# Ultra / IVIax® ELECTRIC CONVEYOR OVEN

**MODEL** 

UM1833A-208V

UM1833A-240V

UM1850A-208V

UM1850A-240V

Installation and Operation Instructions

2M-Z9844 Rev. B 2/9/07







#### SAFETY SYMBOL





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

# RETAIN THIS MANUAL FOR FUTURE REFERENCE NOTICE

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

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

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

#### **MAINTENANCE AND REPAIRS**

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

Authorized Service Agent

Model No.	Reference the listing provided with the unit		
Serial No.	or	_ or	
/oltage	for an update	for an updated listing go to:	
Purchase Date	Website: E-mail Telephone:	www.star-mfg.com Service@star-mfg.com (800) 807-9054 Local (314) 781-2777	
	The Star Se	The Star Service Help Desk	
	Business Hours:	8:00 am to 4:30 p.m. Central Standard Time	
	Telephone:	(800) 807-9054 Local (314) 781-2777	
	Fax:	(800) 396-2677 Local (314) 781-2714	
	E-mail	Parts@star-mfg.com Service@star-mfg.com Warranty@star-mfg.com	
	Website:	www.star-mfg.com	
	Mailing Address:	Star Manufacturing International Inc. 10 Sunnen Drive St. Louis, MO 63143	

U.S.A

#### **SPECIFICATIONS**

#### UM1833A-208V, UM1833A-240V

Rating/Connection: 6,400 Watts (6,000 element), 32/29 Amps at 208/240V

NEMA 6-50 plus with six foot oil-resistant cord

Electrical Supply: Separate 50 Amp 208/240VAC, single phase, 50/60 Hz service per Oven

Approximate Weight (1833 Oven with Legs): Installed - 180 Lbs (81.8 kg), Shipping - 210 Lbs (95.5 kg)

Dimensions: Width: 51.2" (130.0 cm) - Oven with Shelves

Depth: 30.4" (77.2 cm)

Height: 20.0" (50.8 cm) - Single Oven with Legs

36.0" (91.4 cm) - Double Oven with Legs

#### **Recommended Minimum Clearances:**

Rear of Oven to Wall 0" (0 cm)
Conveyor Extensions to Wall 6" (15.2 cm)

#### UM1850A-208V, UM1850A-240V

Rating/Connection: 6,400 Watts (6,000 element), 32/29 Amps at 208/240V

NEMA 6-50 plus with six foot oil-resistant cord

Electrical Supply: Separate 50 Amp 208/240VAC, single phase, 50/60 Hz service per Oven

Approximate Weight (1850 Oven with Legs): Installed - 210 Lbs (95.5 kg), Shipping - 240 Lbs (109.1 kg)

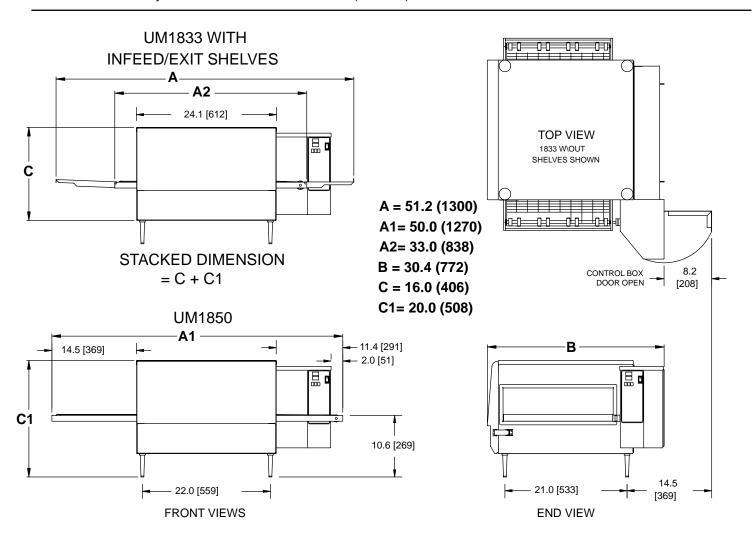
Dimensions: Width: 50.0" (127.0 cm)
Depth: 30.4" (77.2 cm)

Height: 20.0" (50.8 cm) - Single Oven with Legs

36.0" (91.4 cm) - Double Oven with Legs

#### **Recommended Minimum Clearances:**

Rear of Oven to Wall 0" (0 cm)
Conveyor Extensions to Wall 6" (15.2 cm)



#### **GENERAL INFORMATION**

This equipment is designed and sold for commercial use only by personnel trained and experienced in its operation and is not sold for consumer use in and around the home nor for use directly by the general public in food service locations.

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. If there is apparent damage, arrangements should be made to file a claim against the carrier. Interstate Commerce Regulations require that the claim must be initiated by the consignee. Proper and secure storage facilities should be arranged for the oven(s) if necessary to protect it from outdoor or damp conditions at all times before installation.

#### -IMPORTANT-

When you have all the crates unloaded, open the crates and remove all 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. Be sure to remove all paper protection and packing material from the unit prior to heating.



#### **CAUTION**

FOR YOUR SAFETY DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

#### **INSTALLATION**

The ovens are equipped for the voltage indicated on the nameplate mounted on the rear of the control box. They will operate on alternating current (AC) only. A cord is provided with a NEMA 6-50 plug. A matching receptacle with 50A supply must be provided.



## WARNING DO NOT CONNECT TO DIRECT CURRENT (DC).

The installation of the electric oven should conform to the:

NATIONAL ELECTRIC CODE AND ALL LOCAL ELECTRIC CODES AND ORDINANCES AND THE LOCAL ELECTRIC COMPANY RULES AND REGULATIONS.

#### **PURCHASER'S RESPONSIBILITY**

It is the responsibility of the purchaser:

- 1. To see that the electric services for the oven are installed on site in accordance with the manufacturer's specifications.
- 2. To unload, uncrate, and install the oven in its proper location and in accordance with this installation operation manual.
- 3. To see that electric services are connected properly by a qualified installer of your choice. All such connections must be in accordance with applicable code requirements.
- 4. To arrange for inspection and operation check-out by an authorized service technician. The warranty becomes effective upon verification of proper installation.

#### IMPORTANT SAFETY INFORMATION

Do not attempt to operate the oven until connection of utility service has been fully inspected by an authorized service technician or a Star Service Representative. This service is required by Star in order to assist the purchaser in proper start-up of the oven on site. Please note the specific details on the Warranty and make certain that service connections are made to proper utility services.

The warranty shall not apply if the oven is started up and operated prior to the utilities and oven being inspected and check-out made by an authorized service technician or a Star Service Representative.



#### **CAUTION**

IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE, OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY, OR DEATH. READ ALL INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.



#### CAUTION

Minimum clearances must be maintained from all walls and combustible materials. Minimum clearances for this unit should be 0 inches from the rear (rear bumpers provided must be in place) and 6 inches from both sides. Keep the oven free and clear of all combustible material.



#### **CAUTION**

Do not obstruct the ventilation holes in the control panels as these provide cooling air for the controls.



#### **WARNING**

The oven is to be operated only on the type of electricity shown on the specification plate.

#### INSTALLATION INFORMATION

THE INSTALLATION INSTRUCTIONS CONTAINED HEREIN ARE FOR THE USE OF QUALIFIED INSTALLATION AND SERVICE PERSONNEL ONLY. INSTALLATION OR SERVICE BY OTHER THAN QUALIFIED PERSONNEL MAY RESULT IN DAMAGE TO THE OVEN AND/OR INJURY TO THE OPERATOR.

Qualified installation personnel are individuals, a firm, a corporation, or a company which either in person or through a representative are engaged in and responsible for:

1. The installation of electrical wiring from the electric meter, main control box, or service outlet to the electric appliance.

Qualified installation personnel must be experienced in such work, familiar with all precautions required, and have complied with all requirements of state or local authorities having jurisdiction.

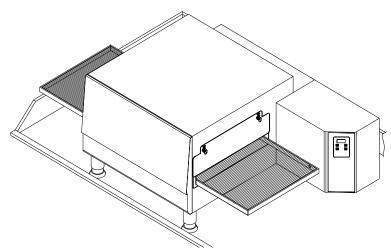
#### LOCATION

The well-planned and proper placement of your oven will result in long-term operator convenience and satisfactory performance.

It is essential that an adequate air supply to the oven be maintained to provide a sufficient flow of ventilation air. Follow these guidelines:

- 1. Place the oven in an area that is free of drafts.
- 2. Keep the oven area free and clear of all combustibles such as paper, cardboard, flammable liquids, and solvents.
- 3. Do not place the oven on a curb base or seal to a wall. This will restrict the flow of air and prevent proper ventilation to the blower motors. This condition must be corrected to prevent permanent damage to the oven.
- 4. On all models, tripping of the blower motor's thermal overload device indicates an excessive ambient temperature at the back of the oven. This condition must be corrected to avoid permanent damage to the oven.

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This appliance must be installed on a sturdy counter or stand using the feet provided for cleaning clearance. As a minimum, 24" of clearance on the discharge end of the oven should be allowed for removal of the conveyor assembly if the oven is not on a mobile cart. Also allow room for a service technician to access the control box door and the fan motor cover over the rear of the oven if the oven is not movable.



#### CAUTION

Any surface the oven is mounted on should have a raised area around the perimeter to prevent the oven from accidentally sliding off the edge. Serious injury or death could occur if the oven falls on a person.



#### **CAUTION**

Any cart that the oven is mounted on must be deep and wide enough to provide a stable platform. A cart with a narrow stance could allow the oven to tip over, causing property damage or serious harm to people.

#### **VENTILATION**

Local codes prevail. These are the "authority having jurisdiction" as stated by the National Fire Protection Association, Inc. in NFPA 96-Latest Edition. For further ventilation information see below.

A ventilation hood may be required to remove heat and cooking odors. 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.



#### **CAUTION**

Prevent airflow through the cooking tunnel. Air must NOT be directed onto the oven's front or rear or to the sides of the cooking area. This can cause incomplete or uneven baking and increased energy consumption.

#### **ELECTRICAL CONNECTION**

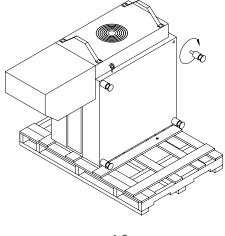
Before making any electrical connections to this unit, check that the power supply is adequate for the voltage, amperage, and phase requirements stated on the rating plate. A wiring diagram is included herewith.

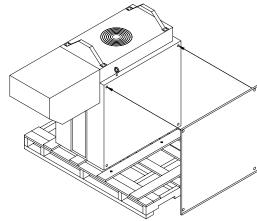
When installed, this appliance must be electrically grounded and its installation must comply with the National Electric Code, ANSI-NFPA70, latest version, manufacturer's installation instructions, and applicable local municipal building codes. In Canada, all electrical connections are to be in accordance with CSA C22.1 - Canadian Electrical Code Part 1 and/or local codes.

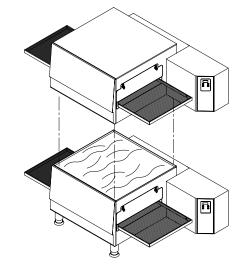


#### **WARNING**

This appliance is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.







#### STACKING INSTRUCTIONS

The following instructions should be followed when stacking more than one unit.

#### Single Oven (or Bottom) Cart Install:

- 1. Remove door, conveyor, and finger assemblies.
- 2. Unbolt unit from shipping crate (4 bolts).
- 3. Turn unit on front as shown.
- 4. Thread the four legs into the bottom of the oven.
- 5. CAREFULLY lift oven upright.

#### **Stacked Oven Install Preparation:**

- 1. Remove door, conveyor, and finger assemblies.
- 2. Unbolt unit from shipping crate (4 bolts).
- 3. Turn unit on front as shown.
- 4. Remove top of lower oven (4 screws total, 2 each front and rear) and bolt to stacked oven base using 3/8 16 bolts.
- 5. Place top oven on lower unit and re-attach with screws for top of lower oven.

#### **OPERATING INSTRUCTIONS**

DO NOTATTEMPTTO OPERATE THE OVEN until connection of utility service and installation has been fully inspected (start-up check-out) by an authorized service technician or a Star Service Technician in order to assure the oven is properly installed and in working order. The warranty becomes effective upon verification of proper installation.



#### CAUTION

DO NOT WORK AROUND THE CONVEYOR BELT WITH LONG HAIR, LOOSE CLOTHING, OR DANGLING JEWELRY. GETTING CAUGHT IN THE BELT COULD RESULT IN DISMEMBERMENT OR FATAL INJURY.

Unless specified otherwise, conveyor travel is factory set for left to right operation when facing the front of the oven. If a direction change is required, refer to "DISPLAY INFORMATION," section 3 for instructions on how to program the controller for a direction change. In addition, the conveyor belt must be changed to travel in the new direction.

#### SAFETY OPERATING INSTRUCTIONS

The information contained in this section is provided for the use of qualified operating personnel. Qualified operating personnel are those who have carefully read the information contained in this manual, are familiar with the functions of the oven and/or have had previous experience with the operation of the equipment described. Adherence to the procedures recommended herein will assure the achievement of optimum performance and long, trouble-free service.

Please take time to read the following safety operating instructions. They are the key to the successful operation of your Ultra-Max Conveyor Oven.



#### SAFETY TIPS

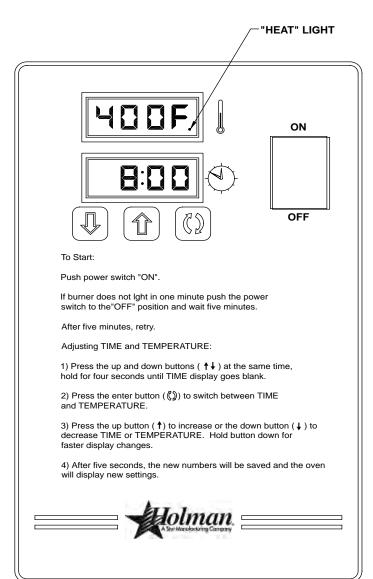
For your safety, read before operating.

#### If you smell gas:

- 1. **DO NOT** try to light any appliance.
- 2. **DO NOT** touch any electrical switches.
- 3. Use an exterior phone to call your gas supplier immediately.
- 4. If you cannot reach your gas supplier, call the fire department.

#### In the event of a power failure:

- 1. Turn all switches off.
- 2. **DO NOT** attempt to operate the oven until the power is restored.



#### **General Safety Tips:**

- 1. If the oven needs to be moved for any reason, the power must be disconnected from the unit before doing so.
- 2. DO NOT remove the control box cover unless the oven is unplugged.

#### **OPERATION**

#### To turn the oven on:

- 1. Push the power switch to "ON."
- After the fan begins to build pressure, the pressure switch will provide power to the control board to engage the heating element contactor. You should hear an initial "click" from the contactor as it begins to heat.

#### To adjust the time and temperature:

- Press the DOWN and UP arrows
   (1) 1) at the same time. Hold for four seconds until the TIME display goes blank.
- 2. Press the ENTER button ( to switch between TIME and TEMPERATURE.
- 3. Press the UP arrow (1) to increase or the DOWN arrow (1) to decrease the TIME or TEMPERATURE. Hold either button down for faster display changes.
- 4. After five seconds, the new numbers will be saved and the oven will display the new settings.

#### To turn the oven off:

 Push the power switch to "OFF." The oven is equipped with a cool-down feature for motor shaft and bearing protection. This enables the blower motor(s) to run regardless of the controller status. The blower(s) continue to run until the oven cools to a safe temperature.

#### **DISPLAY INFORMATION**

When operating the oven, there are three levels of access:

- 1. Store Level General employees would know these functions and how to change them. While the oven is running, enter this mode by holding the DOWN and UP arrows ( simultaneously for four seconds. The TIME display goes blank and the TEMP setpoint is displayed. Adjust with the DOWN or UP arrows. The ENTER button ( toggles between TIME and TEMP. The parameter that can be adjusted is displayed, the other is blank. When TIME and TEMP are adjusted as needed, wait five seconds and SAVE is displayed. The values are accepted and the controller begins controlling to these new values. The conveyor continues to operate at the same speed until a new value is accepted. The temperature control output should be OFF during changes.
- 2. Manager Level This is a lock so that TIME and TEMP cannot be changed even at the Store Level. While the oven is running, enter this mode by holding the DOWN and UP arrows simultaneously for 4 seconds. The TIME display goes blank and the TEMP setpoint is displayed. Release the UP arrow and continue to hold the DOWN arrow for an additional 4 seconds. The TEMP display shows LOC as the TIME display shows nO, which indicates that the TIME/TEMP parameters can be changed after reaching the STORE level. yES indicates that the parameters cannot be changed even after entering the STORE level. The LOC setting can be toggled using the ENTER button ( ).

#### ADDITIONAL FUNCTIONS

The conveyor belt direction and the temperature display can be changed on the conveyor oven by a qualified technician. To change the belt direction, the technician must reverse the motor direction and rotate the conveyor belt for proper oven function. A technician can also change the temperature display from Fahrenheit to Celsius. These changes can be made by the technician during the start-up/check-out or at a later date.

#### **ERROR CODES**

Error codes will display as flashing text messages for diagnostic purposes. Any temperature or thermocouple error should turn the temperature output OFF and leave the conveyor running at the same speed. The belt error should turn the temperature output OFF. The speed error should display when the motor is unable to settle at the chosen speed. This might occur if a fast speed is chosen that the motor is unable to spin fast enough to achieve. The speed signal output will remain the same but the display will flash the error message.



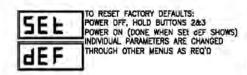


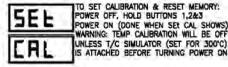














#### **BAKE TIME VERSUS TEMPERATURE**

- Bake time is actually conveyor speed and is defined as the time the product is actually in the oven. This is measured by noting the time when the leading edge of the product enters the oven and the time the leading edge of the product leaves the oven. This is adjusted by using the conveyor speed controller.
- Bake temperature is adjusted by changing the setpoint of the temperature controller to the
  desired bake temperature. When the oven reaches the desired temperature, the red dot
  in the lower right corner of the temperature display will turn off and on as the controller
  maintains the temperature.
- 3. When establishing a bake time and temperature for a given product, the general rule shall be as the bake time increases the bake temperature decreases and the reverse is also true; increase temperature, decrease time. However, there are limits to the above rule. Going to extremes will result in a burnt exterior and raw interior or it will result in a very light color but over-baked product.
- 4. Once a good bake has been established, the fine adjustments should be made by holding either the bake time or bake temperature constant, then varying the other.

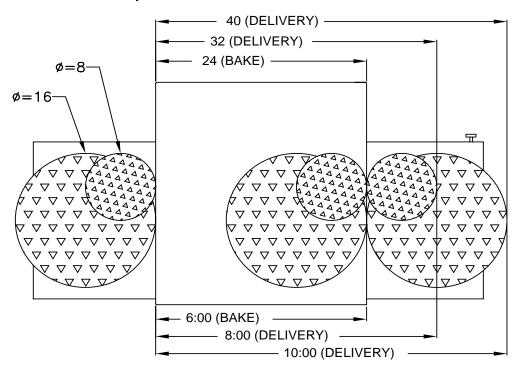
#### **CONVEYOR SPEED**

Bake Time (Conveyor Speed) - As stated previously, bake time (conveyor speed) is defined as the amount of time elapsed between the time the leading edge of the product enters the oven and the leading edge of the product exits the oven. Bake time is controlled by adjusting the digital speed controller. The setting on the control panel indicates the actual bake time.

#### Bake time will be the same for any size product.

#### TIME OF DELIVERY

The time of delivery is the amount of elapsed time between the period when the leading edge of the product enters the oven and the trailing edge of the product is fully discharged and is ready to be delivered to the customer.



# Time of delivery changes if the product size changes.

**Tip:** Train yourself not to pull the product out of the oven when the leading edge comes out. Always wait until the entire product has passed under the air nozzle holes - the product needs this time to fully bake.

BAKE vs. DELIVERY TIME

Time to Delivery changes with product

but **Bake Time** remains constant at a steady conveyor speed.

#### **CLEANING INSTRUCTIONS**

Follow this recommended cleaning schedule for proper oven performance:



#### **CAUTION**

DISCONNECT THE POWER SUPPLY BEFORE SERVICING OR CLEANING THIS OVEN. SAFEGUARD THE POWER SO IT CANNOT BE ACCIDENTALLY RESTORED. FAILURE TO DO SO COULD RESULT IN DISMEMBERMENT, ELECTROCUTION, OR FATAL INJURY. THERE IS MORE THAN ONE POWER SUPPLY CONNECTION POINT WHEN OVENS ARE STACKED, SO MAKE SURE THAT ALL SWITCHES ARE IN THE OFF POSITION BEFORE CLEANING OR MAINTENANCE.

No electrical components should be subjected to moisture. It is therefore important that the oven is wiped down carefully. **NEVER** throw buckets of water over the oven or subject it to pressure washing from a hose or a pressure spray. If water or other liquid is spilled on the oven, make sure that none of it has entered the control box area before switching the oven ON. If in doubt, call your service company.



#### **CAUTION**

Adhere to the following warnings when cleaning or maintaining your conveyor oven:

- 1. The oven must be cool. Do not use power cleaning equipment, steel wool, or wire brushes on stainless steel surfaces.
- 2. Do not use a caustic or an alkaline base cleaner on the interior of the oven. This will ruin the aluminized finish of the oven interior.
- 3. When using cleaning solutions, be sure they meet local and national health standards.

#### DAILY

- 1. Clean the conveyor belt using a nylon brush. Allow any foreign material to drop into the crumb pans.
- 2. Empty and clean the crumb pans. Use a hot water and detergent mix. Rinse with clean water.

#### **EVERY MONTH**

- 1. Brush and clean the guard on the motor cooling fan.
- 2. Unplug the oven.
- 3. Remove the crumb pans.
- 4. Remove the conveyor assembly.
- 5. Unlatch and remove the front door. First remove all Baffles then Finger Assemblies. See instructions next page.
- 6. Clean the oven interior with an appropriate oven cleaner.
- 7. Clean the conveyor assembly, crumb pans, and other removable components. Wash in a hot water, detergent mix and rinse with clean water. For difficult cleaning areas, use a heavy-duty de-greaser or oven cleaner.
- 8. Move the oven and clean under it. Be careful not to damage the oven's electrical cord or plug when moving.
- Reassemble the oven, being certain to include all Finger Assemblies and the Upper & Lower Baffles.
  - Be certian the Lower Baffle Flange is properly positioned behind the Rear Oven Wall, as well as the Upper Baffle is in position against the Upper Baffle Seat, as shown.

#### **EVERY TWELVE MONTHS**

A factory authorized service person should:

- 1. Open and clean the inside of the control box.
- 2. Check and tighten all electrical components.

If maintenance is required, contact your local service company, a factory representative, or Star Manufacturing.

#### **Removing Finger Assemblies**

- 1. Once cooled, **REMOVE** conveyor assembly and door.
- 2. Life up and remove Upper & Lower Baffles as shown in Step 1.
- 3. Slide Finger Assembly out of unit as shown in Step 2.
- 4. Lift Assembly apart as shown in Step 3. and wash in a hot water, detergent mix and rinse with clean water. For difficult cleaning areas, use a heavy-duty de-greaser or oven cleaner.

#### **Reassemble Finger Assemblies**

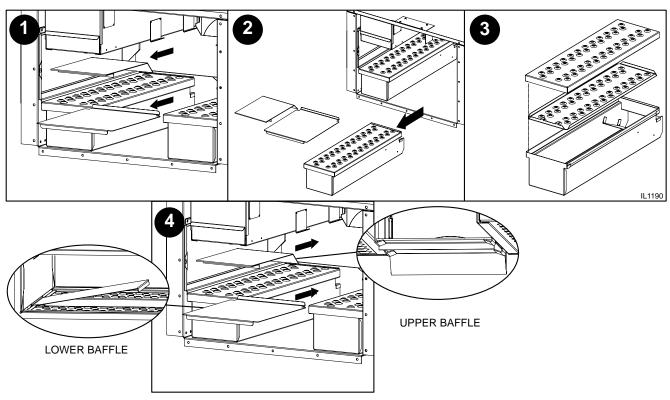
- 1. Reassemble finger assemblies and install in unit.
- 2. Properly install Baffles as shown in Step 4.



#### **CAUTION**

### BE CERTAIN THE LOWER BAFFLE IS PROPERLY INSTALLED BEHIND THE REAR PANEL SO NOT TO INTERFERE OR DAMAGE CONVEYOR ASSEMBLY.

3. Reinstall conveyor & door assembly, and test unit for proper operation.



Baffle & Finger Removal / Installation

#### **CONVEYOR BELT TENSION**

The conveyor belt of the Ultra-Max Conveyor Oven does not have a tension adjustment. If the belt becomes too loose, a link will have to be removed to tighten. A belt that is too tight will also cause operational problems due to excessive drag. We suggest that you have a qualified service technician perform this adjustment.



#### **CAUTION**

Careful consideration should be exercised prior to removing a belt link because a belt that is too tight will impede the smooth operation of the conveyor.

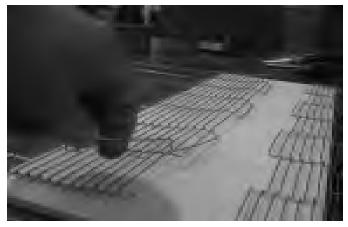


An entire link can be removed with the conveyor assembly either in or out of the oven. This may be necessary as the belt stretches after continuous use. Following are the necessary steps for removing links:

- 1. Move the splice clips to either end of the oven for easy access.
- 2. Unhook the splice clips using long nose pliers.
- Unhook the full link to be removed and slide it out.
   Do not discard the link removed as it may be used for making spare splice clips.
- 4. Reconnect the inside splice clips.
- 5. Reconnect the outside splice clips.
- 6. Replace all parts removed from the oven.
- 7. Straighten any bent wires to ensure smooth sprocket engagement.



Remove the outside master links on the right and left sides of the conveyor belt. Remove the center splice clips next.



Unhook the end loop and pull up on the link section. Save this link as it may be used for making splice clips.



Check the orientation of the splice clips (the hooks should be up). The belt shown is the top section, ready for left-to-right travel.