
Once the oven has been turned on verify that the blower wheel is spinning freely in a clockwise position and that the elements are heating properly.

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

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.

ECOH-AP Control Panel

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

Power Switch: Turns the oven on and off

Pulse Fan Switch:

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.

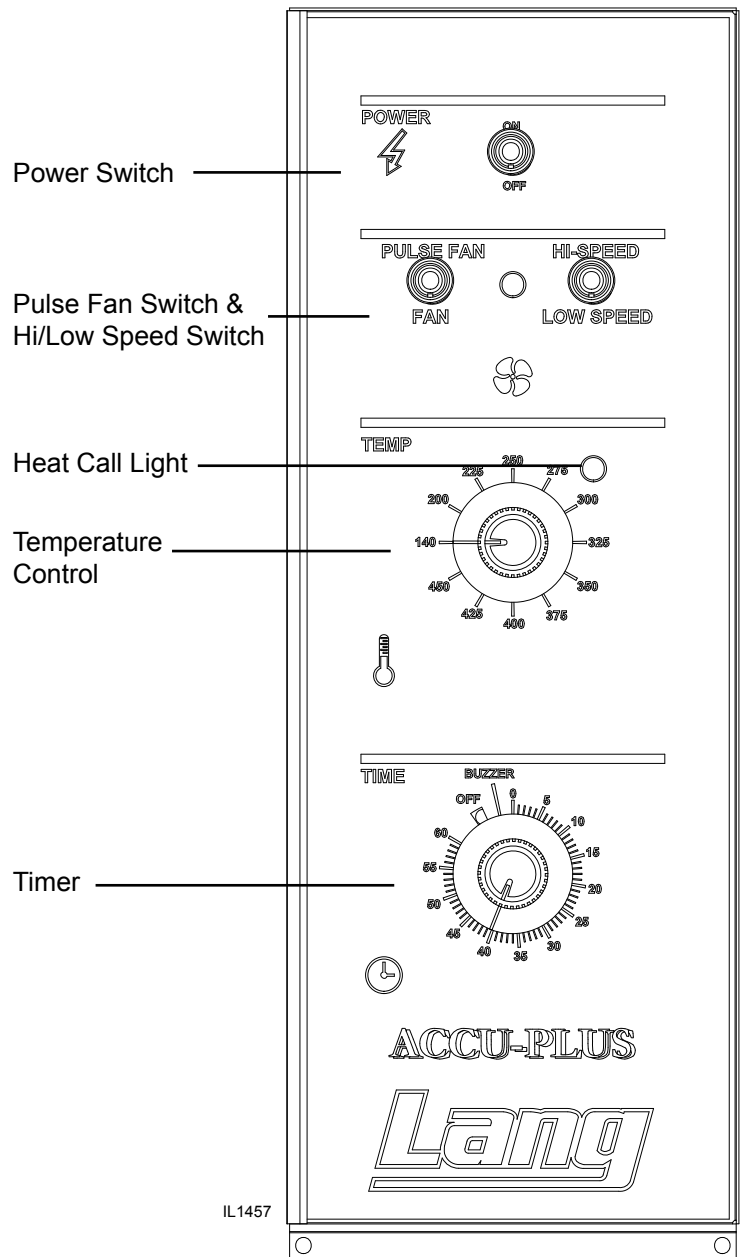
Hi/Low Speed Fan Switch: Dual speed switch. Toggles the fan between high & low speed.

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.



2M-W491 Half Size Convection Oven, ECOH-AP

IL1457

ACCU-PLUS

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.

CAUTION 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
	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 movable points move freely up and down*	
	Failed Transformer		Failed Motor	Confirm that motor is getting correct voltage*
	Failed Probe			Failed or disconnected safety thermostat
	Failed Circuit board		Failed Element	
	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.



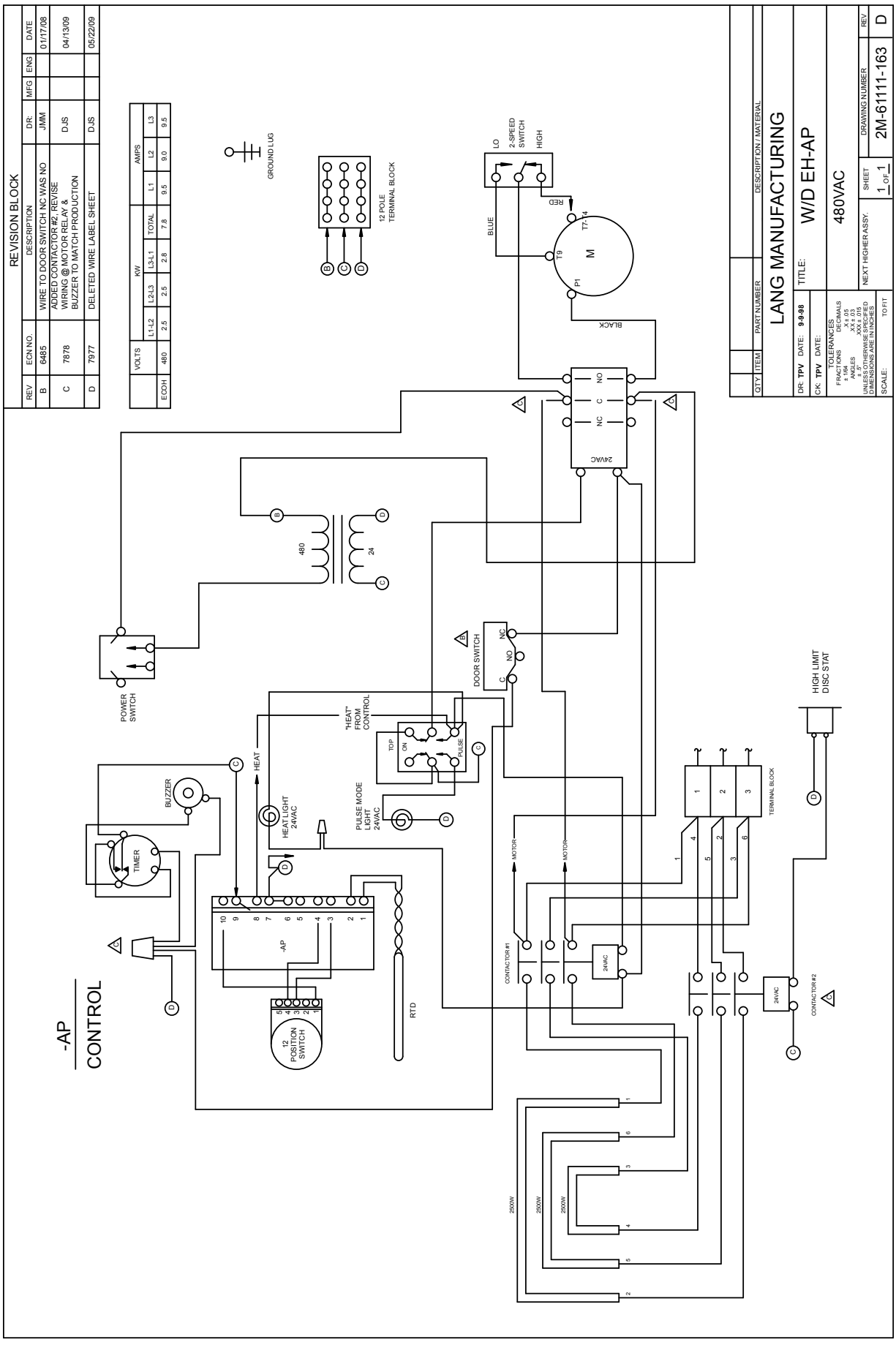
USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY LANG OR THEIR AUTHORIZED DISTRIBUTORS CAN CAUSE BODILY INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES.

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 tech service department 314-678-6315 or visit our website www.langworld.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.

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REVISION BLOCK						
REV	ECN NO.	DESCRIPTION	DR.	MFG	ENG	DATE
B	6485	WIRE TO DOOR SWITCH NC WAS NO ADDED CONTACTOR #2, REVISE WIRING @ MOTOR RELAY & BUZZER TO MATCH PRODUCTION	JMM			01/17/08
C	7878		DJS			04/19/09
D	7977	DELETED WIRE LABEL SHEET	DJS			05/22/09

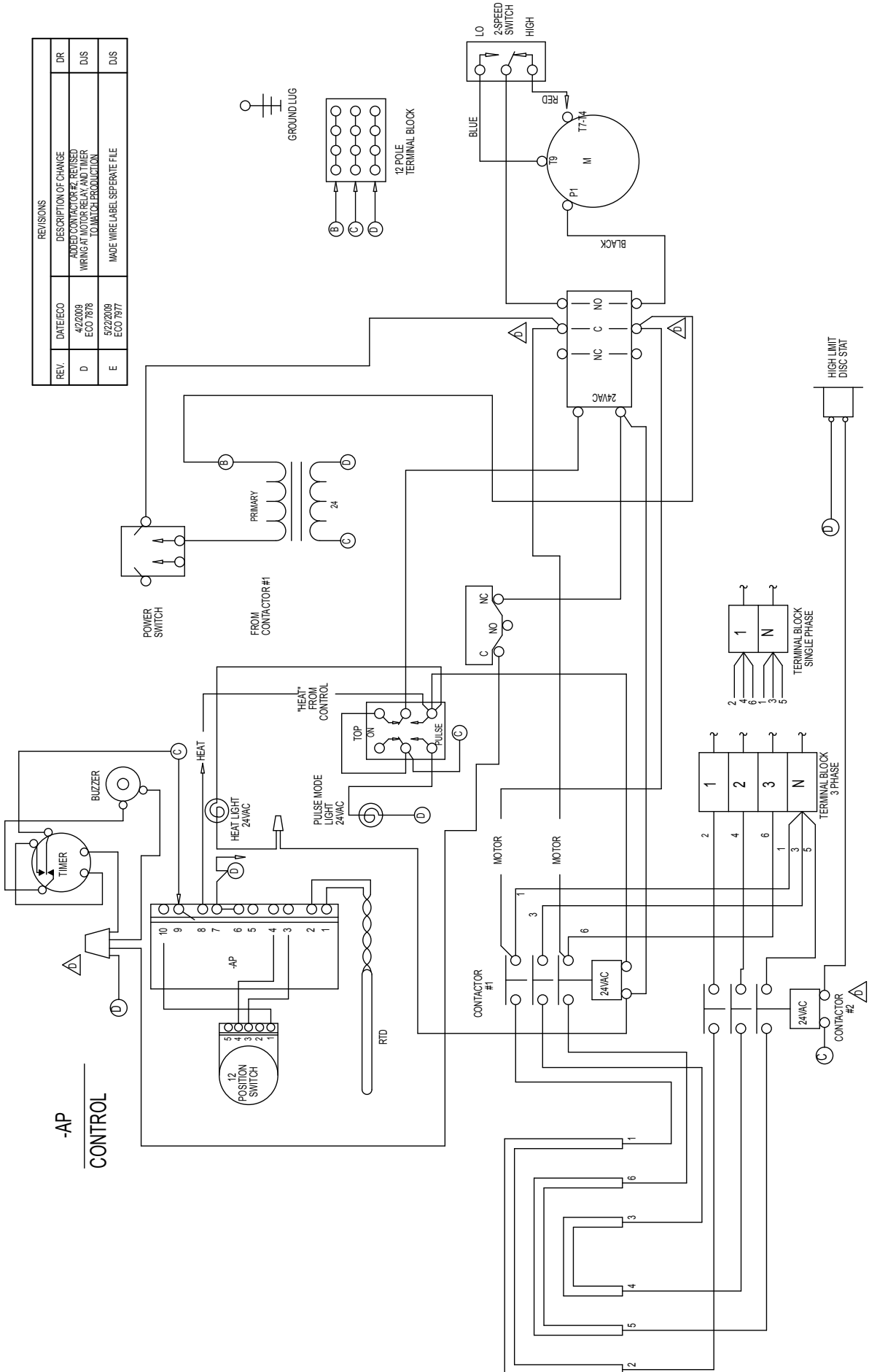
VOLTS	KW			AMPS		
	L1-L2	L2-L3	TOTAL	L1	L2	L3
ECOHI 480	2.5	2.5	2.8	7.8	9.5	9.5

DESCRIPTION / MATERIAL	
CITY / ITEM	PART NUMBER
LANG MANUFACTURING	
DR. TPV DATE: 9-9-88	TITLE: W/D EH-AP
CK. TPV DATE:	480VAC
TOLERANCES	
FRACTIONS	
DECIMALS	
ANGLES	
UNLESS OTHERWISE SPECIFIED	
DIMENSIONS ARE IN INCHES	
SCALE: TO FIT	SHEET 1 OF 1
DRAWING NUMBER	2M-61111-163
REV	D

2M-W491 Half Size Convection Oven, ECOH-AP

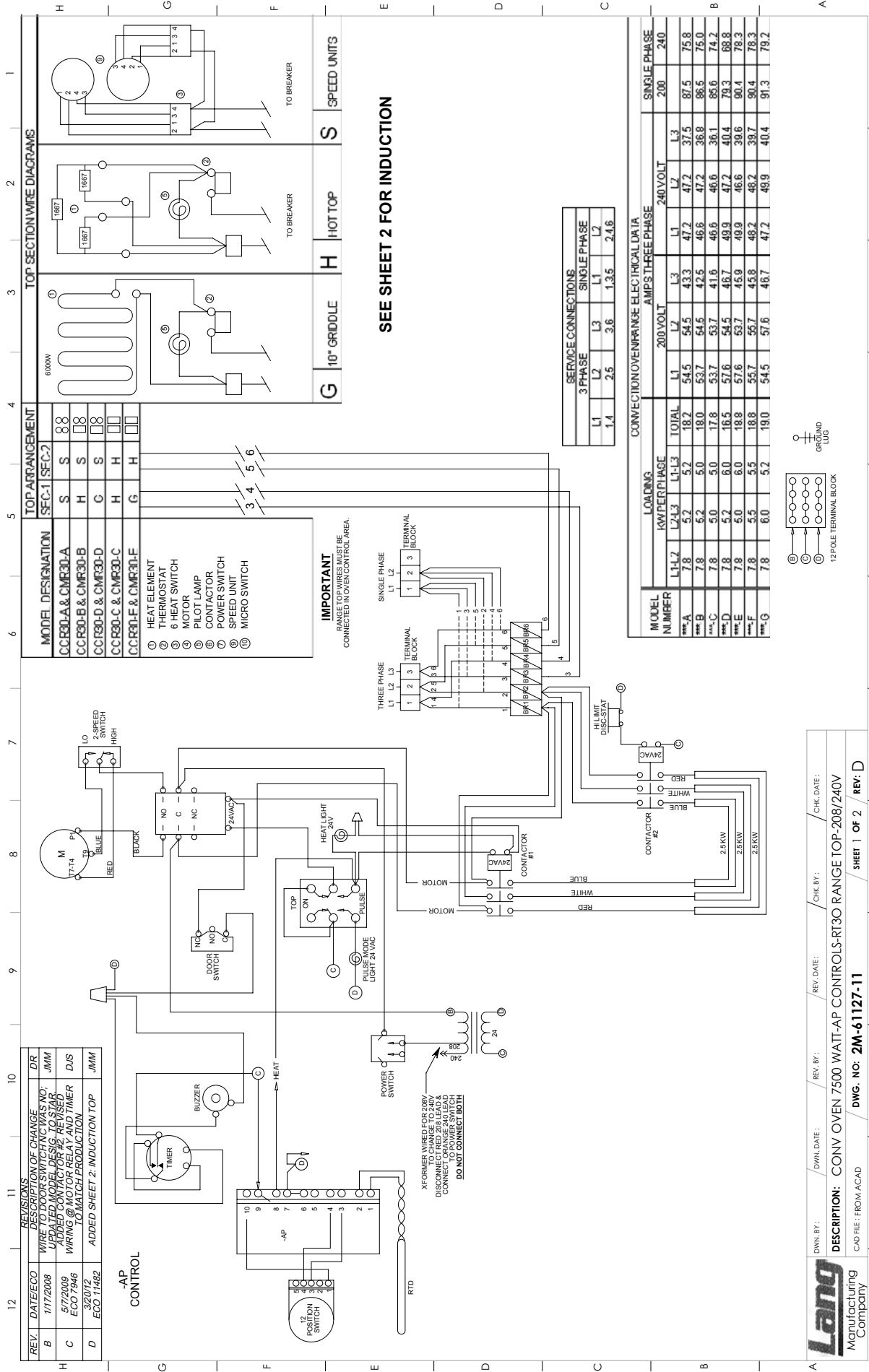
2M-W491 Half Size Convection Oven, ECOH-AP

REVISIONS		DR
REV.	DATE/ECO	DESCRIPTION OF CHANGE
D	4/22/09 ECO 7878	ADJUST CONTACTOR #2 REWIRING AT MOTOR RELAY AND TIMER TO MATCH PRODUCTION
E	8/22/09 ECO 7977	MADE WIRE LABEL SEPERATE FILE
		DJ.S



Lang

DRAWN BY: D.G.
 DESCRIPTION: WID EH-AP 220/380 & 240/415
 DATE: FROM MACD
 DWG. NO. 2M-61111-167
 SHEET 1 OF 1
 REV: E



REV.	DATE/ECO	DESCRIPTION OF CHANGE	DR
B	1/17/2008	WIRE TO DOOR SWITCHING WAS NO. 1	JMM
C	5/7/2009	ADDED CONTACTOR #2	JMM
D	ECO 7046	WIRING @ MOTOR RELAY AND TIMER TO MATCH PRODUCTION	DJS
E	ECO 11482	ADDED SHEET 2: INDUCTION TOP	JMM

MODEL DESIGNATION	SFC-1	SFC-2
CCR30-A & CMR30-A	S	S
CCR30-B & CMR30-B	H	S
CCR30-D & CMR30-D	C	S
CCR30-C & CMR30-C	H	H
CCR30-E & CMR30-E	G	H

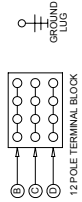
- ① HEAT ELEMENT
- ② THERMOSTAT
- ③ HEAT SWITCH
- ④ MOTOR
- ⑤ PILOT LAMP
- ⑥ CONTACTOR
- ⑦ POWER SWITCH
- ⑧ SPEED UNIT
- ⑨ MICRO SWITCH

IMPORTANT
RANGE TOP WIRES MUST BE CONNECTED IN OVEN CONTROL AREA.

SEE SHEET 2 FOR INDUCTION

SERVICE CONNECTIONS		
3 PHASE		
L1	L2	L3
1.4	2.5	3.6
SINGLE PHASE		
L1	L2	L3
1.4	2.5	2.4

MODEL NUMBER	LOADINGS			CONNECTION OVERVOLTAGE ELECTRICAL DATA					
	L1-L2	L2-L3	L1-L3	2000 VOLT		240 VOLT		SINGLE PHASE	
***A	7.8	5.2	5.0	18.2	54.5	43.3	47.2	37.5	87.5
***B	7.8	5.2	5.0	18.0	53.7	42.5	46.8	36.8	86.6
***C	7.8	5.0	5.0	17.8	53.7	41.6	46.6	36.1	85.6
***D	7.8	5.2	5.0	18.5	57.6	46.7	49.9	40.4	93.3
***E	7.8	5.0	5.0	18.8	57.6	45.9	49.9	38.6	90.4
***F	7.8	5.5	5.5	18.8	55.7	45.8	48.2	39.7	90.4
***G	7.8	6.0	5.2	19.0	54.5	46.7	48.9	40.4	91.3



Lang Manufacturing Company

DWG. No: **2M-61127-11**

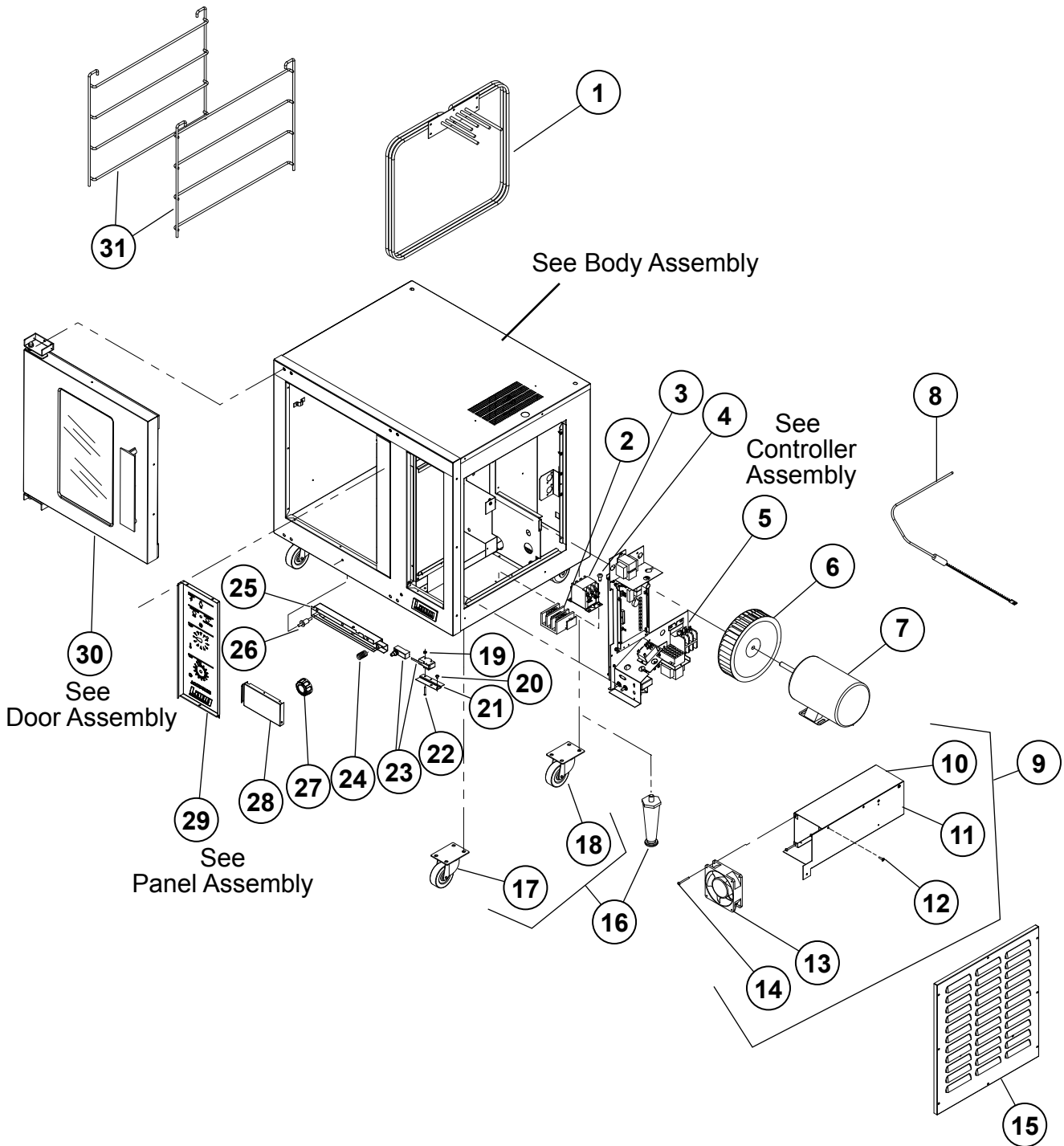
DESCRIPTION: CONV OVEN 7500 WATT-AP CONTROLS-RT30 RANGE TOP-208/240V

CAD FILE: FROM ACAD

SHEET 1 OF 2 / REV: D

DWN. BY: / REV. DATE: / CHK. BY: / CHK. DATE:

2M-W491 Half Size Convection Oven, ECOH-AP



ECOH Complete Assembly

Lang[®]

SK2320

Rev. B

6/1/2009

PARTS LIST

March 24, 2015, Rev G

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

Fig No	PART NO	Qty	DESCRIPTION	Application
1	2N-11090-20	1	ELMNT EHS 208V 7.5KW	208V/208VM
	2N-11090-21		ELMNT EHS 240V 7.5KW	240V, ECOH-AP208FA, ECOH-AP2/3FA, ECOH-PP2/4BK, ECOH-AP-2/3, RCOHAP-2/3V
	2N-11090-22		ELMNT EHS OVEN 480VAC 7.5KW	440VM, 480V, 480VM
	2N-11090-23		ELMNT EHS OVEN 208VAC 5.0 KW	RCOHAP-208KR, RCOHRAP208KR, RCOHPT-208CF, RCOH-AP-208CF
	2N-11090-24		ELMNT EHS OVEN 240VAC 5.0	ECOH-AP240CF, RCOHAP-240CF, RCOHPT-240CF
2	2E-30500-15	1	TRM BLOCK 4 POLE 115AMP	ECOH-AP-2/3
	2E-30500-07		TRM BLOCK 3PLELRGE 125AMP	ECOHPT208CFR, RCOHPT-208CF, RCOHPT-240CF, RCOHAP-208CF
	2E-30500-09		TRM BLOCK 3 POLE SMALL 95	ECOH-AP-208V/208M/240V/208DR, ECOH-AP-480V480/M, RCOHAP-208V/VM, RCOHAP-240VM, RCOHAP-440VM, RCOHAP-480V/VM, RCOHAP-480V/480M, RCOHRAP-480V/480M, RCOHPT-440VM
3	2E-30700-06	1	CONTC3POLE35A, 24VAC	ECOH-AP-208V/VM, 240V/VM, 440M, 480V/VM, ECOH-AP2/3FA, ECOH-AP208CF, ECOH-AP208DR, ECOH-PP208/240V, ECOH-PT-208/240V
4	2C-20102-08	2	SCRW PHD ST 8-32X.375	ECOH-AP-208V/VM, 240V/VM, 440M, 480V/VM, ECOH-AP2/3FA, ECOH-AP208CF, ECOH-AP208DR,
5	Q9-60101-767	1	PANEL EH 208/240V	ECOH-AP-208, 208M, 240V, 208DR
	Q9-EHPAP-GFA		PANEL EH 220/380V ACCU-PLUS FA	ECOH-AP208FA, ECOH-AP2/3FA
	Q9-EHPAPRT-C		PANEL EH 208/240V AP W/RT30	RCOHAP-208KR, RCOHAP-208V, RCOHRAP208KR
	Q9-EHPAP-U		PANEL EH 480 VOLT ACCU-PLUS	ECOH-AP-480M, 480V, RCOHAP-480V, 480VM, RCOHRAP-480M, 480V
	Q9-EHPPP-C		PANEL EH 208/240V PURPLE w/COOLING FAN ASSY	ECOH-PP-208V, 208BK, 208WB, 240BK, 240WB (Before 6-01-2009)
	Q9-EHPPP-C-W1		PANEL EH 208/240V PP	ECOH-PP-208V, 208BK, 208WB, 240BK, 240WB, (After 6-01-2009)
	Q9-EHPPP-C-S		PANEL EH 208/240V PURPLE w/o COOLING FAN ASSY	ECOH-PP-208V, 208BK, 208WB, 240BK, 240WB
	Q9-EHPPT-C		PANEL ASSY EHS-PT 208/240/480V	ECOH-PT, RCOHPT (Before 6-01-2009)
	Q9-EHPPT-C-W1		PANEL EH 208/240V PT	ECOH-PT, RCOHPT (After 6-01-2009)
Q9-EHPPP-CE	PANEL EH PURPLE PLUS - CE	ECOH-PP2/4BK		
6	2U-71500-06	1	BLOWER WHEEL EHS OVEN	ALL
7	2U-30200-16	1	MOTOR 1/3HP 460V/1/60HZ 2SP	ECOH-AP-480V, ECOH-AP-480M, ECOH-PT-480V, ECOH-PT480CF, ECOH-PT480MF, RCOHAP-480V, RCOHAP-480M, RCOHRAP-480M, RCOHRAP-480V, RCOHPT-440VM, RCOHPT-480CF
	2U-30200-17		MTR 1/3HP208/240V1PH2SPD	ECOH-AP-208M, ECOHAP-208V, ECOH-AP-240V, ECOH-AP208DR, ECOH-PP-208V, ECOH-PP208BK, ECOH-PP208WB, ECOH-PP240BK, ECOH-PP240WB, ECOH-PT-208V, ECOH-PT-240V, ECOH-PT208CF, ECOH-PT208MF, ECOH-PT208NT, ECOH-PT208RF, ECOH-PT208SZ, ECOH-PT208V7, ECOH-PT208WA, ECOH-PT208WD, ECOH-PT240SZ, ECOH-PT240WD, ECOHPT208CF, ECOHPT208CFC, ECOHPT208CFR, RCOHAP-208KR, RCOHAP-208V, RCOHPT-208CF, RCOHPT-208V, RCOHPT-240CF, RCOHRAP208KR, ECOH-AP208FA, ECOH-AP2/3FA, ECOH-PP2/4BK, ECOH-AP-240CF
8	2E-41100-12	1	SENSOR EHS OVEN 450 DEG	ALL
9	Q9-EH-268	AR	EH COOLING FAN ASSY	ECOH-PP-208/240V, ECOH-PT-208/240/480V, RCOHPT-208/240CF/480CF, ECOH-PP2/4BK
10	Q9-EH-268-2	1	AIR DUCT BACK	ECOH-PP-208/240V, ECOH-PT-208/240/480V, RCOHPT-208/240CF/480CF
11	Q9-EH-268-1	1	AIR DUCT FRONT	ECOH-PP-208/240V, ECOH-PT-208/240/480V, RCOHPT-208/240CF/480CF
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

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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.



PARTS LIST

March 24, 2015, Rev G

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

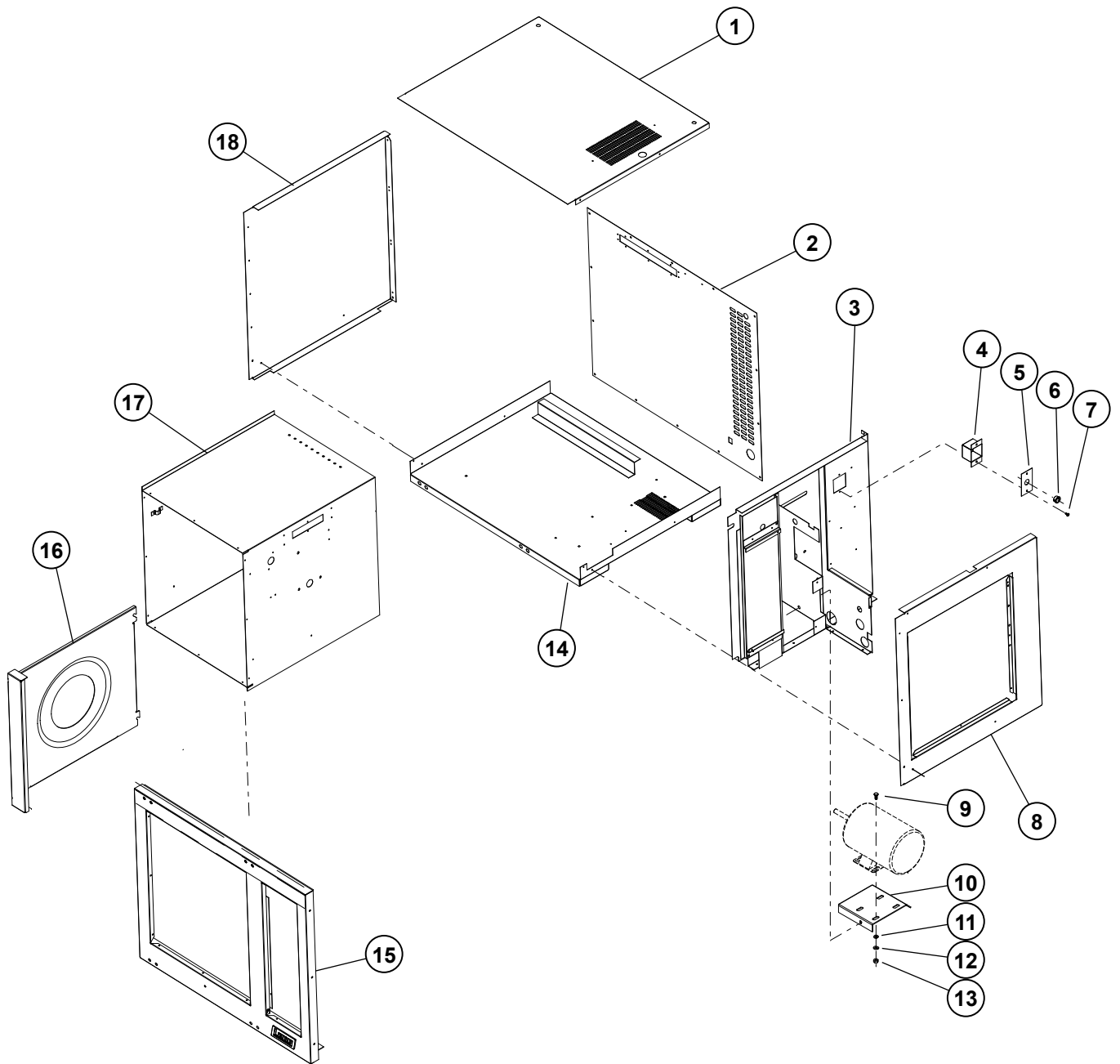
Fig No	PART NO	Qty	DESCRIPTION	Application
13	2U-30200-46	1	MTR W/FAN AXIAL 220VAC70C	ECOH-PP-208/240V, ECOH-PT-208/240/480V, RCOHPT-208/240CF/480CF
14	2C-20109-31	4	SCRW S/S 8-32 X 1-3/4 T/H PHIL	ECOH-PP-208/240V, ECOH-PT-208/240/480V, RCOHPT-208/240CF/480CF
15	Q9-60102-1368		MTR COVER EH (EH-141) & HRDW	ALL
16	2A-72500-02	4	LEG 4 SS MM	ECOH-AP208DR, ECOH-PT208V7
	2A-72500-05		LEG 4 W/BOLT DOWN ADJ	ECOH-AP-208M, RCOHAP-440/480VM, RCOHRAP-480M
	9Q-ECOH-C4	1	CASTERS (SET OF 4)	sold as an accessory with most units
	Q9-EHS-4C		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, Pre 2007
	Q9-51100-18		SWITCH ARM, MICRO	ECOH, RCOH
24	2P-51001-12	1	SPRG 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	ECOH-PP-208V
29	Q9-60101-765	1	ECOH-PT / EHS-PT CNTRL FRONT	ECOH-PT, RCOH-PT
	Q9-60101-766		ECOH-PP / EHS-PP CNTRL FRONT	ECOH-PP
30	Q9-51100-53	1	DOOR ASSY EHS/GHS WINDOW	ALL
31	2B-50200-83	2	RACK SLIDE EHS	ECOH-AP, ECOH-PT, ECOH-PP, RCOH-AP, RCOH-PT
	2B-50200-83-1		EH RACK SLIDE - PICADILLY	ECOH-AP240RS
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, ECOH-PP2/4BK, ECOH-PT208PC, ECOH-AP240CF
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/ mnting hardware	
NI	Q9-EH-550	1	WIRING HARNESS, ELEMENT	ALL
NI	Q9-EH-551	1	WIRING HARNESS, HIGH VOLT	ALL
NI	Q9-EH-553	1	WIRING HARNESS, LOW VOLT	ALL
NI	Q9-EH-554	1	WIRING HARNESS, PWR SWITCH	ALL

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ECOH Body Assembly

Lang[®]
SK2325 Rev. D 3/24/2015

PARTS LIST

March 24, 2015, Rev G

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

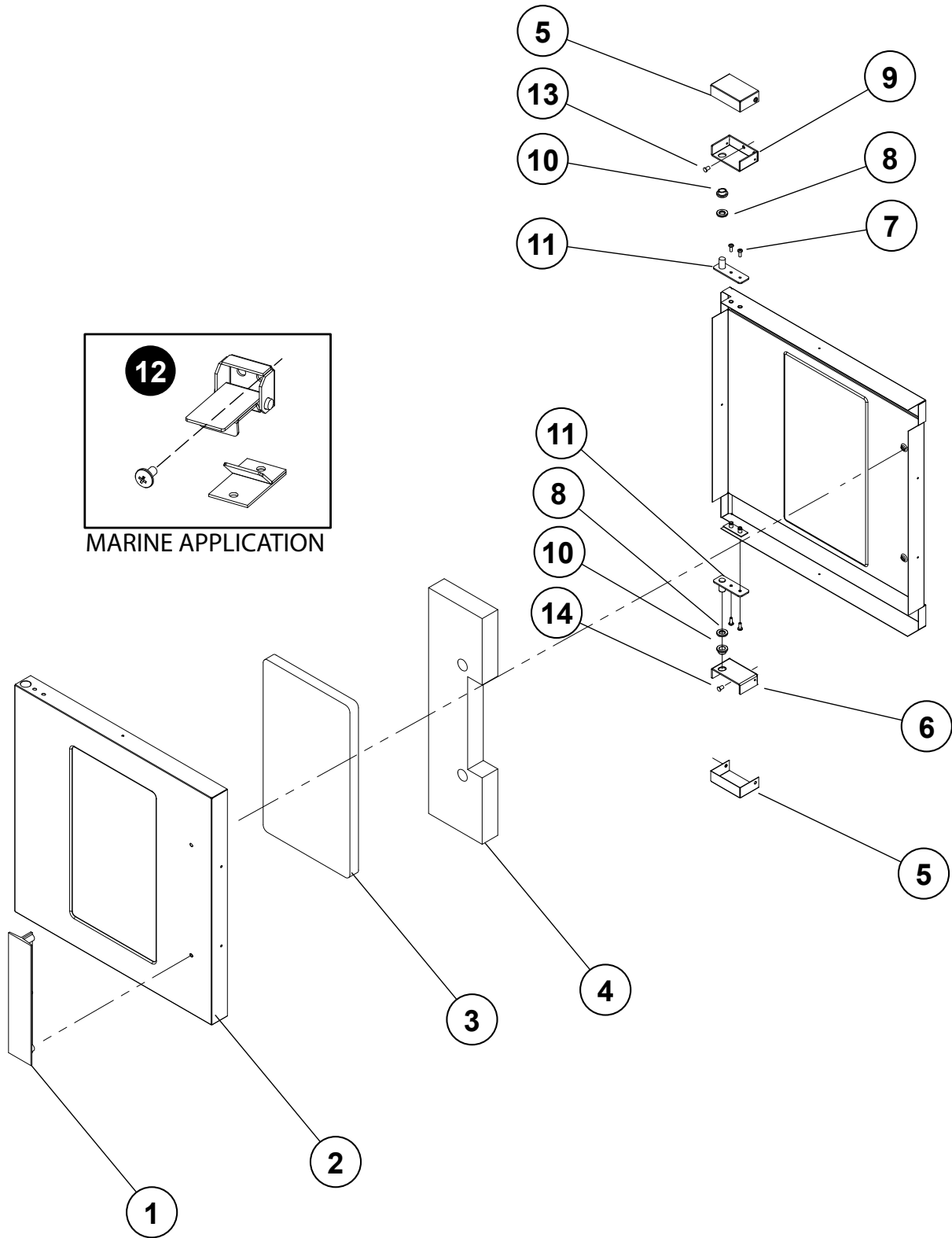
Key Number	Part Number	Qty Per	Description
1	Q9-60102-136	1	BODY TOP EH & HRDW ALL
2	Q9-60102-1361	1	BODY BACK EH & HRDW ALL
3	Q9-EH-119-2	1	FIREWALL - ASSY ALL
4	Q9-EH-W1237	1	SAFETY STAT BOX ASSY ALL EXCEPT MARINE APPLICATIONS
5	Q9-EH-136	1	SAFETY STAT COVER ALL
6	2K-70801-04	1	SNAP BUSH 3/4 SB750-10 BLK ALL
7	2C-20103-02	2	SCRW SM PLT 10 X .5 PHLSL ALL
8	Q9-60102-1364	1	BODY R/H SIDE EH & HRDW ALL
9	2C-20104-41	4	SCRW MACH 1/4-20X5/8 H/H ALL
10	Q9-EH-209	1	MOTOR MOUNT ALL
11	2C-20202-08	4	WSHR PLT 5/16 LOCK SPLIT ALL
12	2C-20201-09	4	WSHR PLT 5/16 FLAT SAE ALL
13	2C-20301-06	4	NUT HEX 5/16-18 PLTD ALL
14	Q9-EH-104-2	1	BOTTOM SPOT WELD ALL
15	Q9-EH-215-2	1	FRONT - ASSY REVERSIBLE ALL
16	Q9-EH-452-2	1	BAFFLE STD ALL
16	Q9-EH-452-3	1	BAFFLE ASSY STEAM STEAM
17	Q9-EH-374-3	1	CAN ASSY STD -[NEW RACK ALL
18	Q9-60102-1365	1	BODY L/H SIDE EH & HRDW ALL

**IMPORTANT: WHEN ORDERING, SPECIFY VOLTAGE OR TYPE GAS DESIRED
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ECOH, RCOH Door Assembly

Lang[®]

SK2321 Rev. A 3/1/2012

PARTS LIST

March 24, 2015, Rev G

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

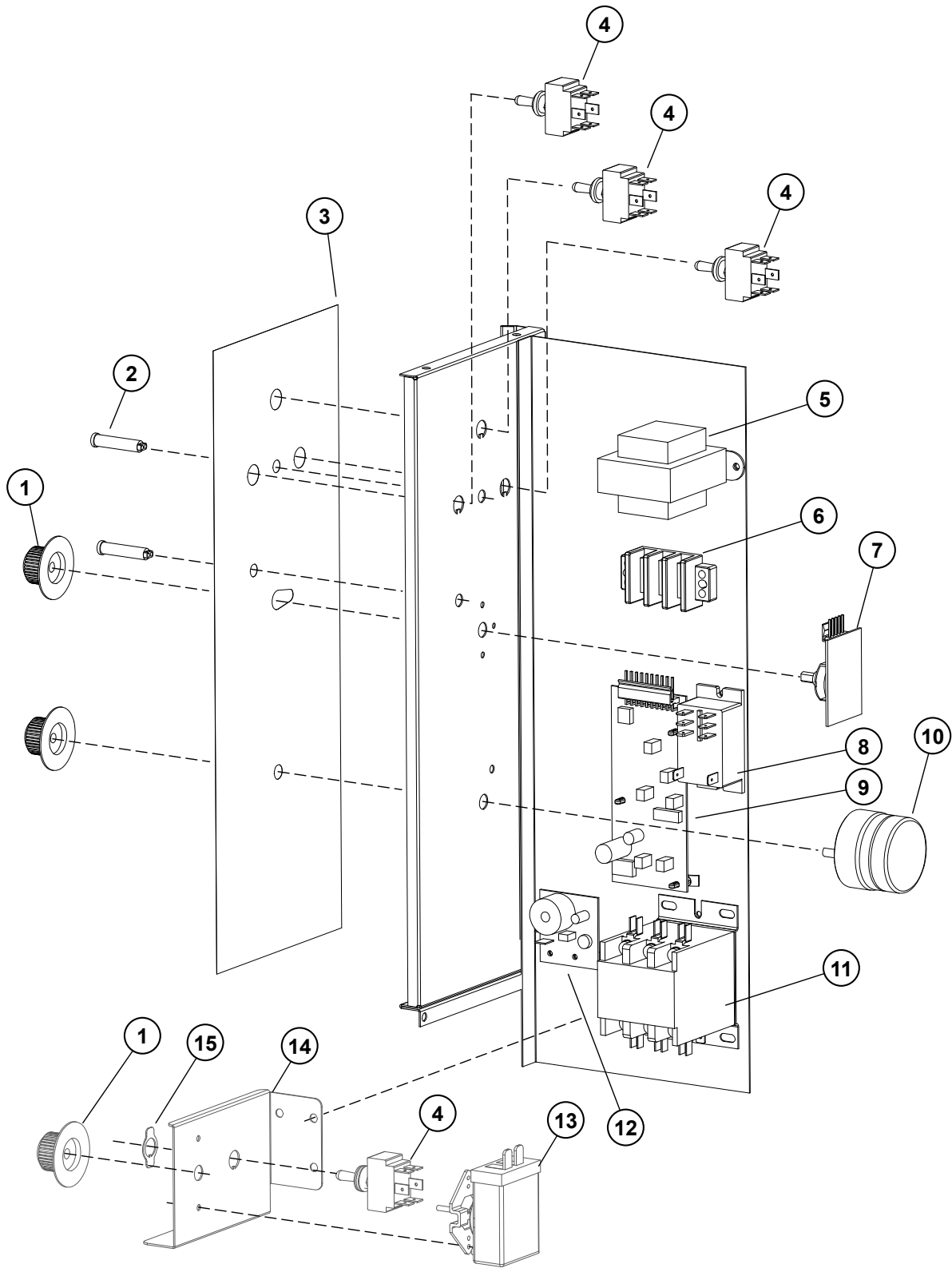
Key Number	Part Number	Qty Per	Description
1	2R-50800-12	1	DOOR T HANDLE 11 1/2 LNG ALL
2	Q9-60102-1362	1	OUTER DOOR EH NO/LOGO ALL
3	2Q-71301-04	1	WINDOW ASSY 9-5/8X16-5/8 ALL
4	2H-60106-17	1	INSULATION KIT EHS DOOR - ALL
5	Q9-EH-267	2	HINGE COVER ALL
6	Q9-EH-266	1	HINGE BOTTOM ALL
7	2C-20109-15	4	SCRW 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
13	2C-20109-30	2	SCRW MS SS 10-32 X .75 PH FLT ALL
14	2C-20109-43	2	SCRW SS 1/4-20 S 3/4 FLTHD PHIL ALL
COMPLETE DOOR ASSY			
	Q9-51100-53	1	COMPLETE DOOR ASSY W/WINDOW ALL
	Q9-F6-423	1	COMPLETE DOOR ASSY W/OUT WINDOW

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ECOH-AP Control Assembly

Lang[®]

SK2322

Rev. A

5/12/08

PARTS LIST

March 24, 2015, Rev G

Model No: ECOH & RCOH, AP, CONTROL ASSEMBLY Commercial & Marine Half Size Economy Convection Oven				
Item No.	Part No.	Qty	Description	Application
1	2R-70701-28	2	KNB BLK 1/4BUSH2SETSCW@90	ECOH-AP-208/240V, ECOH-AP-208M, ECOH-AP-480V/480M, RCOHAP-440VM, RCOHAP-480V, RCOHAP-480VM, RCOHAP-480M, RCOHAP-208CF, RCOHAP-208KR, RCOHAP-208V, RCOHAP-240CF, RCOHAP-240VM, RCOHRAP208KR, RCOHAP-480CF,
		3		ECOH-AP2/3FA, ECOH-AP208FA
2	2J-31601-07-1	2	PILOT LT 28V 6 LEAD WHT W/ CLIP	ALL
3	2M-60301-125	1	PANEL LABEL-EH ACCU-PLUS	ECOH-AP
4	2E-30303-06	2	SWT TOG ON-ON DPDT BLK	ECOH-AP2/3FA, ECOH-AP208FA
	2E-30303-06	3	SWT TOG ON-ON DPDT BLK	ALL
	2E-30305-01	1	SWT INF 204V 15AMP	ECOH-AP2/3FA, ECOH-AP208FA
5	2E-31400-07	1	XFORMR120-208-240/24V 40VA CL2	ECOH-AP-208/240V, ECOH-AP-208M, ECOH-AP208DR, ECOH-AP2/3FA, ECOH-AP208FA, RCOHAP-208V, RCOHAP-208CF, RCOHAP-208KR, RCOHAP-240CF, RCOHAPP-240VM, RCOHRAP208KR
	2E-31400-15	1	XFRMR 480/24VAC	ECOH-AP-480V, ECOH-AP-480M, RCOHAP-440VM, RCOHAP-480V, RCOHAP-480VM, RCOHRAP-480VM, RCOHRAP-480V, RCOHAP-480CF
6	2E-30501-02	1	TRM STRP 3 POLE W/PUSH ON	ALL
7	2E-30304-16	1	CIR. BD. SWITCH 140° - 450°F	ALL
8	2E-30701-05	1	RELAY 2POLE .30A@24VAC, MTR	ALL
9	2E-40101-W19	1	CIRBD SI TEMP CNTRL NO OFFSET	ALL
10	PS-60101-W4	1	ELEC. TIMER KIT, 1HR-24VAC	ALL UNITS MFG BEFORE 11-2010
	2J-30800-W05	1	MECH.-TIMER TIMER 1HR-24	ALL UNITS MFG AFTER 11-2010
11	2E-30700-06	1	CONTC 3POLE 35A 24VAC 50/60HZ	ECOH-AP-208V, ECOH-AP-480V, ECOH-PP-208V, ECOH-PT, RCOH-AP-208V, RCOH-PT
12	2J-30802-04	1	BUZZER ELEC 24V AC PIEZ10	ALL
NI	2M-60301-120	1	LABEL SWITCH FOR R/S INF	ECOH-AP2/3FA
NI	Q9-EHPAP-C	1	PANEL EH 208/240V	ECOH-AP-208V/208M/240V, ECOH-AP208DR
NI	Q9-EHPAP-GFA	1	PANEL EH 220/380V	ECOH-AP2/3FA, ECOH-AP208FA
NI	Q9-EHPAPRT-C	1	PANEL EH 208/240V AP	RCOHAP-208V, RCOHAP-208CF, RCOHAP-208KR, RCOHAP-240CF, RCOHAP-240VM, RCOHRAP208KR
NI	Q9-EHPAPRT-U	1	PANEL EH 480 VOLT AP	RCOHAP-480CF
NI	Q9-EHPAP-U	1	PANEL EH 480V	ECOH-AP-480V/480M, RCOHAP-440M, RCOHAP-480V/480M,
BACKUP CONTROLS				
4	2E-30303-06	1	SWT TOG ON-ON DPDT BLK, BACK-UP CNTR	RCOHAP-208CF, RCOHAP-240CF, RCOHAP-480CF, ECOH-AP208CF, ECOH-AP240CF
13	2T-30402-27	1	STAT ADJ 450 DEG 48 PILOT DTY	
14	Q9-EH-509-W2	1	EH BACKUP SWITCH BRACKET	
15	2E-30303-05	1	SWT PLATE ON/OFF	

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STAR INTERNATIONAL HOLDINGS INC. COMPANY

Star - Holman - Lang - Wells - Bloomfield - Toastmaster

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