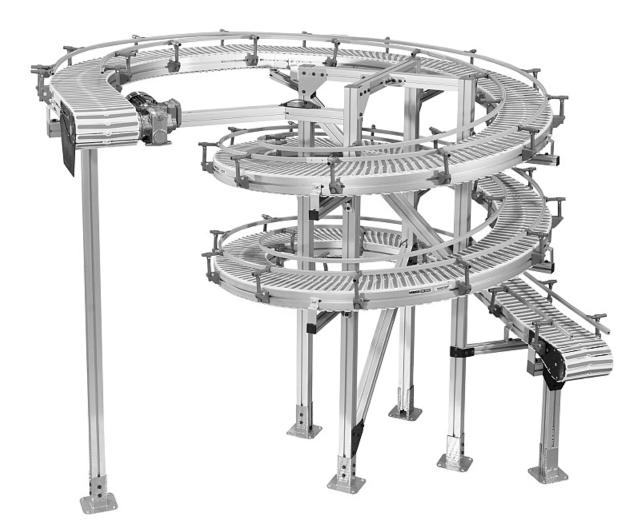




Helix Conveyors

Installation and Maintenance Manual



DORNER MFG. CORP. P.O. Box 20 • 975 Cottonwood Ave. Hartland, WI 53029-0020 USA INSIDE THE USA TEL: 1-800-397-8664 FAX: 1-800-369-2440 OUTSIDE THE USA TEL: 262-367-7600 FAX: 262-367-5827

For other service manuals visit our website at: www.dorner.com/service_manuals.asp

Table of Contents

Introduction	
Warnings – General Safety	
Product Description	
Specifications	
Specifications:	
Installation	
Required Tools	
Recommended Installation Sequence	
Conveyor Setup	
Straight Module Lengths Longer Than 10 ft (3048 mm) 7	
Belt Installation 7	
Install Drive Package	
Install Guiding 10	
Standard 1.5" and 3" Guiding 10	
Adjustable Guides 10	S
Preventive Maintenance and Adjustment 12	
Required Tools 12	
Checklist	Ν
Lubrication	R

Replacing a Section of Belt 12 Replacing the Entire Belt..... 13 Conveyor Belt Tensioning...... 14 Attaching Wear Strip on Straight Frame 15 Attaching Wear Strip on Conveyor Frame 16 Attaching Wear Strip 17

 Maintaining the Conveyor Belt
 12

 Troubleshooting
 12

 Conveyor Belt Replacement
 12

Introduction

Some illustrations may show guards removed. DO NOT operate equipment without guards.

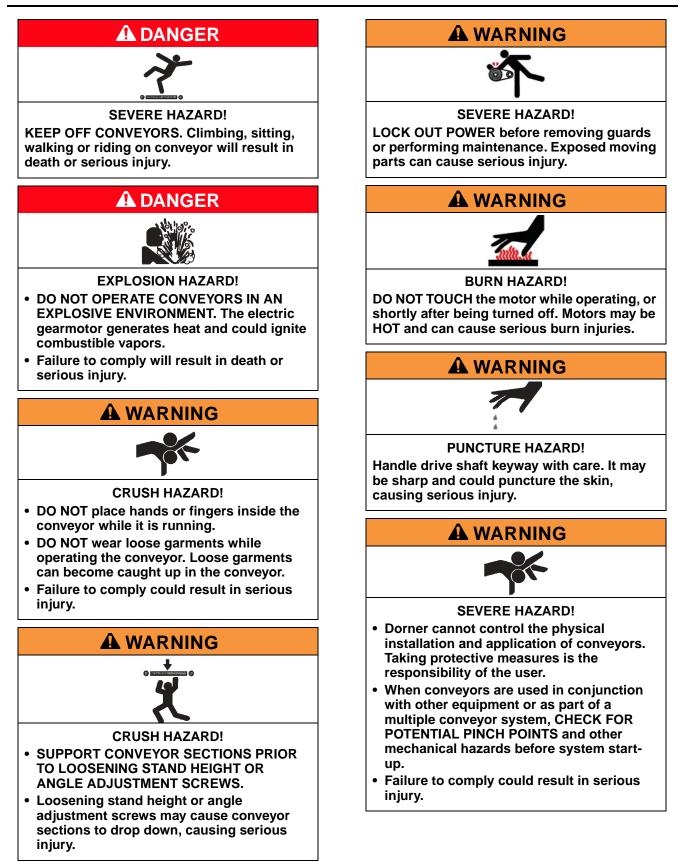
Upon receipt of shipment:

- Compare shipment with packing slip. Contact factory regarding discrepancies.
- Inspect packages for shipping damage. Contact carrier regarding damage. Accessories may be shipped loose.
- See accessory instructions for installation.

The Dorner Limited Warranty applies.

Dorner reserves the right to make changes at any time without notice or obligation.

Warnings – General Safety



Product Description

Refer to Figure 1 for typical components.

- 1 Conveyor
- 2 Gearmotor
- 3 Support Stands
- 4 Drive End
- 5 Idler End
- 6 Guiding (optional)

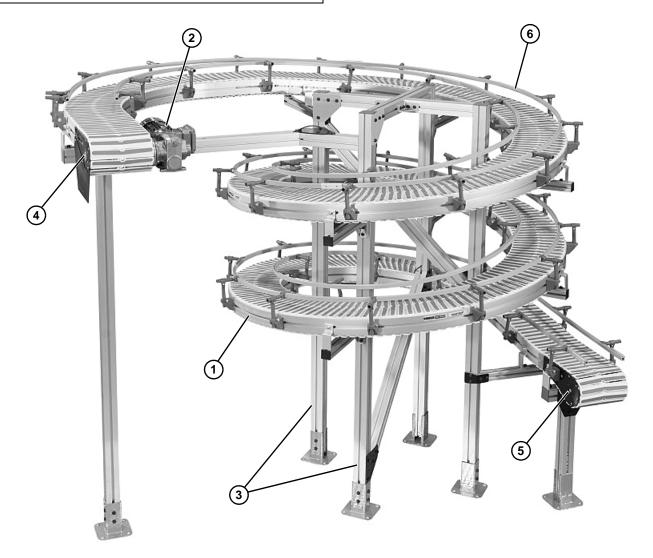


Figure 1

Specifications:

Conveyor Width	85 mm	260 mm				
Minimum Infeed Height	18" (450 mm)					
Maximum Outfeed Height	132" (3350 mm)					
Incline Angles	Up to 7° with Flat Top Chain Up to 10° with Friction Top Chain					
Maximum Load	300 lbs. (136 kg)					
Maximum Speed	171 ft/min (52 m/min)					
Maximum Number of Tiers	4					
Maximum Distance Between Tiers	30" (762 mm)					
Diameter of Spiral	55.12" (1400 mm) at centerline					

Required Tools

- 3/32" hex wrench
- 3 mm hex wrench
- 4 mm hex wrench
- 5 mm hex wrench
- 6 mm hex wrench
- 8 mm hex wrench
- 10 mm wrench
- 13 mm wrench
- 16 mm wrench
- Belt Removal Tool #203480

Recommended Installation Sequence

- Remove conveyor from shipping crate/pallet.
- Locate and arrange sections by section label (if applicable).
- Assemble conveyor (Module lengths longer than 10 ft. (3048 mm)
- Install drive package
- Install guiding

Conveyor Setup

1. Conveyor is shipped on its side. Remove hardware securing shipping brace (Figure 2, item 1) to the shipping crate/pallet.

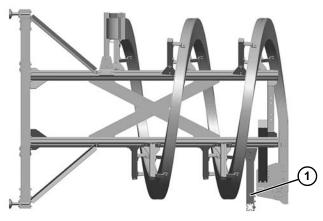


Figure 2

 Using a suitable lifting device, raise the conveyor (Figure 3, item 1) from the shipping crate/pallet and place upright.

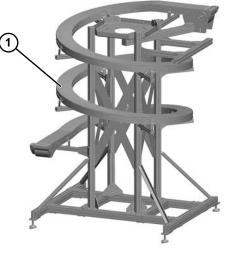
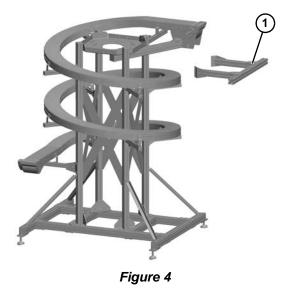
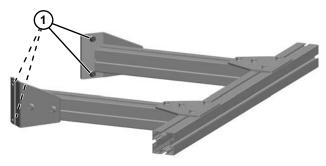


Figure 3

3. Remove shipping brace assembly (Figure 4, item 1) by removing four fasteners (Figure 5, item 1).







Straight Module Lengths Longer Than 10 ft (3048 mm)

Typical Connecting Components (Figure 6)

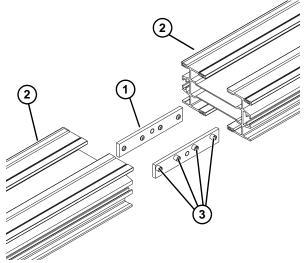


Figure 6

- 1 Clamp Plate
- 2 Conveyor frames
- 3 Set Screw, M8 1.25 x 10 mm
- 1. Locate and arrange conveyor sections by section labels (Figure 7, item 1).

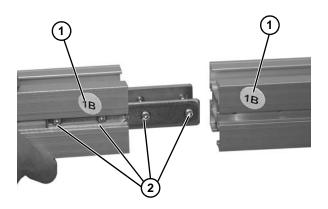


Figure 7

Join both conveyor sections, and tighten two set screws (Figure 7, item 2) on both sides. Tighten all set screws 1/4 turn past contact with frame.

Belt Installation

Typical Belt Components (Figure 8).

- 1 Chain Belt
- 2 Belt Rod

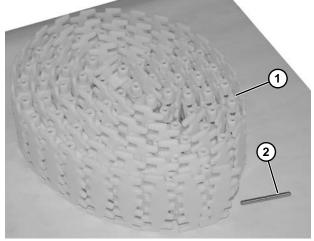


Figure 8

- 1. Position the belt on the conveyor frame.
- Install the belt with direction arrow (Figure 9, item 1) pointing in direction of belt travel (Figure 9, item 2). Install belt from under tail end (Figure 9, item 3) and onto cogs (Figure 9, item 4) of shaft.

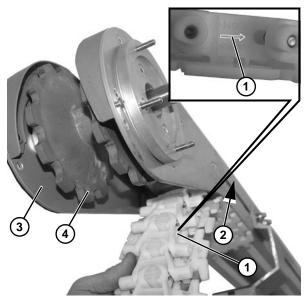


Figure 9

NOTE

The stainless steel bearings (**Figure 10, item 1)** are positioned on the inside radius of the curve.

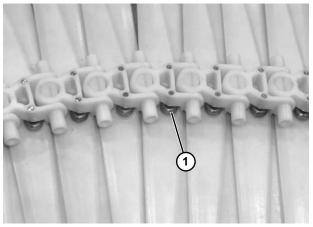


Figure 10

3. Continue wrapping belt (Figure 11, item 1) on top of idler tail retaining guide (Figure 11, item 2), continuing to turn shaft (Figure 11, item 3) to guide belt around cogs (Figure 11, item 4) of shaft.

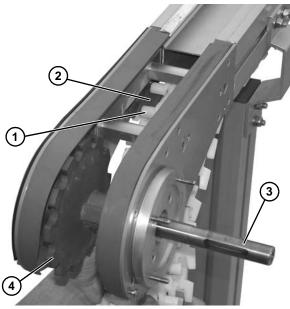


Figure 11

- 4. Insert the belt rod:
 - a. Install belt around drive end of conveyor and bring the ends of the belt (Figure 13, item 1) together.
 - b. Insert rod (Figure 13, item 2).

NOTE

Before inserting belt rod to connect belt ends, be certain that the slack on belt is showing in slotted area (Figure 12, item 1) on conveyor drive end.

 Use punch and hammer or belt removal tool #203480 to press pin just below flush with side of belt. Stop when pin detent is felt.



Figure 12

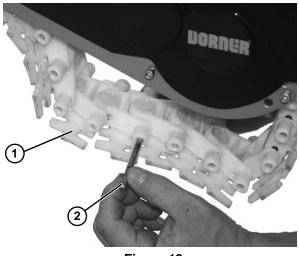


Figure 13

Install Drive Package

 Install spacer (when applicable) (Figure 14, item 1), washer (Figure 14, item 2), and key (Figure 14, item 3) onto drive shaft.

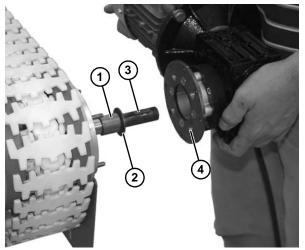


Figure 14

- 2. Attach the motor (Figure 14, item 4) onto the drive shaft.
- 3. Install four washers (Figure 15, item 1) and nuts (Figure 15, item 2) to secure motor to conveyor.

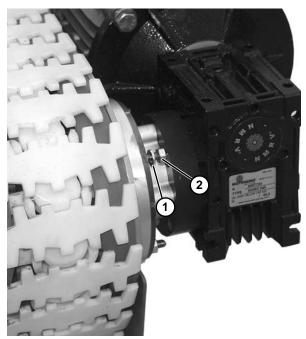
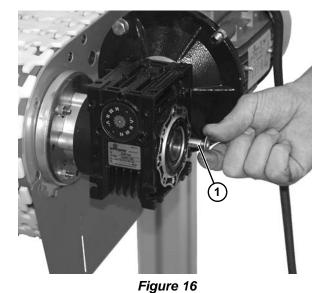


Figure 15

4. Install and tighten flat head screw (Figure 16, item 1) onto the drive shaft.



Install drive motor stand mounting bracket (Figure 17, item 1) onto the drive motor (Figure 17, item 2) with four washers and socket head screws (Figure 17, item 3).

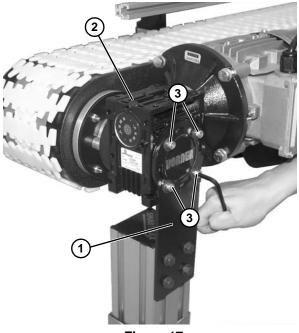


Figure 17

Install Guiding

All guiding must be located and installed by the end user.

Standard 1.5" and 3" Guiding

1. Install stud (Figure 18, item 1) onto retaining clip (Figure 18, item 2) with nut (Figure 18, item 3).

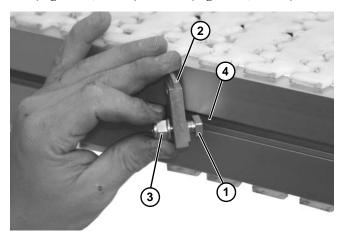


Figure 18

- Install stud (Figure 18, item 1) into side rail channel (Figure 18, item 4). The end clips should be no greater than 12" from end of the conveyor.
- 3. Fasten retaining clip (Figure 19, item 1) to conveyor with nut (Figure 19, item 2) on stud.

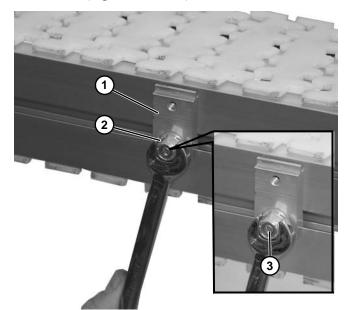


Figure 19

NOTE

Be certain that slot (Figure 19, item 3) is close to vertical when finished tightening nut.

4. Tighten nuts (Figure 19, item 2).

 Install guide (Figure 20, item 1) and retaining clip (Figure 20, item 2) to conveyor side rail with socket head screw (Figure 20, item 3).

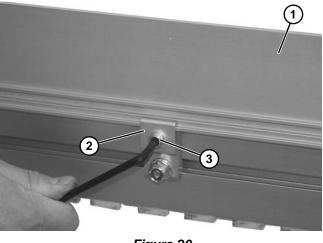


Figure 20

Adjustable Guides

1. Install guide bracket assembly (Figure 21, item 1) into the conveyor t-slot (Figure 21, item 2).

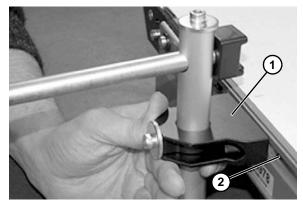


Figure 21

 Tighten screws (Figure 22, item 1) making sure t-nut (Figure 22, item 2) rotates and engages inside of the tslot.

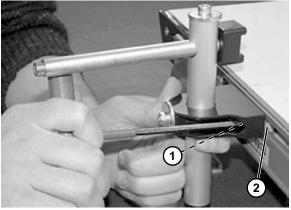


Figure 22

3. Loosen screw (Figure 23, item 1) on end of shaft (Figure 23, item 2) to remove clip (Figure 24, item 1).

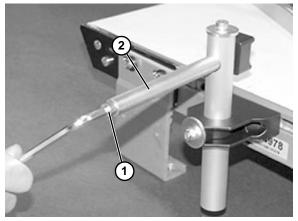


Figure 23

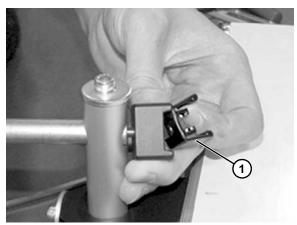
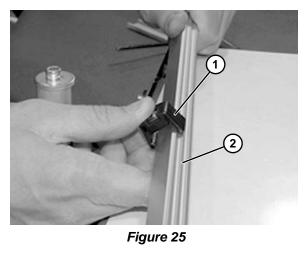


Figure 24

4. Snap clip (Figure 25, item 1) onto guide rail (Figure 25, item 2).



5. Reassemble clip (Figure 26, item 1) and attach to shaft (Figure 26, item 2). Tighten screw (Figure 23, item 1) on end of shaft.

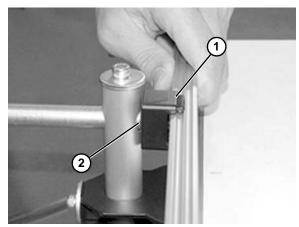


Figure 26

6. Adjust rail width with top screw (Figure 27, item 1).

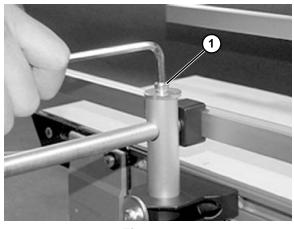


Figure 27

7. Adjust rail height with lower screw (Figure 28, item 1).

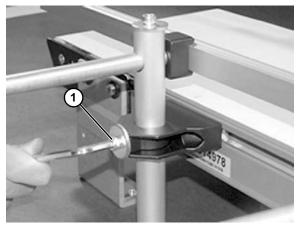


Figure 28

Required Tools

- 3/32" hex wrench
- 3 mm hex wrench
- 4 mm hex wrench
- 5 mm hex wrench
- 6 mm hex wrench
- 8 mm hex wrench
- 10 mm wrench
- 13 mm wrench
- 16 mm wrench
- Belt Removal Tool #203480

Checklist

• Replace any worn or damaged parts.

Lubrication

No lubrication is required. Replace bearings if worn.

Maintaining the Conveyor Belt

Troubleshooting

NOTE

Visit www.dorner.com for complete list of troubleshooting solutions.

Inspect conveyor belt for:

- Surface cuts or wear
- Skipping

Damage to belt links or rods, surface cuts and / or wear indicate:

- Sharp or heavy parts impacting belt
- Jammed parts
- Accumulated dirt
- Foreign material inside the conveyor
- Improperly positioned accessories
- Skipping indicates:
- Excessive load on belt
- Worn spindle or impacted dirt on drive spindle

Conveyor Belt Replacement



Replacing a Section of Belt

parts can cause serious injury.

1. Use a punch and hammer or belt removal tool #203480 to push the belt rod (Figure 29, item 1) out by striking the rod end.

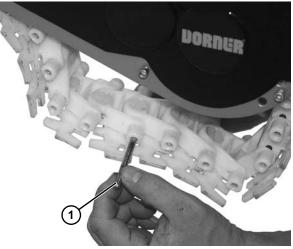


Figure 29

WARNING



SEVERE HAZARD!

If conveyor belt is damaged or worn, replace belt section.

- 2. Remove the belt rods on both sides of the section of belt being replaced.
- 3. Replace old section of belt.

ACAUTION

DO NOT reuse belt rods that are damaged or show signs of wear.

NOTE

The stainless steel bearings (**Figure 30**, *item* **1**) are positioned on the inside radius of the curve.

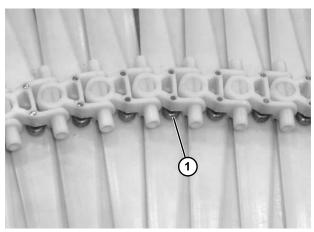


Figure 30

NOTE

Before inserting belt rod to connect belt ends, be certain that the slack on belt is showing in slotted area (Figure 31, item 1) on convey or drive end.

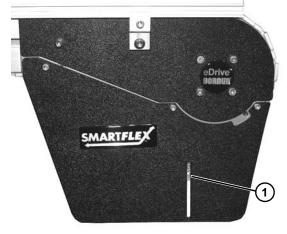


Figure 31

Replacing the Entire Belt

1. Use a punch and hammer or belt removal tool #203480 to push the belt rod (Figure 32, item 1) out by striking the rod end.

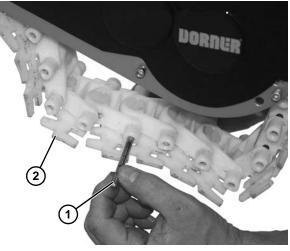


Figure 32

- 2. Slide the old belt (Figure 32, item 2) off the conveyor frame.
- 3. Replace the old belt with a new one. Refer to "Belt Installation" on page 7.

NOTE

Drive spindle shaft assembly replacement is recommended with belt replacement (see "Drive Spindle Shaft Assembly" on page 19).

ACAUTION

DO NOT reuse belt rods that are damaged or show signs of wear.

Conveyor Belt Tensioning



NOTE

Belt should not be stretched during installation. A proper length of belt can be installed by interlocking the ends by hand without excess links.

1. Remove one or more belt links to take up tension. Refer to "Replacing a Section of Belt" on page 12.

NOTE

Before inserting belt rod to connect belt ends, be certain that the slack on belt is showing in slotted area (Figure 33, item 1) on convey or drive end.



Figure 33

Wear Strip Removal

Replace the wear strips if they become worn.

NOTE

Top and bottom wear strips are shipped pinned/attached at various places on conveyor.

- 1. Remove belt. See "Conveyor Belt Replacement" on page 12.
- 2. Remove wear strip (Figure 34, item 1) from top of frame assembly up to pinned end (Figure 34, item 2).



- 3. Cut and remove worn wear strip section and replace with new wear strip. See "Wear Strip Installation" on page 14.
- 4. Remove lower wear strips, as needed, repeat procedure used for upper wear strips.

Wear Strip Installation

NOTE

There are two types of wear strips, standard and high performance. The high performance wear strip is used with the stainless steel bearings.

The stainless steel bearings must be located at the same position as the high performance wear strip when installing the belt.

On the 180 and 260 width conveyors, the high performance wear strip is located at position 2 (Figure 35, item 2). The standard wear strips are located at positions 1, 3, and 4 (Figure 35, item 1, 3, and 4).

On the 085 width conveyors, the high performance wear strip is located at position 1 (Figure 35, item 1). The standard wear strip is located at position 2 (Figure 35, item 2). There is no position 3 or 4 on the 085 width conveyors.

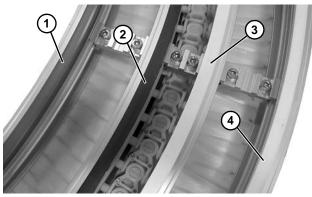


Figure 35

1. Remove wear strips. See "Wear Strip Removal" on page 14.

Attaching Wear Strip on Straight Frame

1. Start the wear strips (Figure 36, item 1) at an idler end (Figure 36, item 2) of conveyor. Separate the top and bottom flange of the wear strip at the end of rail and press into place.

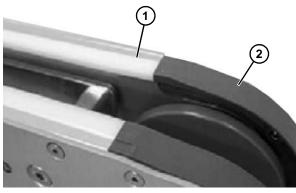


Figure 36

2. Make sure the wear strip (Figure 37, item 1) is properly mounted and snaps onto the frame (Figure 37, item 2). Please identify the longer flange of the wear strip must always face the inside of the conveyor.

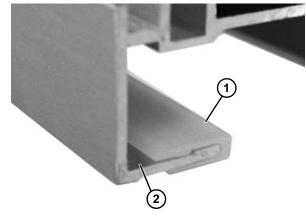
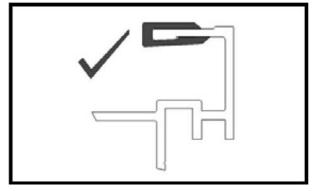
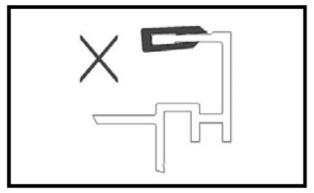


Figure 37



Correct Installation



Wrong Installation

Attaching Wear Strip on Conveyor Frame

1. Cut both wear strip (Figure 38, item 1) ends in a 45° angle. The beginning of a new wear strip (in the direction of travel) must cut back a small angle.

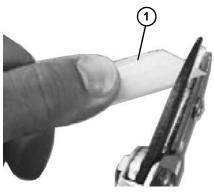


Figure 38

Allow a space of approximately 1/16" to 1/8" (Figure 2. **39**, item 1) between two wear strip ends. The travel direction is indicated by arrow.

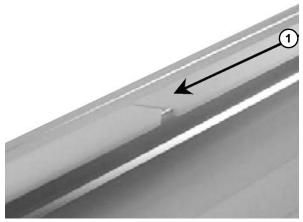


Figure 39

3. Do not place two wear strip joints opposite each other. Make sure there is a distance of at least 4" (Figure 40, item 1) between them to make the chain run smoother. This does not apply to a wear strip that begins by an idler unit or after a drive tail, where joints are always parallel.

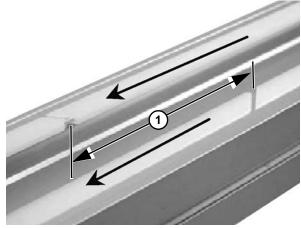


Figure 40

NOTE

Try to let the wear strip run in continuous lengths as much as possible by reducing the number of breaks, except in circumstances stated below:

- It is recommended to use short wear strips (75"- 100") where chemicals may have an effect on the wear strip composition.
- It is important to cut the wear strip and allow for elongation in high load areas. Cutting is required at idler tails and where the conveyor will be heavily loaded, especially at drive unit. This prevents the wear strip from stretching out and entering into the drive tail, which may block the chain movement.
- Never join wear strip in horizontal or vertical bends, since forces are higher on the wear strip side in these sections. Instead, place the joint before the bend.
- Avoid joining wear strips on top of the conveyor frame joints.

Attaching Wear Strip

1. Attach wear strip replacement tool (Figure 41, item 1) over wear strip (Figure 41, item 2) and frame near the beginning of each wear strip section. Tightly secure in place.

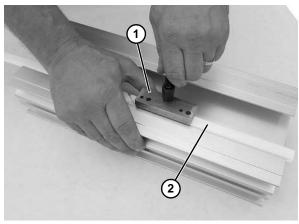


Figure 41

Using the wear strip replacement tool (Figure 42, item 1) drill two holes through the two small location holes (Figure 42, item 2) through the wear strip and frame using the #18 drill bit from the wear strip replacement kit.

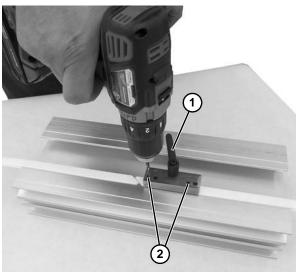


Figure 42

- 3. Remove debris from conveyor frame.
- 4. Relocate wear strip replacement tool to align the two larger guide holes with the holes drilled in the frame.

Pressing down firmly, install nylon set screws (Figure 43, item 1) through larger guide holes (Figure 43, item 2) into conveyor frame.

NOTE

Nylon set screw should be almost flush with the wear strip top when installed correctly.

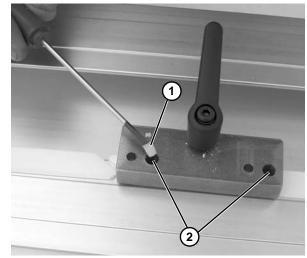


Figure 43

6. Using a file, scrape off the top of the nylon set screw above the wear strip (Figure 44, item 1) to assure a smooth surface for the belt.

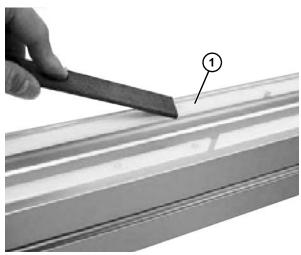
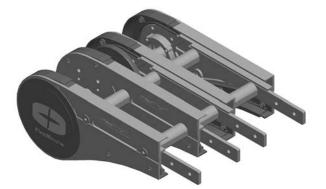


Figure 44

Idler Pulley Assembly



85 mm Idler Pulley



180 and 260 mm Idler Pulley



1. Remove three flat head screws (Figure 45, item 1).

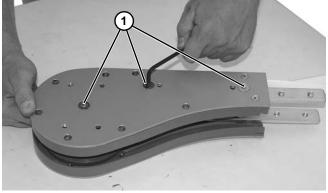


Figure 45

2. Remove the head plate (Figure 46, item 1) from the idler end.

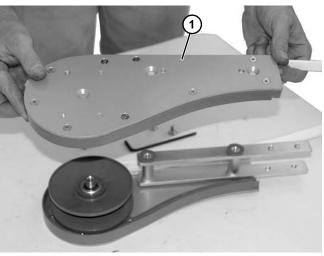


Figure 46

3. Remove flat head screw (Figure 47, item 1) and remove idler pulley (Figure 47, item 2) from idler head plate assembly.

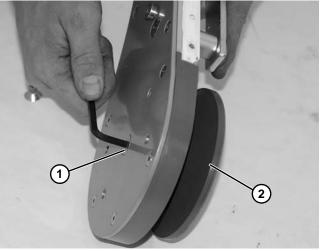


Figure 47

4. Install components reverse of removal.

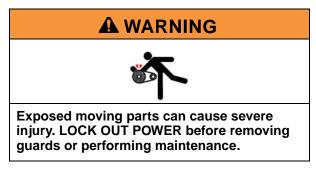
Drive Spindle Shaft Assembly



85 mm Drive Spindle Shaft Assembly



180 and 260 mm Drive Spindle Shaft Assembly



- 1. Remove the gearmotor.
- 2. Loosen two socket head set screws (Figure 48, item 1) on each side of conveyor, and remove the drive tail assembly (Figure 48, item 2) from the conveyor frame (Figure 48, item 3).

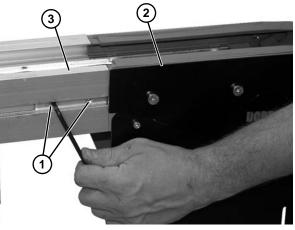


Figure 48

3. Remove four socket head screws (Figure 49, item 1) on side of drive spindle.

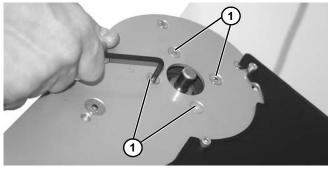


Figure 49

4. Remove two socket head screws (Figure 50, item 1) on side of drive spindle.

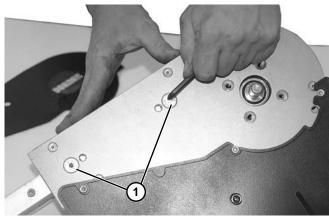


Figure 50

5. Remove the head plate (Figure 51, item 1) from the drive end.

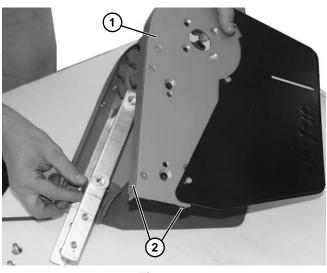


Figure 51

- To remove upper and lower retaining guides (Figure 51, item 2), see "Retaining Guide Replacement" on page 20.
- 7. Remove spindle shaft assembly (Figure 52, item 1) from idler head plate assembly.

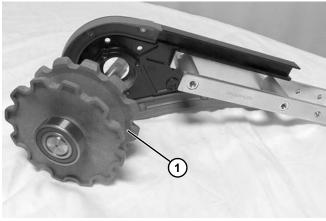


Figure 52

8. Install components reverse of removal.

Retaining Guide Replacement

- 1. Remove drive spindle shaft assembly. See "Drive Spindle Shaft Assembly" on page 19.
- 2. Remove three socket head screws (Figure 53, item 1) and remove drive plate guard (Figure 53, item 2) from drive plate (Figure 53, item 3).

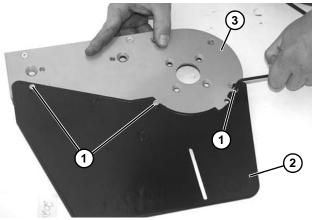


Figure 53

3. Remove two socket head screws (Figure 54, item 1).

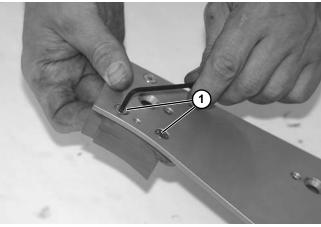


Figure 54

4. Remove lower retaining guide (Figure 55, item 1) from drive plate (Figure 55, item 2).

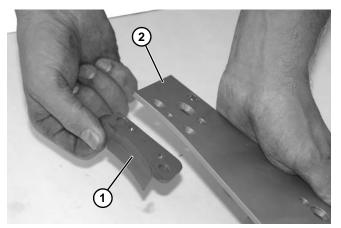


Figure 55

5. Remove three socket head screws (Figure 56, item 1).

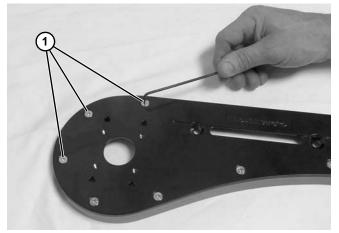


Figure 56

6. Remove upper retaining guide (Figure 57, item 1) from drive plate (Figure 57, item 2).

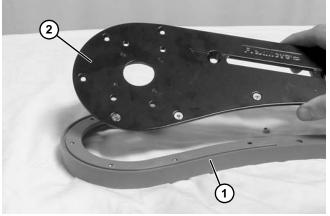


Figure 57

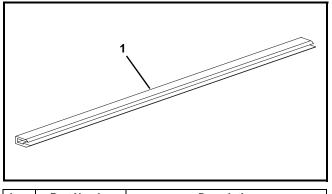
7. Install components reverse of removal.

Service Parts

NOTE

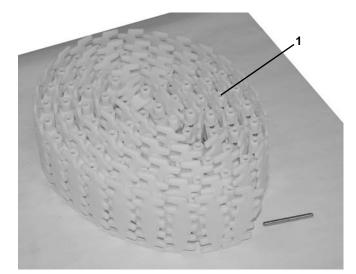
For replacement parts other than those shown in this section, contact an authorized Dorner Service Center or the factory. Key Service Parts and Kits are identified by the Performance Parts Kits logo C. Dorner recommends keeping these parts on hand.

Wear Strips



Item	Item Part Number Description				
1	206400	High Performance Wear Strip (per foot)			
	834-FASR-25U	Standard Wear Strip (per foot)			

Replacement Chain



ltem	Part Number	Description
1	834-FMFT-5R-RB	Chain for 85 mm wide conveyor Clockwise turning
	834-FUFT-5R-RB	Chain for 180 mm wide conveyor Clockwise turning
	834-FVFT-5R-RB	Chain for 260 mm wide conveyor Clockwise turning
	834-FMFT-5R-LB	Chain for 85 mm wide conveyor Counter-Clockwise turning
	834-FUFT-5R-LB	Chain for 180 mm wide conveyor Counter-Clockwise turning
	834-FVFT-5R-LB	Chain for 260 mm wide conveyor Counter-Clockwise turning

Notes

Return Policy

Returns must have prior written factory authorization or they will not be accepted. Items that are returned to Dorner without authorization will not be credited nor returned to the original sender. When calling for authorization, please have the following information ready for the Dorner factory representative or your local distributor:

- 1. Name and address of customer.
- 2. Dorner part number(s) of item(s) being returned.
- 3. Reason for return.
- 4. Customer's original order number used when ordering the item(s).
- 5. Dorner or distributor invoice number. Include part serial number if available.

A representative will discuss action to be taken on the returned items and provide a Returned Materials Authorization (RMA) number for reference. RMA will automatically close 30 days after being issued. To get credit, items must be new and undamaged. There will be a return charge on all items returned for credit, where Dorner was not at fault. It is the customer's responsibility to prevent damage during return shipping. Damaged or modified items will not be accepted. The customer is responsible for return freight.

	Product Type								
							Engineered to order parts		
Product Line	Conveyors	Gearmotors & Mounting Packages	Support Stands	Accessories	Spare Parts (non-belt)	Spare Belts - Standard Flat Fabric	Spare Belts - Cleated & Specialty Fabric	Spare Belts - Plastic Chain	All equipment and parts
1100									
2200 Belted									
2200 Modular Belt									
2200 Metalworking		30% return fee for all products except:							
2200 Precision Move									
2200 Pallet Systems		50% return fee for conveyors with modular belt,							
3200 Belted		cleated belt or speciality belts non-returnable						case-by-case	
3200 Modular Belt									
3200 Precision Move	All Electr	All Electrical items are assigned original manufacturers return policy.							
4100									
6200									
FlexMove/SmartFlex									
All Electrical									
7200 / 7300		50% return fee for all products							
7100									
7350									
7360	1								
7400	non-returnable								
7600	1								
7400 & 7600 Ultimate Series									

Returns will not be accepted after 60 days from original invoice date. The return charge covers inspection, cleaning, disassembly, disposal and reissuing of components to inventory. If a replacement is needed prior to evaluation of returned item, a purchase order must be issued. Credit (if any) is issued only after return and evaluation is complete.

Dorner has representatives throughout the world. Contact Dorner for the name of your local representative. Our Customer Service Team will gladly help with your questions on Dorner products.

For a copy of Dorner's Warranty, contact Dorner, an authorized sales channel or visit our website: www.dorner.com.

For replacement parts, contact an authorized Dorner Service Center or the factory.



Dorner Mfg. Corp. reserves the right to change or discontinue products without notice. All products and services are covered in accordance with our standard warranty. All rights reserved. © Dorner Mfg. Corp. 2017

DORNER MFG. CORP.

975 Cottonwood Ave., PO Box 20 Hartland, WI 53029-0020 USA TEL 1-800-397-8664 (USA) FAX 1-800-369-2440 (USA) Web: www.dorner.com

Outside the USA: TEL 1-262-367-7600 FAX 1-262-367-5827