

## SECTION 4 MAINTENANCE

**CAUTION:** DO NOT use any abrasive cleaning materials or water spray. Wipe clean *only*. Cleaning with a water hose or pressurized steam cleaning equipment voids the oven warranty.

### I. MAINTENANCE - DAILY

#### A. Exterior

Everyday, clean the outside of the oven using a soft cloth moistened with mild detergent. Rinse by wiping with a soft cloth moistened with clear water. Wipe dry.

#### B. Fans and Grills

1. Clean the two fan grills (Figure 4-1) on the rear of each oven **DAILY**. Also, clean the grills for cooling air exhaust: one located on top of an upper oven, and one located beneath the front of a lower oven. Clean these grills with a stiff, nylon-type brush.

2. Check the air intake of the cooling fans **DAILY**. The best time to check is right after starting the oven. IF THE FAN(S) ARE NOT OPERATING CORRECTLY, THEY MUST BE REPAIRED OR REPLACED IMMEDIATELY. Serious damage could be done to the blower motors and/or the solid-state electrical components. When a fan fails, the end panel must be removed as a temporary solution. **CAUTION:** *This is only a temporary solution. Oven damage may still occur while a fan remains unrepaired.*

3. Clean the ventilating hood air filters.

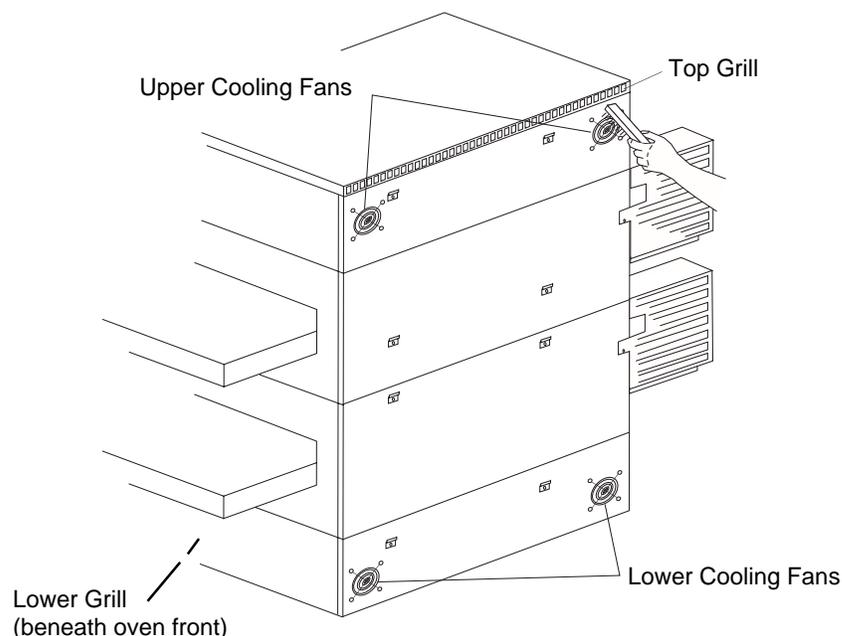


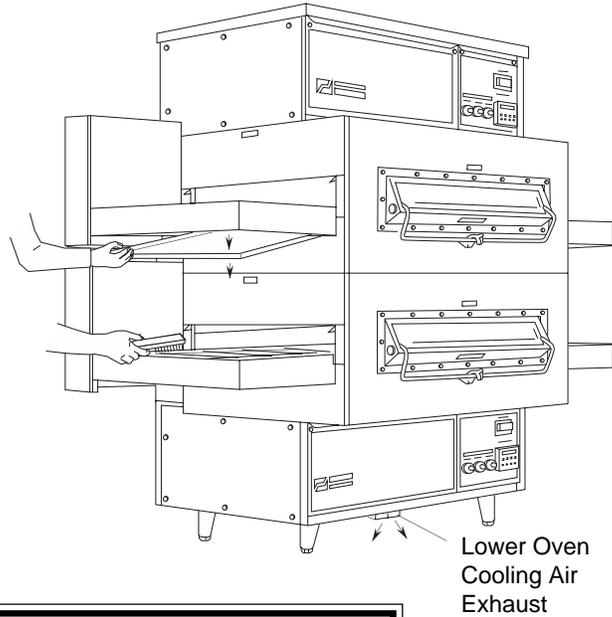
Figure 4-1. Oven Cooling Fans -Two on upper oven and two on lower oven

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**C. Conveyor Belts (Tandem and Double Tandem Ovens only)**

Everyday, stand at the unloading end of the conveyor with a brush (Figure 4-2, lower oven). Brush all crumbs off the belt so that they fall into the crumb pan below the conveyor. (Figure 4-3 shows crumb pans for both upper and lower ovens.)

**Figure 4-2. Conveyor Belt Cleaning (lower oven) and Crumb Pan Removal (upper oven)**

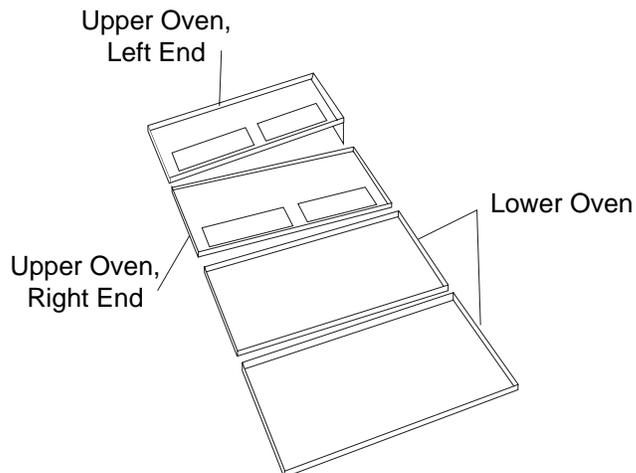


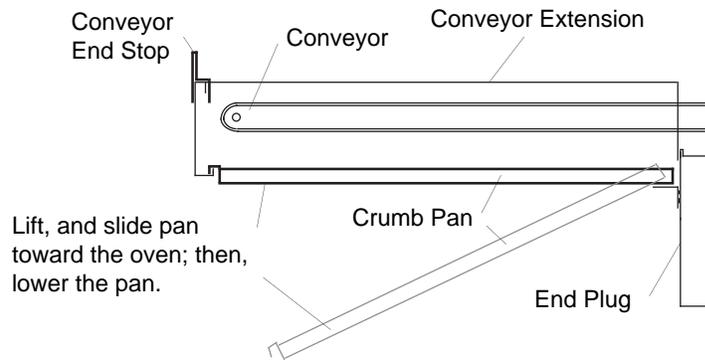
**WARNING:** Before performing any further maintenance, turn the main power switch off.

**D. Crumb Pans (Tandem and Double Tandem Ovens only)**

1. Remove and clean the crumb pans at both ends of an oven (Figure 4-2, upper oven). Remove each crumb pan by lifting the end of the pan nearest the end of the conveyor; then, slide the pan toward the oven slightly. Now, lower the front of the pan, and pull it from beneath the conveyor. (Figure 4-4 shows a view of this procedure from the side of the conveyor.)

**Figure 4-3. Crumb Pans, Upper and Lower Ovens**





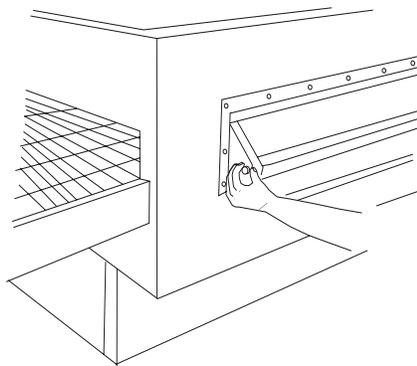
**Figure 4-4. Crumb Pan Removal**

The crumb pans **with** cutout holes (and an end shield attached on the inner end) are used at the left end (conveyor motor end) of an upper oven. The shield protects the conveyor motor from heat. The crumb pans **without** cutout holes are installed on a lower oven.

2. After cleaning, reinstall the crumb pans.

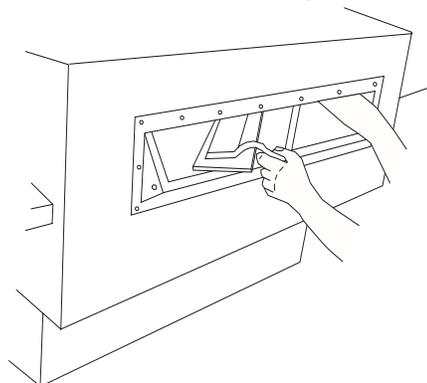
### E. Window

1. **Clean the window in place, unless** it needs a thorough cleaning, which will require removal, as follows.
2. Remove the window by opening it (into the oven interior). Then, unscrew the window knobs from each end (Figure 4-5).



**Figure 4-5. Unscrewing a Window Knob, Before Removal**

3. Push the open window all the way inside the oven, making sure it is clear of the frame. Now, turn the window sideways inside the oven (Figure 4-6,) and then remove it. This will avoid breaking the window.



**Figure 4-6. Window Removal**

## II. MAINTENANCE - MONTHLY

**WARNING:** Before performing any further maintenance, turn the main power switch off.

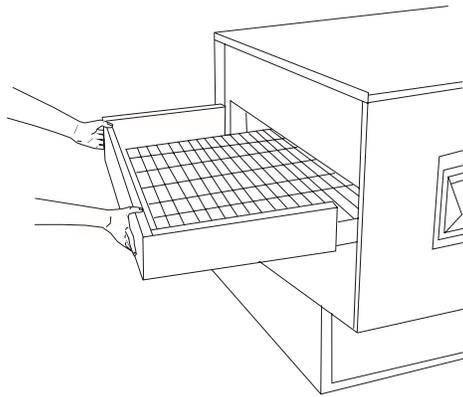
**NOTE:** The interior may require cleaning more than once a month, depending on the volume of baking.

To clean the interior, you must disassemble some parts of the oven.

### A. Removing conveyor from oven for cleaning

1. Remove the crumb pans (Tandem and Double Tandem Ovens only). Refer to the Daily Maintenance procedures.
2. Remove conveyor extension covers from both ends of oven (Figure 4-7) (Tandem and Double Tandem Ovens only).

**Figure 4-7. Conveyor Extension Cover Removal**



3. After removing the bottom shield (located below the shroud) by removing its three screws, remove the conveyor motor shroud. Loosen the hanger screw; then, lift and remove the motor shroud.
4. Remove the end plugs from the oven side with the conveyor drive motor.
5. Release the tension from the conveyor drive chain, as follows:
  - Tandem and Double Tandem Oven:  
Lift, and push, the conveyor assembly slightly into the oven.
  - Tri Tandem and Quad Tandem Oven:  
Loosen the mounting bolts of the conveyor drive motor.  
Shift the motor to release the drive chain tension.
6. Detach the drive chain from the conveyor drive shaft sprocket.

**NOTE:** *The conveyor assembly of a tandem or a double tandem oven can be removed from either end of oven. If you are removing the conveyor from the end of the oven without the drive motor, the drive sprocket assembly must be removed by loosening the 3/32" set screw on the conveyor drive shaft collar. Then, remove the drive sprocket assembly from the end of the shaft.*

7. Pull the conveyor belt until its master links are near the end of the upper belt surface. Disconnect the master links. (Refer to the later procedure "E. Conveyor belt link removal", in this section, for additional details.)

8. Remove the conveyor belt by rolling it into a bundle. Place the belt in a safe location.

9. Slide the conveyor frame sections out of the oven, placing them on the floor for cleaning.

NOTE: Tandem and Double Tandem Ovens - Conveyor frame sections are connected to each other with hinges. The conveyor frame must be removed as a unit.

Tri Tandem and Quad Tandem Ovens - Conveyor frame sections are separate and must be removed from **both** ends of the oven.

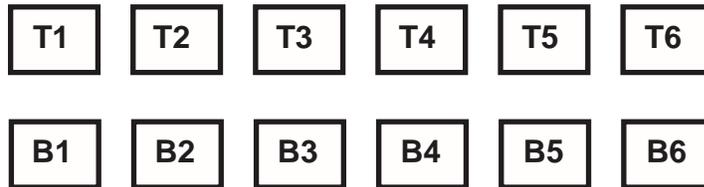
10. For a Quad Tandem oven, remove the two transition side panels. Then, slide out the top transition panel to obtain access to the conveyor frame sections for removal. (Refer to pages 2-19 through 2-21 for illustrations of these oven components and text that clarifies the procedure.)

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**B. Disassembling the blank plates and air fingers for cleaning**

1. Use a felt pen to mark each plate and all parts of the air fingers with a 'finger arrangement' identifier, like those shown in Figure 4-8, when removing the blank plates and air fingers from the oven baking chamber. This marking should include the finger manifold, inner plate, and the outer plate of each air finger.

Figure 4-8. "Finger Arrangement" Identifiers



Air fingers and blank plates should be marked in the order shown, as viewed from the front of the oven. (The finger arrangement numbers for an *upper* oven can be preceded with a "U"; example: UB1, UT2, etc.)

Record the finger arrangement identifiers on paper and identify the number of rows of holes in each air finger's outer plate, along with the position of each 'full-blank' plate and 'half-blank' plate. Usually, a finger arrangement label is installed on the inside of the machinery compartment access panel. The finger arrangement should still be recorded for instances when the label is not available or illegible.

2. Slide each blank plate and air finger along the channels on the rear baking chamber wall (Figure 4-9), until each can be extracted from the oven. Prevent twisting or turning, to avoid interference in the channel(s).

Remove top and bottom air fingers and blank plates from either end of the oven (Figure 4-10). It is highly recommended that each plate and air finger be marked (Figure 4-8) at the time of removal to aid reinstallation in exactly the same position.

Figure 4-9. Blank Plate Removal

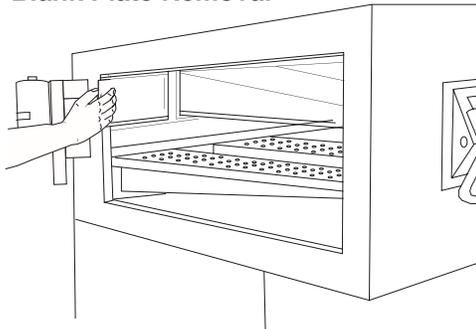
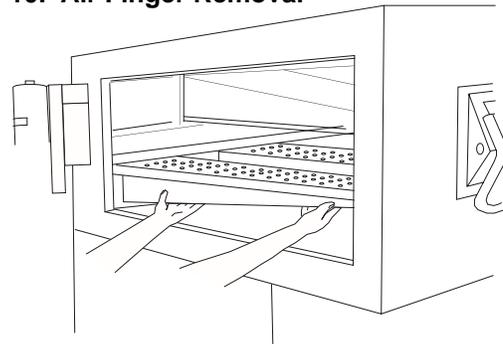
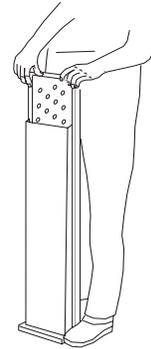


Figure 4-10. Air Finger Removal



3. After removing each air finger, place it in an upright position to remove the outer plate. Gently, step on the lip of the finger manifold and pull the outer plate upward to disassemble it, as shown in Figure 4-11.

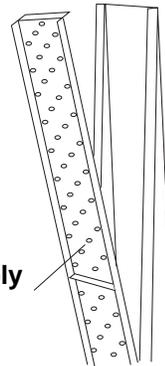


**Figure 4-11. Outer Plate Disassembly**

**NOTE:** The outer plate is stainless steel and may be cleaned by either soaking in a hot, strong detergent solution or using a caustic cleaner.

The conveyor belt can also be cleaned in the same way.

4. To remove an inner plate, pull its end away from the finger manifold, then, lift it out and up, as shown in Figure 4-12.



**Figure 4-12. Inner Plate Disassembly**

**CAUTION:** *DO NOT use caustic cleaner on an inner plate or a finger manifold, to avoid damage.*

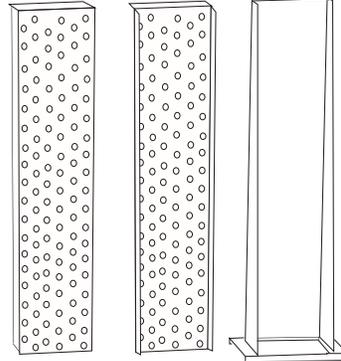
5. While the oven chamber is clear, clean it with a vacuum cleaner; then, wipe it with a damp cloth.

**CAUTION: DO NOT USE A CAUSTIC CLEANER OR EXCESSIVE WATER WHEN CLEANING THE INTERIOR OF THE OVEN CHAMBER.**

When cleaning the oven, a non-caustic cleaner, which removes baked-on grease and carbon from metal and glass and will not damage the aluminum coating on the interior oven surface, is recommended.

### C. Reassembly and reinstallation of air fingers

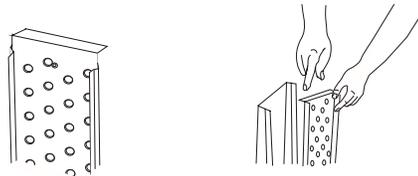
Each air finger is made up of one inner plate, one outer plate and one finger manifold (Figure 4-13). **Be sure to match the 'finger arrangement' identifier markings (T1, T2, etc.) on all the parts of each air finger during reassembly.**



**Figure 4-13. Air Finger Parts**

1. Reassemble the inner plate into the finger manifold (Figure 4-14). Keep your fingers clear to avoid pinching them.

The inner plate of an air finger will only go in one way because of its design, as shown in Figure 4-15.



**Figure 4-14. Inner Plate Reassembly Details**

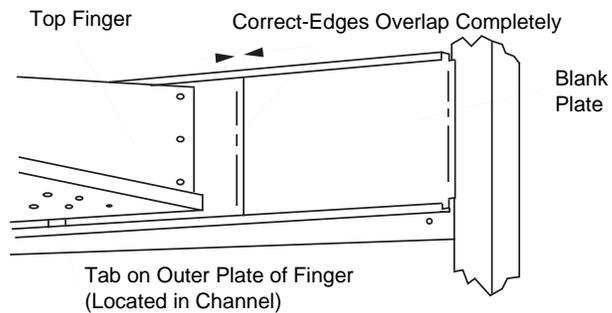
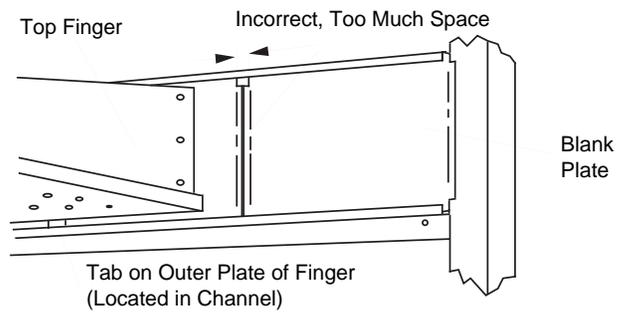
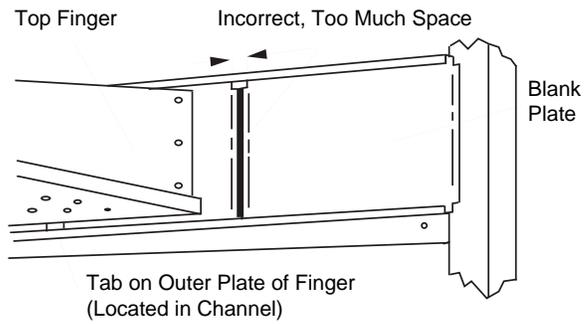
2. Reassemble the outer plate by sliding it downward in the grooves on the side walls of the finger manifold. Keep your fingers clear to avoid pinching them.

3. Reinstall the air fingers (and blank plates) into the oven by sliding them into the channels on the rear oven wall, using the method shown in Figures 4-9 and 4-10. Support the outer end of the finger (oven front), while pushing the base of the finger manifold portion along the channels. Remember to reinstall each air finger, according to the identifiers marked on them. Each finger must go back into its original location.

Each oven is shipped with a finger arrangement label mounted inside the machinery compartment access panel. If this sticker is not legible, it is very important to mark the fingers as they were pulled out and to record them on a separate paper.

4. Ensure that the air fingers and blank plates fit tightly together in the channel with edges interlocked and no space between edges, as shown in Figure 4-15.

**Figure 4-15.**  
**Air Finger Rein-**  
**stallation Details**

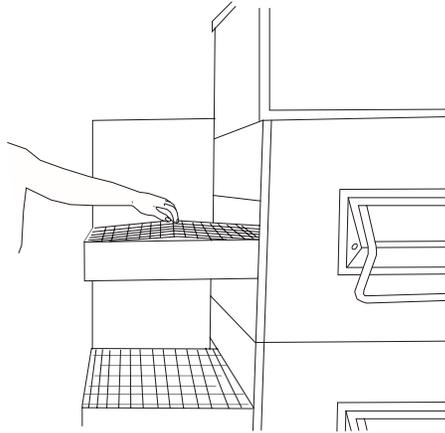


#### D. Checking conveyor belt tension

**WARNING:** *Oven conveyor belt must be cool for adjusting tension. DO NOT adjust belt when HOT.*

1. Check the belt tension by lifting the conveyor belt (Figure 4-16). (The conveyor assembly can either be in or out of the oven.) The belt should not lift more than 3" to 4" (75 to 100 mm).

**Figure 4-16. Checking Conveyor Belt Tension**



2. Adjust the conveyor belt tension screws (located on the right end of the conveyor assembly) for the proper 3" to 4" (75 to 100 mm) deflection.

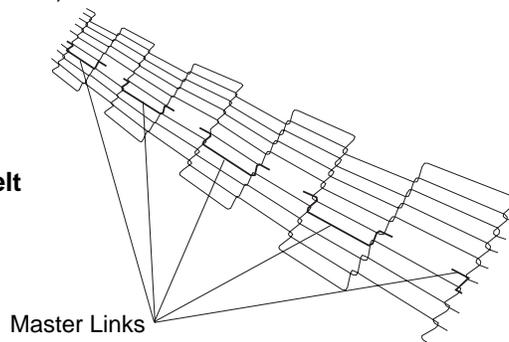
3. If the conveyor belt tension screws do not allow the conveyor belt **to have** the proper tension, at least one entire link must be removed. Use the following procedure ("E. Conveyor belt link removal") to remove a link.

When conveyor belt **is** under proper tension, proceed directly to "F. Conveyor reassembly into oven".

#### E. Conveyor belt link removal

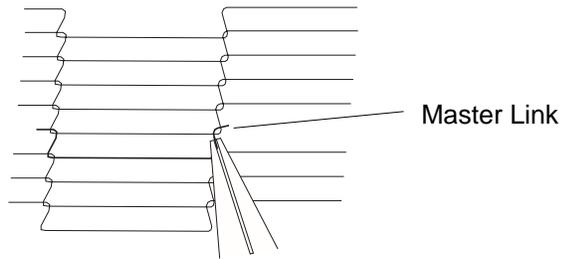
1. Remove an entire conveyor belt link by positioning the belt's master links near the end of the conveyor belt, as shown in Figure 4-17. (The conveyor assembly can either be in or out of the oven.)

**Figure 4-17. Conveyor Belt Master Links**



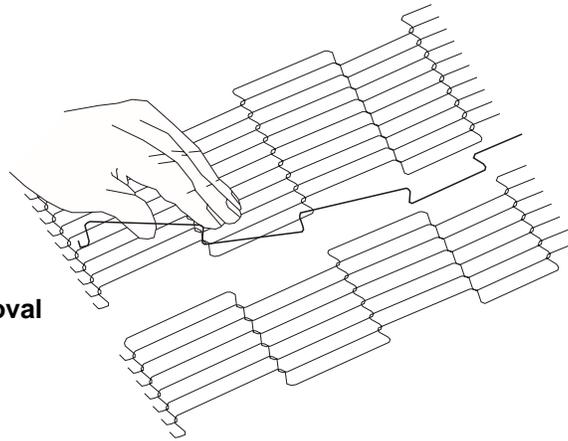
2. Unhook the master links at the end of conveyor belt, using long-nosed pliers, as shown in Figure 4-18.

**Figure 4-18. Unhooking the Master Links**



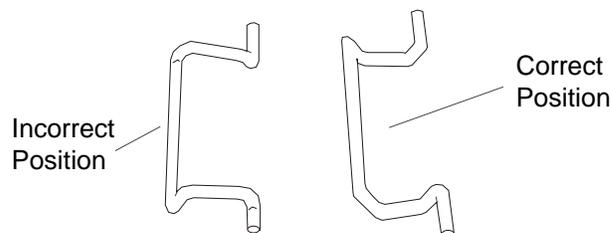
3. Unhook the complete belt link to be removed and slide it out (Figure 4-19). (Do not discard this removed link because it can be used for making spare master links.)

**Figure 4-19. Entire Link Removal**



4. Prepare to reconnect the inner master links.

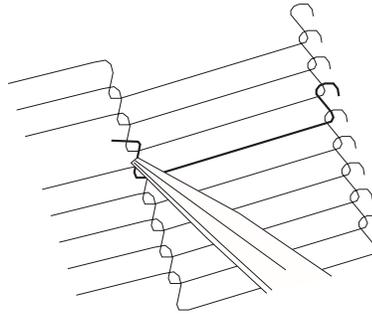
**IMPORTANT NOTICE:** Before connecting the inner master links, notice that these links have a correct position. The master link (at the right in Figure 4-20) is in the correct (horns up) position for inserting into the conveyor belt. The link with horns facing down is in the incorrect position.



**Figure 4-20. Master Link Positions**

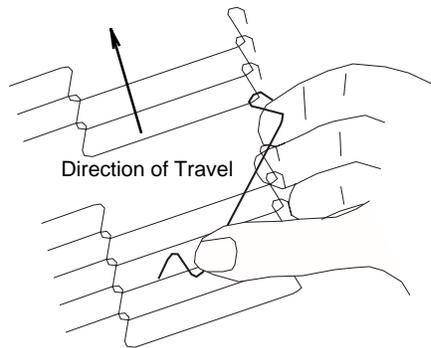
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5. Reconnect the outer master links, as shown in Figure 4-21.



**Figure 4-21. Outer Master Link Connection**

**IMPORTANT NOTICE:** The outer master links have right and left sides to them. The right-edge master link has an open hook facing you, as shown in Figure 4-22. This will match the right outer edge of the conveyor belt. Remember, this hook travels backwards on the conveyor.



**Figure 4-22. Right-edge Outer Master Link Position**

### F. Conveyor reinstallation into an oven

Refer to the procedures "INSTALLING THE CONVEYOR FRAME AND BELT" in Section 2, pages 2-19 through 2-21, for details concerning conveyor reinstallation and reassembly.

## II. MAINTENANCE - EVERY 3 MONTHS

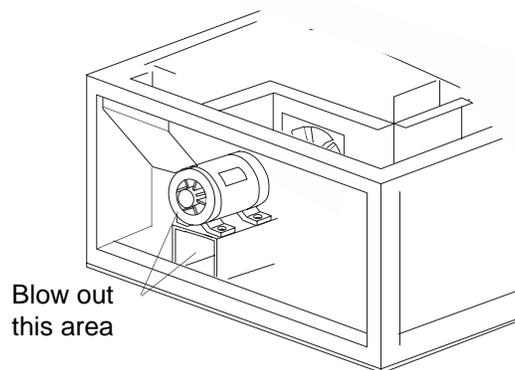
**WARNING:** All electric power must be shut off *before* beginning this maintenance procedure.

**NOTE:** It is recommended that an authorized Middleby Marshall service agent should perform the 3-month and 6-month maintenance procedures.

### A. Cleaning the blower motors (See Figure 4-23.)

Remove the end panels from the machinery compartment. Clean the blower motors in each oven section and the surrounding area, using either compressed air or CO<sub>2</sub>. Thoroughly blow out the motor compartment and vents inside the motor. Failure to do this may cause premature failure of the electric motor.

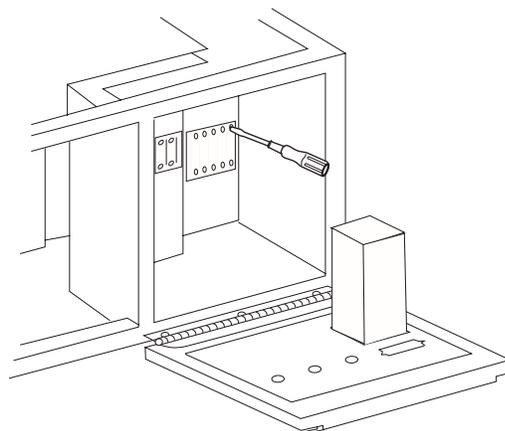
**Figure 4-23. Blower Motor Cleaning**



### B. Electrical terminals

Open the control panel door by loosening the two screws. Tighten all electrical control terminal screws, including the electrical contactor terminal screws, as shown in Figure 4-24.

**Figure 4-24. Electrical Terminal Maintenance**



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### IV. MAINTENANCE - EVERY 6 MONTHS

**WARNING:** All electric power must be shut off *before* beginning this maintenance procedure.

**NOTE:** *It is recommended that an authorized Middleby Marshall service agent should perform the 3-month and 6-month maintenance procedures.*

**A.** Check the brushes of the conveyor drive motor; when worn to less than 3/32" (2.4mm), replace the brushes.

**B.** Clean and inspect the burner nozzle and electrode assembly. Also, check the oven venting system; clean the oven flue, when necessary.

**C. For Tandem and Double Tandem Ovens,** check the conveyor drive shaft bushings and spacers. Replace any worn parts.

**D. For Tri Tandem and Quad Tandem Ovens,** check for wear on the conveyor shaft bearings. If necessary, lubricate with NLGI #2 Lithium-base Grease.

**IMPORTANT NOTICES:**

- The installation, startup, and changes required for changing from one gas type to another can be performed only by an authorized service agent.
- Installation of replacement parts requiring access to the interior of the oven is permitted only by authorized service personnel.
- If there are any problems with the operation of the oven, an authorized service agent must be called.
- Obtaining a service contract with a manufacturer's authorized service agent is recommended.