LINCOLN

Consistency You Can Count On

Impinger® Advantage Digital
Series 1600 Low Profile Conveyor Oven

International Service Manual
Gas Ovens for Non-USA Countries

Original Document

Document #: LIN_GO_SM_IMPLOPRO_S1600_INTL_4605727 – 9/20

WELBILT

Safety Notices

DEFINITIONS

⚠ DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury. This applies to the most extreme situations.

⚠Warning

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

⚠Caution

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Notice

Indicates information considered important, but not hazard-related (e.g. messages relating to property damage).

NOTE: Indicates useful, extra information about the procedure you are performing.

Read These Before Proceeding:

⚠ DANGER

Do not install or operate equipment that has been misused, abused, neglected, damaged, or altered/ modified from that of original manufactured specifications.

Important

Read these instructions for use carefully so as to familiarize yourself with the appliance before connecting it to its gas container. Keep these instructions for future reference.

⚠Warning

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating, and maintenance instructions thoroughly before installing, operating, or servicing this equipment.

⚠Warning

Authorized Service Representatives are obligated to follow industry standard safety procedures, including, but not limited to, local/national regulations for disconnection / lock out / tag out procedures for all utilities including electric, gas, water and steam.

⚠Warning

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision concerning use of the appliance by a person responsible for their safety. Do not allow children to play with this appliance.

⚠Warning

This equipment is intended for indoor use only. Do not install or operate this equipment in outdoor areas.

⚠Warning

Do not use electrical appliances or accessories other than those supplied by the manufacturer.

FOR YOUR SAFETY

Do Not Store Or Use Gasoline Or Other Flammable Vapors Or Liquids In The Vicinity Of This Or Any Other Appliance.

⚠Warning

Never use a high-pressure water jet for cleaning or hose down or flood interior or exterior of units with water. Do not use power cleaning equipment, steel wool, scrapers or wire brushes on stainless steel or painted surfaces.

⚠Caution

Maintenance and servicing work other than cleaning as described in this manual must be done by authorized service personnel.

NOTE: Proper installation, care and maintenance are essential for maximum performance and trouble-free operation of your equipment. Visit our website www.mtwkitchencare.com for manual updates, translations, or contact information for service agents in your area.

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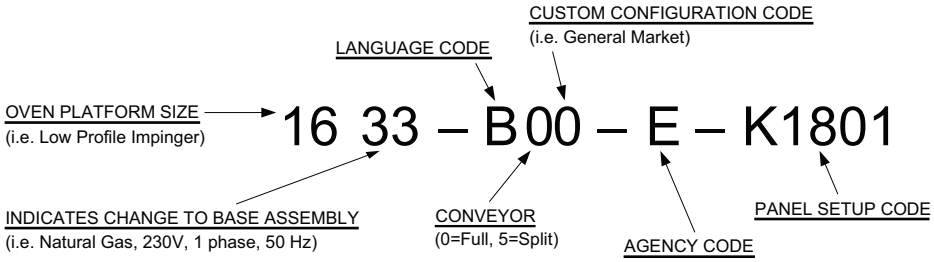
Section 1
General Information

Model Number Key

Example: 1633-B00-E-K1801



Language Code

Code	Language	Country
0	English	Dom. & Int. Default
B	French	CE – France/Luxembourg
C	German	CE – Germany
D	Italian	CE – Italy
E	Spanish	CE – Spain
F	English	CE – UK/India/Africa/Hungary
G	Spanish	Mexico/Latin America
H	Portuguese	CE – Portugal
I	Not Used	---
J	Danish	CE – Denmark
K	Dutch & French	CE – Belgium
L	Dutch	CE – Netherlands
M	Greek	CE – Greece
N	Finnish	CE – Finland
O	Restricted	---
P	Norwegian	CE – Norway
Q	English	Japan
R	Swedish	CE – Sweden
S	English	Australia
T	Mandarin	China
U	Restricted	---
V	English	Pacific Rim/Korea
W	English	Middle East/Africa
X	Not Used	---
Y	Not Used	---
Z	Not Used	---

Agency Code

Code	Agency
N	No agency
E	CE & RoHS compliance combined
U	US & Canada compliance only
A	Advantage style oven
B	Australia AGA

Old Model Numbers

Please note that the model numbering system changed March 2007. The chart below shows the old model numbering system and its matching new model number.

Old Model Number	→	New Model Number
	→	1631-00z-E-Kxxxx
	→	1632-00z-E-Kxxxx
1633-000-A	→	1633-00z-E-Kxxxx
1634-000-EA	→	1634-00z-E-Kxxxx
1636-000-EA	→	1636-00z-E-Kxxxx

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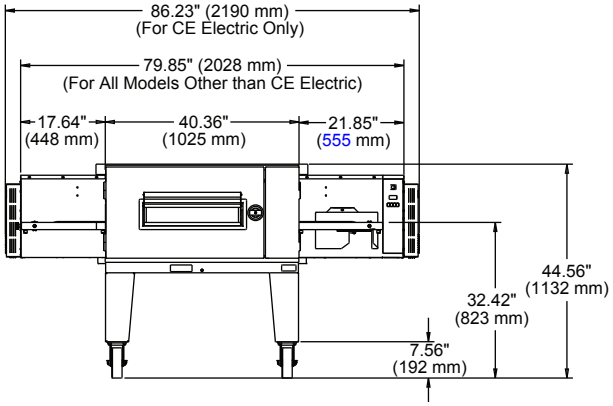
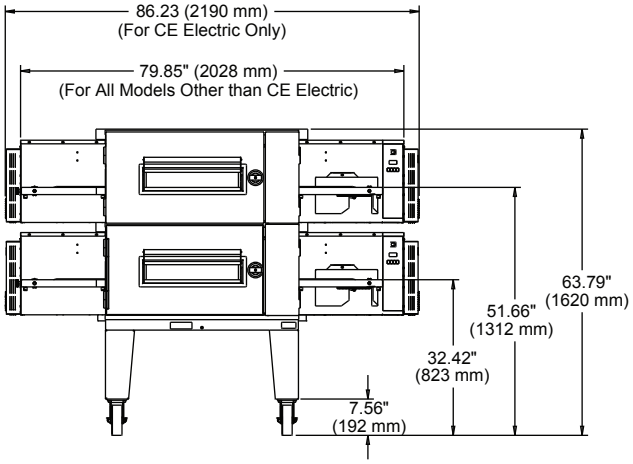
Section 2
Installation

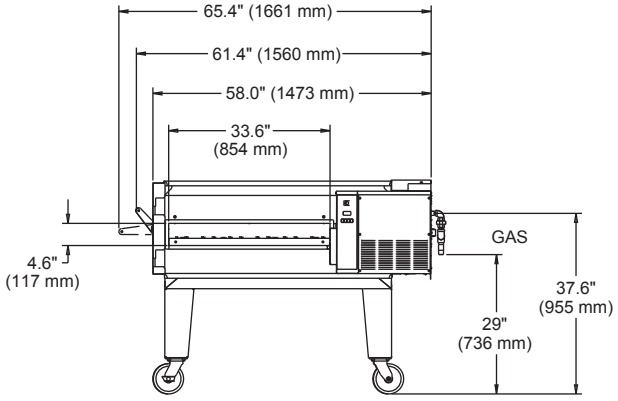
Exterior Dimensions – 1600



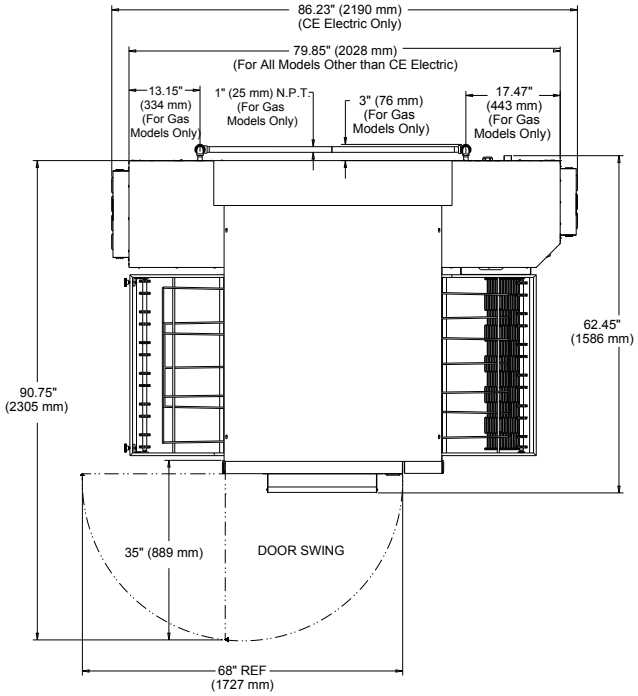
Tall Stand, Single, 6" Casters, Front View



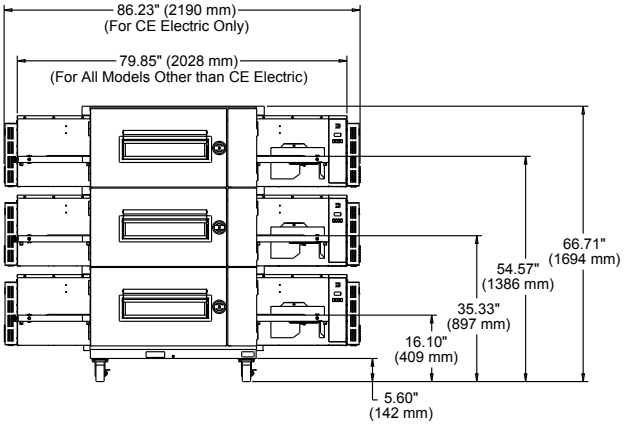
Tall Stand, Double, 6" Casters, Front View



Side View



Top View



Low Stand, Triple, 4" Casters, Front View

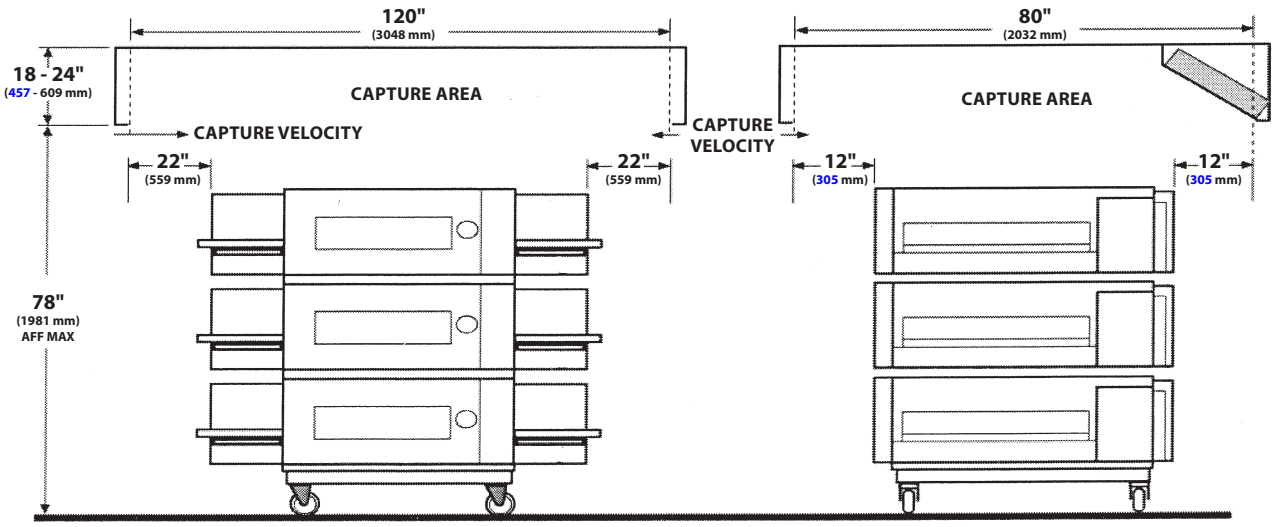
All ovens require separate service and dedicated neutral.

Notice

Do not install the (these) oven(s) in any area with an ambient temperature in excess of 95°F / 35° C. Doing so will cause damage to the unit.

Canopy Ventilation Recommendations

NOTE: Hood shown as dimensional for island mount. Size reductions may be possible for wall mount units.



AFF = Above Finished Floor

NOTE: The drawing shown is a typical installation and is intended to be a guideline. It is not a rigid specification. Hood dimensions and the positioning of the hood over the oven will vary with hood manufacturers.

NOTE: Lincoln can provide oven spec sheets that show the dimensions of the oven, kW or BTU ratings and other information that will be useful to both the ventilation hood supplier and the HVAC contractor.

Installation Requirements

⚠ DANGER

All utility connections and fixtures must be maintained in accordance with local and national codes.

GAS CODE REQUIREMENTS

⚠ DANGER

Conversion of this appliance from one type of gas to another must only be performed by qualified, licensed, and authorized installation or service personnel. Conversion without the proper components may result in fire or explosion.

⚠ Warning

A manual shut-off valve must be installed in the gas supply (service) line upstream of this appliance and in a position where it can be reached quickly in the event of an emergency.

Safe and satisfactory operation of this oven depends to a great extent upon its proper installation, and it should be installed, as applicable in accordance with the National Fuel Gas Codes, ANSI Z223.1/NFPA 54, latest version, manufacturers' installation instructions, and local municipal building codes.

1. The oven and its individual shut off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.45 kPa).
2. The oven must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply system at test pressures equal to or less than 1/2 psig (3.45 kPa).

IN MASSACHUSETTS: Installation of this oven must be performed by a licensed plumber or gas fitter. All such connections must be in accordance with applicable code requirements. Refer to "Installation Requirements" section for specific information.

IN CANADA: The installation of these appliances is to be in accordance with CSA B.149.1 latest version – Natural Gas and Propane Installation Code – and/or local codes.

IN AUSTRALIA: To be installed in accordance with AS 5601-2004 and 4563-2004 Gas Installation Code.

IN SOUTH AFRICA: To be installed in accordance with SANS 10087-1 or SANS 827, as applicable.

NOTE: In the event that verification of pilot flame is needed, a small mirror may be utilized for verification.

If flexible services are provided, they must meet code requirements for such installation.

ELECTRICAL CODE REQUIREMENTS

⚠ Warning

This appliance must be grounded and all field wiring must conform to all applicable local and national codes. Refer to rating plate for proper voltage. It is the responsibility of the end user to provide the disconnect means to satisfy the authority having jurisdiction.

⚠ Warning

This equipment must be positioned so that the plug is accessible unless other means for disconnection from the power supply (e.g., circuit breaker or disconnect switch) is provided.

When installed, this appliance must be electrically grounded and its installation must comply with the National Electric Code, ANSI-NFPA 70, latest edition, the manufacturers' installation instructions, and applicable local municipal building codes.

IN CANADA: All electrical connections are to be made in accordance with CSA C22.1 latest version – Canadian Electrical Code and/or local codes.

ALL OTHER COUNTRIES: Local gas and/or electrical codes will prevail.

1. Strain Relief is provided with each oven. International Dealer/Distributors provide applicable power cord/plug for each customer.
2. All pole disconnection switch must have 3 mm open contact distance.
3. To prevent electrical shock, an equal potential bonding ground lug is provided in the back. This allows the oven to be connected to an external bonding system.
4. If used as double or triple stack and each oven has its own disconnection switch, all switches should be close together.

SPACING REQUIREMENTS

⚠ Caution

Oven(s) must be operated on approved base only.

⚠ Warning

To avoid instability the installation area must be capable of supporting the combined weight of the equipment and product. Additionally the equipment must be level side to side and front to back.

The right and left side of the oven must have a minimum 3" (75 mm) clearance from all surfaces. WHEN COOLING DUCTS ARE ATTACHED, no rear clearance is required. The front of the oven requires a minimum 36" (914.4 mm) clearance from all surfaces. An 18" (457 mm) clearance on both sides of the oven is required for service accessibility. In case other cooking equipment is located on both sides of oven, a minimum 24" (609 mm) clearance is required for that equipment.

NOTE: Do not install this (these) oven(s) in any area with an ambient temperature in excess of 95°F/35°C. Doing so will cause damage to the unit.

VENTILATION REQUIREMENTS

A VENT IS REQUIRED: Local codes prevail. These are the "authority having jurisdiction" as stated by the NATIONAL FIRE PROTECTION ASSOCIATION, INC. in NFPA 96 latest edition. In addition, to be in compliance with the NFPA 54 Section 10.3.5.2, this unit must be installed with a ventilation hood interlock that prevents the unit from operating when the ventilation hood is off. For further ventilation information, see below.

Ventilation Guidelines

A ventilation hood is required to remove heat and cooking odors. For gas ovens, a ventilation hood is also required to remove the products of combustion. The hood and HVAC installation must meet local codes to gain approval by the authority having jurisdiction. Requirements may vary throughout the country depending on the location by city, county, and state. Obtain information from the authority having jurisdiction to determine the requirements for your installation. Obtain information and review copies of codes or documents that will be used to inspect and approve your installation. Your ventilation hood supplier and HVAC contractor should be contacted to provide guidance. A properly engineered and installed ventilation hood and HVAC system will expedite approval and reduce oven maintenance costs. Proper ventilation is the oven owner's responsibility.

The ventilation hood must operate in harmony with the building HVAC system. It typically requires between 2500 and 6000 CFM (4248 and 10,194 m^3/hour) exhaust. (The "Efficiency" of various hood designs makes it necessary to specify such a wide range of ventilator flow.) Make up air must be supplied by either a hood design or the HVAC system. This will vary with hoods from various manufacturers.

Notice

Prevent airflow through the cooking chamber. Air must NOT be directed onto the oven front, side, or rear of the oven.

Ventilation System

NOTE: These ovens are considered "Medium Duty for Baking" when evaluated for code vent requirements.

This information is shown as a guideline for ventilation.

1. Dimensions shown are for ovens without extension shelves. The outside end of the conveyor frame must be a minimum of 22 inches (560 mm) inside the canopy as shown.
2. The capture velocity across the lower edge of the canopy is to be 50 FPM at sides and front.
3. Use filters at rear exhaust area of hood, as shown.
4. At start-up, the CO level must be checked around the oven space under the canopy.
5. This level must be < 10ppm.
6. The ovens are to be centered in the canopy space left-to-right and front-to-back if possible.
7. A 6-inch (152 mm) space at rear of oven is recommended for utilities.
8. Recommend 70% make-up air provided outside of the canopy through perf metal diffusers directed straight down — not at the oven; located at front, sides or both.
9. Room air diffusers must not be directed onto the oven and should be positioned a minimum of 3 feet (914 mm) from the perimeter of the hood to keep them from affecting the oven.

NOTE: Smoke Candle Test can also be used as a method or verifying proper ventilation.

1. This test is to be done on the bottom oven.
2. The conveyor must be off or not moving.
3. The oven temperature is operating at 550°F/288°C.
4. The ventilation system must capture all the smoke from the oven.

RESTRAINT REQUIREMENT – ALL OVEN(S) ON CASTERS

⚠ DANGER

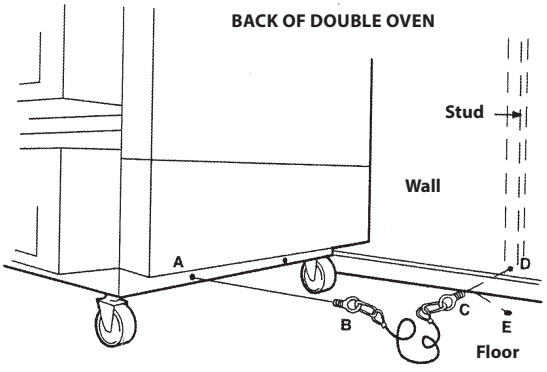
Legs or casters must be installed and the legs or casters must be screwed in completely to prevent bending. When casters are installed the mass of this unit will allow it to move uncontrolled on an inclined surface. These units, when permanently connected, must be tethered/ secured to comply with all applicable codes, so that stress is not transmitted to the electrical supply conduit.

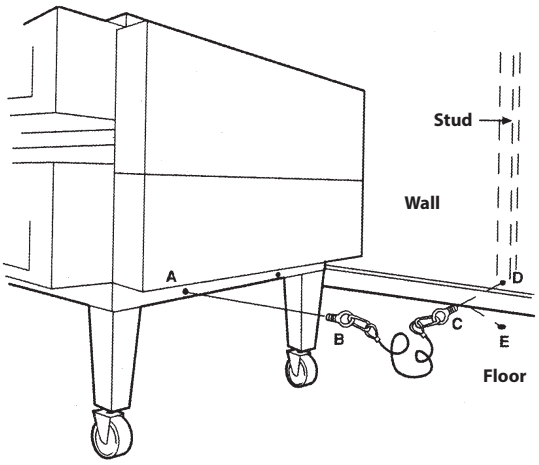
- The installation shall be made with a gas connector that complies with the Standard for Connectors for Movable Gas Appliances, ANSI Z21.69 latest version, and a quick disconnect device that complies with the Standard for Quick Disconnect Devices for Use With Gas Fuel, ANSI Z21.41 latest version.
  IN CANADA: The installation shall be made with gas connectors that comply with Canadian Code CSA 6.16 latest version and quick disconnects complying to Canadian Code CSA 6.9 latest version.
  IN AUSTRALIA: To be installed in accordance with AS 5601-2004 and 4563-2004 Gas Installation Code.
- The installation of the restraint must limit the movement of the oven(s) without depending on the connector, the quick disconnect device, or its associated piping to limit the oven movement.
- If the restraint must be disconnected during maintenance or cleaning, it must be reconnected after the oven has been returned to its originally installed position.

Procedure

1. Screw lifting eye end "B" of cable assembly to hole "A".
2. Screw eye bolt end "C" of cable assembly to stud in wall "D" or floor anchor "E".

NOTE: Installation point is the same for single, double, or triple stacked ovens.





Installation

The instructions that follow are intended as a guide for preparing for the installation of the Impinger® Conveyor Ovens, Series 1600. First and foremost, each crate should be examined before signing the Bill of Lading to report any visible damage by the trucker in transit, and to account for the proper number of crates.

UNLOADING

When the oven arrives it should consist of:

1. A crate containing oven body, conveyor, fingers, crumb pans, and pan stops. (Some models may have the conveyor packed separately.)
2. A package containing the stand and top.

It is recommended that you have a material-handling device available to unload.

NOTE: DO NOT LIFT EXCESSIVE WEIGHT!

IF THERE IS APPARENT DAMAGE:

UNITED STATES AND CANADA: Arrangements should be made to file a claim against the carrier, as Interstate Commerce Regulations require that the consignee initiate a claim.

ALL SHIPMENTS TO OTHER COUNTRIES: Freight terms will be developed and extended on an individual basis.

Proper and secure storage facilities should be arranged for the oven(s). If necessary, protect it from outdoor or damp conditions at all times before installation.

UNCRATING

When you have all the crates unloaded, open the crates and remove the plastic covers. Inspect at once for concealed damage. If anything appears to be damaged, contact the appropriate persons immediately to file a damage claim. After completing this inspection, finish unpacking the oven and all other components. Be sure to remove the packing cardboard from the plenum shroud. Move all components inside near the area where they will be assembled in the order in which they will be assembled.

THE OVEN WILL CLEAR THROUGH A 30" (762 MM) DOORWAY BY USING THE FOLLOWING PROCEDURE:

1. Remove conveyor; see "Conveyor Removal for Cleaning" in *Section 4* for instructions. (Some units may have conveyor packed separately.)
2. Remove front doors by lifting the doors from the hinge plates.
3. Remove finger assembly and baffles from inside the oven.
4. Place oven front on a four-wheel moving dolly and it will clear a 30" (762 mm) doorway.

NOTE: Use care not to damage hinge plates on oven front.

Notice

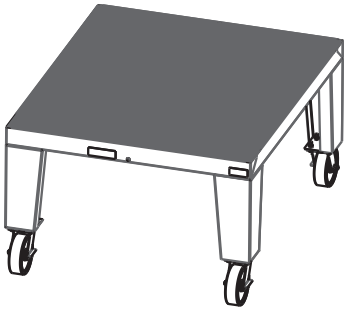
Do not lift the ovens using the control enclosure. Lift from the main oven cavity only. Damage may occur to the controls of the oven if lifted by the control enclosure.

Manual Gas Valve Installation

When installing the gas valve that is supplied with the oven it is our suggestion that an elbow be placed on the oven pipe first if one is not already installed. This will allow the flexible hose to be attached in a downward direction, eliminating possible stress to the hose.

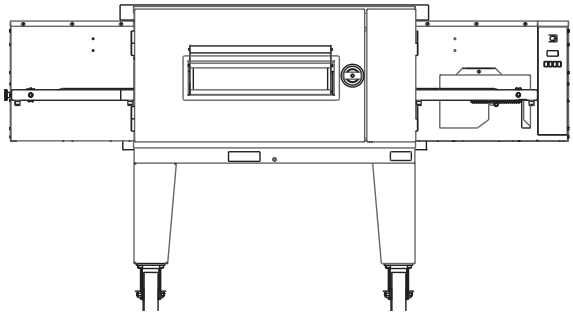
Assembly Instructions

1. **For Single Stack Ovens:** The stand is a 40" (1016 mm) x 47" (1194 mm) rectangle. Set it in place with a 40" side facing out. This will be the front of the oven. Ovens on casters require a level floor. NOTE: The oven top is packed with oven stand. Remove top from stand before assembly.

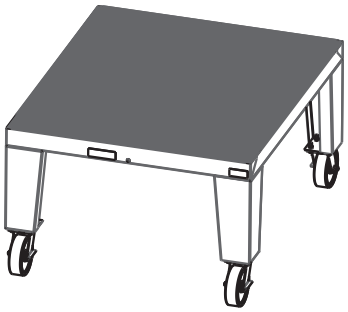


P/N 1612

2. **Oven Placement:** Remove the oven from the dolly and set it on the stand. The control panel should be on the right rear as you face the oven. Be sure that the oven sets squarely on the stand and is fully seated. For a single oven, install top and duct cap onto rear cover.

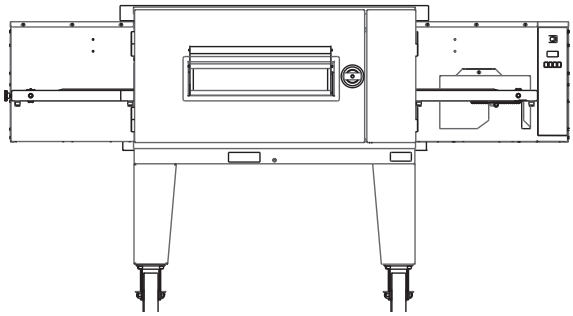


3. **How to Stack a Double Stack:**
The stand is a 40" (1016 mm) x 47" (1194 mm) rectangle. Set it in place with a 40" side facing out. This will be the front of the oven. Ovens on casters require a level floor. NOTE: The oven top is packed with oven stand. Remove top from stand before assembly.

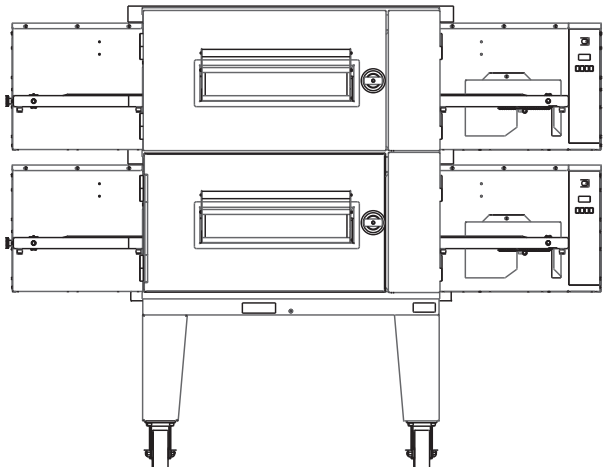


P/N 1612

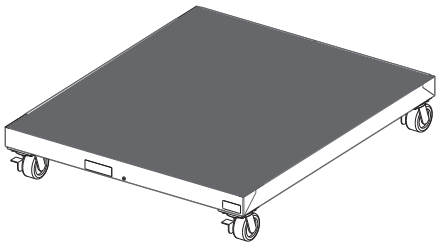
A. Remove the first oven from the dolly and set it on the stand. The control panel should be on the right rear as you face the oven. Be sure that the oven sets squarely on the stand and is fully seated.



B. Place the second oven on top of the first one. Be sure that it is sets on squarely and is fully seated. The control panels go on the right rear. Now install oven top and duct cap onto rear cover.



4. **How to Stack a Triple Stack:** The stand is a 40" (1016 mm) x 47" (1194 mm) rectangle. Set it in place with a 40" side facing out. This will be the front of the oven. Ovens on casters require a level floor. NOTE: The oven top is packed with oven stand. Remove top from stand before assembly.



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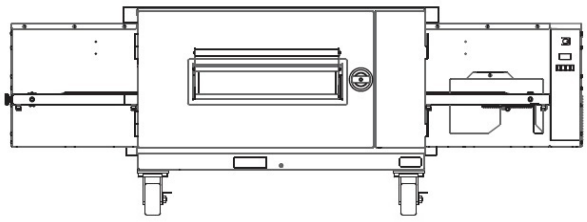
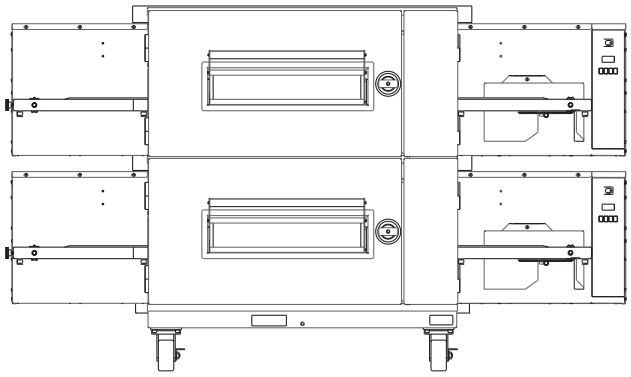
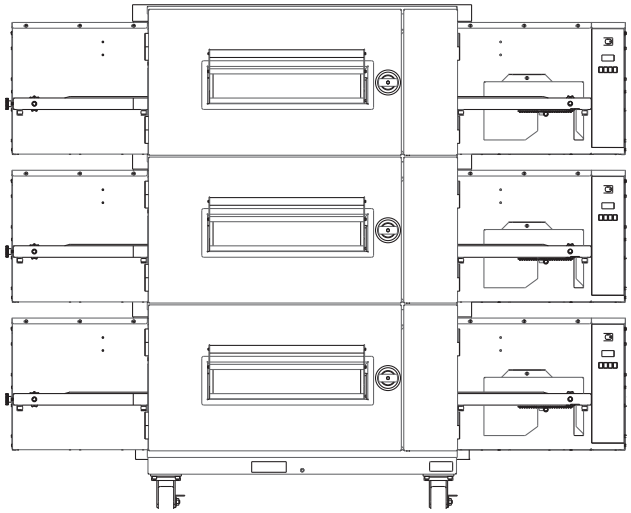
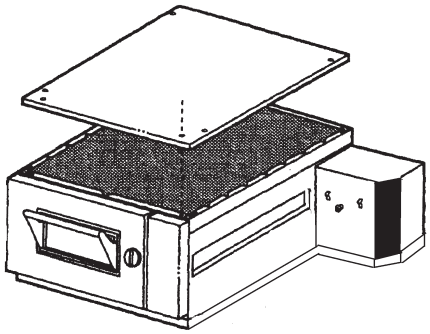


A. Remove the first oven from the dolly and set it on the stand. The control panel should be on the right rear as you face the oven. Be sure that the oven sets squarely on the stand and is fully seated:



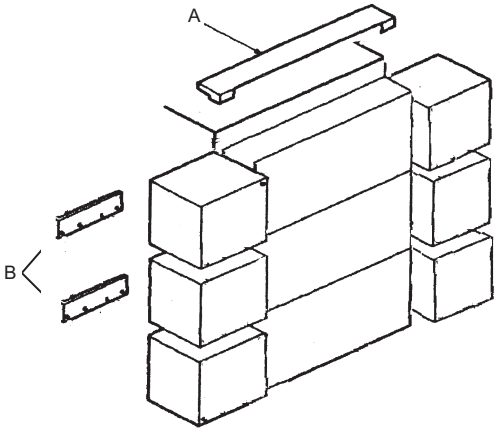
B. Place the second and third ovens on top of the first one. Be sure that they set squarely and are fully seated. The control panels go on the right rear. Now install the top and duct cap onto rear cover.



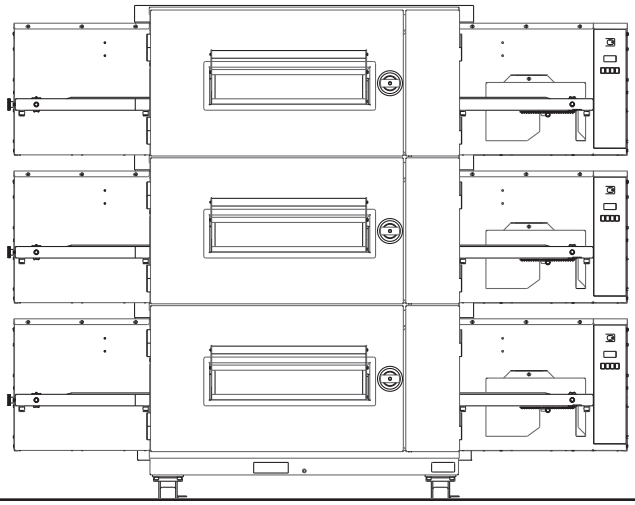


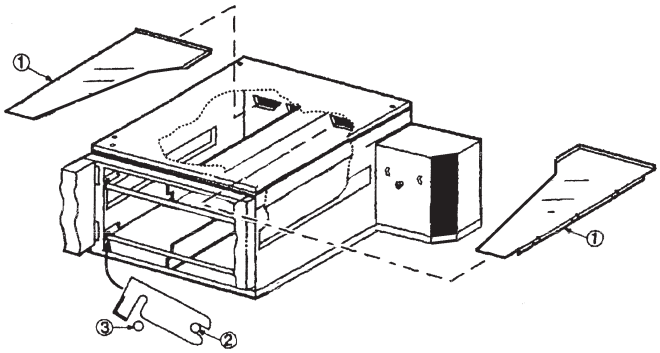
5. NOTE: When stacking ovens, remove the cover mounting screws to provide a flush fit.

   Install the oven top only on the top oven with #8-32 screws provided as shown above.



6. NOTE: Install duct cover top cap (A) onto the top rear cover of all single, double, and triple stack ovens. For double and triple stack ovens, right and left air baffles (B) should be attached between the control boxes on both sides of the ovens as shown above. Use #8 screws provided.



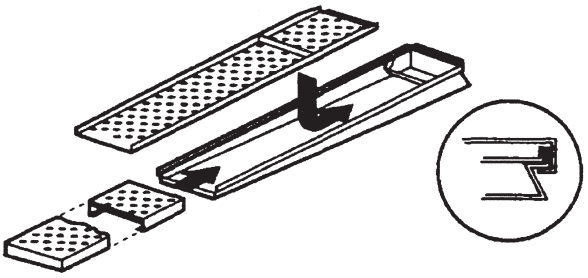


7. Before installing the finger supports in the oven(s), be sure all of the packing materials are removed from the plenum shroud.

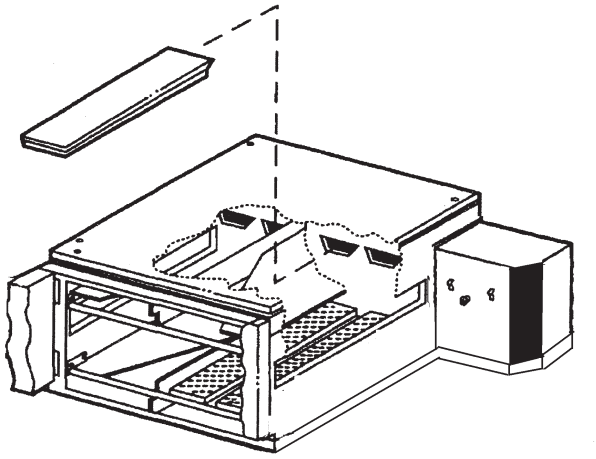
   Install air return baffles (1), if provided.

   Install the finger supports by hooking the rear retaining pin (2) and swinging the finger support into position (3) as shown above.

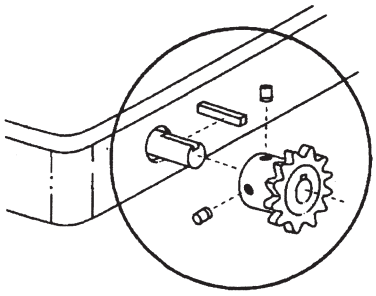
8. Assemble fingers as shown below.

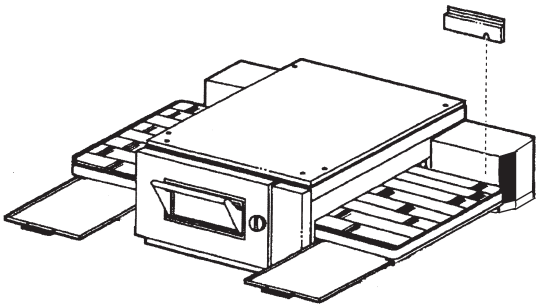


9. Insert columnating plate so the step goes under the lip of the finger housing and the plate lies flush with the housing side edge.
10. Install cover by sliding it on the small end of the finger housing.
11. Insert assembled finger through door opening, starting with lower left. NOTE: The customer MUST tell you which position to place the assembled finger in for their application.
12. Install the finger in the oven by sliding it over the plenum flange and setting the front bracket. BE SURE THAT THE FINGER SITS SQUARELY OVER THE PLENUM FLANGES AND THE HOLES POINT IN THE PROPER DIRECTION. Top fingers point down, bottom fingers point up.

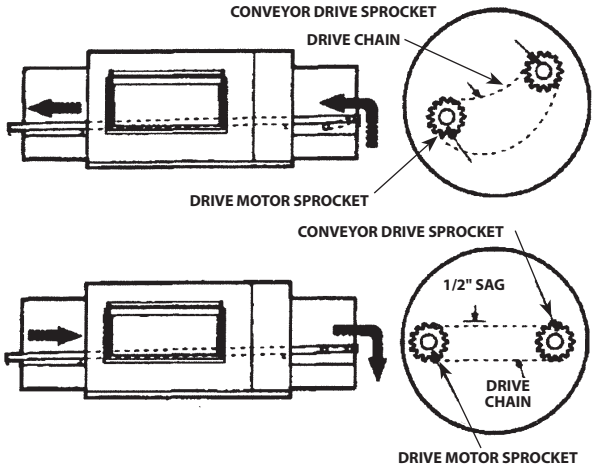


13. Repeat step 12 until all eight (8) fingers are installed.





14. Install conveyor drive sprocket on conveyor drive shaft as shown above. NOTE: Edge of drive sprocket should be flush with end of drive shaft..

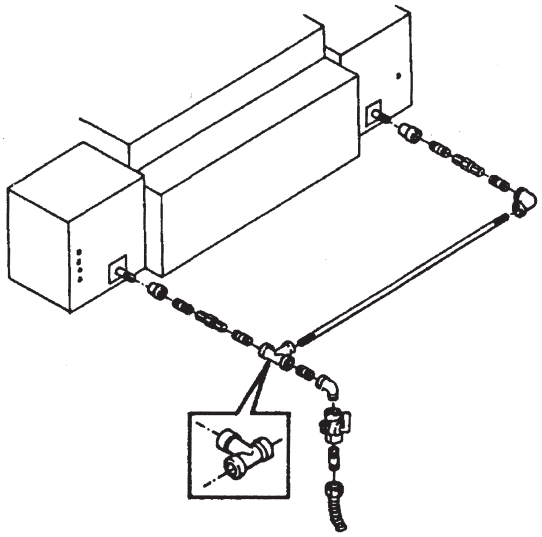


15. Insert the conveyor through the opening in the right side. Sprocket should be to the right side of the conveyor.

    Slide conveyor through the oven chamber until the locking bar on driving end of the conveyor is approximately 2"– 3" (50.8 – 76.2 mm) into the oven chamber. Install drive chain by placing it over the drive sprocket and placing it over the conveyor sprocket.

    Lift conveyor just enough to allow you to pull the conveyor to you until the locking bar is outside of the oven cavity. At the same time, push the conveyor downward so that the bar locks on the outside of the oven wall as shown above..

16. Install chain guard cover by sliding guard ontoretaining clips.
17. Install crumb pans by sliding into rails under conveyor frame.
18. You are now ready for services to be connected. This should be done by licensed electricians and plumbers. See the specifications sections and "Installation Requirements" for more information.
19. The gas piping manifold kit should be installed as shown below.



Section 3
Operation

Sequence of Operation – Impinger Advantage Digital, Gas

Serial Number L28563 and Above (Ovens with push button controls)

Old Model Number	→	New Model Number	Gas Type	Voltage	Hz	Phase
—	→	1631-xxx-E-Kxxxx	Natural	230 VAC	50 Hz	1
—	→	1632-xxx-E-Kxxxx	LP Gas	230 VAC	50 Hz	1
1633-000-EA	→	1633-00z-E-Kxxxx	Natural Gas	230 VAC	50 Hz	1
1634-000-EA	→	1634-00z-E-Kxxxx	LP Gas	230 VAC	50 Hz	1

POWER SUPPLY	Electrical power is supplied to the oven by a three-conductor service. Brown conductor is hot. Blue conductor is neutral. Green conductor is ground.
CONTROL BOX AUTO COOL DOWN	When the temperature in either one of the control boxes reaches 120°F ±3° (49°C ± 1.7°), the cooling fan thermostats will switch power to the cooling fans. The thermostats will interrupt power to the cooling fans when the temperature falls to 100°F ± 3° (37°C ± 1.7°)
MAIN FAN CIRCUIT	Line voltage is permanently supplied to a normally open contact of the oven power switch. Line voltage is permanently supplied to the two normally open cooling fan thermostats, a normally open contact of the oven power relay. Closing the oven power switch supplies line voltage, through both normally closed control box hi-limit thermostats, to the oven power relay. Its contacts now close supplying line voltage to the two main fan motors and the two burner circuits. Closing the oven power switch also supplies line voltage to the control box cooling fans, the control transformer, and the conveyor motor.
BURNER CIRCUIT	NOTE: This oven utilizes two complete burner systems. The sequence of operations is the same for each system. Closing the main fan switch supplies line voltage, through the oven power relay, through a 3A fuse, through the gas pressure switch (gas pressure switch removed at S/N L31479), through the main fan air pressure switch, through the oven cavity hi-limit thermostat, to the ignition control. The combustion motor is energized. The normally open combustion air switch closes upon sensing air pressure. After a pre-purge period of between 30 and 60 seconds, the ignition control and the main gas valve are energized. Ignition should now occur.
TEMPERATURE CONTROL	Closing the oven power switch supplies line voltage, through the 10A fuse, through the oven power relay, to the primary of the control transformer. 24 VAC is supplied to the oven control. The oven control is set to desired temperature independently left and right (this oven utilizes two complete temperature regulation systems). The left and right thermocouples will provide varying millivolts to the oven control. The oven control supplies line voltage to the left and/or right temperature regulation valve at intermittent intervals to maintain desired temperature. The display on the oven control will indicate when the left (HL) and/or right (HR) temperature regulation valve is energized. NOTE: The display also indicates oven temperature left (TPL) and right (TPR).
CONVEYOR DRIVE	Closing the oven power switch supplies line voltage, through the 10A fuse, through the oven power relay to the conveyor motor and to the primary of the control transformer. Secondary voltage, 24 VAC, is supplied to the oven control. Setting the oven control to the desired time outputs voltage, through a reversing switch, to the conveyor motor. NOTE: The conveyor system uses a magnet and Hall Effect sensor to prove operation of the conveyor motor. If the conveyor motor is not running, "BELT JAM" is indicated on the display.

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Section 4
Maintenance

Preventive Maintenance

Although this oven has been designed to be as trouble-free as possible, periodic preventive maintenance is essential to maintain peak performance. It is necessary to keep the motors, fans, and electronic controls free of dirt, dust and debris to ensure proper cooling. Overheating is detrimental to the life of all components mentioned. The periodic intervals for preventive cleaning may vary greatly depending on the environment in which the oven is operating. You must discuss the need for preventive maintenance with your Factory Authorized Servicer (FAS) to establish a proper program. If there are any questions that the service agency cannot answer, please contact the KitchenCare Technical Service Department at (844) 724-2273.

⚠ DANGER

Disconnect power supply before servicing or cleaning this unit. Safeguard power so it cannot be accidentally restored. Failure to do so could result in serious injury. There is more than one power supply connection point when ovens are stacked, so make sure that all switches are in "OFF" position before cleaning or maintenance.

⚠ DANGER

It is the responsibility of the equipment owner to perform a Personal Protective Equipment Hazard Assessment to ensure adequate protection during maintenance procedures.

To maintain maximum efficiency of the oven, all ventilation louvers on the oven must be cleaned regularly. Oven use and type of product will actually determine the frequency of cleaning. The conveyor drive chain must be checked during the weekly cleaning cycle to see if it has become loose. Loose chain operation will DAMAGE the conveyor drive motor.

If the oven fails to operate, check the circuit breaker to be sure it is turned on. Also, check the fuses on the control panel to be sure that they are good before you call the Factory Authorized Servicer (FAS).

⚠ Warning

Allow heated equipment to cool down before attempting to clean, service or move. Unit must be cool to touch and disconnected from power source.

Notice

Do not use caustic cleaners on any part of the oven or oven cavity. Use mild, non abrasive soaps or detergents, applied with a sponge or soft cloth. Never use sharp implements or harsh abrasives on any part of the oven.

Daily Cleaning

1. Clean exterior surfaces of the oven by wiping it down with a mild detergent and clean water, or a commercial stainless cleaner.
2. Clean crumb pans and guards by washing with a mild detergent solution and rinsing with clean water.
3. Clean the interior by sweeping up all loose particles, then wash with a mild detergent solution and rinse with clean water.
4. Clean the conveyor belt by wiping with a clean cloth or use a scrub brush (Lincoln Catalog Number 11000115638).

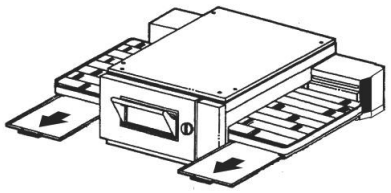
On exterior of oven, deposits of baked-on splatter, oil, grease, or light discoloration may be removed with any of several commercial cleaners. Consult with your local supplier.

⚠ Warning

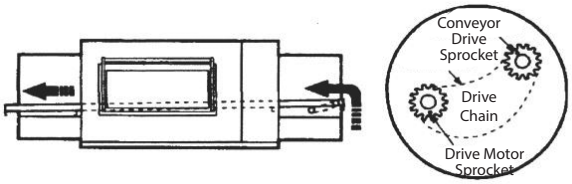
When using cleaning solutions, be sure they meet local and national health standards.

Weekly Cleaning

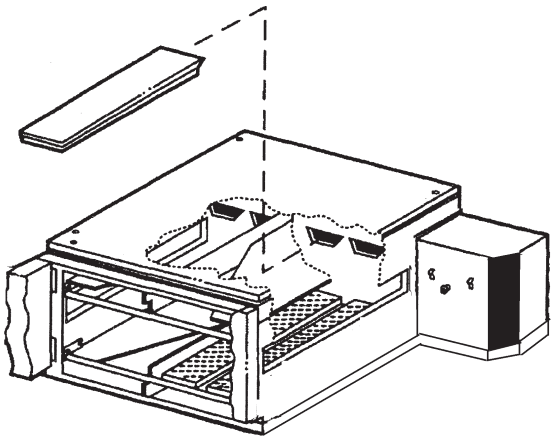
1. Remove conveyor chain guard. Remove crumb pans and take to the sink for cleaning.



2. Lift right end of conveyor and push in approximately 3" (76 mm). Remove drive chain. (Split Belt models have two drive chains to remove).



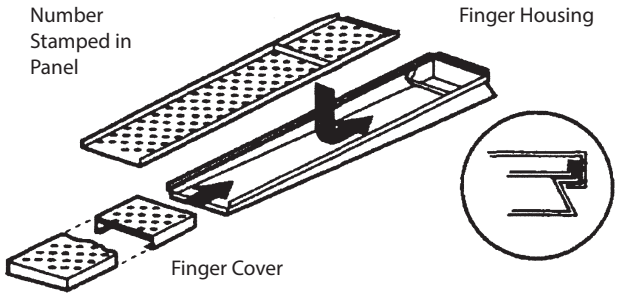
3. Pull conveyor out the right end. Place on table or work surface.
4. Inspect the chain for signs for wear. Replace if necessary.
5. Verify the drive sprocket on the conveyor motor is secure. Tighten if required.
6. Check conveyor motor fasteners to verify they are secure. Tighten if required.
7. With the conveyor removed, screw out the four knobs that hold the door and remove the door.
8. Remove the upper and lower finger assemblies and take to the sink. Note any particular placement of fingers that you may have, such as fully closed, half-closed, or fully open, columnating plates.



Notice

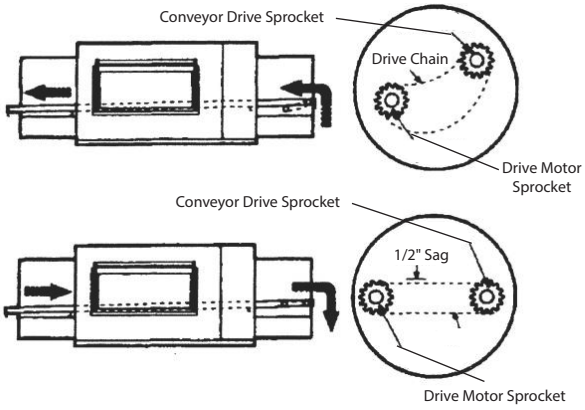
Finger components MUST be placed back in the correct positions. Failure to do so will cause the oven to not cook correctly.

9. Disassemble fingers for cleaning.

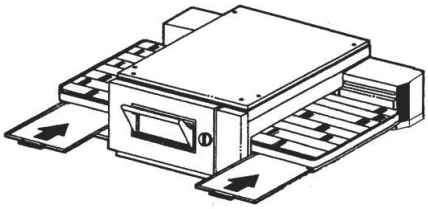


10. Clean fingers and crumb trays with a mild detergert solution, followed by a potable water rinse.
11. Clean the interior by sweeping up all loose particles, then wash with a mild detergent solution and rinse with clean water.
12. Clean the conveyor belt by wiping with a clean cloth or use a scrub brush (Lincoln Catalog Number 369217).
13. Reassemble fingers. Insert columnating plate so the step goes under the lip of the finger housing and the plate lies flush with the housing side edge.
14. Install cover by sliding it on the small end.
15. Install top and bottom fingers in the oven by sliding them over the plenum flange and setting on the front bracket. BE SURE THAT THE FINGER SETS SQUARELY OVER THE PLENUM FLANGES AND THE HOLES POINT IN THE PROPER DIRECTION. Top fingers point down. Install in the same position they were removed from.

16. Reinstall the conveyor. Insert the conveyor through the opening in the right side. Sprocket will be to the right side of the conveyor.



17. Slide conveyor through the oven chamber until the locking bar on the drive end of the conveyor is approximately 2" – 3" (50 – 76 mm) into the oven chamber. Install drive chain by placing it over the drive sprocket and placing it over the conveyor sprocket (Split Belt models have two drive chains and sprockets).
18. Lift conveyor just enough to allow you to pull the conveyor toward you until the locking bar is outside of the oven cavity. At the same time, push the conveyor downward so that the bar locks on the outside of the oven wall.
19. Inspect sprocket alignment and adjust if necessary.
20. Reinstall conveyor crumb pans and chain guard cover.



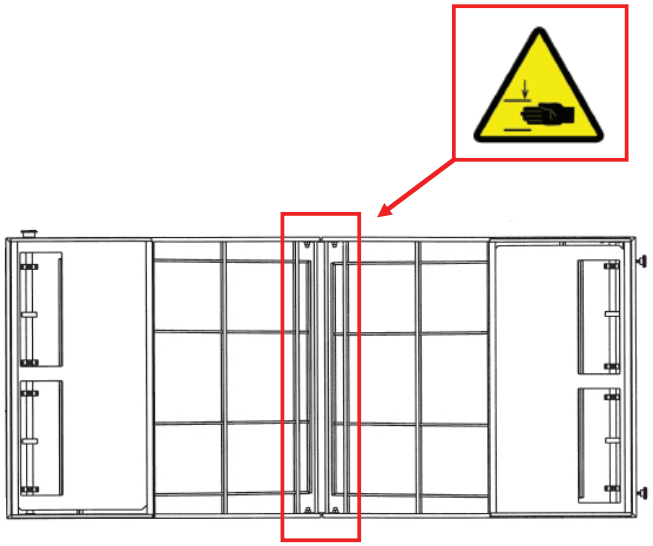
21. Clean any dirt from the louvers, on the control box cooling fan, and openings on the rear wall (cover).
22. Reapply power.

Safety - Folding Conveyor Option (Non Standard Special Order)

The following safety notice pertains to ovens that have the folding conveyor option.

⚠Warning

Folding conveyors have a "pinch point" in the center section of the assembly. Always keep hands away from the center section of the folding conveyor. Failure to do so could result in serious injury!



Top View of Conveyor Assembly

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Section 5
Troubleshooting

Troubleshooting Guide – Gas Ovens

Serial Number L28563 and Above (Ovens with push button controls)

Old Model Number	→	New Model Number	Gas Type	Voltage	Hz	Phase
—	→	1631-xxx-E-Kxxxx	Natural	230 VAC	50 Hz	1
—	→	1632-xxx-E-Kxxxx	LP Gas	230 VAC	50 Hz	1
1633-000-EA	→	1633-00z-E-Kxxxx	Natural Gas	230 VAC	50 Hz	1
1634-000-EA	→	1634-00z-E-Kxxxx	LP Gas	230 VAC	50 Hz	1

NOTE: When checking components on left side of unit, be sure to check for proper connections in power connector (marked P. C. on schematic diagram), located inside motor cover.

PROBLEM	CAUSE	CORRECTION
Oven fan will not run	Incoming power supply	Check breakers/reset if required. Call power company if needed.
	Oven fan switch	Check continuity between switch terminals.
	Hi-limit thermostat(s), control box	Terminals are normally closed. If open, reset thermostat and test oven for proper operation. If it will not reset, replace thermostat.
	Fan fuse	Check, replace if necessary.
	Fuseholder	Check, replace if necessary.
	Oven fan relay	Check for power to coil of oven fan relay. If no voltage is present, trace wiring back to hi-limit thermostat. Check for supply voltage at terminal #6 of the relay. If no voltage is present, trace wiring back to fuse holder. If voltage is present, at the relay coil, check to ensure the contacts are closing.
	Capacitor(s)	Check for opens, shorts, or grounds.
	Motor(s), main fan	Check for opens, shorts, or grounds.
No control box cooling	Oven fan switch	(See "Oven fan will not run".)
	Hi-limit thermostat(s)	(See "Oven fan will not run".)
	Oven fan relay	(See "Oven fan will not run".)
	Cooling fan(s)	Supply voltage should now be at these motors. If voltage is present, check motor for open, shorts, or grounds. WITH POWER OFF: Check for locked rotor.
No automatic control box cooling	Incoming power supply	Check circuit breakers, reset if needed. Call power company if needed.
	Cooling fan thermostat(s)	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(s)	Supply voltage should now be at these motors. If voltage is present, check motor for opens, shorts or grounds. WITH POWER OFF: Check for locked rotor.
Oven will not heat	Gas supply	Check for adequate gas supply to oven.
	Manual gas shut off valve	Check to see that the manual gas shut off valve is open. Also check flexible gas line connection for any damage.
	Fan switch	Check to see that the fan switch is on.
	Main oven fan	Check if main oven fan is operating. If not, refer to "Oven fan will not run".
NOTE: These ovens utilize 2 complete burner/temperature control systems. Each system will follow the same troubleshooting sequence.		

PROBLEM	CAUSE	CORRECTION
Oven will not heat – Serial Number L31478 and Below	Oven power relay	Check for line voltage to the relay coil. If no voltage is present, trace wiring back to the control box hi-limit thermostat(s). If voltage is present, check to ensure contacts are closing. Replace relay as needed.
	Fuse, burner 3A	Check, replace if necessary.
	Fuseholder	Check, replace if necessary.
	Gas pressure switch (internal to gas valve)	Check for supply voltage to neutral on both sides of switch. If voltage is present on one side of switch only, check the following. Check for proper gas pressure supply to gas valve (marked on oven spec. plate). Check for proper adjustment of gas pressure switch, should be set at 10 for Nat., 27 for LP, or 4.5 for town gas. Check gas filter in gas valve for blockage or damage. (See *Section 7* for location.) If the above checks OK, but switch is still not closed replace gas valve.
	Oven air pressure switch	Check for supply voltage on both sides of switch. If voltage is present on one side only, check for air tube blockage. Adjust air pressure switch. If the above fails, replace air pressure switch.
	Hi-limit thermostat	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 maximum temperature dial setting, check for proper location of capillary bulb in its spring holder. If above checks OK, replace hi-limit.
	Ignition control	Check for supply voltage to ignition control at terminal #1 and neutral. If voltage is not present, trace wiring back to hi-limit thermostat. Check for supply voltage at terminal #6 to neutral. If no voltage is present, wait 30 seconds and check reset button. If above fails, replace ignition control.
	Burner reset switch	Switch is normally open. Check to see that the switch closes when reset button is pushed. Replace as needed.
	Burner blower motor	Check for supply voltage to burner blower motor. WITH POWER OFF: Turn blower wheel to check for locked rotor. If supply voltage is present and motor does not run, replace motor.
	Burner blower motor air pressure switch	Check for supply voltage switching to terminal NO as the air pressure switch closes. Check for air tube blockage or misalignment, adjust air pressure switch. If the above fails, replace air pressure switch.
	Spark generator	After a pre-purge time of 30 to 60 seconds after blower motor starts, check for supply voltage to spark generator. If voltage is not present, check reset button located on rear of control box. If voltage is still not present, replace ignition control. If voltage is present, visually check for spark at igniter head.
	Igniter/sensor assembly	Check for visible damage to igniter/sensor assembly. If there is no visible damage to the components, and no spark, replace the spark generator. If there is visible damage to the igniter/sensor assembly, replace. Also check for frayed or damaged wires in burner tube.
	Gas valve	Check for supply voltage to gas valve. If there is no voltage present, check reset button. Check all connections for tightness. If there still is no voltage at gas valve, replace ignition control. If there is voltage present, check for gas pressure at gas pressure tap located in gas piping at burner manifold. If there is no gas pressure, replace gas valve.
Flame will not stay on – Serial Number L31478 and Below	Flame sensor	To check for flame sensor operation, connect a digital multimeter (capable of measuring DC micro amps) in series with the flame sensor wire and ignition control. Sensor current is 3 micro amps DC minimum. NOTE: The DC micro amp test must be conducted with the oven in low flame (bypass) operation. Turn the temperature control to its lowest setting. If these readings are not achieved, replace igniter/sensor assembly. Also, check for any type of damage to flame sensor wire and connections.
	Ignition control	If there is sufficient flame sensor current, but the burner will not remain ignited, check the reset button on ignition control. NOTE: Check for proper polarity of the power supply. If all of the above are OK, replace ignition control.

PROBLEM	CAUSE	CORRECTION
Oven will not heat – Serial Number L31479 and Above	Oven power relay	Check for line voltage to the relay coil. If no voltage is present, trace wiring back to the control box hi-limit thermostat(s). If voltage is present, check to ensure contacts are closing. Replace relay as needed.
	Fuse, burner, 3A	Check, replace if necessary.
	Fuse holder	Check, replace if necessary.
	Air pressure switch	Check air switch terminals for supply voltage to terminals C and NO. If voltage is present on one side only, check for air tube blockage or misalignment. If these check okay, adjust air pressure switch, or replace air pressure switch as needed.
	Oven cavity hi-limit thermostat	Terminals are normally closed, open at 350°C (660°F). If open, reset and test oven for proper operation. If thermostat will not hold for maximum oven temperature, and oven is not exceeding control setting, check for proper location of capillary bulb in its spring holder. If above checks are okay, replace hi-limit thermostat.
	Ignition control	Check for proper supply voltage to ignition control. Check for proper voltage to the burner blower motor. This can be checked at motor connecting plug terminal 5 and Neutral. If voltage is present, proceed with next test. If not, wait 30 seconds, push reset button and try to restart. If this fails, check wires from burner blower motor to the ignition control. If the above checks okay, replace ignition control.
	Burner blower motor	Check for supply voltage to motor. WITH POWER OFF: Turn blower wheel to check for locked rotor. If supply voltage is present at motor connecting plug terminal 5 and Neutral, and motor does not run, replace burner blower motor.
	Air pressure switch (burner motor)	Check for proper supply voltage switching from "NC" to "NO" on the air pressure switch. Check for air pressure switch adjustment, air tube blockage or misalignment. If these adjustments fail, replace air pressure switch.
	Ignition control	A pre-purge time of 30 to 60 seconds occurs after burner blower motor starts. Check for high voltage spark output from the ignition control. If there is no high voltage spark output, check reset button for ignition control. If there is still no high voltage output, replace the ignition control.
	Igniter/sensor assembly	Check this assembly for visible damage. Replace as needed. If there is no visible damage, check for voltage supply to igniter/sensor assembly. If there is voltage supplied to the igniter/sensor, but there is no spark, replace the igniter/sensor assembly.
	Gas valve	Gas valve should open as the ignition control generates the high voltage spark. Place a manometer on the pressure tap fitting (located in the gas piping just prior to the burner manifold) and check for gas pressure. If valve does not open, check reset button on ignition control and all connections for tightness. If there is still no gas pressure, remove the ignition control from the gas valve. Check the coils of the gas valve for opens or shorts. Readings should be as follows: V1 – 2.9K ohms approx., V2 – 1.3K ohms approx. If these readings are not achieved, replace gas valve. If these readings are achieved, replace ignition control.

PROBLEM	CAUSE	CORRECTION
Flame will not stay on – Serial Number L31479 and Above	Flame sensor	To check for flame sensor operation, connect a digital multimeter (capable of measuring DC microamps) between the flame sensor wire and the flame sensor connection on the ignition control. Sensor current should be 0.9 microamps, minimum. If these readings are not achieved, replace the igniter/sensor assembly. Also check for any type of damage to the flame sensor wire and connections. NOTE: The DC microamp test must be conducted with the oven in low flame (bypass) operation.
	Power supply	Set the temperature to the lowest temperature setting. If there is sufficient microamp current, but the flame will not stay lit, check for proper polarity of the power supply.
	Ignition control	If there is sufficient microamp current, and there is proper polarity of the power supply, but the burner will not stay lit, check the reset button for the ignition control. If the above test is okay, replace ignition control.
	NOTE: Flame should be on at this time	
Low flame is on, but no main flame	Control transformer	Check for supply voltage to the primary of the control transformer. If no voltage is present, trace wiring back to the oven power relay. If primary voltage is present, check for 24 VAC at the transformer secondary. If there is primary voltage, but no secondary voltage, replace control transformer.
	Oven control	Check for 24 VAC supply to control. If no voltage is present, trace wiring back to control transformer. If 24 VAC is present, check for a read-out on the control display. If there is 24 VAC supplied, but there is no read-out on the control display, replace the oven control. If there is a read-out on the control, set the control to maximum temperature (see *Section 6* for temperature adjustment). With the control set at maximum temperature, check for line voltage at the temperature regulation valve. If there is voltage at the temperature regulation valve, proceed to "temperature regulation valve" for next check. If there is no voltage at the temperature regulation valve, trace wiring back to the oven control. If there is no voltage output at the oven control, check the read-out on the control. If the control reads "LP FAIL" or "RP FAIL", this indicates that the thermocouple has failed or has become disconnected from the control. "LP FAIL" indicates a problem with the left thermocouple probe, and "RP FAIL" indicates a problem with the right thermocouple probe.
	Thermocouple probe	Check to be sure that the thermocouple is securely connected to the oven control. If the thermocouple is connected to the oven control, and the control indicates "LP FAIL" or "RP FAIL", disconnect the thermocouple from the oven control and measure the resistance of the thermocouple. The left thermocouple should read approx. 21Ω. The right thermocouple should read approx. 11Ω. If these readings are not achieved, replace the thermocouple. If these readings are correct, proceed.
	Oven control	If the thermocouple checks good, but the oven control display indicates that there is a thermocouple failure, replace the oven control. If the oven control indicates a temperature reading but the oven will not heat, proceed.
	Thermocouple	WITH POWER ON AND THERMOCOUPLE ATTACHED TO THE OVEN CONTROL: Measure the DC millivolt output of the thermocouple. Refer to the thermocouple chart (located in *Section 7* of the manual) for proper millivolt readings. If these readings are not achieved, replace thermocouple.
	Oven control	If the thermocouple checks good, but there is no voltage output to the temperature regulation valve, replace the oven control. If there is voltage output to the temperature regulation valve, proceed.
	Temperature regulation valve	Check for line voltage supplied to the temperature regulation valve. If no voltage is present, trace wiring back to the oven control. If voltage is present, listen for the valve to open and close. Also check for opens or shorts in the operating coil. Replace temperature regulation valve as needed.

PROBLEM	CAUSE	CORRECTION
Intermittent heating	Thermal overload of main fan and burner blower motors	The main fan motors and the burner blower motors are equipped with internal thermal protection and will cease to operate if overheating occurs. As the motors overheat and then cool, this will cause the units to cycle on and off intermittently. Improper ventilation or lack of preventive maintenance may cause this problem. Also, most of the problems listed under "Oven will not heat" can cause intermittent failure.
Conveyor will not run	Power supply	Check for supply voltage at terminals L1 and L2. If voltage is not present, check breakers.
	Power switch	Check continuity between switch terminals. Replace switch as needed.
	Fuse, 10A	Check and/or replace.
	Fuse holder	Check and/or replace.
	Hi-limit thermostat(s), control box	Check for voltage on both sides of the switch. Terminals are normally closed. If open, reset and test for proper operation. If thermostat will not hold, and the control box temperature is not exceeding 140°F (60°C), replace thermostat.
	Relay, oven power	Check for line voltage to the relay coil. If voltage is not present, trace wiring back to the hi-limit thermostat. If voltage is present, check to ensure contacts are closing. Replace relay as needed.
	Control transformer	Check for line voltage supply to the primary of the control transformer. If no voltage is present, trace wiring back to the oven power relay. If voltage is present, check for 24 VAC at the transformer secondary. If there is primary voltage, but no secondary voltage, replace control transformer.
	Conveyor motor	Check for line voltage supply to the conveyor motor at wire #28 to neutral. If no voltage is present, trace wiring back to the oven power relay. If voltage is present and the motor will not run, check the motor windings for opens or shorts. WITH POWER OFF: Check the motor windings as follows: Grey to black - 116Ω Grey to brown - 116Ω Brown to black - 230Ω
	Capacitor, conveyor motor	Check for shorts or grounds. Replace capacitor as needed. **WARNING:** Capacitor has a stored charge, discharge before testing.
	Switch, conveyor reversing	Check continuity between switch terminals. Replace switch as needed.
	Oven control	If there is supply voltage to the motor and the motor, capacitor, and reversing switch check good, replace the oven control.
Conveyor motor runs, but there is no speed display	NOTE: Display will indicate "BELT JAM"	
	Oven control	Check for output voltage from the oven control to Hall Effect sensor (sensor is located in conveyor motor). Measure voltage at the motor connector, red wire and yellow wire. Voltage should be approx. 10 VDC. If no voltage is present, trace wiring back to oven control. If there is no voltage present at the oven control, replace the oven control.
	Conveyor motor	If there is voltage supplied to the Hall Effect sensor, check for a frequency output from the Hall Effect sensor. Measure frequency across the yellow and white wires at the motor connector. Frequency readings should be approx. 25 – 100 Hz. If these readings are not achieved, replace the conveyor motor. If the readings are achieved, proceed.
	Oven control	If the Hall Effect sensor readings are correct, but there is no speed indicated on the display, replace the oven control.

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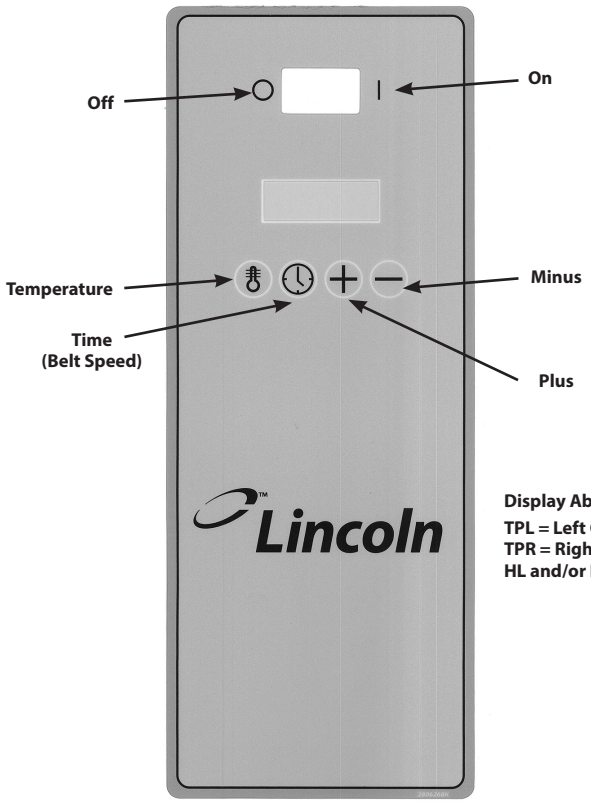
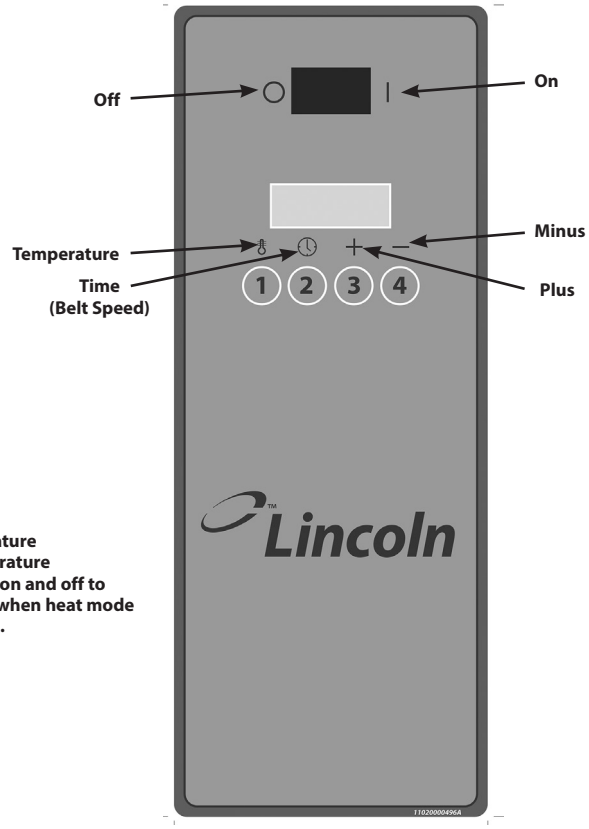
Section 6
Controls



If your overlay looks like this, instructions specific for preset operation on the following pages do not apply.

Display Abbreviations

TPL = Left Oven Temperature
TPR = Right Oven Temperature
HL and/or HR = Will turn on and off to indicate when heat mode is cycling.



If your overlay looks like this, instructions for preset operation begin on page 32.

Information on Use of Oven

The Impinger® Conveyor Oven functions by directing high velocity streams of heated air directly on the food products. Because air is the heat source, it is effective even on sensitive foods. Compared to conventional ovens and even convection ovens, the cooking time of products in the Impinger® conveyor ovens can be as much as two to four times faster. Several factors may affect the cooking time of any special product such as: 1) oven temperature setting, 2) conveyor speed, 3) position of columnating plate in oven, and 4) adjustments of the 2 baffles on the conveyor openings.

We encourage you to experiment with the oven by trying different temperature settings and belt speeds. Also, try to control the cooking of the product by re-arranging the optional columnating plates.

⚠Warning

Do not work around conveyor with long hair, loose clothing, or dangling jewelry. Getting caught in the belt could result in serious injury.

⚠Warning

Do not spray aerosols in the vicinity of this appliance while it is in operation.

⚠Warning

If the power supply cord appears to be damaged, do not attempt to operate the unit. Contact a service agent or qualified electrician to repair!

⚠Warning

Do not use parchment paper when placing food product through the oven! Use of such materials may cause a fire and should never be placed in the oven.

Controls

FRONT PANEL LAYOUT

The front panel contains four (4) momentary push-buttons: TEMP, TIME, PLUS, and MINUS. There is a two-line by sixteen-character VFD display.

SETPOINT MODE

The program mode allows the operator to change the setpoint(s) of the oven temperature and the conveyor speed. To enter the SETPOINT MODE: Depress and hold the TEMP and TIME pushbuttons together for 5 seconds. The Run Mode display will clear and the word SETPOINT will appear. There are two types of setpoints: TEMP and TIME. Press the TEMP or TIME button to choose the desired setpoint to change and then press the PLUS or MINUS button to change the desired setting. If no buttons are pressed within 5 seconds, the display will revert back to normal Run Mode. Any changes made will automatically be saved.

TEMPERATURE SETPOINTS

For Digital Impinger Low Profile ovens, there are two setpoints: LEFT OVEN and RIGHT OVEN. While in SETPOINT MODE, press the TEMP button once to set the left oven temperature and press the TEMP button again to set the right oven temperature. Pressing the TEMP pushbutton, the display will show the current setting. Pressing the PLUS or MINUS pushbuttons will raise or lower the setpoint. In Fahrenheit, F mode, the temperature is adjusted in 5- degree increments. When in Centigrade, C mode, the temperature adjustment will be in 1-degree increments. Pressing and holding the PLUS or MINUS button will allow the settings to "roll" at a much faster rate. When the desired temperature is indicated, release all buttons. If no buttons are pressed within 5 seconds, the display will revert back to normal Run Mode. Any changes made will automatically be saved.

TIME SETPOINTS

There is one setpoint for the conveyor speed on full belt ovens and two setpoints for split belt models. While in SETPOINT MODE, press the TIME button once to set the full belt or front belt speed and press the TIME button again to set the back belt speed. Pressing the TIME pushbutton, the display will show the current setting. Pressing the PLUS or MINUS pushbuttons will raise or lower the setpoint. If no buttons are pressed within 5 seconds, the display will revert back to normal Run Mode. Any changes made will automatically be saved. The speed can be set as follows:

- 1:00 to 9:55 in 5-second increments
- 10:00 to 12:45 in 15-second increments
- 13:00 to 19:30 in 30-second increments
- 20:00 to 30:00 in 1-minute increments

JUMPING BETWEEN MENUS IN SETPOINT

Pressing the TIME button while in the TEMP SETPOINT mode (and vice versa) will cause the menu selection to jump over to that mode.

DIAGNOSTIC MESSAGES

The Digital Impinger Low Profile ovens have diagnostic messages within the control. Upon the unexpected event that there is a failure in the oven operation, the following messages will appear in the control:

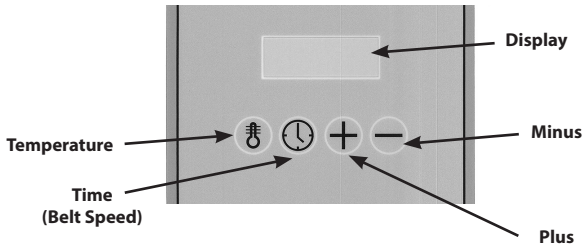
RP FAIL (Right Probe Failure)

LP FAIL (Left Probe Failure)

This occurs when there is no temperature signal being sent to the controller from the baking chamber.

BELT JAM

This occurs when the conveyor is jammed or the conveyor motor circuit fails..



Reversing Switch

The Digital Impinger Low Profile oven has a belt direction reversing switch on the back of the oven.

Start-Up and Shut-Down Instructions

For the operator, the panel has power-up, run, and program menu modes. To start the oven, turn the power switch on. To shut down the oven, turn the power switch off.

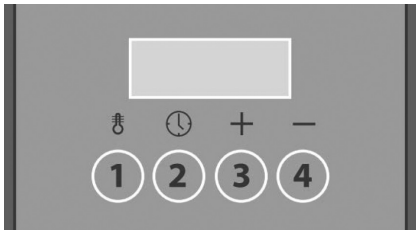
Cooking Guidance

1. Allow oven heat to stabilize for 30 minutes minimum:
   - At start from OFF
   - After any cook temperature change

Control Preset Operation

The oven interface has four control keys and a 16x2 Vacuum Fluorescent display.

The four function control keys are circled numbers {1}, {2}, {3}, and {4}. They function as TEMP, TIME, PLUS, and MINUS which appear above the circled numbers.

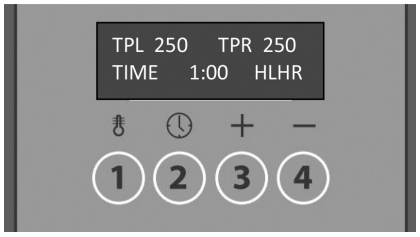


Each key will have the additional function of being a preset.

PRESET OPERATION

A. Setting temperature and time

During normal operation the display indicates the operational Temperature/Time setpoints or a Preset and appears as follows:



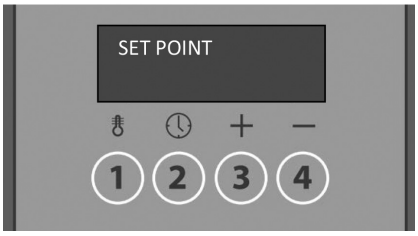
or

Prior to programming a preset key (1-4), the desired temperature and time setpoints need to be operational.

NOTE: To change the preset order or set the current operational temperature and time as a preset, skip to Part B Step1.

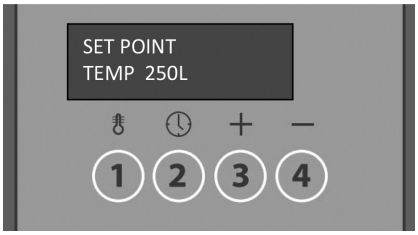
•

1. Press and hold {**1**} TEMP and {**2**} TIME keys for 2-5 seconds until **SETPOINT** is displayed. Release keys. The control is now in an EDIT mode.



2. To change Temperature setpoint:

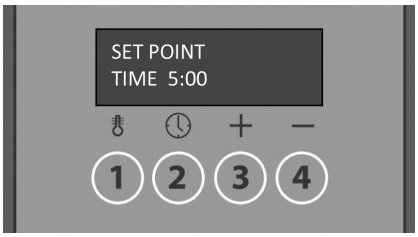
   A. Press {**1**} TEMP key until following is displayed. Release key.



   B. Press {**3**} PLUS or {**4**} MINUS key until the desired temperature setpoint is displayed (repeat for right oven temperature if applicable).

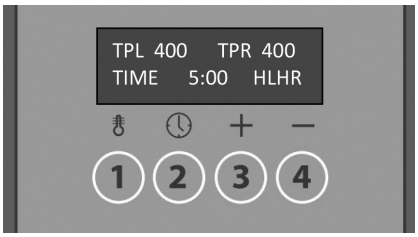
3. To change Belt Time setpoint:

   A. Press {**2**} TIME key until the following is displayed. Release key.



   B. Press {**3**} PLUS or {**4**} MINUS key until the desired Belt time is displayed.

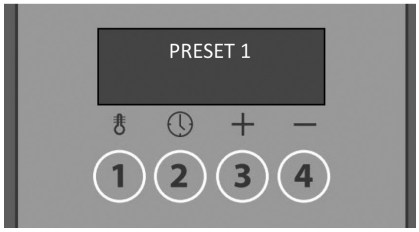
   After five seconds without a key press, the control will begin operating the displayed Temperature/Time.



B. Programming displayed temperature/time as a Preset:

Note: Before programming new values for a preset, the oven must be currently running with the desired temperature and time settings in the Display. (ex: 400F and 5:00)

1. Press and hold the desired control key to be used for the preset {**1**}, {**2**}, {**3**}, or {**4**}. After four seconds, the display will change from TEMP/TIME or PRESET (1-4) to **PRESET 1** (2, 3, or 4). Do not release key.

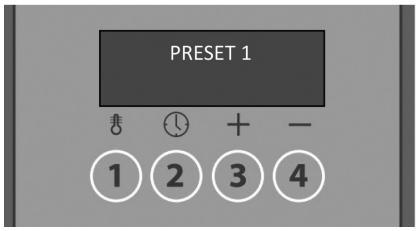


Continue to hold another 10-15 seconds until **PRESET 1/UPDATED** is displayed. Release key. **UPDATED** remains displayed for 3-5 seconds.

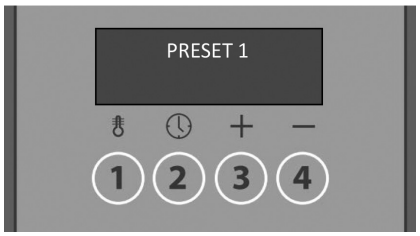
The selected temperature and time (ex: 400F and 5:00) has been confirmed as Preset 1.

C. Selecting a Preset:

Press and hold the desired control key {**1**}, {**2**}, {**3**}, or {**4**}. After four seconds, the display will change from TEMP/TIME or PRESET (1-4) to **PRESET 1** (2, 3, or 4).



Release key immediately. Preset 1 is now active and PRESET 1 ACTIVATED displayed for 3 seconds and then reverts back to PRESET 1 as shown on the following illustrations:



The control will now operate with the time and temperature settings that were stored into PRESET 1.

Each of the four **PRESET** keys are set and selected in the same manner.

Section 7
Component Replacement Procedures

⚠Warning

Before removing or installing any component in the Impinger Oven, be sure to disconnect all electrical power and shut off gas supply.

Ignition Control (S/N L31478 and Below)

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove front portion of relay by releasing tabs on side pulling straight out (rocking motion).
3. Remove wires from plug-in terminal strip, note wire numbers and location.
4. Remove two (2) screws from mounting bracket and remove.
5. Reassemble in reverse order. Check system operation.

Ignition Control (S/N L31479 and Above)

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove wires from control and mark for reassembly.
3. Remove one (1) mounting screw and remove ignition control from gas valve.
4. Reassemble in reverse order and check system operation.

Ignition Control (S/N 1803100100611 and Above)

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove plugs from control and mark for reassembly.
3. Remove two (2) mounting screws from control and remove.
4. Reassemble in reverse order and check system operation.

Air Pressure Switch

REPLACEMENT

Shut off power at main breaker:

1. Remove control panel top.
2. Disconnect wires from switch making note of wire number and location for reinstallation.
3. Remove air tube from switch assembly.
4. Remove switch from wire hanger.
5. Install new switch in reverse, make sure air tube is not blocked or misaligned.

NOTE: To adjust air pressure switch, remove cover from the switch to expose adjusting screw. To increase sensitivity, turn screw counter-clockwise; to decrease sensitivity, turn screw clockwise. Check for proper line voltage switching from NC to NO as the air pressure switch closes.

Conveyor Drive Motor

REPLACEMENT

Shut off power at main breaker:

1. Remove conveyor.
2. Remove control panel top and front cover.
3. Disconnect wiring from motor and mark for reassembly.
4. Remove sprocket from motor shaft.
5. Remove four (4) screws and remove conveyor motor and mounting bracket.
6. Remove mounting bracket from conveyor motor assembly.
7. Reassemble in reverse order.

Capacitor, Conveyor Motor

REPLACEMENT

Shut off power at main breaker:

1. Remove control box cover and front panel.
2. Discharge capacitor before removing wires. Mark wires for reassembly.
3. Remove mounting screw and remove capacitor.
4. Reassemble in reverse order.

⚠Warning

Capacitor has a stored charge, discharge before handling or testing.

Reversing Switch

REPLACEMENT

Shut off power at main breaker:

1. Remove control box cover and front panel.
2. Disconnect wiring from reversing switch and mark for reassembly.
3. Remove mounting nut and remove reversing switch.
4. Reassemble in reverse order and check system operation.

REVERSING CONVEYOR DIRECTION

Shut off power at oven switch:

1. Set reversing switch in the other position.
2. Turn oven "on" and check for proper operation.

Fuseholder

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove two (2) wires, note wire number and location.
3. Remove locknut on backside of fuse holder and push out.
4. Reinstall in reverse order and check system operation.

Gas Valve (S/N L31478 and Below)

REPLACEMENT AND ADJUSTMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Disconnect the gas piping from the back of the unit.
3. Remove the four (4) screws from the incoming nipple mounting bracket.
4. Remove incoming nipple.
5. Disconnect two (2) plugs — one 3-prong and one 4-prong — note location.
6. Disconnect pipe union just above gas valve and remove assembly.
7. Reassemble in reverse order (check all pipe fittings for leaks). After assembled check for proper adjustment of gas pressure switch, 10 on dial for natural gas, 27 for LP gas, and 4.5 for town gas.
8. Check and adjust manifold pressure. Remove pressure tap located in gas piping above the gas valve prior to the burner orifice and install manometer. Adjustment screw is located on the front of the valve. Remove plastic cap and adjust as needed: 3.5" W.C. for natural gas, 10" W.C. for LP and 2.0" W.C. for town gas.
9. Check gas filter by removing cover plate (located on either side of valve). Remove four (4) screws and slide filter out of valve housing and inspect. Reassemble in reverse order and check for leaks around cover.

Gas Valve (S/N L31479 and Above)

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Disconnect the gas piping from the back of the unit.
3. Remove the four (4) screws from the incoming nipple mounting bracket.
4. Remove incoming nipple.
5. Remove wiring from ignition control (mounted on gas valve) mark all wiring for reassembly.
6. Remove pilot tube. Disconnect pipe union in gas line and remove gas valve and piping assembly.
7. Remove piping from gas valve. Reassemble in reverse order and check system operation.
8. Check all gas line fittings for leaks.
9. Adjust the gas manifold pressure on the gas valve. Refer to the specification plate on the oven for proper rating.

Burner Alarm

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove two (2) wires from alarm, note wire numbers and location.
3. Remove retainer cover from alarm and remove assembly from control box.
4. Reassemble in reverse order and check system operation.

Spark Generator

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove two (2) wires for spark generator.
3. Unplug connector on bottom of spark generator.
4. Remove two (2) mounting screws and remove generator assembly.
5. Reassemble in reverse order and check system operation.

Igniter Sensor

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove gas valve assembly (see GAS VALVE).
3. Remove screws from burner tube and pull burner assembly out.
4. Remove wire connectors from igniter sensor assembly.
5. Remove screws from mounting bracket and remove assembly.
6. Reassemble in reverse order and check system operation.

NOTE: After installation, check all pipe fittings for leaks.

Switch, Burner Reset

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Disconnect wires from ignition control (see IGNITION CONTROL). Note wire number and location for reassembly.
3. Pull off black operating knob and remove hex mounting nut.
4. Reassemble in reverse order.

Temperature Regulating Valve

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove bypass tube assembly.
3. Remove four (4) nuts from burner orifice bracket.
4. Disconnect pipe union.
5. Disconnect two (2) wires from valve and remove assembly.
6. Remove gas piping from old valve and install on new valve.
7. Reassemble in reverse order and check system operation. NOTE: Check all gas line fittings for leaks and ensure valve gas flow is in proper direction.

Main Orifice

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove bypass tube assembly.
3. Remove four (4) nuts from burner orifice bracket.
4. Disconnect pipe union.
5. Remove assembly and replace main orifice.
6. Reassemble in reverse order and check system operation.

NOTE: Check all gas line fittings for leaks.

Bypass Orifice

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove pilot tube from bypass orifice and remove orifice.
3. Reassemble in reverse order and check system operation. Check all gas connections for leaks.

Thermostat, High Limit, Oven Cavity

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover. Remove motor cover and remove oven back to access high limit thermostat.
2. Remove wires from thermostat, note wire numbers for reinstallation.
3. Remove mounting nut from high limit thermostat and remove high limit from oven.
4. Reassemble in reverse order. Check system operation.

On-Off Switch (Power)

REPLACEMENT

Shut off power at main breaker:

1. Remove control box cover.
2. Depress spring clips on side of switch and push out.
3. Remove wires from back of switch, note wire number and location.
4. Reassemble in reverse order and check system operation.

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

Capacitor, Main Fan Motor

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove two (2) wires from capacitor, note wire number and location.

> **⚠Warning**
>
> Capacitor has a stored charge, discharge before handling or testing.

3. Cut two (2) tie wraps securing capacitor to base and replace.
4. Reinstall in reverse order and check system operation.

Relay

REPLACEMENT

Shut off power at main breaker:

1. Remove control box cover.
2. Remove wires from relay, note wire numbers and location for reinstallation.
3. Remove two (2) screws from relay base and replace relay.
4. Reassemble in reverse order, making sure wire connections are properly seated.
5. Check system operation.

Thermostat, Cooling Fan

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove two (2) wires from thermostat, note wire number and location.
3. Remove two (2) mounting screws and replace thermostat.
4. Reassemble in reverse order and check system operation.

High Limit Thermostat

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove two (2) wires from thermostat, note wire numbers and location for reinstallation.
3. Remove screws from bracket and remove thermostat.
4. Reassemble in reverse order and check system operation.

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

Cooling Fan Motor

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Remove four (4) mounting screws.
3. Unplug electrical connector and remove fan motor.
4. Reassemble in reverse order and check system operation.

Main Fan Motor

REPLACEMENT

Shut off power at main breaker:

1. Shut off gas supply and remove gas line and manifold lines from back of oven.
2. Remove screws from motor cover housing and lift off.

NOTE: When ovens are stacked, all motor cover housings are fastened together.

3. Unplug power connector.
4. Unplug thermocouple.
5. Unplug two (2) motor connectors.
6. Remove eight (8) bolts from oven back (4 left, 4 right) and lift out.
7. Remove one (1) screw from fan hub and slide fan blade off of motor shaft. (Note location of fan blade for reinstallation.)
8. Loosen locknuts on cone. Remove two (2) mounting bolts and remove motor from back assembly.
9. Remove four (4) hex head screws from motor mount bracket. Remove motor mount from motor and reinstall on new motor.
10. Reassemble in reverse order.

NOTE: 1. Make sure motor is centered in back housing. 2. Verify correct location of fan blade and that it is not hitting fan shroud. 3. Make sure all connectors are properly seated and making good contact. 4. When reinstalling gas manifold across back of oven, check all fittings for leaks.

11. Check system operation (allow 30 minute preheat for all checks). NOTE: Position of the fan on the motor shaft will be 1.875" from the top of the oven back cone to the blade spider assembly on the fan hub.

Burner Blower Motor

REPLACEMENT

Shut off power at main breaker:

1. Remove appropriate control box cover.
2. Unplug motor connector.
3. Remove three (3) screws from blower tube at burner housing.
4. Remove air shutter assembly from old motor for installation on new motor assembly.
5. Reassemble in reverse order and check system operation.

NOTE: Check air shutter adjustment – should be set at half open.

Thermocouple (Type K)

REPLACEMENT

Shut off power at main breaker:

1. Remove control box covers. Remove motor cover and remove oven back to access thermocouple.

NOTE: Removal of oven back assembly is required to replace thermocouples.

2. Remove thermocouple from wire form in oven chamber and remove from chamber.

NOTE: Right-hand thermocouple (viewed from front) is connected directly to the temperature control board. Remove two (2) wires , make note of wire colors and location. When changing left-hand thermocouple (viewed from front), the back motor cover must also be removed to gain access to the thermocouple connector plug.

3. Reassemble in reverse order making sure bulb is placed securely in the wire form in the oven chamber.
4. Check system operation, recalibrate as needed. NOTE: The right-hand and left-hand thermocouples have different connectors on the wire ends and must be ordered accordingly.

THERMOCOUPLE MEASUREMENT

TEMPERATURE °F (°C)	D.C. MILLIVOLTS
200° °F (93°C)	2.8
250° °F (121°C)	4.0
300° °F (149°C)	5.1
350° °F (177°C)	6.0
400° °F (204°C)	7.1
450° °F (232°C)	8.2
500° °F (260°C)	9.3
550° °F (288°C)	10.4
600° °F (316°C)	11.5

Power Filter

REPLACEMENT

Shut off power at main breaker:

1. Remove control box cover.
2. Remove all wires from the power filter, note all wire numbers for reinstallation.
3. Reassemble in reverse order and check system operation.

Bearing, Conveyor

REPLACEMENT

Shut off power at main breaker:

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

Control Transformer

REPLACEMENT

Shut off power at main breaker:

1. Remove wires from primary side, note color and location.
2. Remove wires from secondary side, note color and location.
3. Remove two (2) mounting screws and remove transformer.
4. Reassemble in reverse order and check system operation.

Oven Control

REPLACEMENT

Shut off power at main breaker:

1. Remove control box cover and front panel.
2. Remove all wiring connections and mark for reassembly.
3. Remove oven control by pulling control from mounting pins. Remove control from oven.
4. Before installing new control, set voltage jumper (located at the bottom center of the oven control) to the proper (120/240V) position. Install the four (4) push button extensions (included with the oven control) by pushing the extensions onto the four (4) set buttons on control.
5. Reassemble in reverse order
6. Set the oven control for the proper operating mode. The 1600 series ovens have dual burner systems. The oven control must be set to the "Dual oven mode". Set control as follows: With the oven power switch off, depress the circled buttons **{1}/"TEMP"** and **{4}/"MINUS"** and turn the power switch on. Control will indicate "Low Pro". Release the buttons, the control will indicate "Temp to store". Press the **{1}/"TEMP"** button. The control is now set for dual burner operation.
7. The oven control now needs to be programmed with the calibration offset and customer's temperature and conveyor speed settings. See CONTROLLER PROGRAMMING INSTRUCTIONS in Section 7 for details..

CONTROLLER PROGRAMMING INSTRUCTIONS

NOTE: All bake times should be within 10 seconds of set bake time, and cavity temperature should be calibrated to within 5° of set temperature. For temperature calibration, allow oven temperature to stabilize at least for 30 minutes.

1. Set control for proper temperature scale - °F or °C.

   A. Press and hold the 2 right-hand buttons to enter Sub-Set program. A prompt will be displayed "Technicians Only." After a couple seconds , a second prompt will say "Please Release."

   After releasing the buttons, quickly press the **{2}/"TIME"** button and then the **{3}/"PLUS"** button to enter the program.

   NOTE: These special prompts are for Prom chips 007 and above. Prom chips 006 and below, the Sub-Set program can be entered by pressing the two right-hand buttons only.

   B. After Sub Set Point is displayed, press **{1}/"TEMP"** button to indicate scale.

   The **{3}/"PLUS"** or **{4}/"MINUS"** buttons will toggle choices between °F or °C. After desired scale is selected, don't press any more buttons and allow control to go into normal run mode (5 seconds).

2. Set bake time and oven temperature – Set Point Menu.

   A. Press and hold the 2 left-hand buttons to enter Set Point program.

   B. Once in set point program, press **{1}/"TEMP"** button once to show left temp and twice to showright temp set point.

   C. Adjust temperature using **{3}/"PLUS"** or **{4}/"MINUS"** button when left temp is displayed and again when right temp is displayed..

   D. Press **{2}/"TIME"** button while still in set point program and adjust time using **{3}/"PLUS"** or **{4}/"MINUS"** buttons. Split Belt models have front and back belt settings.

3. Adjust temperature offset – Sub Set Point Menu

   A. For normal calibration, set temperature to 500° F/260°C. Install your temperature probes on top of the belt centered front to back and between the left two fingers for the left side and between the right two fingers for the right side.

   B. Follow instructions in step 1A to enter the Sub Set program. After Sub Set Point is displayed, pressing the **{1}/"TEMP"** button will access and scroll through the following temperature features: SCALE (°F or °C), HI TEMP, LOW TEMP, OFFSET LEFT (+ or -), OFFSET RIGHT (+ or -), MANUFACTURE MODE (Clear or Active).
   ** Do not change SCALE after it was set in step 1A or setting will reset to default values.

   C. To adjust the temperature offset, access the OFFSET LEFT or OFFSET RIGHT display in the Sub Set Point Menu. If cavity temperature is above the set temperature, decrease (**{4}/"MINUS"** button) the offset value. If cavity temperature is below the set temperature, increase (**{3}/"PLUS"** button) the offset value. The amount of offset needed should be the difference between the cavity temp and the set temp. Allow oven to reach set temp and verify cavity temperature. Readjust offset as necessary.

4. Additional Temperature Settings – Sub Set Point Menu.

   A. HI TEMP and LOW TEMP are not normally changed unless requested by the customer. Accessing these displays and pressing the **{3}/"PLUS"** or **{4}/"MINUS"** button will change each value indicated accordingly.

   B. MANUFACTURE MODE is not normally changed, so this feature should be set to "clear." This shows the set point temperature on the display after it reaches it. In "active" mode the display with show the up and down cycle pattern.

5. Time Settings – Sub Set Point Menu.

   A. While in Sub Set Point Menu, pressing the **{2}/"TIME"** button will access the time features HI TIME and LOW TIME. These are not normally changed unless requested by the customer. Accessing these displays and pressing the **{3}/"PLUS"** or **{4}/"MINUS"** button will change each indicated setting accordingly.

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Section 8
Charts

Specifications – Models with Gas Heat

Electrical Service – All Models with Gas Heat

	Voltage (AC)	Phase
50/60 Hz Ovens	220/230	1

Notice

Do not install the (these) oven(s) in any area with an ambient temperature in excess of 95°F/35°C. Doing so will cause damage to the unit(s).

SPECIFICATIONS

BODY: Stainless Steel (Exterior except back panels)
POWER: Gas
DB LEVEL: ≤77 dba
OPERATING TEMPERATURE RANGE: 250° - 600°F (121° - 316°C)

Gas Ovens

Model*	Energy	Power	Voltage	Current	Phase	Hz	Recommended Electrical Specification	Gas Manifold Pressure**
1631-xxx-X-Kxxxx	G20	32 kW (HI) 3.35 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	8.7 mB
1631-xxx-X-Kxxxx	G25	26.5 kW (HI) 3.18 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	8.7 mB
1631-xxx-X-Kxxxx	G25.3	26.5 kW (HI) 3.22 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	8.7 mB
1632-xxx-X-Kxxxx	G30	37 kW (HI) 1.16 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	24.8 mB
1632-xxx-X-Kxxxx	G31	33.2 kW (HI) 1.33 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	24.8 mB
1633-xxx-X-Kxxxx	G20	31.3 kW (HI) 3.31 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	8.7 mB
1633-xxx-X-Kxxxx	G25	25.7 kW (HI) 3.0 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	8.7 mB
1633-xxx-X-Kxxxx	G25.3	25.4 kW (HI) 2.97 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	8.7 mB
1634-xxx-X-Kxxxx	G30	34.2 kW (HI) 1.06 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	24.8 mB
1634-xxx-X-Kxxxx	G31	30.9 kW (HI) 1.26 m^3/hr	230 VAC	4 Amps	1	50 Hz	3 Wires, 1 Pole 1N-1G	24.8 mB
1635-xxx-X-Kxxxx	Nat. Gas	110,000 BTU/hr	220 VAC	4 Amps	1	60 Hz	3 Wires, 1 Pole 1N-1G	0.87 kPa
1636-xxx-X-Kxxxx	LP Gas	110,000 BTU/hr	220 VAC	4 Amps	1	60 Hz	3 Wires, 1 Pole 1N-1G	0.87 kPa

* Reference Model Number Key, Section 1.

Gas Pressure Conversion Chart

Inches of Water Column	kPa	m-Bar	Millimeters of Water Column
3.5	0.87	8.7	88.9
4.5	1.12	11.2	114.3
7	1.74	17.4	177.8
10	2.48	24.87	254.0
10.5	2.61	26.11	266.7
11	2.73	27.36	279.4
14	3.48	34.81	355.6
14.5	3.61	36.05	368.3

NOTE: For proper operation, the gas valve requires a nominal inlet pressure of 7 inches H_2O column for natural gas and 11 inches of H_2O column for L.P. gas. A minimum inlet pressure of 1.0 inch of H_2O above the manifold setting (NAT. manifold 3.5 inch H_2O, L.P. manifold 10 inch H_2O) must be maintained with no pressure drop from the no load to full load condition. The maximum inlet pressure must be maintained at or below 1/2 psig (14.5 inches H_2O column). Refer to the chart on the left for pressure conversions.

Electrical Supply for Gas 1600 Ovens in Australia:

Single Phase: 240 VAC, 50 Hz / 20 Amp: one neutral and one earth/ground.

NOTE: In Australia, use a 10 Amp General Purpose Outlet.

All ovens require separate service and decidated neutral.

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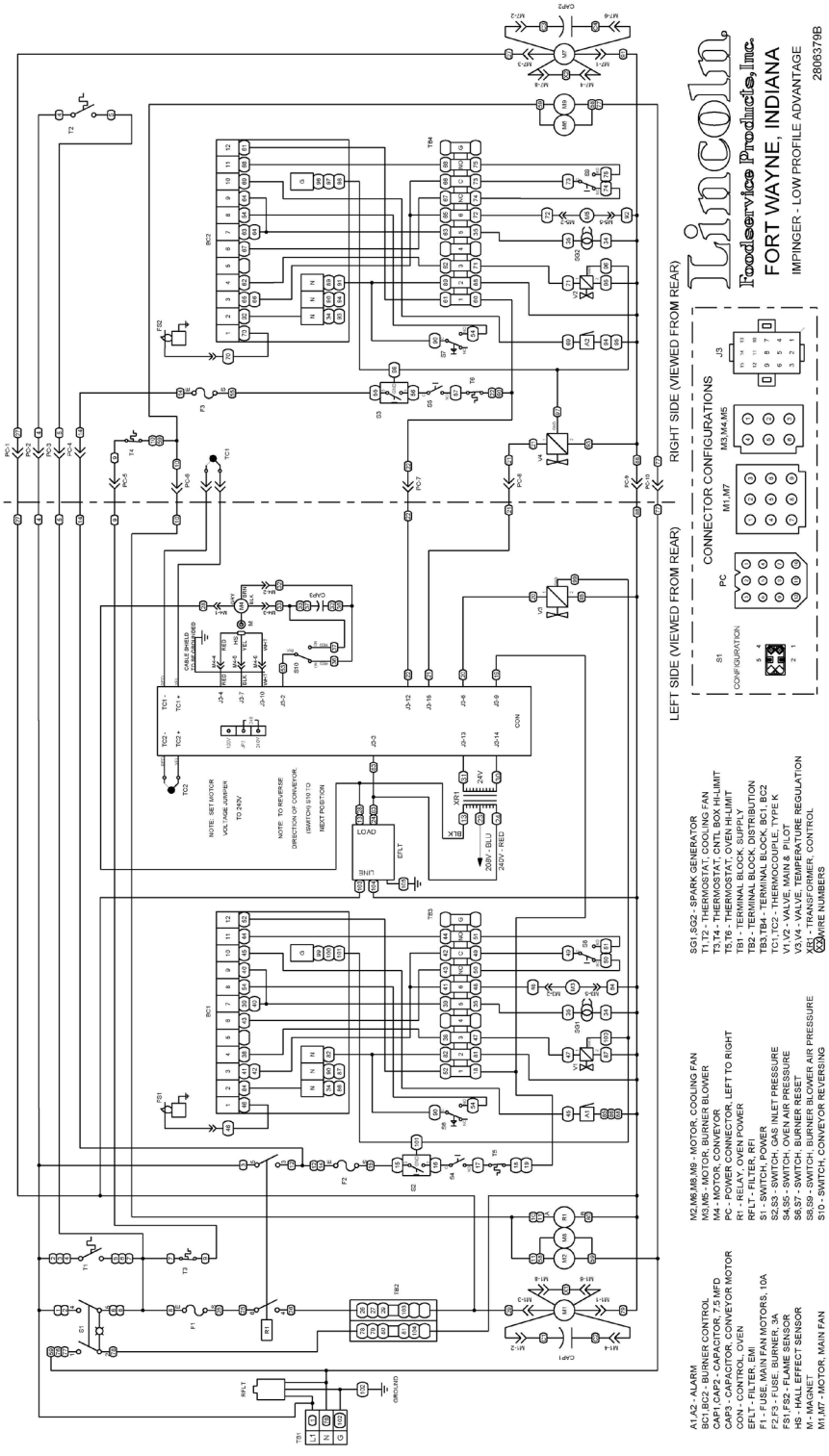
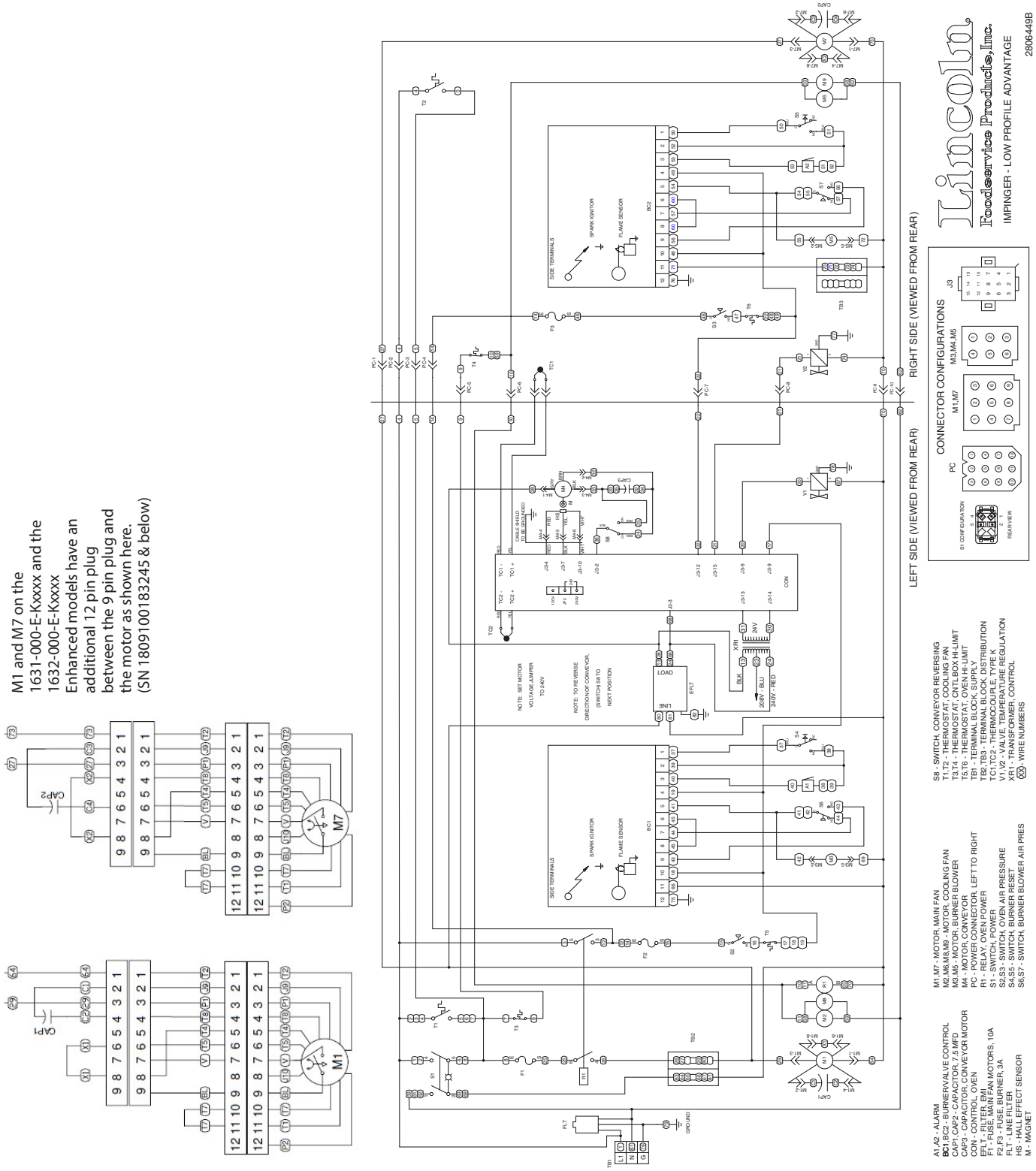
Section 9
Diagrams

Wiring Schematics

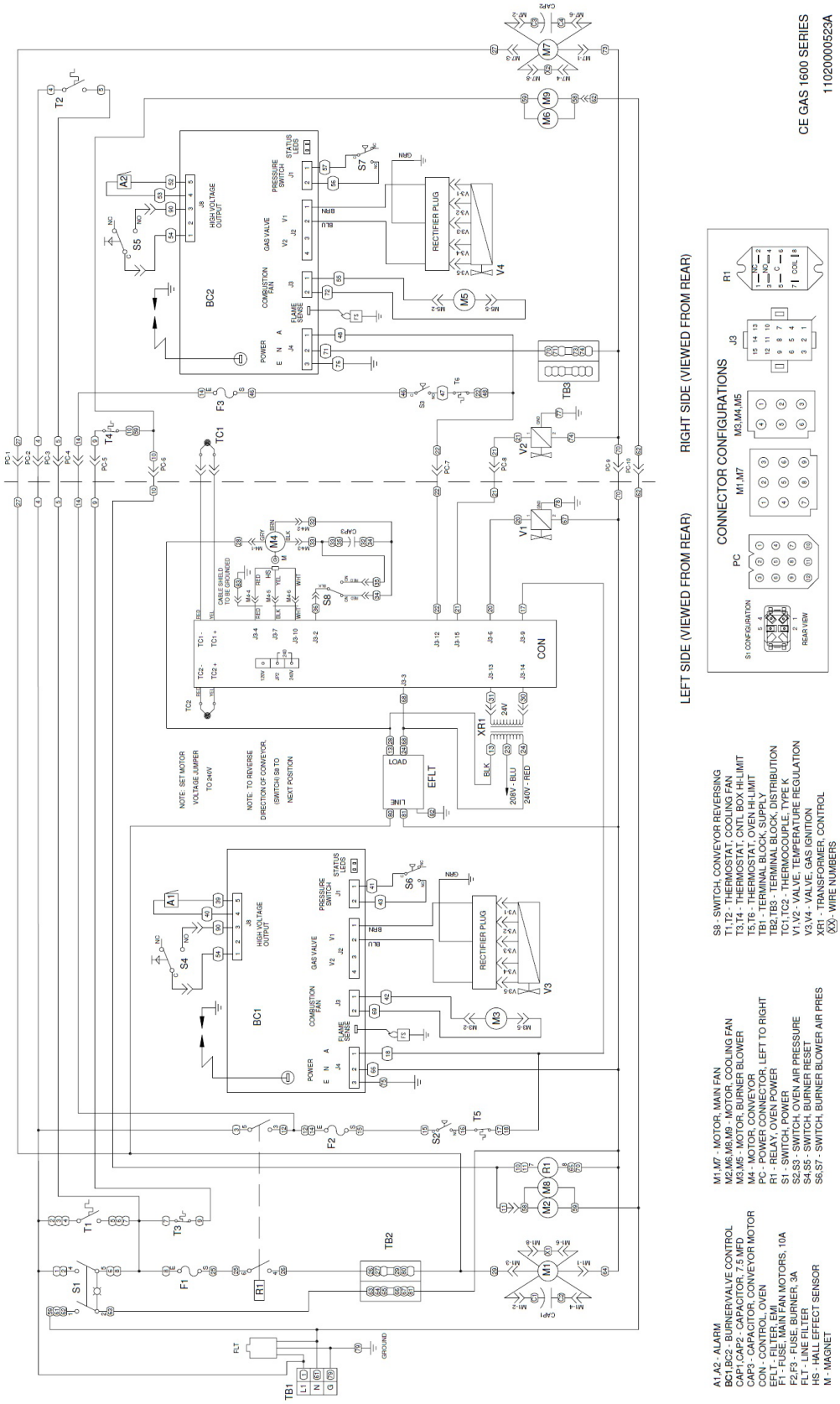
GAS MODELS 1633-000-EA, 1634-000-EA (SERIAL NUMBER L28563 to L31478) (with LANDIS+GYR IGNITION)



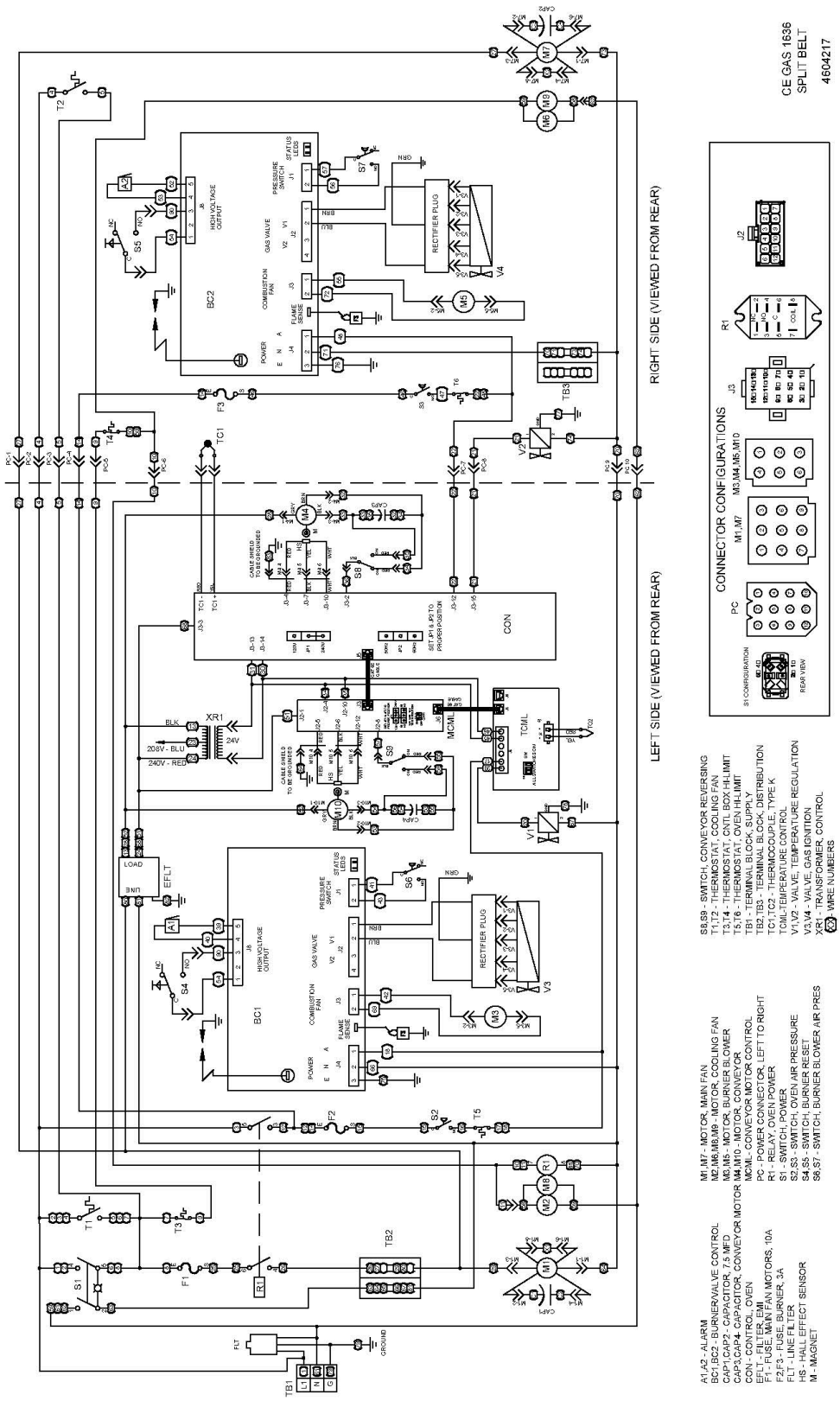
GAS MODELS 1631-XXX-E-Kxxxx, 1632-xxx-E-Kxxxx, 1633-000-EA, 1634-000-EA
(SERIAL NUMBER L31479 to 1803100100610) (with HONEYWELL IGNITION)



GAS MODELS 1633-000-EA, 1634-000-EA, 1636-000-EA, 1636-H01-E-Kxxxx (SERIAL NUMBER 1803100100611 and ABOVE) (with TECHRITE IGNITION)



GAS MODELS 1636-H51-EA, 1636-H51-E-Kxxxx
(SERIAL NUMBER 1803100100611 and ABOVE) (with TECHRITE IGNITION)



Notes

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