

# SERVICE MANUAL

(DOMESTIC)

## IMPINGER CONVEYOR OVENS

### IMPINGER II - ADVANTAGE SERIES



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# SEQUENCE OF OPERATIONS

## IMPINGER II ADVANTAGE

MODEL 1116-000-A / NATURAL GAS / 120 VAC / 60 HZ / 1 PHASE

MODEL 1117-000-A / L.P. GAS / 120 VAC / 60 HZ / 1 PHASE

POWER SUPPLY	Electrical power is supplied to the oven by a three conductor cordset. Voltage from the black conductor to the white conductor is 120 VAC. The white conductor is neutral. The green conductor is ground.
CONTROL BOX AUTO	When the temperature in the control box reaches 120°F ± 3° (48.9°C ± 1.7°C), the
COOL DOWN	interrupt power to the fans when the control box temperature falls to 100°F ± 3° (37.8°C ± 1.7°C).
MAIN FAN CIRCUIT	Power is permanently supplied, through a 10A fuse, and through a normally closed control box hi-limit thermostat, to the normally open main fan switch. Power is also supplied to the normally open cooling fan thermostat. Closing the main fan switch supplies 120 VAC to the main fan motor, the cooling fan motor, the primary of the temperature display transformer, the heat and conveyor circuits.
BURNER CIRCUIT	Closing the main fan switch supplies 120 VAC to the burner blower motor. 120 VAC is also supplied, through the normally closed oven cavity hi-limit thermostat, the main fan centrifugal switch (this switch closes when main fan reaches approximately 1600 RPM) to the electronic temperature control and to the primary of the burner transformer.
IGNITION CONTROL	The ignition control operates on both 24 VAC and 120 VAC. When the control is energized by 24 VAC from the transformer, 120 VAC is switched by the ignition control to the hot surface ignitor for 45 seconds for the hot surface ignitor warm up. The ignitor glows red, 24 VAC is switched to the gas valve which opens and ignition should now occur.
TEMPERATURE CONTROL	When the centrifugal switch of the main fan motor closes, power is applied to the temperature control. The 1K ohm temperature pot is adjusted to desired temperature. The thermocouple will provide varying millivolts to the temperature controller. The temperature controller supplies 120 VAC to the solenoid valve at intermittent intervals to maintain desired temperature. The heat lamp is energized with the solenoid valve.
CONVEYOR DRIVE	Closing the on/off switch supplies 120 VAC to the motor control board. AC volts are converted to DC volts and are supplied to the conveyor motor at terminals A+ and A-.
	Adjustment of the speed control potentiometer will change resistance at terminals P1 and P2 varying the DC voltage to the motor. The speed of the conveyor motor will increase or decrease as the DC voltage from the board increases or decreases respectively.
NOTE:	The conveyor control uses a sensor and magnet, mounted on the conveyor motor that senses the motor speed. Any change in motor load (±RPM) is detected by the sensor and the voltage to the motor is adjusted accordingly.
Temperature Display	Closing the switch supplies 120 VAC to the primary of the temperature display transformer. The secondary of this transformer supplies 12 VAC to the temperature display. The thermocouple supplies D.C. millivolts to the temperature display. The display converts this millivolt reading to a temperature reading.

## SEQUENCE OF OPERATIONS

1130-000-A / 208V / SINGLE PHASE  
1131-000-A / 240V / SINGLE PHASE  
1132-000-A / 208V / THREE PHASE  
1133-000-A / 240V / THREE PHASE

### POWER SUPPLY

Electrical power to be supplied to the oven by a three-conductor service on single phase and a four-conductor service on three phase.

Black conductor is Hot  
Red conductor is Hot  
Orange conductor is Hot (Used on 3 phase only)  
Green conductor is ground.

### CONTROL BOX AUTO COOL DOWN

When the temperature in the control box reaches  $120^{\circ}\text{F} \pm 3^{\circ}\text{F}$  ( $48.9^{\circ}\text{C} \pm 1.7^{\circ}\text{C}$ ), the cooling fan thermostat will switch power to the cooling fans. The thermostat will interrupt power to the fans when the temperature falls to  $100^{\circ}\text{F} \pm 3^{\circ}\text{F}$  ( $37^{\circ}\text{C} \pm 1.7^{\circ}\text{C}$ ).

### MAIN FAN CIRCUIT

Power is permanently supplied through the 10A fuses, through the normally closed control box high limit thermostat, to the normally open main fan switch. Power is also supplied to the normally open cooling fan thermostat. Closing the main fan switch supplies 208/240 VAC to the main fan motor, the cooling fan motor, to the primary of the temperature display transformer and to the heat and conveyor circuits.

### HEATER CIRCUIT

Closing the fan switch supplies 208/240 VAC, through the normally open air pressure switch (closed by air pressure from the main fan) through the normally closed oven cavity hi-limit thermostat, to the electronic temperature control. The 1K ohm temperature pot is adjusted to desired temperature. The thermocouple will provide varying millivolts to the temperature controller. The temperature control then supplies 208/240 VAC to the coil of the contactor at intermittent intervals to maintain the desired temperature. The heat lamp is energized with the contactor.

### CONVEYOR DRIVE

Closing the on/off switch supplies 120 VAC to the motor control board. AC volts are converted to DC volts and are supplied to the conveyor motor at terminals A+ and A-.

Adjustment of the speed control potentiometer will change resistance at terminals P1 and P2 varying the DC voltage to the motor. The speed of the conveyor motor will increase or decrease as the DC voltage from the board increases or decreases respectively.

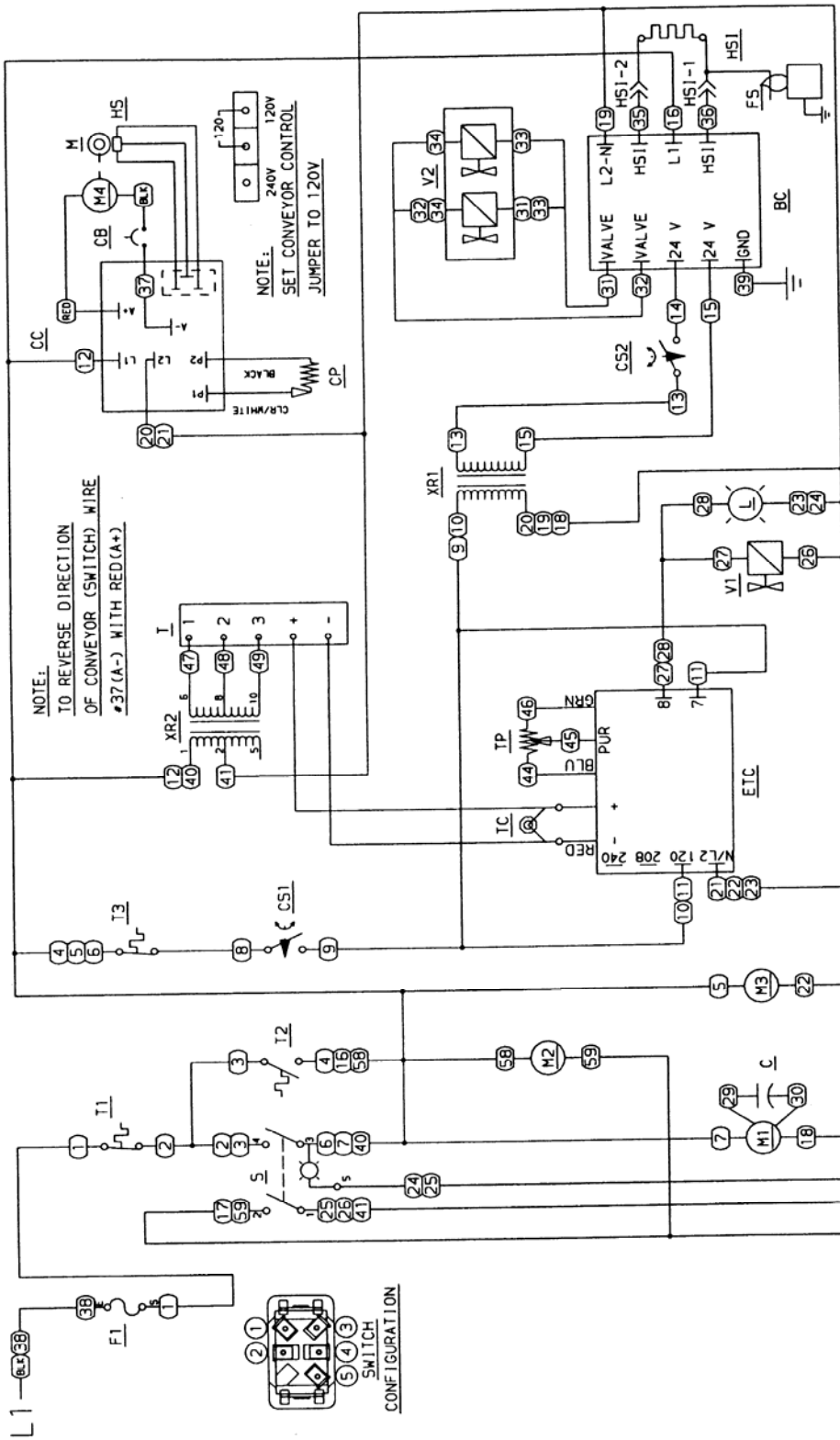
### NOTE:

The conveyor control uses a sensor and magnet, mounted on the conveyor motor that senses the motor speed. Any change in motor load ( $\pm\text{RPM}$ ) is detected by the sensor and the voltage to the motor is adjusted accordingly.

### Temperature Display

Closing the switch supplies 120 VAC to the primary of the temperature display transformer. The secondary of this transformer supplies 12 VAC to the temperature display. The thermocouple supplies D.C. millivolts to the temperature display. The display converts this millivolt reading to a temperature reading.

# SCHEMATIC 1116-000-A, 1117-000-A



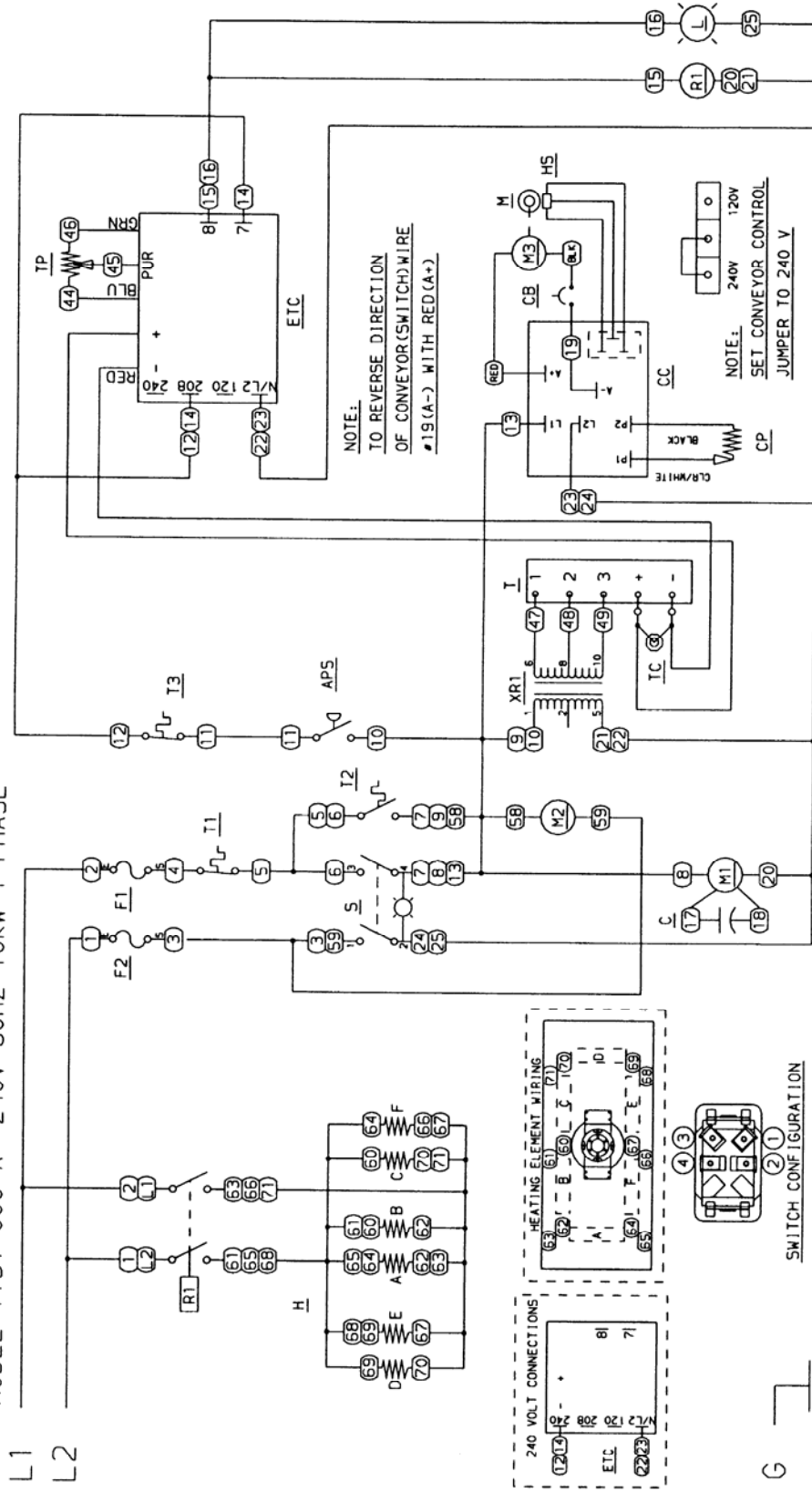
- BC - BURNER CONTROL
- C - CAPACITOR
- CB - CIRCUIT BREAKER
- CC - CONVEYOR CONTROL
- CP - CONVEYOR POTENTIOMETER
- CS1 - SWITCH, MAIN FAN CENT.
- CS2 - SWITCH, BURNER BLOWER CENT.
- ETC - ELECTRONIC TEMPERATURE CONTROL
- F1 - FUSE, MOTOR & CONTROLS, 10A
- F5 - FLAME SENSOR
- H5 - HALL EFFECT SENSOR
- HS1 - HOT SURFACE IGNITER
- L - LAMP, HEATER INDICATOR
- M1 - MOTOR, MAIN FAN
- M2 - MOTOR, COOLING FAN
- M3 - MOTOR, BURNER BLOWER
- M4 - MOTOR, CONVEYOR
- S - SWITCH, MAIN HI LIMIT CTRL BOX
- T1 - THERMOSTAT, COOLING FAN
- T2 - THERMOSTAT, HI LIMIT OVEN
- T3 - THERMOSTAT, HI LIMIT OVEN
- TP - THERMOCOUPLE
- V1 - VALVE, TEMPERATURE REGULATION
- V2 - VALVE, DUAL SAFETY
- XR1 - TRANSFORMER, BURNER
- XR2 - TRANSFORMER, TEMP DISPLAY
- (XX) - WIRE NUMBERS

Lincolin

Foodservice Products, Inc.  
FORT WAYNE, INDIANA  
MODEL 1116-000-A 120V 50/60 HZ  
MODEL 1117-000-A 120V 50/60 HZ 2802665C

# SCHEMATIC 1130-000-A / 1131-000-A

MODEL 1130-000-A 208V 60HZ 10KW 1 PHASE  
 MODEL 1131-000-A 240V 60HZ 10KW 1 PHASE



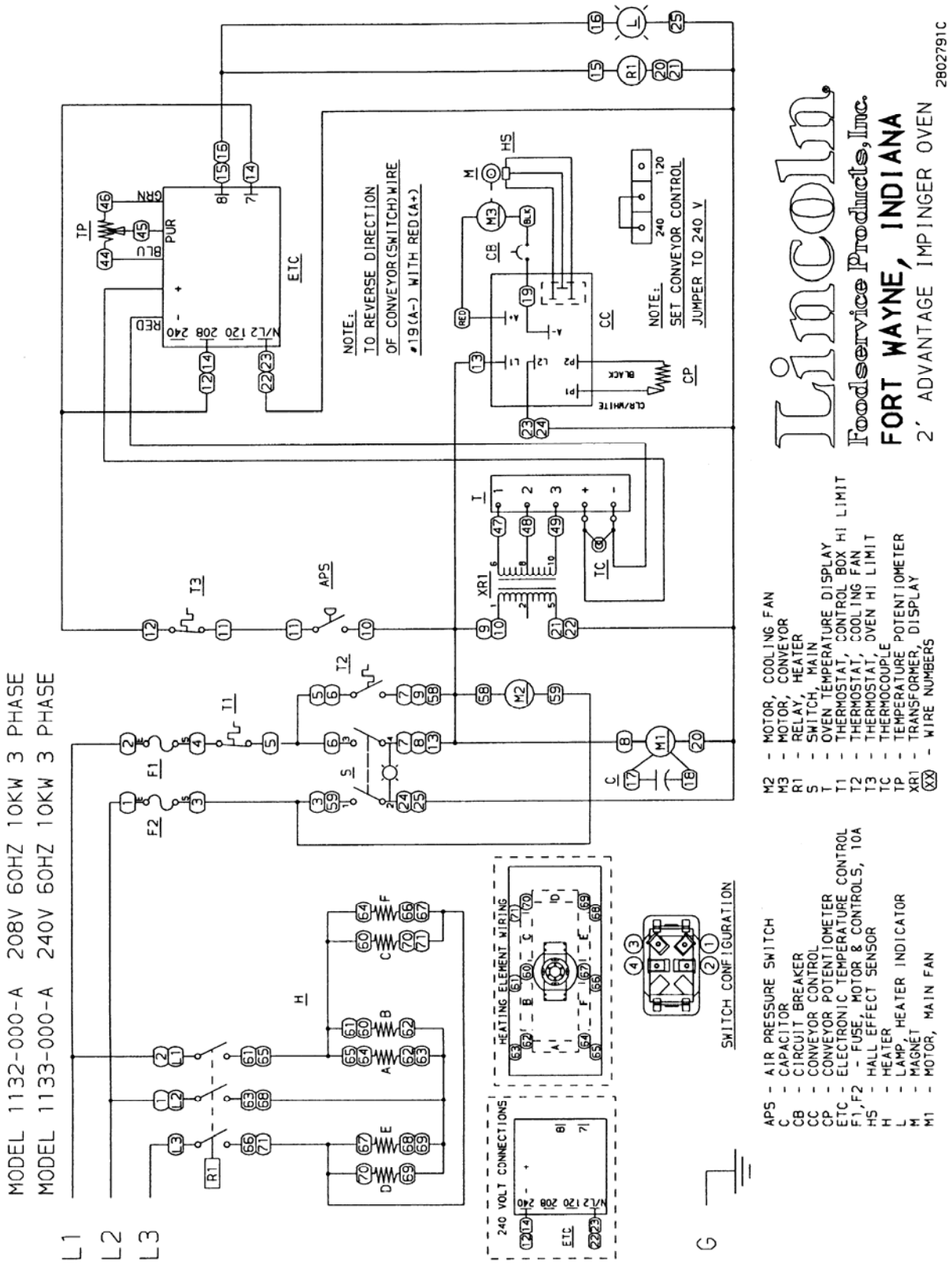
- 240 VOLT CONNECTIONS**
- (12) L1
  - (14) L2
  - (20) L3
  - (21) N
  - (22) 23
  - ETC
- HEATING ELEMENT WIRING**
- (63) A
  - (64) B
  - (65) C
  - (66) D
  - (67) E
  - (68) F
  - (69) 70
  - (71) 72
- SWITCH CONFIGURATION**
- (1) 2
  - (3) 4
- 240V 120V SET CONVEYOR CONTROL JUMPER TO 240 V**

- M2 - MOTOR, COOLING FAN
- M3 - MOTOR, CONVEYOR
- R1 - RELAY, HEATER
- S - SWITCH, MAIN
- T1 - OVEN TEMPERATURE DISPLAY
- T2 - THERMOSTAT, CONTROL BOX HI LIMIT
- T3 - THERMOSTAT, COOLING FAN
- TS - THERMOSTAT, OVEN HI LIMIT
- TC - THERMOCOUPLE
- TP - TEMPERATURE POTENTIOMETER
- XR1 - TRANSFORMER, DISPLAY
- (XX) - WIRE NUMBERS

**Lincoln**  
 Foodservice Products, Inc.  
**FORT WAYNE, INDIANA**  
 2" ADVANTAGE IMPINGER OVEN

28027900

# SCHEMATIC 1132-000-A / 1133-000-A



**Lincoln**  
Foodservice Products, Inc.  
**FORT WAYNE, INDIANA**  
2' ADVANTAGE IMPINGER OVEN

- M2 - MOTOR, COOLING FAN
- M3 - MOTOR, CONVEYOR
- R1 - RELAY, HEATER
- S - SWITCH, MAIN
- T1 - OVEN TEMPERATURE DISPLAY
- T2 - THERMOSTAT, CONTROL BOX HI LIMIT
- T3 - THERMOSTAT, COOLING FAN
- TC - THERMOSTAT, OVEN HI LIMIT
- TP - THERMOCOUPLE
- XR1 - TRANSFORMER, DISPLAY
- (XX) - WIRE NUMBERS

- APS - AIR PRESSURE SWITCH
- C - CAPACITOR
- CB - CIRCUIT BREAKER
- CC - CONVEYOR CONTROL
- CP - CONVEYOR POTENTIOMETER CONTROL
- ETC - ELECTRONIC TEMPERATURE CONTROL
- F1, F2 - FUSE, MOTOR & CONTROLS, 10A
- H5 - HALL EFFECT SENSOR
- H - HEATER
- L - LAMP, HEATER INDICATOR
- M - MAGNET
- M1 - MOTOR, MAIN FAN

2802791C

## TROUBLESHOOTING GUIDE / GAS OVENS

MODEL 1116-000-A	NATURAL GAS	120 VAC	60 HZ	1 PHASE
MODEL 1117-000-A	LP GAS	120 VAC	60 HZ	1 PHASE

SYMPTOM	POSSIBLE CAUSE	EVALUATION
Oven fan will not run	Incoming Power Supply	Check breakers, reset if required. Check power plug to be sure it is firmly in receptacle. Measure incoming power/call power company if needed.
	Fuse, 10 Amp	Check, replace if necessary.
	Fuse Holder	Check, replace if necessary.
	Hi Limit Thermostat-Control Box	Check for voltage on both sides of the switch. Terminals are normally closed. If open, reset and test oven for proper operation. If thermostat will not hold and control box temperature is not exceeding 140°F (60°), replace thermostat.
	Main Fan Switch	Check continuity between switch terminals.
No control box cooling	Main Fan Motor	Check for opens, shorts, or grounds. WITH POWER OFF turn fan blade to check for locked rotor.
	Capacitor	Check for shorts or grounds. WARNING: Capacitor has a stored charge, discharge before testing.
	Cooling Fan	Check main circuit breakers, reset if required, call power company if needed. Check continuity between switch terminals 120 VAC should now be at the fan motor. If voltage is present, check motors for shorts or opens. WITH POWER OFF: Check for locked rotor.
No automatic control box cooling	Incoming Power Supply	Check circuit breakers, reset if required. Call the power company if needed.
	Cooling Fan Thermostat	Check the cooling fan thermostat. (Thermostat closes at 120°F and opens at 100°F). With the cooling fan thermostat preheated, check for continuity. If switch is open, replace.
	Cooling Fan	120 VAC should be at the motor. If voltage is present, check motor for shorts, opens, or grounds. WITH POWER OFF: check for locked rotor.
Oven will not heat	Gas Supply	Check for adequate gas supply and closed manual gas shut offs. Also, check flexible gas line connection.
	Main Fan High Limit Oven Cavity Thermostat	If not operating, refer to "Oven fan will not run". Terminals are normally closed. If open, push in reset button and retest. If thermostat will not hold for maximum oven temperature, and oven is not exceeding temperature dial setting, check for proper location of capillary bulb in its spring holder. If above checks okay, replace hi-limit thermostat.
	Centrifugal Switch of Main Fan Motor	Check for 120 VAC at lead #9 (located at 6 pin connector in raceway near the main fan motor) to neutral. If no voltage is present, and motor is running, replace motor.

	Burner Blower Motor	Visually check to see if motor is running. If not, check for 120 VAC to motor at motor connector (wire #5 and #22). If voltage is not present, trace wiring back to fan switch. If voltage is present and motor is not running, check for opens, shorts, or grounds. Also, WITH POWER OFF: check for locked rotor.
	Transformer, Burner	Primary is 120 VAC with 24 VAC secondary. If 120 VAC is not present, trace wiring back to Main Fan Centrifugal Switch. If 120 VAC is present, check for 24 VAC at secondary of transformer. If no voltage is present, replace transformer.
	Centrifugal Switch of Burner Blower Motor	Check of 120 VAC at motor connector, on wire #13 to neutral. If voltage is not present, trace wiring back to transformer. If voltage is not present and motor is running, replace the burner blower motor.
	Ignition Control	24 volts should be present at 24 volt terminals. If not present, trace wiring back to centrifugal switch. When 24 VAC is supplied, the control switches 120 VAC from L1 and L2 to the hot surface ignitor. If 120 VAC is not present at L1 and L2, trace wiring back to fan switch. If 24 VAC and 120 VAC are present and 120 VAC is not across the hot surface ignitor terminals, replace the ignition control.
	Hot Surface Ignitor	If 120 VAC is present at hot surface ignitor terminals, visually check to see that the ignitor is heating. (Ignitor may be viewed through the port glass in end of burner tube.) The ignitor should glow bright red. If the ignitor does not heat, replace the ignitor.
	Ignition Control	After 45 seconds of hot surface ignitor pre-heat, the ignition control will switch 24 VAC to the gas control valves. Check for 24 VAC output from ignition control, across terminals marked "valve" and "valve ground". If no voltage is present, replace ignition control.
	Gas Control Valves	When 24 VAC is supplied to the gas control valve, the valve should open. Check for gas pressure at the manifold tap located just before the burner. If there is no pressure, check the incoming gas supply to be sure all manual valves are open and flexible gas hose is properly connected. If gas is present and coils of gas valve are energized, the gas valve is probably defective.
Flame will not stay lit	Hot Surface Ignitor	Six seconds after the gas valve opens, ignition must occur. If flame is not detected, the ignition control will shut off and lock out. To reset the ignition control, turn off the burner switch for 45 seconds, then turn on the burner switch to retry ignition. The ignition control requires a minimum of 0.8 D.C. microamps. To check flame sensing operation, connect a digital multimeter (capable of measuring D.C. micro-amps) between the "ground" terminal on ignition control and the ground lead. NOTE: This is a current measurement and the meter must be connected in series. If these readings are not achieved, replace the hot surface ignitor. NOTE: The D.C. micro amp test must be conducted with the oven in low flame (bypass) operation. Turn the temperature control to the lowest setting.

	Power Supply	If there is sufficient micro-amp current, but the flame will not stay lit, check for proper polarity of the 120 VAC power supply.
	Ignition Control	If there is sufficient micro-amp current, and the 120 VAC polarity is correct, but the flame will not stay lit, replace ignition control. NOTE: Check for proper ground connection on ignition control.
	NOTE: Flame should be lit at this time.	
Low flame is on, but no main flame	Temperature Control	Check for 120 VAC at terminal #7 to neutral on temperature control. If no voltage, trace voltage back through centrifugal switch and hi-limit. Turn the temperature adjustment knob to maximum temperature position and check for 120 VAC at the load terminal #8 and neutral. If 120 VAC is present and unit is not heating, refer to "Temperature Solenoid Valve" for next check. If 120 VAC is not present, proceed.
	Thermocouple Probe	WITH POWER ON AND THERMOCOUPLE LEADS ATTACHED TO THE TEMPERATURE CONTROL BOARD: Measure the D.C. millivolt output of these leads. Refer to thermocouple chart in Section D for proper readings. If these readings are not achieved, replace the thermocouple.
	Temperature Set Potentiometer	Disconnect the potentiometer leads from the board. Place ohm meter test leads on the blue and green pot leads. Reading should be 1 K ohms. Place meter leads across the blue and purple pot leads and rotate knob from high to low. Repeat on green and purple leads. Check for even rise and fall of ohms reading to insure that there are no open or dead spots in the potentiometer. Check each lead to ground for shorts. Replace pot if it does not meet the above test.
	Temperature Solenoid Valve	If 120 VAC is present on the temperature control board at load terminal #8 to neutral, check for voltage at temperature regulation valve. If voltage is present, listen for valve to open and close. Also check for opens or shorts in the coil. Replace as necessary.
Intermittent Heating	Thermal/Overload of Main Fan and Burner Blower Motors	The main fan motor and the burner blower motor are equipped with internal thermal protection and will cease to operate if over heating occurs. As the motors overheat and then cool, this will cause the units to cycle on and off intermittently. This may be caused by improper ventilation or preventive maintenance. Also, most of the problems listed under "Oven will not heat" can cause intermittent failure.
Conveyor will not run	Voltage Supply	Check incoming voltage supply at line 1 to neutral. There should be a voltage reading of 120 VAC. If not present, check breakers.
	10 Amp Fuse Fuseholder	Check and/or replace.
	Fan Switch	Check and/or replace. See procedure for checking on Page 10.

	Speed Adjustment Potentiometer	This is a 0 to 10 K ohm, 1 turn potentiometer. With power off, remove the black and white pot leads from the motor control board at terminals P1, P2. Place the meter leads on the black lead (P2) and on the white lead (P1). Rotating the pot., slowly, from low to high, the meter readings should show an even transition from 0 to 10 K ohms $\pm$ 5%. There should be no dead or open spots through out the 1 turn of the pot. Check both leads to ground. There should be no continuity to ground. If any of the above checks fail, replace the pot.
	DC Motor Control Board	Check for 120 VAC input to the control board at terminals L1 and L2. If not present, check wiring back to the oven fan switch. If 120 VAC is present at L1 and L2, check both fuses on control board (8A line and 1A armature), check the VDC output at terminals A+ and A-. If 120 VAC is present at terminals L1 and L2 and DC voltage is present at A+ and A-, but the motor does not run, check gear motor as follows:
	Conveyor Gear Motor	If DC voltage is present at A+ and A- and the motor does not run, first check the mini breaker and then the conveyor. Refer to the next possible cause. Check the leads to the motor for evidence of any shorts or opens, and each lead to ground. Check motor brushes. From the top of the motor, rotate motor shaft to determine if there is a locked rotor or a locked gear box (use care so magnet and H.S. board are not damaged). Replace motor as needed.
	Conveyor	Check for any mechanical misalignment. Also, check for worn bearings. A conveyor belt that is over tightened will cause excessive bearing wear and sometimes, irregular speed.
Conveyor speed varying or intermittent	Power Supply	Check power supply at the DC control board for the 120 VAC at board terminals L1 and L2.
	Motor Control Board	Place the test meter probes on terminals A+ and A-. (With speed potentiometer set to maximum speed (Approximately 2 min.) The meter reading should be approximately 100 VDC ( $\pm$ 3%), if voltage is not steady within limits, then the board is probably bad. Always check the speed pot., be sure it is okay before changing a board. This test is not always 100% accurate as this test is not performed at operating speeds. However, this test is the best method currently available.
	DC Gearmotor	If the DC control board is steady then the problem may be the motor or gearbox. Check the brushes in the motor for excessive arching and/or unusual wear. Check the motor and gearbox from instruction located on Page 11 under "possible cause" listing "conveyor gear motor."
	Magnet	Check to insure that the magnet (cemented to shaft of conveyor drive motor) has not been damaged, or come loose from motor shaft. Replace as needed.
	Hall Effect Sensor	Check for any physical damage to hall effect sensor (mounted on conveyor drive motor.) Check all wiring and connections for damage. Check all connections for tightness or proper location and check all wiring for visible damage. Replace as needed. Connect new hall effect to system and check for steady operation.

Temp. display inoperative	Display Transformer	Measure the transformer primary for a nominal 120 VAC input, if voltage is not present, trace wiring back to the oven power source. Measure the secondary output, which will normally be 12-15 VAC. Voltage across terminals 1 and 3 on the time/temp. display should read 12-15 VAC. Terminals 1-2 and 2-3 should be 1/2 the voltage reading to 1-3. If the above secondary readings are not achieved, replace transformer.
	Temp. Display	If proper voltage is present at terminals 1, 2, and 3 on temperature display, but the display is not lighted, recheck all connections for tightness. If temperature display is still not operating, replace the temperature display.
Temp. Display inaccurate, erratic or inoperative	Thermocouple	Place the thermocouple of a pyrometer into the center of the top finger. Be sure the tip of the thermocouple is not touching metal, it must sense air temperature only. The pyrometer will indicate oven temperature. Measure DC millivolts of thermocouple at the temperature display. See thermocouple chart on page 19 for proper readings. Replace thermocouple if proper readings are not achieved. If readings are correct on the thermocouple, replace temperature display.

## TROUBLESHOOTING GUIDE / ELECTRIC OVENS

MODEL 1130-000-A	208 VAC	SINGLE PHASE	60 HZ
MODEL 1131-000-A	240 VAC	SINGLE PHASE	60 HZ
MODEL 1132-000-A	208 VAC	THREE PHASE	60 HZ
MODEL 1133-000-A	240 VAC	THREE PHASE	60 HZ

REFER TO PROPER SCHEMATIC FOR IDENTIFIED COMPONENTS

SYMPTOM	POSSIBLE CAUSE	EVALUATION
Oven fan will not run	Incoming Power Supply	Check circuit breakers. Rest if required. Call power company in needed.
	Fuses, 10 Amp, Fan and Controls Fuseholder	Check, replace if necessary.
	Control Box High Limit Thermostat	Check, replace if necessary. Terminals are normally closed, but open at 140°F ± 5°F (60°C ± 2.8°C). Check for over heating and reset thermostat. Test for proper operation. If it will not reset and hold, then replace.
	Switch, Main Fan Main Fan Motor	Check for continuity between switch terminals. Check for opens, shorts, or grounds. WITH POWER OFF: Turn fan blade to check for locked rotor.
No control box cooling	Capacitor	Check for opens, shorts, or grounds.
	Cooling Fan Motor	Check for main fan operation. If not operating, refer to "Oven Fan Will Not Run". 208/240 VAC should be present at the fan motor. If voltage is present, check for opens or shorts. WITH POWER OFF: Check for locked rotor of the fan motor.
No automatic control box cooling	Incoming Power Supply	Check circuit breakers. Reset if required. Call power company if needed.
	Thermostat, Cooling Fan	This normally open thermostat should close when the temperature in the control box reaches 120°F (48.9°C). If thermostat does to close, replace.
	Cooling Fan Motor	208/240 VAC should be present at the fan motor. If voltage is present, check for opens or short. WITH POWER OFF: Check for locked rotor of the fan motor.
Control box cooling fan continues to run Oven will not heat	Thermostat, Cooling Fan	This normally open thermostat should close at 120°F (48.9°C) and reopen at 100°F (37.8°C).
	Main Fan Motor	Check for main fan operation. If it is not operating, refer to "Oven fan will not run".
	Air Pressure Switch	This normally open switch should close when the main fan is activated. Adjust if necessary (Refer to page 23). Replace if defective.
	Hi-Limit Thermostat Cavity	Oven Terminals are normally closed. If open, reset and test oven for proper operation. If thermostat will not hold for maximum oven temperature, and oven is not exceeding temperature dial setting, check for proper location of capillary bulb in its spring holder. If above checks okay, replace hi-limit thermostat.

	Temperature Control	Check for supply voltage at temperature control. If no voltage is present, trace wiring back to hi-limit thermostat. Turn the temperature adjustment knob to maximum temperature position and check for 208/240 VAC at the load terminals 7 and 8. If 208/240 VAC is present and unit is not heating, refer to "Mercury Contactor" for next check. If 208/240 VAC is not present, proceed.
	Thermocouple Probe	WITH POWER ON AND THERMOCOUPLE LEADS ATTACHED TO THE TEMPERATURE CONTROL BOARD: measure D.C. millivolt output of these leads. Refer to thermocouple chart in Section D for proper readings. If these readings are not achieved, replace thermocouple.
	Temperature Control Potentiometer	Disconnect the potentiometer leads from the board. Place ohm meter test leads on the blue and green pot. leads. Reading should be 1 K ohms. Place meter leads across the blue and purple pot. leads and rotate knob from high to low. Repeat on green and purple leads. Check for even rise and fall of ohms reading to insure that there are no open or dead spots in the potentiometer. Check each lead to ground for shorts. Replace pot if it does not meet the above test.
	Mercury Contactor	Check for supply voltage to the contactor coil. If voltage is present and the contactor will not activate, replace the contactor. Also, check each contactor for proper high voltage input and output.
	Heater Elements	Check the amp draw on each hot leg for proper load. Check the specifications plate for rating information. If the amp draw is low or high, check the individual elements for opens, shorts, and proper resistance. WITH POWER OFF: To check resistance of the elements, remove all leads from the elements and use an accurate digital VOM. The element resistance should be as follows: 208V - 27 ohms approximately 240V - 36 ohms approximately
Oven heats with switch off	Mercury Contactor	The mercury contactor has probably malfunctioned in the closed position. If there is no voltage to the contactor out put, replace the mercury contactor.
Intermittent Heating	Thermal/Overload of motor	The main fan motor is equipped with internal thermal protection and will cease to operate if overheating occurs. As the motor overheats and then cools, this will cause the oven to cycle on and off intermittently. This may be caused by improper ventilation or preventive maintenance. Also, most of the problems listed under "Oven will not heat" can cause intermittent failure.
Conveyor will not run	Voltage Supply	Check incoming voltage supply at line 1 to neutral. There should be a voltage reading of 208/240 VAC. If not present, check breakers.
	10 Amp Fuse Fuseholder	Check and/or replace.
	Fan Switch	Check and/or replace. See procedure for checking on page 8.

	Speed Adjustment Potentiometer	This is a 0 to 10 K ohm, 1 turn potentiometer. With power off, remove the black and white pot leads from the motor control board at terminals P1, P2. Place the meter leads on the black lead (P2) and on the white lead (P1). Rotating the pot., slowly, from low to high, the meter reading should show an even transition from 0 to 10 K ohms $\pm$ 5%. There should be no dead or open spots through out the 1 turn of the pot. Check both leads to ground. There should be no continuity to ground. If any of the above checks fail, replace the pot.
	DC Motor Control Board	Check for 208/240 VAC input to the control board at terminals L1 and L2. If not present, check wiring back to the oven fan switch. If voltage is present at L1 and L2, check both fuses on control board (8A line and 1A armature), check the VDC output at terminals A+ and A-. If voltage is present at terminals L1 and L2, and DC voltage is present at A+ and A-, but motor does not run, check gear motor as follows.
	Conveyor Gear Motor	If DC voltage is present at A+ and A- and the motor does not run, first check the mini breaker and then the conveyor. Refer to the next possible cause. Check the leads to the motor for evidence of any shorts or opens, and each lead to ground. Check motor brushes. From the top of the motor, rotate motor shaft to determine if there is a locked rotor or a locked gear box (use care so magnet and H.S. board are not damaged). Replace motor as needed.
	Conveyor	Check for any mechanical misalignment. Also check for worn bearings. A conveyor belt that is over tightened will cause excessive bearing wear and sometimes, irregular speed.
Conveyor speed varying or intermittent	Power Supply	Check power supply at the DC control board for the 208/240 VAC at board terminals L1 and L2.
	Motor Control Board	Place the test meter probes on terminals A+ and A-. (With speed potentiometer set to maximum speed (Approximately 2 minutes), the meter reading should be approximately 100 VDC ( $\pm$ 3%), if voltage is not steady within limits, then the board is probably bad. Always check the speed pot. Be sure it is okay before changing a board. This test is not always 100% accurate as this test is not performed at operating speeds. However, this test is the best method currently available.
	DC Gearmotor	If the DC control board is steady, then the problem may be the motor or gearbox. Check the brushes in the motor for excessive arching and/or unusual wear. Check the motor and gearbox from instruction located on page 14 under "possible cause" listing "conveyor gear motor."
	Magnet	Check to insure that the magnet (cemented to shaft of conveyor drive motor) has not been damaged, or come loose from motor shaft. Replace as needed.

	Hall Effect Sensor	Check for any physical damage to hall effect sensor (mounted on conveyor drive motor.) Check all wiring and connections for damage. check all connections for damage. Check all connections for tightness or proper location and check all wiring for visible damage. Replace as needed . Connect new hall effect to system and check for steady operation.
Temp. Display inoperative	Display Transformer	Measure the transformer primary for input, if voltage is not present, trace wiring back to the oven power source. Measure the secondary output, which will normally be 12-15 VAC. Voltage across terminals 1 and 3 on the time/temp. display should read 12-15 VAC. Terminals 1-2 and 2-3 should be 1/2 the voltage reading from 1-3. if the above secondary readings are not achieved, replace transformer
	Temperature Display	If proper voltage is present at terminals 1, 2, and 3 on temperature display, but the display is not lighted, recheck all connections for tightness. Temperature display is still not operating, replace the temperature display.
Temp. Display inaccurate, erratic or inoperative	Thermocouple	Place the thermocouple of a pyrometer into the center of the top finger. Be sure the tip of the thermocouple is not touching metal, it must sense air temperature only. The pyrometer will indicate oven temperature. Measure DC millivolts of thermocouple at the temperature display. See thermocouple chart on page 19 for proper readings. Replace thermocouple if proper readings are not achieved. If readings are correct on the thermocouple, replace temperature display.

# REMOVAL, INSTALLATION, AND ADJUSTMENT

## IMPINGER II ADVANTAGE

### CAUTION!

BEFORE REMOVING OR INSTALLING ANY COMPONENT IN THE IMPINGER OVEN, BE SURE TO DISCONNECT ELECTRICAL POWER AND GAS SUPPLY.

### MOTOR, MAIN FAN

1. Shut off power at main breaker.
2. Remove motor cover from back of oven.
3. Remove wires for motor and mark for reassembly.
4. Remove hex head bolts from the oven back and slide back straight out of the oven.
5. Loosen bolt from fan hub and remove fan from motor shaft.

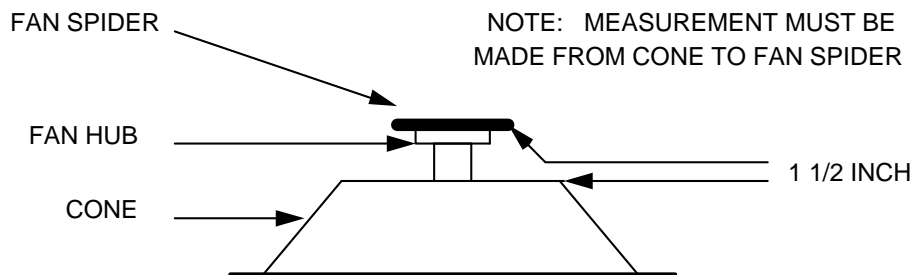
NOTE: Measure distance from fan blade to rear wall assembly before removal to aid in reassembly.

6. Remove the bolts from the motor mount and remove motor clamp. Slide the motor assembly out of the oven back.
7. Remove motor by removing the four (4) mounting nuts and washers.
8. Reassemble in reverse order. When motor mount assembly is set on the oven back, align motor shaft in the center of the hole. Set fan assembly on the motor shaft.

NOTE: It is recommended that an anti-seize compound be brushed on to the bolts around the back and motor mount bracket before assembly.

### FAN, MAIN

1. Shut off power at main breaker.
2. Remove back assembly. (See motor, main fan)
3. Reinstall and locate fan so that the bottom of the fan spider is 1 1/2" from the top of the oven back cone. (See drawing)



### CAPACITOR, MOTOR

1. Shut off power at main breaker.
2. Remove control box cover and front panel.
3. Discharge capacitor.
4. Remove and replace.

### ON/OFF SWITCH - REPLACEMENT

1. Shut off power at main breaker.
2. Remove control box cover.
3. Remove front panel.
4. Depress spring clips on side of switch and push out.
5. Remove wires from back of switch, note wire number and location.
6. Reassemble in reverse order and check system operation.

NOTE: Make sure switch housing is fully seated in control box housing.

## **FUSE HOLDER - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control box cover and front panel.
3. Remove wires from fuse holder and mark for reassembly.
4. Remove mounting screws or mounting nut on fuse holder. Push fuse holder out.
5. Reassemble in reverse order.

## **THERMOSTAT, CONTROL BOX HI-LIMIT - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control box cover and front panel.
3. Remove wires from thermostat and mark for reassembly.
4. Remove mounting screws and nuts and remove thermostat.
5. Reassemble in reverse order.

NOTE: Push reset button on new thermostat.

## **COOLING FAN, CONTROL BOX**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Remove four (4) screws from the fan frame.
4. Disconnect cord and plug and remove fan.
5. Reassemble in reverse order.

## **THERMOSTAT, COOLING FAN**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Remove lead wires and mark for reassembly.
4. Remove two (2) screws and remove thermostat.
5. Reassemble in reverse order.

## **BURNER BLOWER MOTOR - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Unplug motor connector.
4. Remove three (3) screws from blower tube at burner housing.
5. Remove air shutter assembly from old motor for installation on new motor assembly.
6. Reassemble in reverse order and check system operation.

NOTE: Check air shutter at approximately 1/2 open and adjust to get a blue flame with an occasional tip of yellow under high flame. A view port in the burner assembly should be used to observe flame.

## **HIGH LIMIT THERMOSTAT - REPLACEMENT**

1. Remove control panel top and front cover.
2. Remove conveyor and bottom finger assembly.
3. Remove capillary bulb from bracket in oven chamber and pull through tube into control box.
4. Remove two (2) wires from thermostat, note wire numbers and location for reinstallation.
5. Remove mounting nut and remove thermostat.
6. Reassemble in reverse order making sure capillary tube is placed securely in the bracket.

NOTE: Depress reset button to insure thermostat is set for operation.

## BURNER TRANSFORMER - REPLACEMENT

1. Shut power off at main breaker.
2. Remove control panel top and front cover.
3. Remove two (2) wires on primary side, note color and location.
4. Remove two (2) wires on secondary side, note color and location.
5. Remove two (2) screws from transformer base and replace assembly.
6. Reinstall in reverse order and check system operation.

## THERMOCOUPLE - REPLACEMENT

1. Shut off power at main breaker.
  2. Remove control panel top and front cover.
  3. Slide thermocouple out of oven chamber.
- NOTE: Remove conveyor and bottom finger assembly to aid in removal and installation of thermocouple.
4. Remove two (2) wires from temperature control. Make note of wire numbers or color and location for reinstallation.
  5. Reassemble in reverse order making sure the metal end on the thermocouple is securely held in the wire form in the oven chamber.

## THERMOCOUPLE MEASUREMENT CHART:

### INFORMATION:

When two wires composed of dissimilar metals are joined together and one of the ends is heated, a continuous current flow is generated. We use an iron constant (Type J) thermocouple. The iron wire increases the number of dissimilar junctions in the circuit.

It is possible to check a thermocouple with a properly calibrated D.C. millivolt meter. At 32°F, the millivolt reading should be 0.00. This can be checked by inserting the thermocouple into an ice bath.

The millivolt reading at 72°F should be 1.134.

When using the following chart, the temperature at the terminal connections must be noted. This temperature is called the Junction Temperature.

The following chart lists the thermocouple millivolt readings from 200°F to 600°F.

EXPLANATION: The junction temperature is the ambient air temperature where the thermocouple fastens to the electronic temperature control.

		O	V	E	N	T	E	M	P			
		200°F	250°F	300°F	325°F	350°F	400°F	425°F	450°F	500°F	550°F	600°F
J U N C T I O N	90°F	3.26	4.77	6.30	7.06	7.83	9.37	10.14	10.91	12.46	14.00	15.53
	88°F	3.32	4.83	6.36	7.12	7.89	9.43	10.20	10.97	12.51	14.05	15.59
	86°F	3.37	4.88	6.41	7.17	7.94	9.49	10.26	11.03	12.57	14.11	15.65
	84°F	3.43	4.94	6.47	7.23	8.00	9.54	10.31	11.09	12.63	14.19	15.71
	82°F	3.49	5.00	6.53	7.29	8.06	9.60	10.37	11.14	12.69	14.23	15.76
	80°F	3.55	5.06	6.59	7.35	8.12	9.66	10.43	11.20	12.74	14.28	15.82
	78°F	3.60	5.11	6.64	7.40	8.17	9.72	10.49	11.26	12.80	14.34	15.86
	76°F	3.66	5.17	6.70	7.46	8.23	9.77	10.55	11.32	12.86	14.40	15.94
	75°F	3.69	5.20	6.73	7.49	8.26	9.80	10.57	11.35	12.89	14.43	15.97
	74°F	3.72	5.23	6.76	7.52	8.29	9.83	10.60	11.37	12.92	14.46	15.99
72°F	3.78	5.29	6.82	7.58	8.35	9.89	10.66	11.43	12.97	14.51	16.05	
T E M P	70°F	3.83	5.34	6.87	7.63	8.40	9.95	10.72	11.49	13.03	14.57	16.11
	68°F	3.89	5.40	6.93	7.69	8.46	10.00	10.78	11.55	13.09	14.63	16.17
	66°F	3.95	5.46	6.99	7.75	8.52	10.06	10.83	11.61	13.15	14.69	16.23
	64°F	4.01	5.52	7.05	7.81	8.58	10.12	10.89	11.66	13.20	14.74	16.28
	62°F	4.06	5.57	7.10	7.86	8.63	10.18	10.95	11.72	13.26	14.80	16.34
	60°F	4.12	5.63	7.16	7.92	8.69	10.24	11.01	11.78	13.32	14.86	16.40

## **ELECTRONIC TEMPERATURE CONTROL BOARD - REPLACEMENT**

1. Remove control box cover.
2. Disconnect wires and molded connector and mark for reinstallation.
3. Depress nylon clips and remove circuit board from mounting bracket.
4. Reassemble in reverse order and check operation.

## **ELECTRONIC TEMPERATURE CONTROL BOARD - CALIBRATION**

1. Place the thermocouple of your test meter through a finger hole in the top center of the oven.
2. With temperature dial fully counter clockwise, align dial red line over "CAL" mark on temperature scale and tighten dial knob.
3. Turn temperature dial fully clockwise, adjust pot on temperature control to achieve 575°F on temperature meter.
4. Set dial to 500°F. Adjust dial to match actual temperature.
5. Seal adjustment pot with glyptol or nail polish.

## **TEMPERATURE CONTROL POTENTIOMETER - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Loosen two (2) allen screws and remove knob by sliding off shaft.
4. Remove mounting nut from potentiometer shaft and push out.
5. Unplug wire connector from control board.
6. Reassemble in reverse order and check system operation.

## **HEAT LIGHT - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front panel.
3. Remove two wires from burner light, note number and location.
4. Grasp body of light assembly and slide sideways to remove.
5. Reassemble in reverse order and check.

## **BURNER CONTROL - HONEYWELL - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Remove wires from control, note wire numbers and location for reassembly.
4. Remove screws from control and replace.
5. Reassemble in reverse order and check system operation.

## **GAS VALVE - REPLACEMENT**

1. Shut off power at main breaker.
2. Shut off the gas supply in the main line to the oven.
3. Disconnect the flexible gas hose.
4. Remove the control panel top and front panel.
5. Remove the manual gas shut off valve from piping.
6. Remove screws from the bulkhead plate located on rear of oven at the gas pipe.
7. Remove the section of gas pipe to gas valve.
8. Disconnect the electrical leads from the solenoid valve. Disconnect bypass tube.
9. Loosen the gas line union located near the burner and remove the gas valve and piping assembly.
10. Finish removal of the gas piping from gas valve.
11. Reassemble in reverse order.
12. Check all gas fittings for leaks.
13. Adjust the gas manifold pressure on the gas valve. "Refer to the specification plate on the oven for proper rating."

## **BYPASS ORIFICE**

1. Shut off power at main breaker.
2. Shut off gas supply to oven.
3. Remove control panel top and front cover.
4. Remove pilot tube from bypass orifice and remove orifice.
5. Reassemble in reverse order.

## **TEMPERATURE REGULATION VALVE - REPLACEMENT**

1. Shut off power at main breaker.
2. Shut off gas supply.
3. Remove control panel top and front cover.
4. Remove bypass tube from burner manifold.
5. Disconnect wires from valve and mark wires for reassembly.
6. Remove (4) nuts from burner manifold and loosen pipe union.
7. Remove temperature control valve and piping.
8. Remove piping from valve and reassemble in reverse order.
9. Check all pipe fittings for leaks.

## **HOT SURFACE IGNITOR - REPLACEMENT**

1. Shut off the power at main breaker.
2. Shut off the gas supply in the main line to the oven.
3. Remove control panel top and front cover.
4. Remove Gearmotor, DC, Conveyor.
5. Remove electrical plug from the burner cap.
6. Remove "Temperature Regulation Valve."
7. Remove 3 screws holding burner cap to burner tube.
8. Pull out on burner cap removing cap and burner venturi.
9. The hot surface ignitor is held in place on the burner venturi by one nut, loosen nut and remove ignitor.
10. Replace in reverse order.

NOTE: Care must be used when handling the hot surface ignitor as they are quite fragile and may be easily broken if dropped or bumped.

## **MAIN BURNER ORIFICE - REPLACEMENT**

1. Shut off power at main breaker.
2. Shut off gas supply.
3. Remove control panel top and front cover.
4. Remove burner manifold, see "Temperature Regulation Valve."
5. Remove main burner orifice from burner manifold.
6. Reassemble in reverse order.
7. Check all pipe fittings for gas leaks.

## **CONVEYOR CONTROL POTENTIOMETER - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Loosen two (2) allen screws and remove knob by sliding off shaft.
4. Remove mounting nut from potentiometer shaft and push out.
5. Unplug wire connector from conveyor control board.
6. Reassemble in reverse order and check system operation.

## **CONVEYOR CONTROL BOARD - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Disconnect wiring (push on connectors) from control board, note proper location of connectors for reinstallation and exchange boards on the mounting bracket before reinstallation.
4. Remove mounting screws from control assembly.
5. Reassemble in reverse order and check system operation.

NOTE: Be sure that jumper (on conveyor control) is set to the proper (120/240) position.

## **CONVEYOR CONTROL BOARD - CALIBRATION**

1. Connect digital volt meter to the hall effect sensor. Black meter lead connected to black hall effect sensor lead, red meter lead to white hall effect sensor lead.
2. Turn conveyor control knob fully counter clockwise. Loosen knob and align with calibration line and tighten knob.
3. Set knob to one minute setting. Adjust "max" pot on conveyor control to 327.5 Hz.
4. Set control knob to 30 minute setting, and adjust "min" pot on conveyor control to 10.9 Hz. Recheck at one minute and 30 minutes until proper readings are achieved. Seal pots with glyptol or nail polish.

## **CIRCUIT BREAKER**

1. Shut off power at main breaker.
2. Remove control panel top and front panel.
3. Disconnect two (2) wires from circuit breaker.
4. Remove knurled mounting nut and push out.
5. Reassemble in reverse order.

NOTE: Be sure to reset breaker before operating.

## **CONVEYOR DRIVE MOTOR - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove conveyor.
3. Remove control panel top and front cover.
4. Disconnect wiring from motor and mark for reassembly.
5. Remove coupling from motor drive shaft.
6. Remove 4 screws and remove conveyor motor and mounting bracket.
7. Remove mounting bracket from conveyor motor assembly.
8. Reassemble in reverse order.

## **REVERSING CONVEYOR DIRECTION**

1. Shut off power at main breaker.
2. Remove control panel top.
3. Remove cover from relay box.
4. Reverse wires fastened to terminals A+ and A- on conveyor control board. (See schematic diagram for wire numbers.)
5. Reassemble in reverse order.

## **HALL EFFECT SENSOR - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Remove conveyor motor assembly.
4. Remove wire connector from hall effect sensor board.
5. Remove two (2) screws from conveyor drive motor.
6. Remove sensor board from mounting bracket.
7. Reassemble in reverse order.
8. Reinstall plug on hall effect sensor board and check conveyor system operation.
9. Replace control box covers and check system operation.

## **TEMPERATURE DISPLAY TRANSFORMER - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Remove two (2) wires on primary side, note color and location.
4. Remove three (3) wires on secondary side, note color and location.
5. Remove two (2) screws from transformer base and replace assembly.
6. Reinstall in reverse order and check system operation.

## **TEMPERATURE DISPLAY - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Remove all wires from temperature display and mark wires for reassembly.
4. Pry temperature display to remove from mounting tabs (this is a pressure fit).
5. Reassemble in reverse order.

## **CALIBRATION OF TEMPERATURE DISPLAY**

1. Place the thermocouple of your test meter through a finger hole in the top center of the oven. Pre-heat the oven to 500°F for 30 minutes.
2. Set switch on back of temperature display to read desired temperature (°F or °C).
3. Adjust "Temp. Adj." pot on back of temperature display until display matches actual oven temperature.

## **MERCURY CONTACTOR - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front cover.
3. Disconnect all wires and mark for reassembly.
4. Remove screws from mounting bracket and remove contactor.
5. Reassemble in reverse order.

## **AIR PRESSURE SWITCH - REPLACEMENT**

1. Shut off power at main breaker.
2. Remove control panel top and front conveyor.
3. Disconnect wiring and mark for reassembly.
4. Disconnect air tube.
5. Remove mounting screws.
6. Reassemble in reverse order.
7. Turn on power and calibrate air switch as follows:
  - Turn adjusting screw counter-clockwise to full out position.
  - Turn oven on.
  - Turn adjusting screw clockwise until heat shuts off.
  - Turn adjusting screw counter-clockwise 1/4 turn and unit should heat.

## **HEATING ELEMENT - REPLACEMENT**

1. Shut off power at main breaker.
  2. Remove back cover.
  3. Disconnect heater element wires and mark for reassembly.
  4. Disconnect motor wiring and mark for reassembly.
  5. Remove oven back from oven.
  6. Remove fan shroud.
  7. Heater element may now be unbolted and removed.
  8. Check heater elements to be sure they are the proper replacement.
  9. Reassemble in reverse order. Apply anti-seize compound to back bolt threads before reassembly.
- NOTE: Be sure the lead terminals are tight. If the leads are not tight, a loose connection will result, causing arcing and lead wire burn off.

## **BEARING, CONVEYOR**

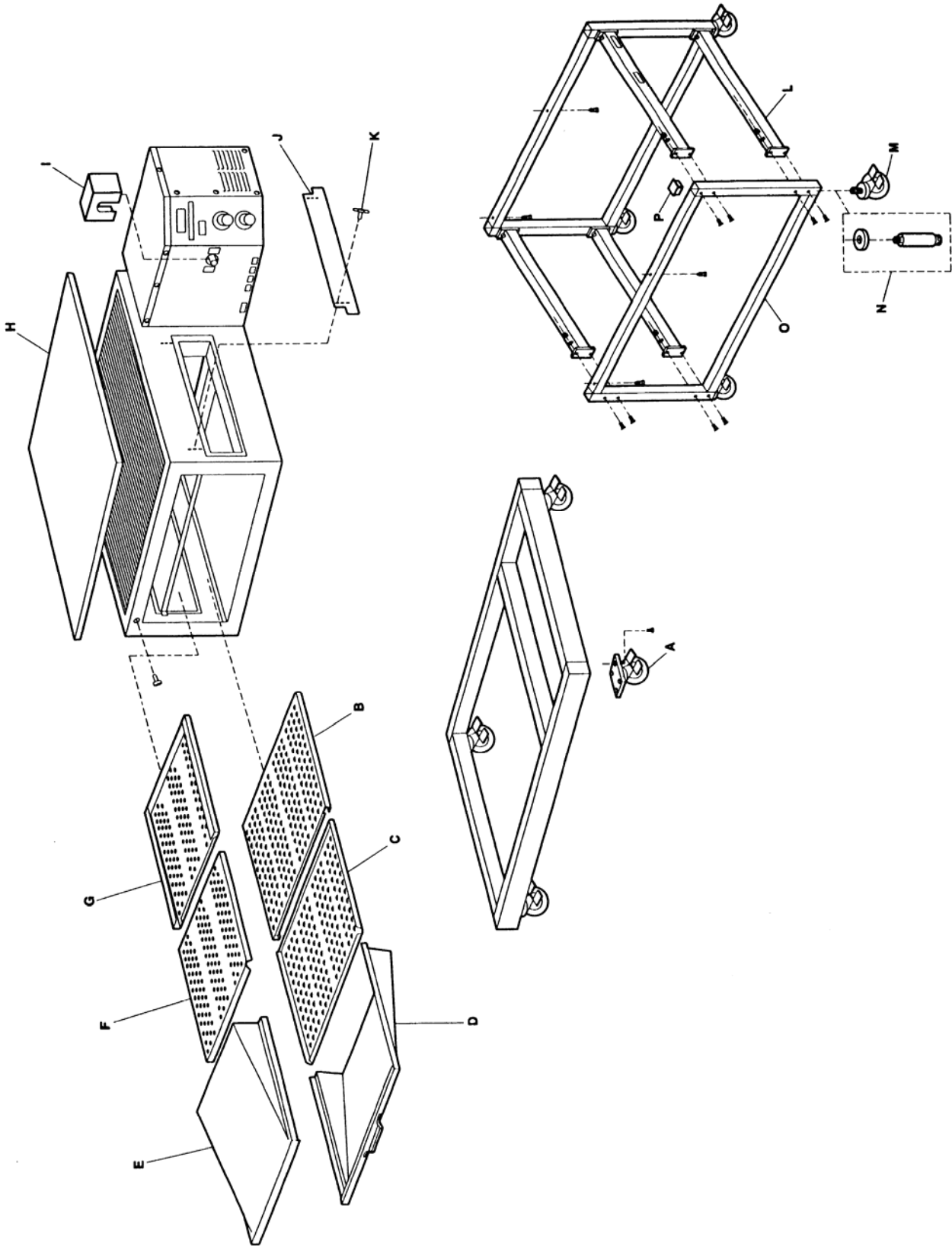
1. Remove conveyor from oven and place on a flat work surface.
2. Remove connecting links from conveyor belting.
3. Move drive shaft or idle shaft toward end of conveyor, and shaft with bearing will now slip out of holding bracket.
4. Replace bearing and reassemble.

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## PARTS / GENERAL

LETTER	PART NUMBER	DESCRIPTION
A	369390	Caster 4" w/ Mounting Plate
B	369502	Bottom Finger Cover
C		Columnating Panel, see Installation & Operations Manual
D	370010	Bottom Finger Housing
E	369504	Top Finger Housing
F		Columnating Panel, see Installation & Operations Manual
G	369503	Top Finger Cover
H	369511	Oven Top
I	369659	Conveyor Hole Cover
J	369225	Baffle
K	369211	Thumb Screw
L	370118	Cross Support
M	369231	Caster 4" w/ Threaded Stem
N	369232	Adjustable Leg
O	369919	Stand Side
P	370066	Plug

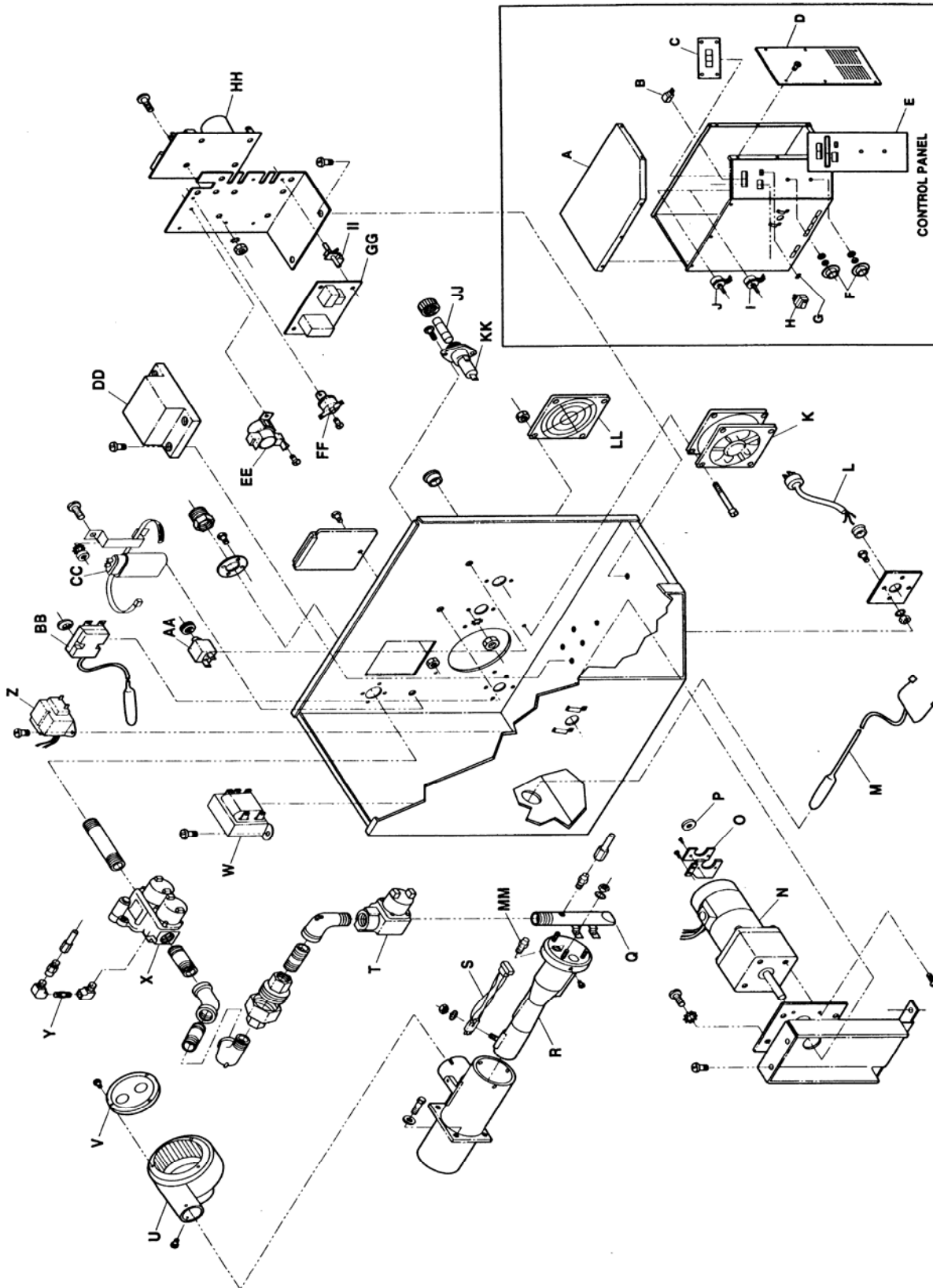
# BLOW UP / GENERAL



## PARTS / CONTROL BOX 1116-000-A, 1117-000-A

LETTER	PART NUMBER	DESCRIPTION
A	370108	Control Box Top
B	369128	Pilot Light
C	370073	Temperature Display
D	370107	Side Panel
E	370131	Operations Label
F	369845	Knob
G	350224	Lens, Yellow
H	369805	On/Off Switch
I	369809	Conveyor Potentiometer
J	369449	Temperature Potentiometer
K	369124	Cooling Fan
L	369537	Power Cord
M	369131	Thermocouple
N	370061	Conveyor Motor Assembly (Includes "O" & "P")
O	369823	Hall Effect Sensor
P	370065	Magnet 16 Pole
Q	369901	Manifold Burner
R	369568	Venturi, Natural Gas
	369938	Venturi, LP Gas
S	369552	Hot Surface Ignitor
T	369398	Solenoid Valve
U	369366	Burner Blower Motor
V	369401	Air Shutter Assembly
W	370072	Transformer, Temperature Display
X	369263	Gas Valve Nat/LP
Y	369556	Bypass Orifice, Nat.
	369557	Bypass Orifice LP
Z	369531	Transformer 24 VAC, Burner
AA	370064	Circuit Breaker .4 Amp
BB	357067	Thermostat, Hi-Limit, Oven Cavity
CC	369192	Capacitor
DD	369532	Ignition Control
EE	369507	Thermostat, Cooling Fan
FF	369431	Thermostat, Control Box Hi Limit
GG	369465	Electronic Temperature Control
HH	370074	Conveyor Control
II	369856	Stand-Off Support
JJ	369166	Fuse, 10 Amp
KK	369129	Fuseholder
LL	369331	Finger Guard
MM	369566	Main Burner Orifice Nat.
	369524	Main Burner Orifice LP

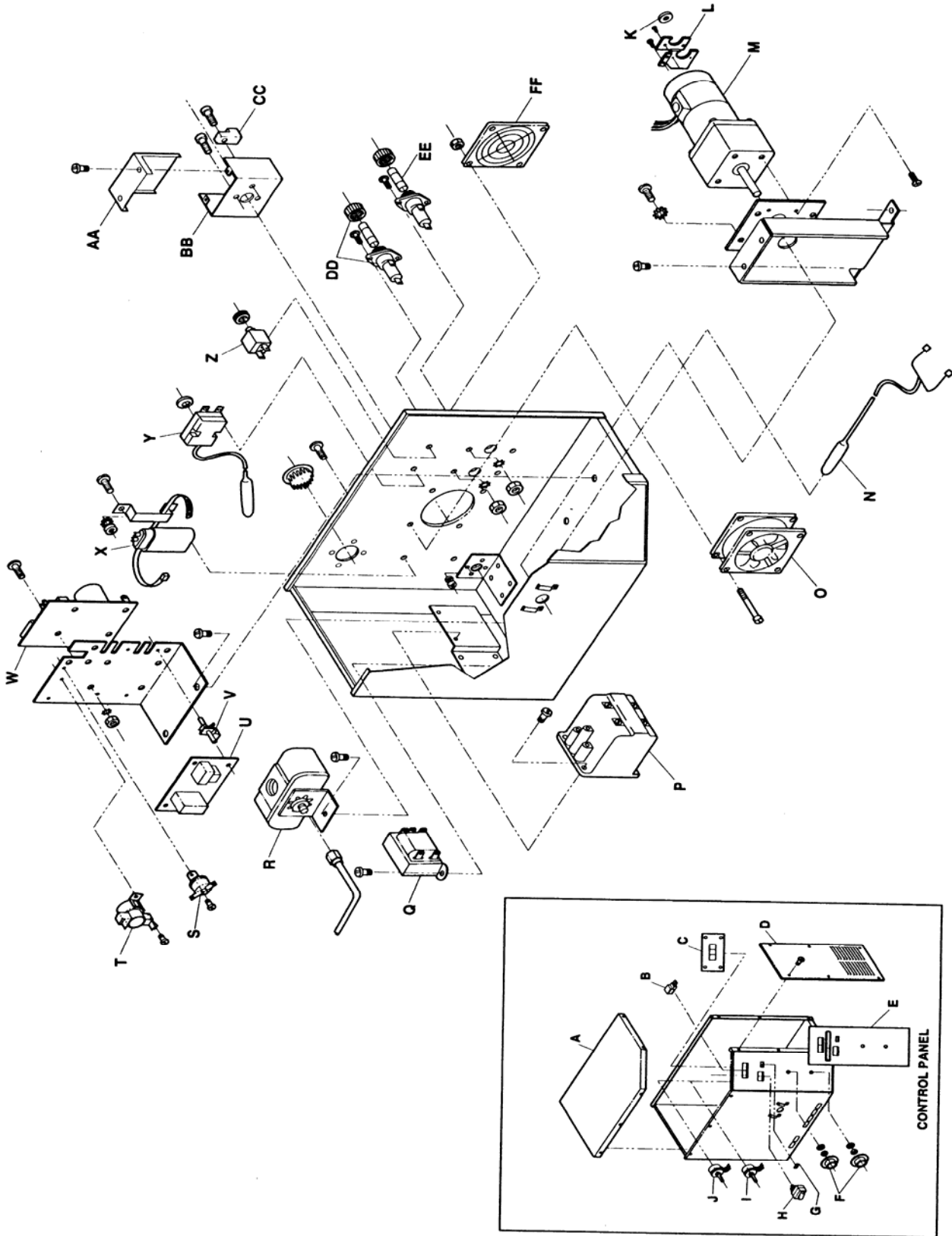
# BLOW UP / CONTROL BOX – 1116-000-A, 1117-000-A



## PARTS / CONTROL BOX – 1130-000-A THRU 1133-000-A

LETTER	PART NUMBER	DESCRIPTION
A	370108	Control Box Top
B	369467	Pilot Light
C	370073	Temperature Display
D	370107	Side Panel
E	370132	Operations Label
F	369845	Knob
G	350224	Lens, Yellow
H	369432	On/Off Switch
I	369809	Conveyor Potentiometer
J	369449	Temperature Potentiometer
K	370065	Magnet 16 Pole
L	369823	Hall Effect Sensor
M	370061	Conveyor Motor Assembly (Includes "K" &"L")
N	369131	Thermocouple
O	369378	Cooling Fan
P	370067	Mercury Contactor 1 Phase
	369479	Mercury Contactor 3 Phase
Q	370072	Transformer, Temperature Display
R	369025	Air Pressure Switch
S	369431	Thermostat, Control Box Hi Limit
T	369507	Thermostat, Cooling Fan
U	369465	Electronic Temperature Control
V	369856	Support, Stand Off
W	370074	Conveyor Control
X	369192	Capacitor
Y	357067	Thermostat, Oven Cavity Hi Limit
Z	370064	Circuit Breaker
AA	370134	Electric Box Cover
BB	370133	Electric Box
CC	353082	Ground Lug
DD	369129	Fuseholder
EE	369166	Fuse 10 Amp
FF	369331	Finger Guard

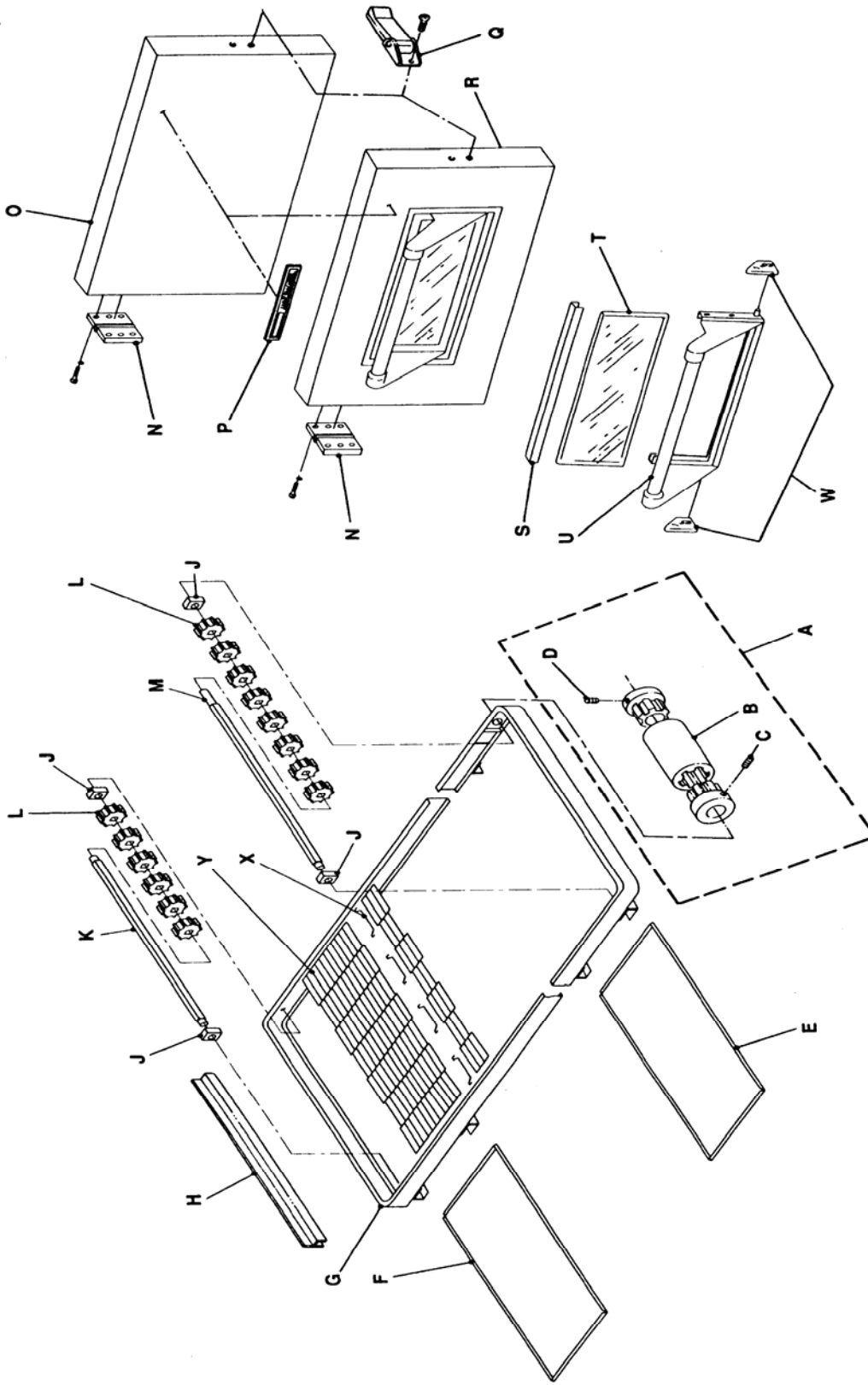
# BLOW UP / CONTROL BOX – 1130-000-A THRU 1133-000-A



## PARTS / CONVEYOR & DOOR

LETTER	PART NUMBER	DESCRIPTION
A	369611	Coupler
B	369664	Coupling Center
C	369269	Ball Plunger
D	370116	Set Screw
E	369223	Crumb Pan, Right
F	369224	Crumb Pan, Left
G	369666	Conveyor Frame Assembly
H	369226	Pan Stop
J	369516	Conveyor Bearing
K	369514	Idler Shaft
L	369515	Sprocket
	369978	Set Screw
M	369238	Drive Shaft
N	369513	Hinge
O	369510	Door Assembly (Includes N, P, and Q)
P	370016	Impinger Nameplate
Q	369501	Door Latch & Catch
R	1123D	Door With Window (Includes N, P, and Q)
S	369927	Window Frame, op
T	369925	Glass, Access Window
U	369926	Window Frame, Bottom
W	369929	Retainer, Window
X	369165	Splice Clip, Conveyor Belt
Y	369194	Conveyor Belt (Complete)
	363394	Conveyor Belt (1 Foot Section)

# BLOW UP / CONVEYOR & DOOR



## PARTS / OVEN BACK ASSEMBLY

LETTER	PART NUMBER	DESCRIPTION
A	369182	Fan
B	369899	Fan Shroud
C	369655	Stand Off
D	369183	Heating Element 208V
	369184	Heating Element 240V
E	369976	Rear Wall, Gas Ovens
	369549	Rear Wall, Electric Ovens
F	369581	Motor Mount
G	369539	Motor, Gas Ovens, 120V
	369181	Motor, Electric Ovens, 208/240V
H	369695	Motor Bracket
I	369033	Motor Clamps
J	369681	Cover, Back
K	369979	Bracket, Hi-Limit Thermostat
L	369227	Spring
M	369541	Bracket, Thermocouple

# BLOW UP / OVEN BACK ASSEMBLY

