Series K

Belt-on-Slider, Belt-on-Roller, and Empty Carton Conveyor

Installation and Maintenance Manual

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Document Structure

Due to the size and amount of content in this document, it has been organized such that each section can be printed as a “stand-alone” document.

Important Message

Trew places an emphasizes on the user’s safety. It is strongly encouraged that the user thoroughly reads and understands the contents of Chapter 2.

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Acronyms and Abbreviations

BF	Bed Frame
BOR	Belt on Roller
BOS	Belt on Slider
CH	Chain Drive
ECC	Empty Carton Conveyor
FPM	Feet Per Minute
HP	Horsepower
HS	High Speed
Lbs.	Pounds (weight)
OSHA	Occupation Safety and Health Administration
PF	Power Feeder
PM	Preventative Maintenance
P/N	Part Number
PSI	Pressure per Square Inch
PT	Power Tail
RSH	Roller Set High
RSL	Roller Set Low
SME	Subject Matter Expert
V	Volt(s)
VFD	Variable Frequency Drive

Chapter 1 - Series K

Conveyor Overview

(Section Page Range: 8-17)

1.1 Introduction

Series K Conveyor is used for transporting products from one location to another. This conveyor is powered by an AC motor/reducer which moves a smooth top, longitudinal ribbed, quad top, or standard top belt depending on the application.

There are three types of belted Series K Conveyor: Belt on Roller (BOR), Belt on Slider (BOS), and Empty Carton Conveyor (ECC) to be implemented in several applications: inclines, declines, horizontal transportation, product gapping, product scanning, pre-sort tracking, etc. The Series K line is capable of successfully transporting corrugated boxes, totes, dunnage, jiffys, polybags, empty cartons, etc.

1.2 Component Modules and Features

1.2.1 Series K Belt-on-Roller

Series K BOR conveyor is capable of product transportation for horizontal, incline, or decline applications. Transportation of product is done by a single belt with a width of (BF width) – 2” spans the length of the BOR conveyor unit and is driven by a single 230/460V drive. BOR beds have a roller spacing of 6” center-to-center which supports the belt and product. A BOR conveyor unit can be composed of Terminal Ends, intermediate beds, power feeder/tail or two-pulley hitch, noseovers, takeup bed, and a drive.

1.2.2 Series K Belt-on-Slider Conveyor

Series K BOS conveyor is capable of product transportation for horizontal or decline applications. Transportation of product is done by a single belt with a width of (BF width – 2”) and spans the length of the BOS conveyor unit. BOS beds have slider pans supporting the belt and product, and the belt is driven by a single 230/460V drive. A BOS conveyor unit can be composed of Terminal Ends, intermediate beds, power feeder/tail or two-pulley hitch, noseovers, takeup bed, and a drive.

1.2.3 Series K Empty Carton Conveyor

Series K ECC is capable of product transportation of empty corrugated material for horizontal and incline applications. Transportation of product is done by two belts with a width of (BF width – 2”) and spans the length of the ECC conveyor unit. ECC beds have slider pans on the outsides of the transportation surface to prevent catchpoints for empty corrugated material to get caught under the belts. In between the pans are rollers to lower friction, allowing for longer conveyors with less HP. The belts are driven by a single 230/460V drive. An ECC conveyor unit can be composed of terminal ends, waterfall, intermediate beds, a two-pulley hitch, noseovers, takeup beds, and a drive.

Figure 1: Series K Bed Frame

1.3 Modules

Series K has eight main modules that may differ across the product lines:

- Intermediates
- Terminal ends
- Nose overs
- Power feeders/tails
- Two pulley hitches
- Drives
- Auxiliary take-ups.
- Waterfall

Figure 2: Empty Carton Conveyor

1.3.1 Intermediates

The intermediate sections are located in between the terminal end modules or end drives and transport the belt by way of slider pans, rollers, or a combination of the two in the case of the ECC product line.

On slider pan intermediates, the belt slides on a galvanized steel plate. It has a smooth flat surface for both the belt and the product and is extremely effective when moving irregular shaped objects, small objects, and unstable objects. Due to the stability the slider pan provides during transportation, this belt is typically used for gapping, scanning, product tracking, merging, and other applications where the position and stability of the conveyable is critical. The slider pan leads to increased friction between the belt which may decrease the maximum overall unit length when compared to the roller sections.

For BOR intermediates, the belt travels on carrier rollers. This module is typically used for inclines, declines, and maximizing the horizontal distance of a transportation unit.

The ECC product line uses a combination of slider pan and roller intermediates. When installed this module looks exactly like BOS, but has rollers underneath the belt which allows the unit's length to be maximized while eliminating the roller gaps that the empty cartons, polybags, or other conveyable products could potentially fall in. It is important to note that our standard belt width is 2" less than the between frame width of the unit, meaning that belt on roller sections have a 0"-2" gap between the belt and the inside part of the frame's side channel. This is typically not an issue for BOR intermediates because the size of the product is known and if the width of the conveyable is a concern, the belt on slider bed can be applied instead. Due to the nature of the ECC line needing to handle exhausted or destroyed conveyable containers that could potentially be any size, it is imperative to have the space between the belt and the frame's side channel be filled with slider pan.

1.3.2 Terminal Ends

The Terminal End modules for Series K, shown in Figure 3, are universal for the BOR, BOS, and ECC product lines. Knife Edge Terminal End modules have smaller end pulley diameters than the standard end that help convey items that are shorter in length or irregular shape.

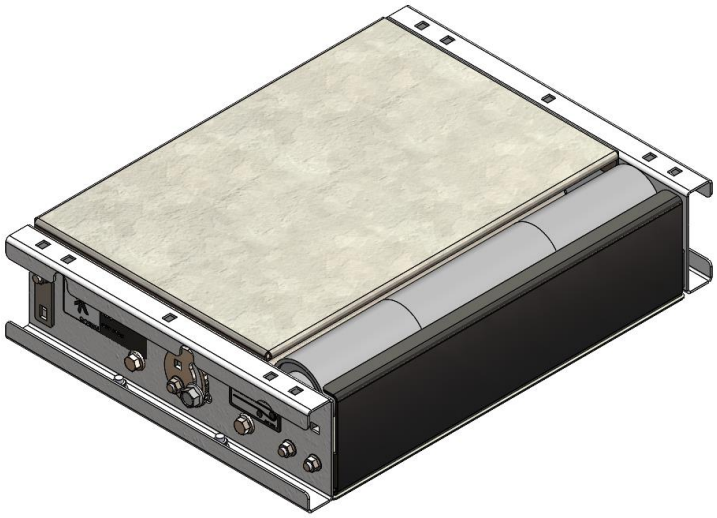


Figure 3: Terminal End

1.3.3 Nose Overs

Nose overs are used to provide a curved transition between an incline/decline bed and a horizontal bed for the same unit. The nose over is adjustable from 0° - 20° and is universal across all Series K belted product lines. Please note that it is not always necessary for a unit to end horizontally.

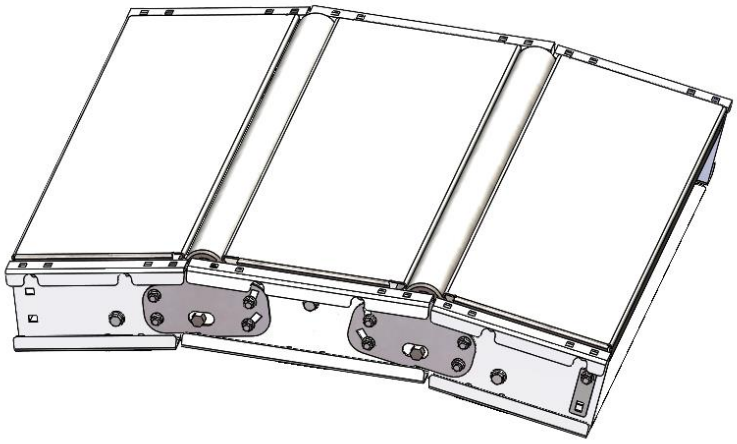


Figure 4: Nose Over

More commonly found in ECC, sometimes a unit's discharge is on an incline. Shown in **Error! Reference source not found.** below is an example of an ECC unit ending on an incline feeding a unit running perpendicular to the flow of the incline.

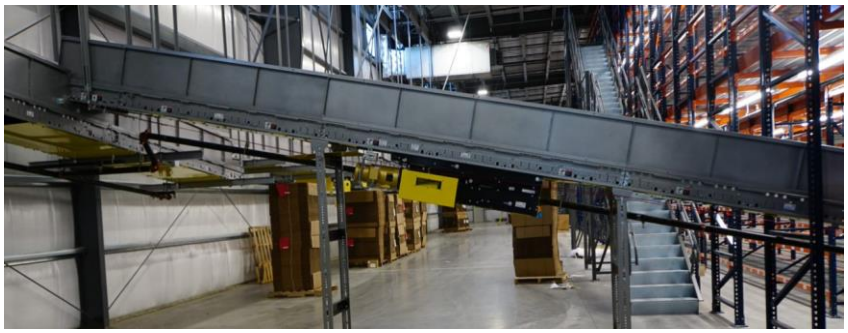


Figure 5: Empty Carton Conveyor perpendicular transition

The Power Feeder is mounted at the charge end of an incline and the Power Tail is mounted at the discharge end of a declining Belt on Roller or Belt on Slider unit and will not be found on an ECC unit (see Two Pulley Hitch for more information). The purpose of a Power Feeder and Power Tail is to smooth the transition of product from a horizontal to incline position or a declined to horizontal position (See Figure 6).

1.3.4 Power Feeder/Power Tails

Power Feeders and Power Tails have a belt that is separate from the incline or decline to have it run slightly slower or faster than the incline or decline it is associated with. This speed difference is achieved through a sprocket ratio increase or reduction in the transmission of power from the incline/declined portion of the unit to the Power Feeder or Power Tail. This is a key component of ensuring smooth transition from horizontal to inclined travel and vice versa.

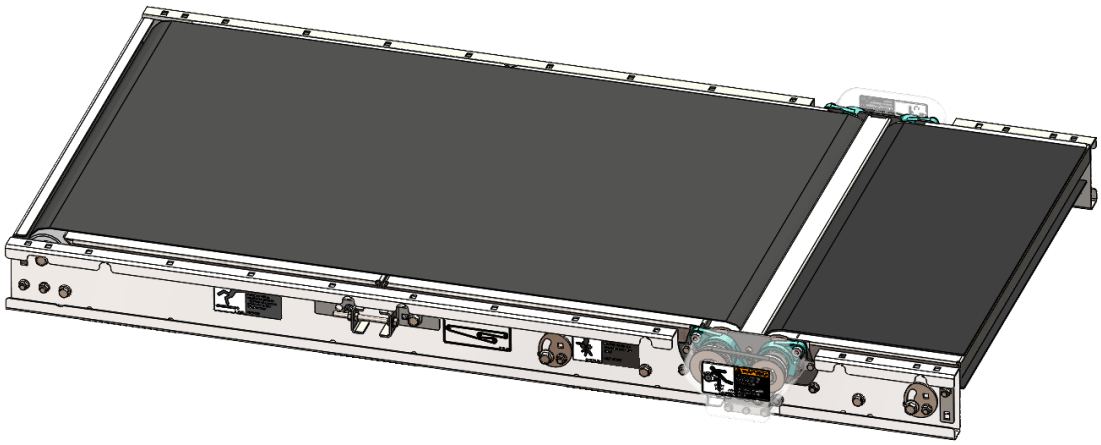


Figure 6: Power Feeder

1.3.5 Two Pulley Hitch

Like a Power Feeder, the Two Pulley Hitch is used on ECC to bridge a horizontal portion of the unit to an incline. Dissimilar to the section above, the Two Pulley Hitch allows for a single belt to be used in the transition from horizontal travel to inclined travel. This module should not be used on declines. See Figure 7.

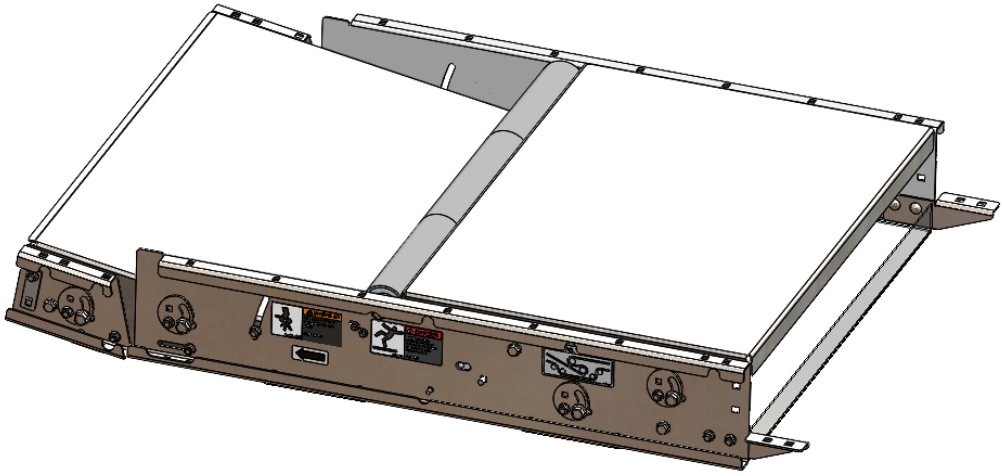


Figure 7: Two Pulley Hitch

1.3.6 Drives

There are two types of drives available for Series K belted product lines: Center Drives and End Drives. If the conveyor is equipped with a Center Drive (see Figure 8), it will be mounted to the underside of an intermediate section closest to the Terminal End on the discharge end of the unit. If the drive is part of an inclined/declined unit, it will likely have a brake. The reason for this is to maintain belt/product position in the event the unit loses power.

Figure 8: Center Drive

The End Drive shown in Figure 9 below is a side mounted drive that powers the End Idler and is typically used in low clearance situations.

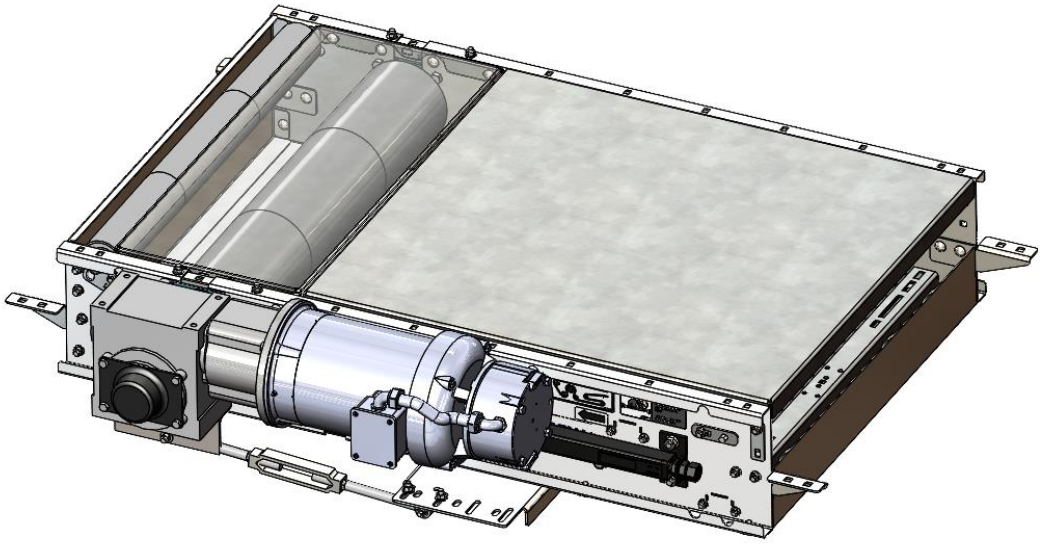


Figure 9: End Drive

1.3.7 Auxiliary Take-ups

Auxiliary take-ups are used to maintain tension on the conveyor's belt using a pulley with an adjustable position. Each take-up can adjust the movable pulley by 12" which can take-up 24" of belt. The Auxiliary Take-Up module is 48" long and bolts to the bottom of an intermediate section. See Figure 10.

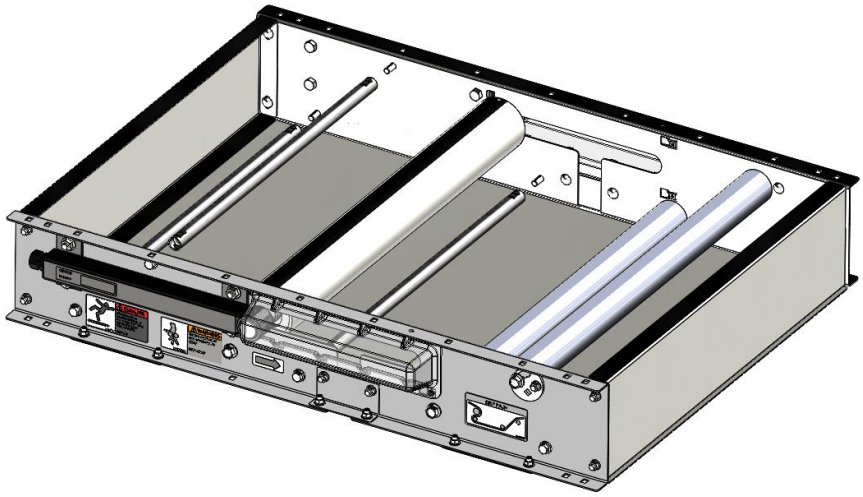


Figure 10: Auxiliary Take-Up

1.3.8 Waterfall Transition

Waterfall transitions are used to bridge two horizontal ECC conveyors. Figure 11 shows the Waterfall Transition.

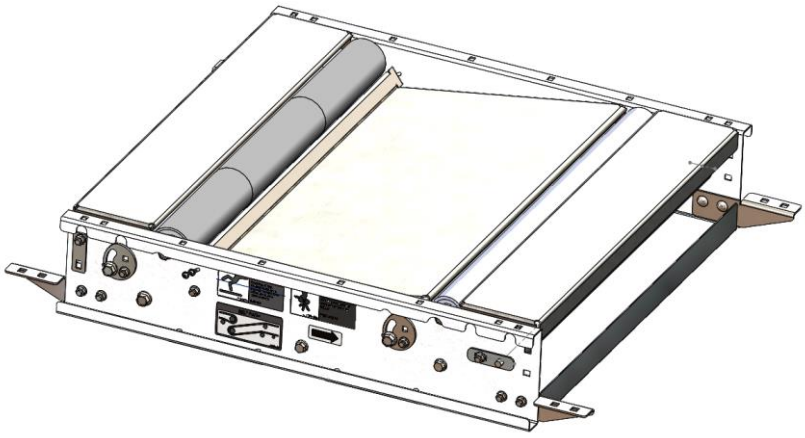


Figure 11: Waterfall Transition

1.4 Specifications

Table 1: Specifications

General Conveyor	Belt on Roller/Belt on Slider	Empty Carton Conveyor
Width (BF)	15”, 21”, 27”, 32”, 36”	21”, 27”, 36”, 39”, 45”
Intermediate Length	3’, 6’, 9’, 12’	
Speed	60 – 300 FPMspe	
Horsepower	1, 2, 3, 5, 7.5 HP	
Capacity	50 lbs./ft	
Electric	230/460V 3 Phase 60 HZ	
Universal Modules	Bolt-on drives, two pulley hitch, auxiliary take-up, knife edge terminal end, standard terminal end, power feeder/tail, nose over	

Chapter 2 - Safety

(Section Page Range: 18-26)

2.1 Safety

2.1.1 Safety Rules, Procedures and General Practices

1) Only trained personnel must be permitted to operate a conveyor. Training must include instruction in operation under normal conditions and emergency situations.

2) Where safety is dependent upon stopping devices or starting devices or both, they must be kept free of any obstructions that prevent their intended use.

3) The area around loading and unloading points must be kept clear of obstructions that could endanger personnel.

4) No person must ride on a conveyor unless the owner or employer specifically authorizes that person. Under those circumstances, such employees must only ride a conveyor which incorporates within its supporting structure, platforms or control stations specifically designed for carrying and controlling such events.

5) Personnel working on or near a conveyor must be instructed as to the location and operation of pertinent stopping devices.

6) A conveyor must be used to transport only the material it is designed to carry.

7) Under no circumstances must the safety features of the conveyor be altered if such alterations endanger any personnel.

8) Routine inspections and Preventative or corrective maintenance actions must be conducted to ensure that all guards and safety features and devices are retained and function properly.

9) Personnel should be alerted to all potential entanglement hazards in the conveying equipment. Items such as long hair, loose clothing or jewelry are examples of entanglement hazards.

10) Conveyors must not be maintained or serviced while in operation unless proper maintenance or service requires the conveyor to be in motion. In these events, personnel must be made aware of the hazards and how the tasks may be safely accomplished.

11) Qualified and trained personnel must only perform maintenance and service.

It is Important to establish a maintenance program to ensure that all conveyor components are maintained in a condition which does not constitute a hazard to personnel. Additional Maintenance Safety Precautions are as follows:

1) When a conveyor is stopped for maintenance or service, starting devices or power accessories must be locked or tagged out in accordance with a formalized procedure designed to protect all personnel in the event of an unexpected start.

2) Personnel must be alerted to the hazard of stored energy, which may exist after the power source is locked out. Refer to ANSI Z244.1—1982, American National Standard for Personnel Protection – Lockout/Tagout of Energy Sources – Minimum Safety Requirements, and Occupation Safety and Health Agency (OSHA) Standard 29 CFR 1910.147, “The Control of Hazardous Energy (Lockout/Tagout).”

3) Replace all safety devices and guards before starting equipment for normal operation.

4) Conveyors must not be lubricated while in operation unless it is impractical to shut the equipment down for lubrication. Only trained and qualified personnel who are aware of the hazards of the conveyor in motion must be allowed to lubricate a conveyor that is operating.

5) Guards and safety devices must be maintained in a serviceable and operational condition. Warning signs must be maintained in a legible and operational condition. Examples of warning signs are shown later in this section.

6) It is the responsibility of the owner/user to add any additional protective components that may be needed whenever changes or modifications are made to any of the equipment or in its operational characteristics.

2.1.2 Lockout/Tagout Procedure

Effective January 8, 1990, OSHA. has designated the need for a ‘positive, lockable’ means to remove all energy sources from equipment prior to service or maintenance.

The electrical power to your equipment can be locked out at the main disconnect switch, which is normally located on the electrical cabinet. When this is done, residual energy remains for a period of time in the capacitors associated with the electrical system. This residual energy is automatically depleted by features built into the equipment. After locking out the main disconnect switch, wait at least 60 seconds before beginning any maintenance procedures. This allows the residual energy to diminish. If an equipment-mounted plate indicates that you should wait longer than 60 seconds, wait the recommended period before beginning any maintenance work.

Whenever you need to perform maintenance on the equipment, or whenever you need to shut it down for any other reason, a lockout procedure must be followed. OSHA requires your employer to develop a written lockout/tagout procedure for this equipment. The following items should be considered in developing this procedure.

1. Notify everyone who normally operates, sets up, or performs maintenance on the equipment that it will be shut down.

2. Turn off all electric motors.

3. Turn off the main electrical disconnect switch.

4. Lock the main disconnect switch in the ‘Off’ position and place a tag on the switch to indicate that work is being performed on the equipment.

5. If there is any auxiliary equipment associated with the equipment, make sure the main electrical disconnect switch is also turned off for each piece of auxiliary equipment. Then lock each disconnect switch in the ‘Off’ position and tag each switch to indicate that work is being performed on the equipment.

6. Lock the air supply valves to make sure no air can be supplied to the equipment.

7. Verify that no sources of residual energy (capacitors, suspended equipment components, etc.) are present on the equipment or any piece of auxiliary equipment. If any such energy sources are located, make sure they are neutralized. If necessary, manually discharge air pressure and capacitor voltage from charged components. Also, block all suspended or spring-loaded mechanical parts to prevent movement.

8. Verify that electrical power has been disconnected from the equipment, and from any auxiliary equipment, by trying to energize the equipment and any auxiliaries with the appropriate control switches. If any piece of equipment is found to be operational, locate the electrical circuit(s) supplying the power, and disconnect all such power sources. Then lock and tag these power sources.

9. Before you begin any work on the equipment or any auxiliary equipment, make sure that at least 60 seconds has elapsed since you turned off the main disconnect switch in Step 3 (If an equipment-mounted plate indicates that you should wait longer than 60 seconds, wait the recommended period before beginning any maintenance work).

10. Verify that any equipment which may have been added, and which is not covered by Steps 1 - 10 above, is considered for the lockout/tagout procedure.

After you have completed your work on the equipment, make sure all guards, gates and other safety related devices are in place and functioning properly.

When the equipment is completely ready to resume operation, remove your lock and tag from the main electrical disconnect switch. If someone else has placed a lock and/or tag on the main disconnect, do not remove the additional lock or tag. If there is no other lock or tag on the main disconnect, turn on the main disconnect switch and the electric motors, then perform the daily safety checks.

2.1.3 Safety Labels/ Signs

To reduce the possibility of injury to personnel working around conveying equipment, warning signs are placed at various points on the equipment to alert them of potential dangers. Please check the equipment and note all warning signs. Make certain your personnel are alerted to and obey these warnings. Figure 12 shows typical signs that are attached to this equipment.

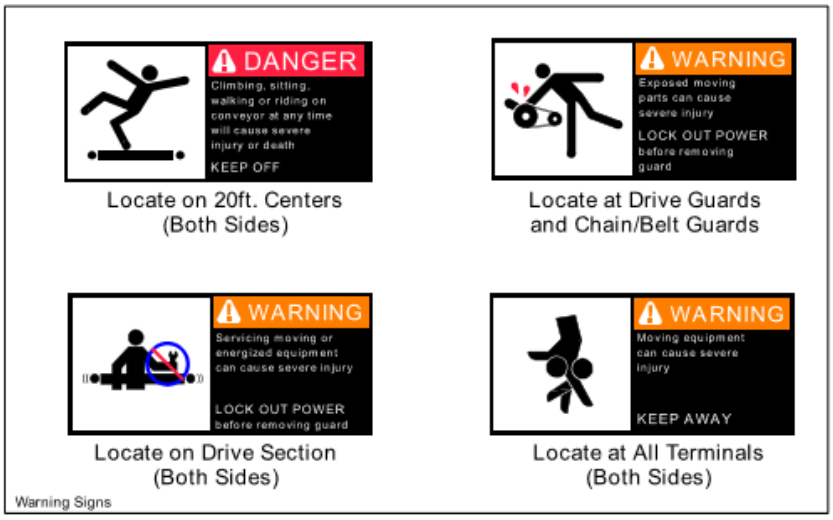


Figure 12: Safety Labels on Conveyor

2.1.4 General Safety Practices

1) General conveyor safety rules are as follows:

2) Keep jewelry, clothing, hair, etc., away from the conveyor.

3) Know the location and functionality of all start/stop devices and keep those areas free from obstruction.

4) Clear all personnel away from the equipment before starting the conveyor.

5) DO NOT touch moving conveyor parts.

6) DO NOT walk, ride, or climb on the conveyor.

7) DO NOT operate the conveyor with any of the protective guards removed.

8) DO NOT attempt to clear any project jams while the conveyor is running.

9) DO NOT load the conveyor beyond the specified design limits.

10) DO NOT attempt to make repairs to the conveyor while it is running.

11) DO NOT modify the equipment without checking with the manufacturer.

12) DO NOT operate or perform maintenance on the conveyor when taking any type of drug or sedative.

13) DO NOT operate or perform maintenance on the conveyor when under the influence of alcohol or when over-fatigued.

14) Report any unsafe condition to your supervisor or maintenance staff.

2.2 Safety Equipment Regulations

2.2.1 Guards and Guarding

All exposed moving machinery parts that present a hazard to employees must be mechanically and/or electronically guarded for personnel safety.

2.2.2 Interfacing of Equipment

When two or more pieces of conveying equipment are interfacing, this presents the potential to cause injury. Special attention (warning labels and physical guards) should be used to mitigate the risk of injury.

2.2.3 Guarded by Location or Position

Remoteness from frequent presence of public or employed personnel must constitute guarding by location. Overhead conveyors, such as trolley conveyors and hanger suspended tray conveyors, for which guarding would render the conveyor unusable or would be impracticable, must have prominent and legible warnings posted in the area or on the equipment, and, where feasible, lines must be painted on the floor delineating the danger area.

When a conveyor passes over a walkway, roadway, or workstation, it is considered guarded by location if all moving parts are at least 8 ft. (2.00 m) above the floor or walking surface or are otherwise located so that the employee cannot inadvertently encounter hazardous moving parts.

Although overhead conveyors may be guarded by location, spill guards, pan guards, or equivalent must be provided if the product may fall off the conveyor for any reason and endanger personnel.

2.2.4 Guarding Exceptions

Wherever conditions prevail that would require guarding under these standards, but such guarding would render the conveyor unusable, prominent warning means such as signs or warning lights must be provided in the area or on the equipment in lieu of guarding.

2.2.5 Headroom

If the conveying equipment is installed above exit passageways, aisles, or corridors, there must be provided a minimum clearance of 6 ft. 8 in. (2.00 m) measured vertically from the floor or walking surface to the lowest part of the conveyor or guards. If the conveying functionality is impaired by the minimum clearance, it is permissible to allow passage under conveyors with less than minimum standard if suitable warning indicates the low headroom space.

2.2.6 Controls

All electrical installations and wiring must conform to the National Electrical Code (Article 670 or other applicable articles) as published by the National Fire Protection Association and as approved by the ANSI.

2.2.7 Control Stations

Control stations should be located such that the operation of the relevant equipment is visible from its operator. Control stations must be clearly marked or labeled to indicate the function controlled.

2.2.8 Start/ Stop Controls

Conveyors with the potential of causing injury when started must not be started until all personnel are alerted by a signal or by a designated person that the conveyor is about to start.

Where safety is adversely affected by other situations (i.e., a work area with many different conveyors using various warning devices), a clear, concise, and legible warning sign must be provided. These additional warning measures should indicate that a known danger exists, and that personnel must keep clear. These warning signs must be provided along the conveyor at areas not guarded by position or location.

2.2.9 Remote and Automatic Controls

Conveyors with the potential of causing injury when remotely started must have an audible and/or an optical (i.e., a flashing light) device such that personnel may be clearly warned.

Manned areas that are beyond voice or visual contact from hazardous areas such as drive areas, loading areas, transfer points, or areas not guarded by location or position, or guards, must be furnished with emergency stop buttons, pull cords, limit switches, or similar emergency stop devices. All such emergency stop devices must be easily identifiable in the immediate vicinity of such locations unless guarded by location, position, or by guards.

Where the design, function, and operation of such conveyor clearly is not hazardous to personnel, the emergency stop device is not required. The emergency stop device must act directly on the control of the conveyor concerned and must not depend on the stopping of any other equipment. The emergency stop devices must be installed so that they cannot be overridden from other locations.

Inactive and unused actuators, controllers, and wiring should be removed from control stations and panel boards, together with obsolete diagrams, indicators, control labels, and other material which may confuse the operator.

2.2.10 Safety Devices

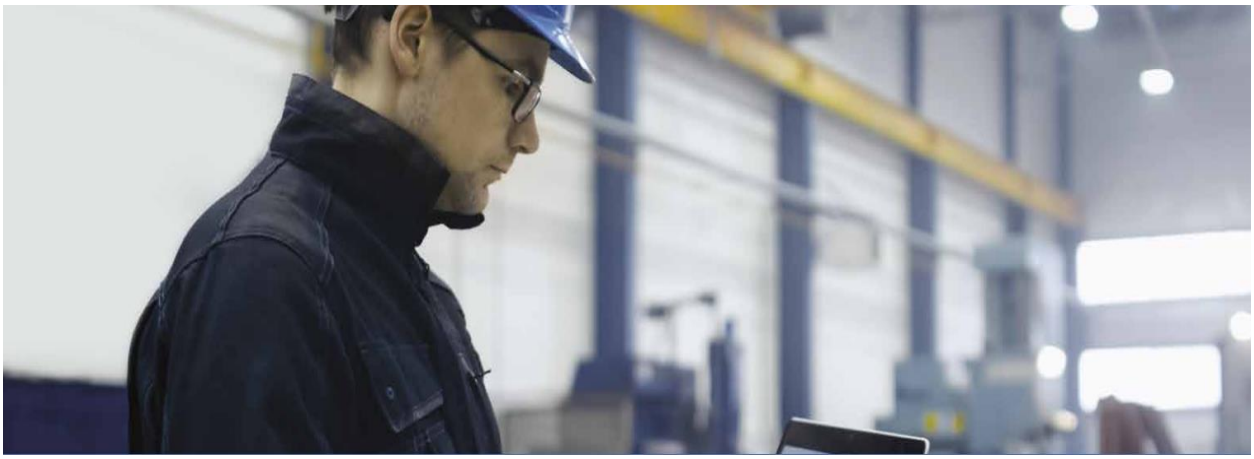
All safety devices, including wiring of electrical safety devices, must be arranged to operate such that a power failure or failure of the device itself will not result in a hazardous condition.

2.2.11 Emergency Stops and Restarts

Conveyor controls must be so arranged that, in case of emergency stop, manual reset or start at the location where the emergency stop was initiated, must be required of the conveyor(s) and associated equipment to resume operation.

Before restarting a conveyor, which has been stopped because of an emergency, an inspection of the conveyor must be made, and the cause of the stoppage will be determined. The starting device must be locked or tagged out before any attempt is made to remove the cause of the stoppage unless operation is necessary to determine the cause or to safely remove the stoppage. Refer to ANSI Z244.1-1982, American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements, and OSHA Standard 29 CFR 1910.147, “The Control of Hazardous Energy (Lockout/Tagout)”.

Chapter 3 - Installation



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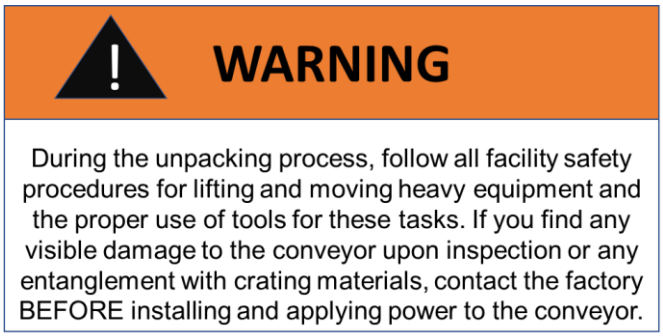
3.1 Installation

3.1.1 Receiving and Pre-Installation Inspection



During the process of unloading the material, it is important to:

1) Be sure that the quantity of items received matches the count listed on the Bill of Lading. Once the Bill of Lading has been signed, the liability for any shortage is with the receiver.

2) Inspect each item for damage to the product, especially if there is any damage to the crate or container. Any obvious shortage or damage should be noted on the Bill of Lading before it is accepted.

Damage to the product that cannot be detected upon the initial receiving inspection must be reported to the carrier within 24 hours of the receipt of the product to qualify for a damage claim against the delivering carrier. It is the responsibility of the recipient to file claims for shipping shortages or damage whenever that recipient bears the freight charges.

Please notify the distributor or contact your Trew customer service representative whenever shipment shortage or damage occurs so that support services can be provided as well as track carrier performance. If the shipment is refused, it is imperative that the distributor or your customer service representative be contacted immediately for return authorization approval to avoid demurrage costs.

If you need further assistance, please see Section 5 of this manual for information on Customer Service.

3.1.2 Installation Notes

Your conveyor has been shipped in major assemblies to simplify and accelerate the installation process. Typically, the conveyor assemblies consist of the following components listed in the General Description Section but may also include supports and accessories.

All installation should be done by a qualified installation specialist who understands conveyor and conveyor layout. Wiring and controls should always be the responsibility of experienced, licensed electricians. To ensure satisfactory performance, follow these instructions in the installation of every section of the conveyor.

Use the Layout and conveyor tags to identify a bed of conveyor to install. Each bed, support, drive, etc. is tagged with its respective identification and flow arrow.

NOTE: These identification tags (See Figure 13) provide data points which can reduce the time when communicating customer service issues.

Figure 13: Identification Tag

1. Measure across both frame section diagonals to confirm that it is square within 1/16”. (Refer to the Squaring the Conveyor section for more detail).

2. Mark a line on the floor to locate the centerline and end line of the conveyor frame.

3. Preset frame supports to proper elevation and attach the first frame section to its supports.

4. Position the conveyor according to the conveyor tag information provided.

5. Adjust the location of the conveyor using a plumb-bob to locate the center of the conveyor carrying surface relative to the centerline on the floor within a tolerance of (+/-)1/8”.

6. Adjust the frame level within a tolerance of (+/-)1/16” for each conveyor section from the charge end to the discharge end. (Refer to Leveling section for more detail).

7. Add the next frame section, leaving a 1/16” gap at the bed joints for squaring. The gap provides clearance for adjusting and squaring the frame.

8. Anchor the section in place, attach an appropriate frame coupler (if one is not already installed), and repeat Steps 5 - 10 for all additional sections. Validate Layout position matches installed position as often as possible.

9. After all the beds and supports for a unit are installed, install the drive, belt, and any accessories there may be (guardrail, etc.).

10. Run in the unit and adjust the unit as needed.

3.1.3 Squaring the Conveyor

During shipment, sections may be knocked out of square. If these conditions are not corrected before the section is installed, operating problems may occur. Be sure to check each section before installing. (See Figure 14).

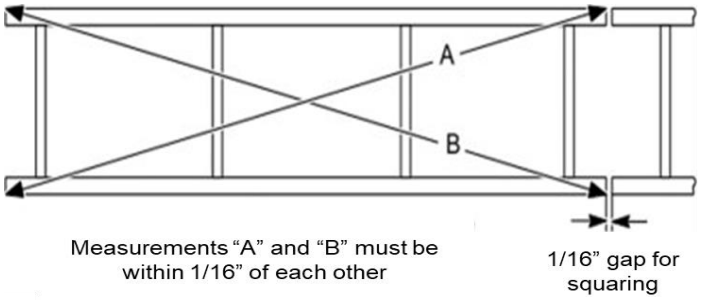


Figure 14: Squaring Conveyor

1) Measure each section diagonally from corner to corner as designated by Lines A and B in Figure 13. These measurements should be within 1/16" of each other.

2) If the measurements are not within the tolerance, attach a suitable pulling device across the corners with the longest dimension. An example of pulling devices is shown in Figure 15.

Figure 15: Ratchet Strap (shown on left), Come Along Winch (shown on right)

3) Pull the corners until the measurements are within 1/16” of each other.

4) Remove the pulling device and repeat Step 1. If the bed is not square, repeat Steps 2 - 3, as necessary.

3.1.4 Leveling

To level a conveying surface, a builder’s level, laser level, transit, or other leveling device should be employed. Adjust the frame level within a tolerance of (+/-)1/16” for each conveyor section from the charge end to the discharge end.

All conveyors are typically shipped with height-adjustable supports. These supports negate grouting and/or shimming to provide a level conveying surface. If the support boots are not adjustable, shimming or grouting may be necessary to ensure a level conveying surface.

If the conveyor is being supported from the floor, adjust the conveyor using the adjustment hardware to achieve a level conveying surface. (See Figure 16).

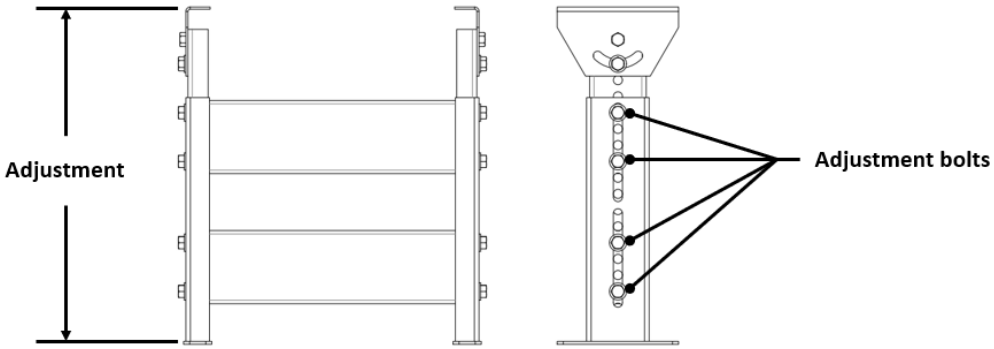


Figure 16: Adjustment/Adjustment Bolts

If the conveyor is being suspended from overhead structures, adjust the conveyor using the adjustment nuts on the Hanger Crossmember Support Rod to achieve a level conveying surface. (See Figure 17). In areas where the hanger support does not fall at a bed joint a trapezoidal splice must be used (p/n 1001564). Trapezoidal support must be located within 3’ of the bed joint or additional support structure will be required.

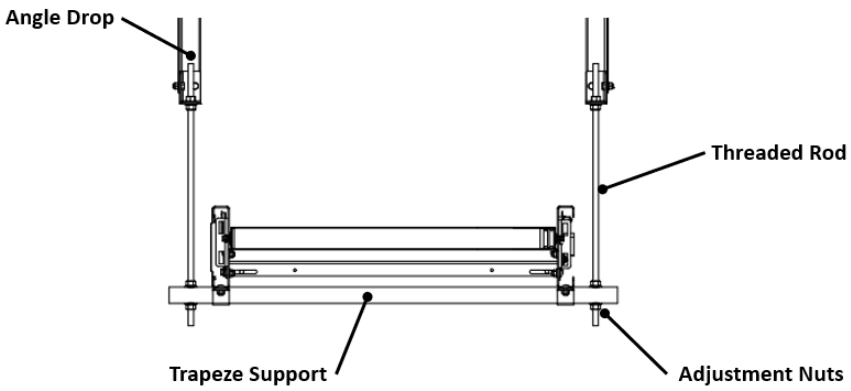


Figure 17: Adjustment for Overhead Structures

3.1.5 Bracing

Knee braces are used to give leg supports better stability by connecting to both leg support and conveyor as shown in Figure 18. The angle between knee bracing and conveyor should be no less than 30° and not to exceed 45°. If the leg support height is greater than 30”, the gap between knee bracing cannot exceed 40’.

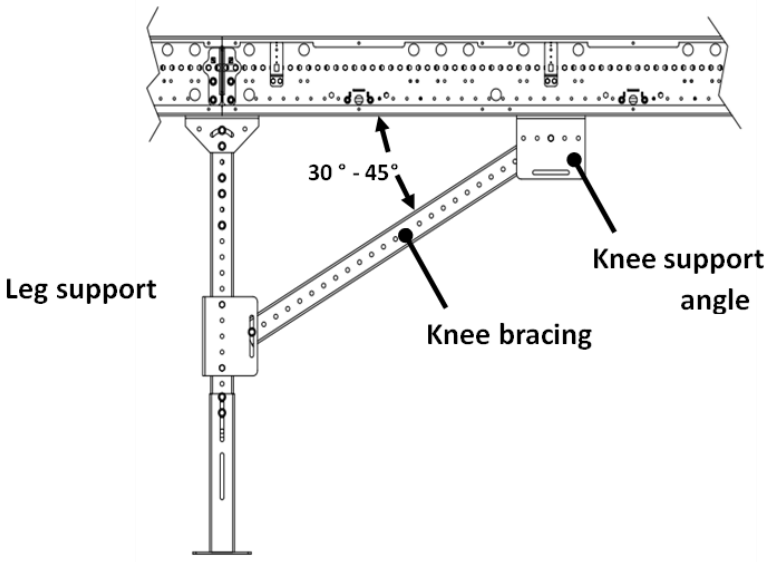


Figure 18: Knee Bracing

Scissor (sway) bracing provides extra support and reduces side movement in the HD support. Side movement is most prevalent on long straight runs and when support heights exceed 84 inches. Scissor bracing should be installed on every third support when the

support height equals or exceeds 84 inches. Each scissor brace should include (4) scissor mounting brackets and (2) scissor brace straps. See Figure 19.

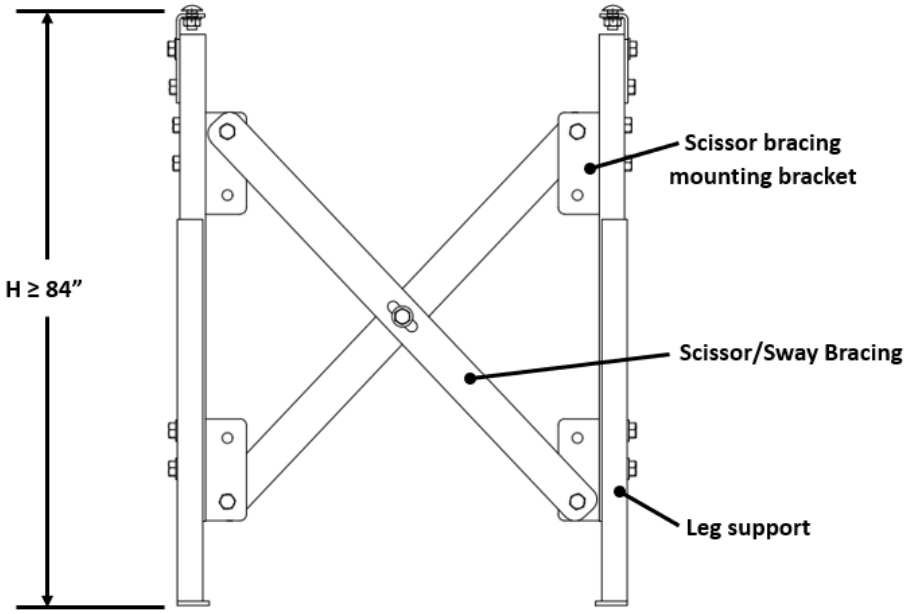


Figure 19: Scissor Bracing

WARNING

When installing ceiling hanger rods in an existing building, it is the owner’s responsibility to confirm that the structure loading and connection method is approved to by the appropriate authority to support the conveyor components and intended loads for conveyed materials and humanlive load (where applicable). Also, all methods of attachment must comply with Federal, State, and Local building codes. Failure to follow these instructions may result in serious personal injury and/or equipment damage.

3.1.6 Bed Coupling

When the belted conveyor has been leveled and aligned to its final position, fasten the sections together using the couplers provided (see Figure 20 below). The Splice Coupler is shipped with all Series K beds and should be used without exception. In areas where the hanger support does not fall at a bed joint a trapezoidal splice must be used (p/n 1001564).

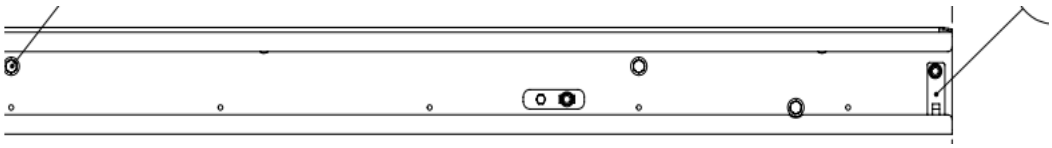


Figure 20: Splice Bracket

The preferred method of installation is to have supports at a bed joint. However, if a terminal end is not connected to an upstream or downstream conveyor, it is acceptable to cantilever the end terminal if there is a support at the nearest splice and the closest intermediate bed.

Figure 21: Support of Terminal End without Adjacent Conveyor

3.1.7 Installing Nose Overs

To achieve smooth transition of product over the nose over, the overall degree of incline or decline must be evenly divided between the pivot points that join the horizontal conveyor sections to the nose over sections. A gradual incline or decline is desired to ensure the product ascends or descends without stopping or tumbling. This adjustment can be achieved by utilizing the four top fasteners on the unit. The slope per section of incline/decline should be no more than 10 degrees. (See Figure 22).

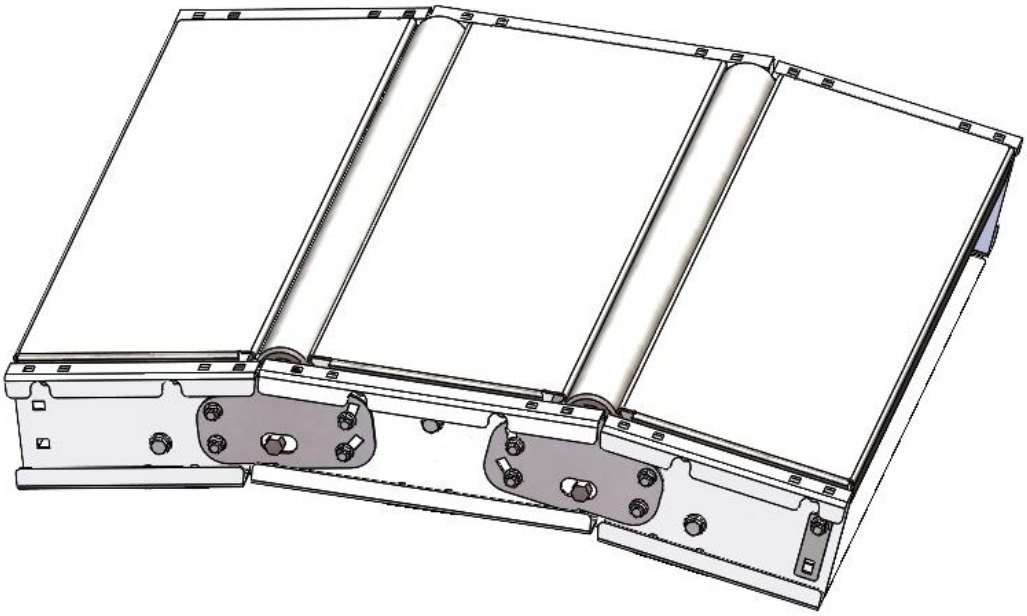


Figure 22: Nose Over

3.1.8 Installing Power Feeders

The Power Feeder must be installed properly to attain smooth product flow. If the unit is being used as an Incline conveyor, the downstream pulley and the Power Feeder pulley must be horizontal. If the unit is being used as a decline conveyor, the upstream pulley must be elevated higher than the Power Feeder pulley, to allow a smooth transition onto the Power Feeder.

The belt will come installed as part of the module so that Installation only needs to tension and track the belt. It is imperative that the rollers in Figure 22 remain square to the frame and that only the take-up roller is adjusted to track the belt. Track the belt making small adjustments no greater than 1/8“turn each. (See Figure 23).

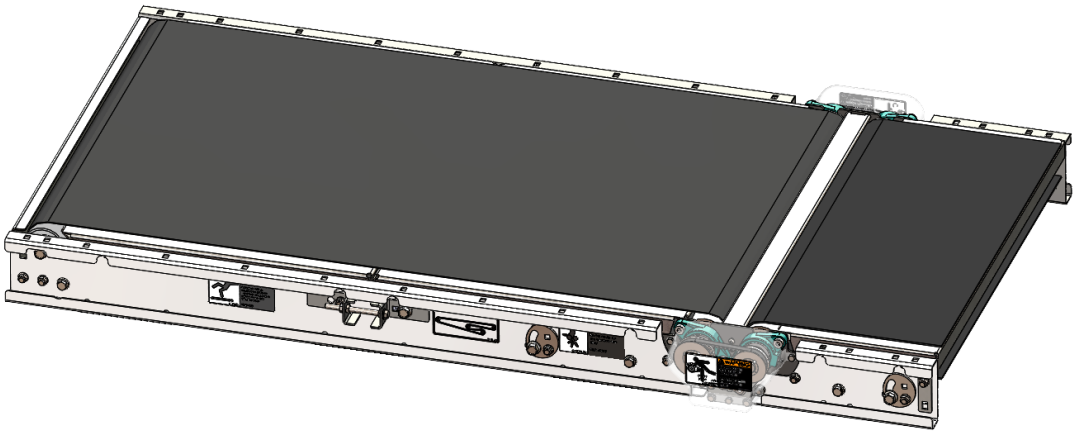


Figure 23: Power Tail

3.1.9 Installing Two Pulley Hitches

Two Pulley Hitches are typically supported at the charge and discharge end of the module. After squaring the bed and rollers, preset the module to the incline angle called out in the Layout Drawing and attach supports. All pulleys in Figure 24, should be square to the frame before proceeding.

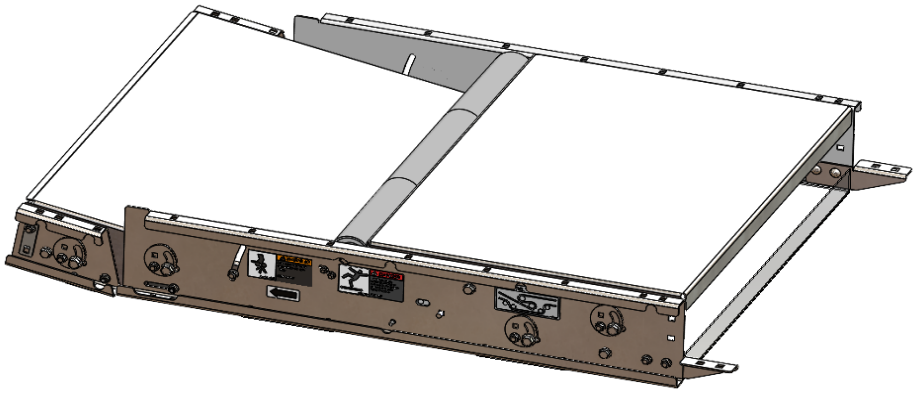


Figure 24: Two Pulley Hitch

3.1.10 Drives (Center/End)

End drives are integrated into a Terminal End assembly, making it easy to install. Before placing it on supports, ensure the bed is square and tighten the Take-up bolt to move it as close to the End Idler as possible; moving it page left shown on Figure 25. Make sure all rollers are square to the bed by measuring the bolt in reference to the adjustment block on both sides of the conveyor before proceeding.

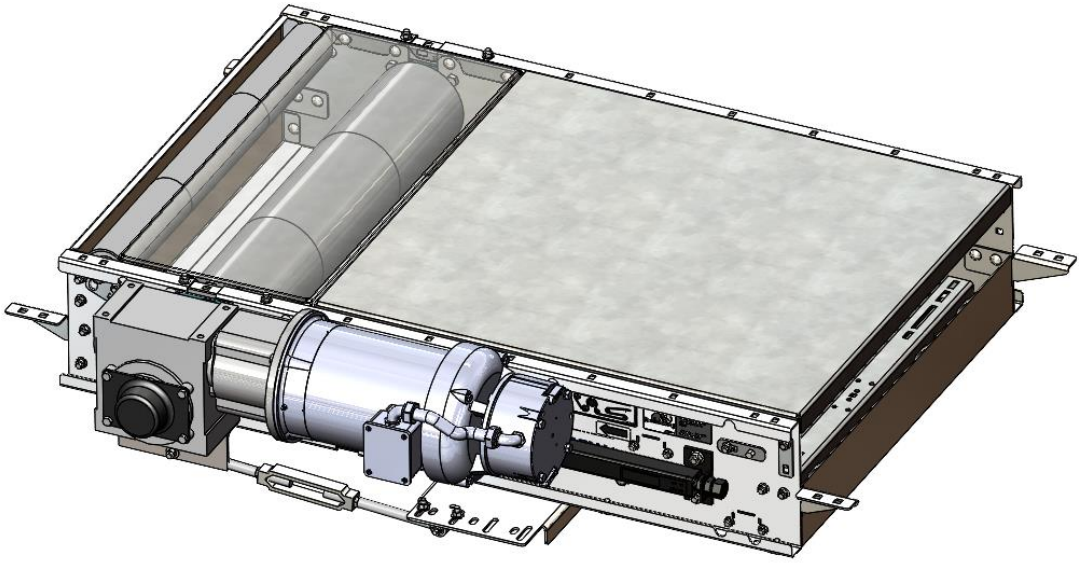


Figure 25: End Drive

Center Drives have a "diamond" cut out that aligns to the "diamond" cut out on an intermediate (See Figure 26). This diamond cut is the preferred mounting location on an intermediate bed.

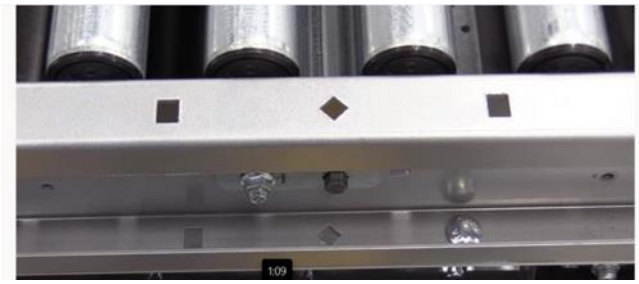


Figure 26: Center Drive Diamond Cut

Center Drives come as a separate module to the Intermediate Beds but should be installed per the engineered Layout Drawings as discussed above. Like the End Drive bed, the Take-up should be moved as close to the Drive Pulley prior to installing the belt (in Figure 27 below) and all adjustable pulleys in the picture below should be square to the frame. Both the intermediate rail bottom flange and the center drive top flange have a diamond shaped hole. The two diamonds need to be aligned. This prevents excessive load on the return rollers. The Take-up should be moved as close to the Center as possible.

Figure 27: Center Drive

3.1.11 Auxiliary Take-Ups

Like the Center Drive, the Auxiliary Take-Ups come as a separate module to the Intermediate Beds but should be installed per the engineered Layout Drawings as discussed above. The Take-up should be moved as in the retracted position prior to installing the belt (in Figure 28 below) and all adjustable pulleys in the picture below should be square to the frame.

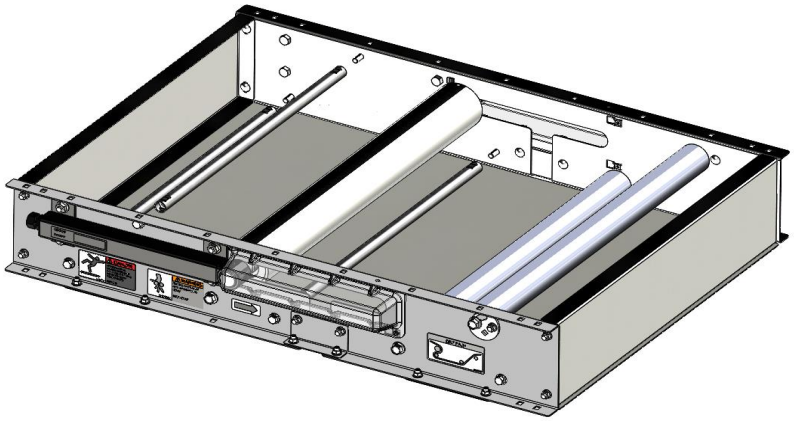


Figure 28: Auxiliary Take-Ups

3.1.12 Mounting Guide Rails

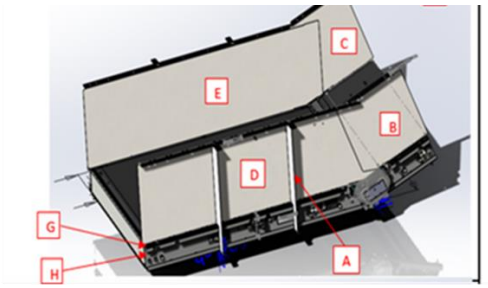
Install the guide rails to the top flange of the conveyor beds where indicated on the layout drawing. Place the guide rail on the flange and loosely assemble 3/8” x 3/4” length carriage bolts and flange nuts in the holes provided near each of the ends of the rail and every 4’ (Figure 29). Position the guide rail in a shingled manner such that the upstream guide rail

tab is overlapped and shingled inside the adjoining conveyor guiderail so that there are no catch points from guiderail to guide rail (Figure 29).

Note: Guiderail supports are placed every 6’-0”. Any guiderail 18” tall and over should have supports.

Figure 29: Guide Rail

Figure 30 represents one configuration of Guide Rail Components. For other Guide Rail configurations, please reference the Trew Guiderail Application.



A – Guiderail Support, Straight, 18 in. Tall, RSH RAL9022 (Four (4) of 1001751-04-F9022)
B – Guiderail PF/PT Short 18 in. LHINF/RHDIS RAL9022 (One (1) of 1004329-01-F9022)
C – Guiderail PF/PT Short 18 in. RHINF/LHDIS RAL9022 (One (1) of 1004329-02-F9022)
D – Guiderail PF/PT 54 in. LG 18 in. RHINF/LHDIS RAL9022 (One (1) of 1004355-01-F9022)
E – Guiderail PF/PT 54 in. LG 18 in. LHINF/RHDIS RAL 9022 (One (1) of 1004355-02-F9022)
F – Not Shown - Splice Plate 3 hold 4 in. Ctr Zinc (Two (2) of 1003911)
G – 3/8" 16 UNC Hex Flange Nut (Fourteen (14) of 10201-010200)
H – 3/8" UNC X 0.75 Carriage Screw (Fourteen (14) of 10201-010800)

Figure 30: Guide Rail Components

3.2 Installing and Initial Tensioning of the Belt

Prior to belt installation, proper **Lock-Out/Tagout** procedures must be followed.

WARNING

During the unpacking process, follow all facility safety procedures for lifting and moving heavy equipment and the proper use of tools for these tasks. If you find any visible damage to the conveyor upon inspection or any entanglement with crating materials, contact the factory BEFORE installing and applying power to the conveyor.

3.2.1 Belt Installation

1) Loosen the jam nut on the drive Take-Up and square adjustment blocks.

2) The Take-up roller should be in the extended position. (Take-up roller should be close to the drive pulley).

Note: The belt will be hard to track if the Take-Up roller is not square.

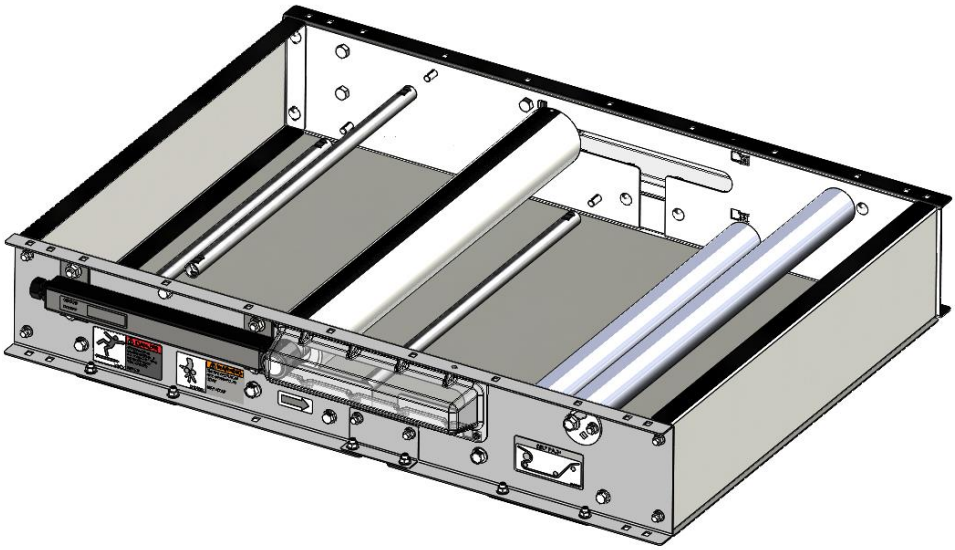


Figure 31: Take-up Adjustment and Adjustment Blocks

3) Thread the belt throughout the unit and verify that the belt is fed properly around all rollers. Belt path labels are added to all non-intermediate sections to simplify the process. Figure 32 demonstrates how belts should be installed inside the drive.

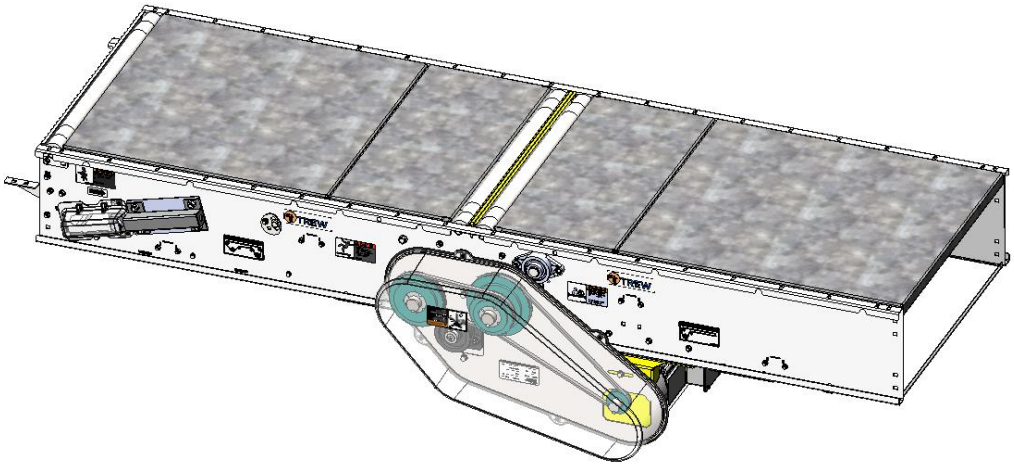


Figure 32: Snubber spacing from Drive and Belt Path

4) Adjustment cams (Figure 33) – after following Steps 1 and 2 above, these should all be square to the conveyor. If the distances are not equal, loosen the hardware on the cam until both sides are even and the roller is not in contact with any guards that may be

near. After both sides have equal measurements, tighten the jam nut. Remeasure to ensure nothing shifted after retightening jam nut.

5) Begin putting tension on the belt by hand tightening the take-up pulley and removing all slack in the belt until you can no longer tighten the Take-Up by hand.

   Note: Be sure to measure the distance traveled on the take-up on both sides of the drive to ensure squareness; they must be square before proceeding.

6) Mark two dashes exactly 100” apart on the belt as shown in Figure 32 below.

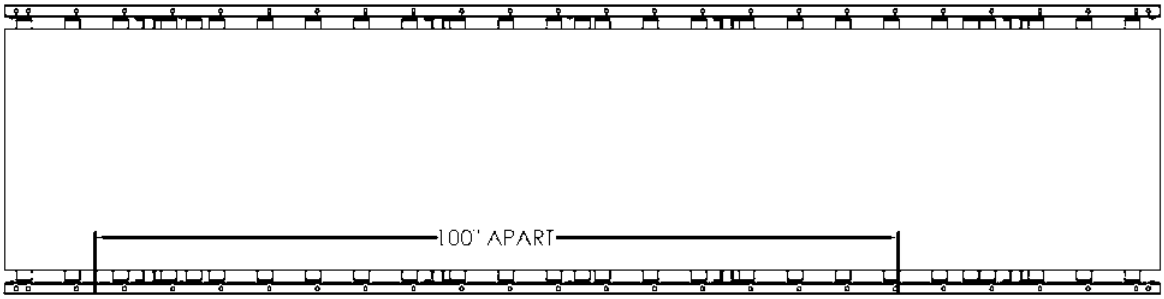


Figure 33: Top View of Conveyor with Marks Spaced 100"

7) After the marks are verified to be 100” apart, begin tightening the take-up pulley in ¼” to ½” increments alternating adjusting sides of the take-up. A new belt should be tightened to 0.4% tension, meaning the belt should stretch 0.4% after tightening the take-up pulley. Therefore, when the two marks on the belt reach a distance of 100.4” the belt is tightened sufficiently. Recheck to make sure take-up roller is square.

   Note: This step is for new belts only. If the belt is an older belt or is being tensioned after conducting maintenance in other areas of the unit (i.e., replacing snub pulleys, end pulleys, etc.), measure the current take-up location before the work is conducted and then return it to its previous location after the work has concluded.

   Note: Tensioning a used belt or splicing in a new belt with an older belt, the expected elongation is decreased from 0.4% to 0.3% due to the older belt already being relaxed during pervious operation.

WARNING

Be sure to replace the drive guards after inspection or maintenance of the drive. Failure to follow the instructions may result in serious personal injury and/or equipment damage.

3.2.2 Cutting and Lacing Belt

1) Use the following steps to prepare and install the Clipper lacing. Before lacing the belt:
   a. Square the belt ends. When repairing torn belts, use a belt cutter to square the ends.

   b. Load the hooks into the lacer.

2) Gauge belt for the proper size Clipper hook. Remove the loading strip and insert the hooks into the appropriate face strip.

3) Secure the hooks into the face strip by inserting lacer pin and pushing the locking lever down. (See Figure 34).

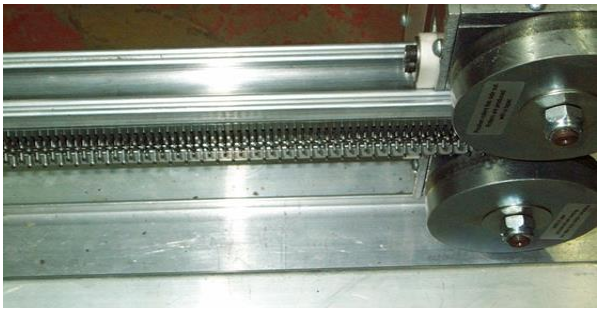


Figure 34: Lacer Pin

4) Remove the carding paper.

5) Insert the belt into the lacer between hook points. Center the belt in the hooks from side-to-side. Secure the belt by closing the belt clamps.

6) Open the rollers on the lacer head all the way by turning the adjusting knob clockwise. Position the lacer head over the hooks and close the rollers (turn counterclockwise) until the hook points begin to touch both sides of belt.

7) Using the drive handle, move the lacer head across width of belt, embedding the hooks.

8) Insert the Belt into Lacer Machine embedding Hooks into the Belt (See Figure 35).

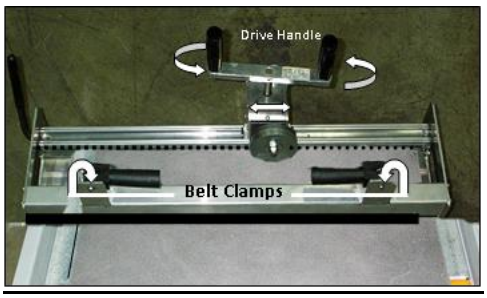


Figure 35: Lacer Machine

9) Close the adjusting knob 1/2 turn following each pass. Generally, 5 or 6 passes are needed to complete the splice.

10) Hooks are properly clinched when:

a) 1/2 diameter of hook leg is embedded into the belt cover.
b) Hook points break surface of belt.

Note: Rough top Belt Uses Clipper Lacing Number 1A with Number 13 pin.

c) Friction and Brushed Belts Us Lacing N umber 1 with Number 25 pin.

11) Cut outer edges of Belt ½" at a 45 degree (See Figure 36). This keeps lacing from being damaged if belt tracks to one side and rubs conveyor.

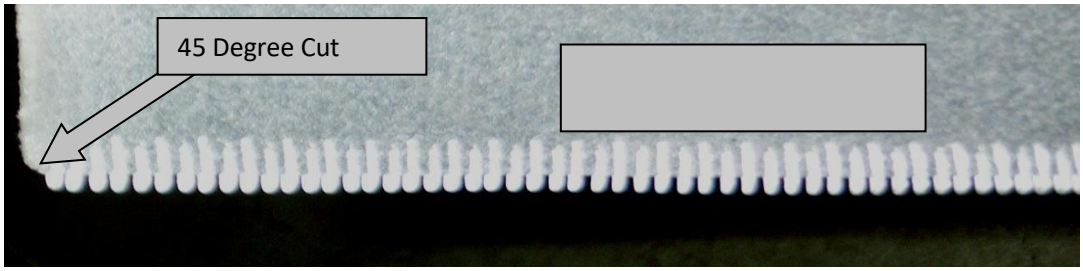


Figure 36: Lacing Complete

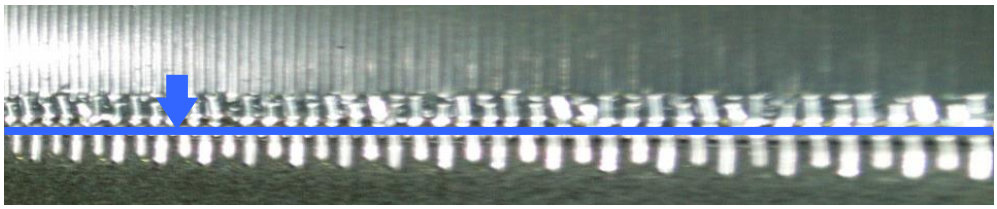


Figure 37: Lacing Clipper

3.2.3 Tracking the Belt

WARNING

Belt tracking is performed while the conveyor is running and is dangerous. Only trained and qualified personnel must perform the belt tracking function. Personnel must be instructed to always be alert for any unsafe conditions and to use extreme care when tracking the belt.

1) Make sure the area is clear of any unauthorized personnel.

2) Check and remove any debris along the conveyor's belt path (Internal and external inspections). There may also be interference points between the belt and finger guards along the unit. The thickest part of the belt is the lacing, so be sure to account for that when adjusting components for belt travel. Gaps between the belt and fingerguard cannot exceed 0.2."

3) When first tracking the belt, station qualified personnel at each end of the conveyor to assist in the initial belt tracking observation efforts. It is recommended that the belt tracking team are taught how to correct undesired belt travel before moving to Step 4.

4) If the drive has a Variable Frequency Drive (VFD), then slowly increase the frequency until the belt begins to move slowly, about 60 FPM. If the drive does not have a VFD, and one must operate the unit at a higher speed, then quicker belt tracking adjustment efforts will need to be performed to avoid belt damage. In either case, observe the belt drift directional tendencies for one complete rotation of the belt. Note: the belt lacing is a good reference point to know if one complete revolution was made.

5) If the belt does wander off center and then returns to the center position, there is no need to make any adjustments. This drifting tendency is caused by camber in the belt length and will tend to straighten out in time.

6) **(Belt on Roller and Empty Carton Conveyor Only)** If the upper run of the belt moves off center in a particular section, check that section to see if the rollers are square to the frame rails. If they are not at right angles with the frame, the section(s) must be straightened as per the directions found in the "Squaring the Conveyor" section.

7) Observe the belt's return run and its position on each return roller. Adjust any roller that causes the belt to move off center. The return roller adjustment brackets can be seen in Figure 38.

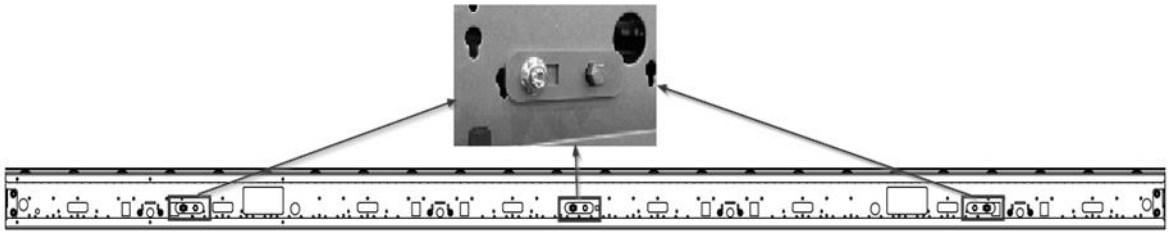


Figure 38: Intermediate Bed Return Roller Adjustment Locations (Bottom)

8) If the belt begins to drift in one direction over the full length of the unit and does not return to center, then adjust the Snub roller (see Figure 38), see Basic Belt Tracking Rules & Comments: below.

9) If additional belt tracking is necessary, one may adjust the Terminal End Snub roller (see Figure 39).

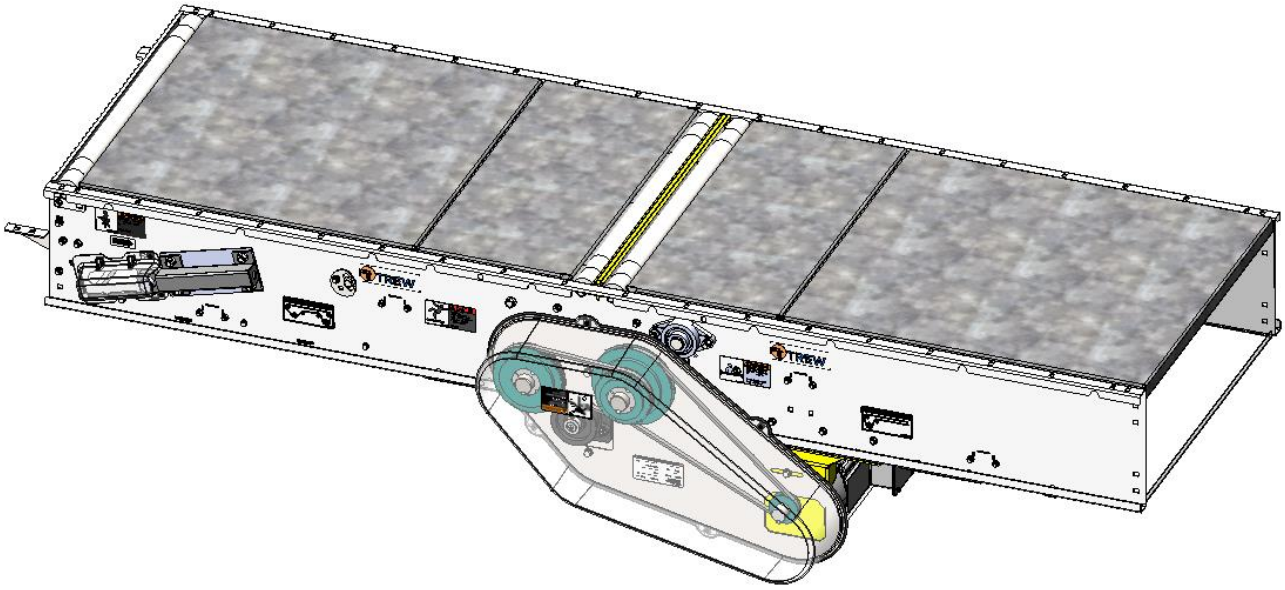


Figure 39: End Terminal Module with Snubber Pulley and End Pulley

Note: Tracking takes a long time; it may take 5-10 minutes to see the effects of an adjustment. Please also note that the longer the unit is, the longer it will take to see the effects of an adjustment.

3.2.4 Basic Belt Tracking Rules

1) Keep the belt properly tracked. All new belting goes through a break-in period. Depending on use, the break-in period duration is one month where more frequent tracking adjustments are expected. New belts should be watched at least once a day.

2) Prevent anything from dragging on belt. Anything that drags on the belt will destroy it. If a belt is showing signs of material dragging on it and begins to fray, clip all loose strings and frayed edges to keep them from becoming caught or tangled in rotating parts of the conveyor.

3) Keep the belt and conveyor free of foreign material build-up. Conveyor and product debris is commonly found at the belt guard on the discharge end of a belted segment. Typical product debris is carboard residue, product labels, belt shavings, etc.

4) In general, the belt will tend to drift away from the side of the pulley where the most belt tension exists between the drive and tail pulleys (the high-tension side).

5) All drive pulleys, snub pulleys, intermediate return rollers, and power feeder pulleys are adjustable. If the take-up pulley and end pulleys are not square, the belt may not track properly.

6) Belt tracking must be performed to ensure the belt travels the length of the conveyor in a straight manner without contacting the sides of the conveyor frame. Therefore, it is necessary to perform the tracking with the conveyor running until the belt no longer drifts – both with and without product; this can take upwards of 30 minutes initially and requires routine checking, once a day, during the break in period.

    a) All adjustments should be slight, and you must allow sufficient time for the belt to react to the adjustment, especially if the conveyor operates at slow speed.

    b) Multiple revolutions of the belt are required for the belt to reach equilibrium.

    c) Do not leave the belt running unattended during the tracking period.

7) Crowned Pulleys - Belts connecting parallel shafts tend to run toward that part of the pulley, which has the largest in diameter. Therefore, pulleys are crowned to keep the belt on center.

8) Taut Belt - The belt must be sufficiently tensioned to not slip on the drive pulley. **DO NOT** over tighten, by tightening it past this point. Over tightening the belt will reduce the bearing life and belt life.

9) Parallel Shafts - If the pulley shafts are not parallel, the belts will creep toward the side where the shaft centers are closest.

10) Pulley shafts are never perfectly parallel. Corrective adjustments must be made with the snub rollers or return rollers.

11) A common, faulty belt tensioning practice is to adjust the (see Figure 37 above) or take-up roller for any belt-tracking problem. Adjustments to these devices should only be performed as a “last resort” effort to track the belt.

3.2.5 Summary of Potential Belt Issues

1) Foreign material build up.

   Pulleys, belts, or rollers may begin collecting debris (commonly labels, wood, corrugated pieces, excess dust, etc.).

2) Warping or bowing due to improper belt storage.

3) Unintended belt walking

   a) Beds out of square or not level
   b) Belt on roller or Empty Carton Conveyor rollers out of alignment.
   c) Uneven or misaligned pulleys, rollers, or idlers.
   d) Uneven placement of load on the belt
   e) Belt being loaded off center.
   f) Worn pulley faces, unevenly worn pulley lagging, or worn pulley shaft locking elements.
   g) Out of round or seized rollers.
   h) Poor belt quality with the weave / fabric asymmetric to the center line.
   i) Replacing rollers with a different diameter roller.

4) Improper belt splicing

   a) Belt can be too loose. This may look like:

      - Belting slips on the drive pulley when the heaviest product is conveyed.
      - Belting does not conform to the crowned end idler and drive pulleys.

   b) Belt can be too tight. This may look like:

      - Splitting at the lacing (the lacing should look like Figure 40 below).
      - Could also indicate an object hitting/dragging on the lacing during operation.
      - Early failures for drive pulleys, end idlers, and snubber rollers.

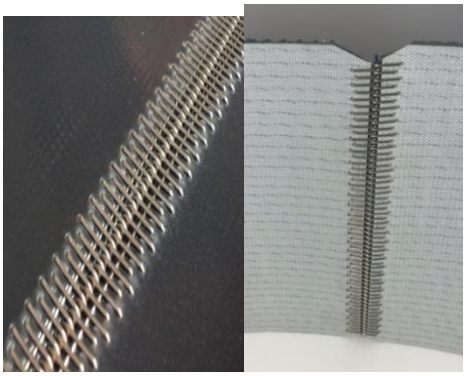


Figure 40: Correctly Laced Belting

3.2.6 Chains and Sprockets

1) Check the sprocket alignment periodically and correct any misalignment immediately. Wear on the inside of side bars, or on one side of a sprocket, is a definite indication of misalignment.

2) Give reducers and gear motors (on indexing drives or drives equipped with brakes) special attention to prevent drive sprocket mountings from becoming loose and shifting.

3) Normally, the drive section is shipped with the drive chain and guard installed. It is recommended that the chain guard be removed, and the drive components checked for alignment and chain tension.

4) Also check that all fasteners, keys and locking collars are in place and properly tightened.

5) It is a good practice to periodically clean and lubricate the chains. For correct chain tension, the deflection on the slack side should measure 2-3% of the sprocket center distance. Chains under too much tension are just as damaging to the conveyor as chains with too much slack.

6) Replacing the Chain & Sprockets

7) Turn off and lockout/tagout all power to the conveyor section.

Taper-lock and QD bushing installation is critical to good belt performance. Improper installation can damage the bushing and/or the sprocket/sheave. Sprockets and sheaves are commonly mounted to a shaft with a tapered bushing that fits a tapered bore in the sprocket/sheave.

Installation of Taper-Lock Type Bushings

1. Clean the shaft, bore of bushing, outside of bushing and the sprocket/sheave hub bore of all oil, paint, and dirt. File away any burs.

NOTE: The use of lubricants can cause hub fractures. DO NOT USE LUBRICANTS when installing tapered bushings.

2. Insert the bushing into the sprocket/sheave hub and align the holes. All the holes should be half threaded. The installation holes will be threaded on the sprocket side, but not the bushing side. The removal holes will be threaded on the bushing side, but not the sprocket side. See Figure below.

3. "Lightly" oil the bolts and thread them into the half-threaded installation holes indicated by the white installations show in Figure 41.

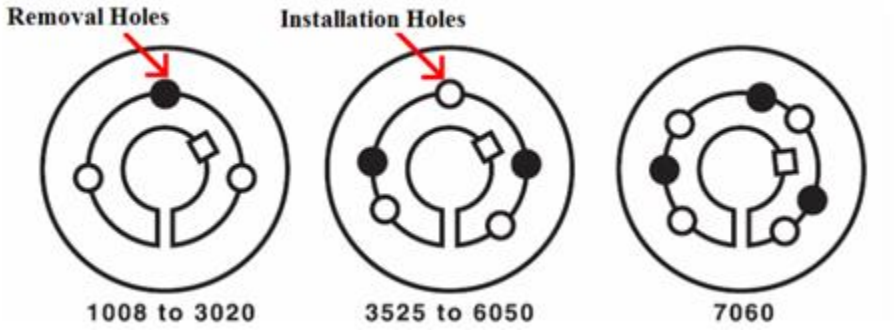


Figure 41: Installation Process

4. Place the new sprockets on the shafts with the tooth side of the sprockets closest to the bearing.

5. Align the sprockets with a straightedge making sure the drive key is in the keyway.

Note: When aligning sprockets, make sure the ends of the chain pins and link plates do not contact any objects and that link plates do not rub on the side of sprocket teeth. Either condition will cause premature wear and damage to the chain. Also, the key may need to be staked or peened carefully with a hammer to fit tightly in the keyway.

6. Check the alignment by placing a straightedge across the face of both sprockets simultaneously, chain must be off to properly align, also check for wear on the sprocket teeth and sidebars of the chain. If loose, tighten the sprocket fasteners.

3.2.7 Replacing the Chain

1) Relieve the tension on the old chain by loosening the motor/reducer mounting bolts and jack screws.

2) Disconnect the primary link and remove the old chain.

3) Check the sprockets for wear and alignment.

4) Place the new proper size chain on the sprockets and attach a new primary link.

5) Adjust the motor/reducer mounting to insure proper chain tension.

3.2.8 Standard Belt Tensioning Procedure

When installing a belt:

- The preferred method of tensioning a drive belt is using a sonic tension meter. The frequency of the belt varies with belt length and width therefore the recommended tension is marked on the back plate of the drive cover for each unit. See instructions for operating your model of a sonic tension meter.
- An alternate method of checking belt tension is to use a tension tester. The spring scale type tester is used by measuring how much force is required to deflect the belt at the center of this span by a specified instance (force deflection method) as shown in the figure below.

- Ensure it is tensioned adequately to prevent tooth jumping (ratcheting) under the most severe load conditions which the drive will encounter during operation.

- Avoid extremely high tension which can reduce the belt life and possibly damage bearings, shafts, and other drive components.

3.2.9 Drive Pulley/Lagging

1) Check the pulley alignment and make certain that all mounting bolts are securely tightened.

2) Check for worn or damaged lagging on the drive pulley. Repair or replace as required.

3) Belts that are loose and run without being tightened slip wearing lagging on pulley.

4) Lagging on pulley is urethane that has been cast to the pulley surface.

3.1.10 Replacing Rollers

1) Turn off and Lockout/Tagout all power to the conveyor.
2) Loosen the tension on the carrier belt and remove it.
3) Use a tool to push in the spring-loaded axle on the roller to free one end of the axle from the frame of the conveyor.
4) Carefully disengage the opposite end of the roller from the frame and remove.
5) Make sure the axle is not pinched on the frame causing damage during removal.
6) Insert the axle of the replacement roller through the hole in the conveyor frame.
7) Use tool to compress the spring-loaded axle on the roller and lower the roller into its proper position.
8) Release the spring-loaded axle and make sure it fully engages in the hole in the frame.
9) Install the and properly tension the carrier belt.

3.2.11 Lubrication

Trew provides bearings that are lubricated for the life of the conveyor and should not need to be relubricated.

3.2.12 Speed Reducers

Standard speed reducers are sealed and maintenance free. They incorporate a pressure compensating chamber, which eliminates the lengthy preparation normally required to put a reducer into service and prevents atmospheric contamination. These reducers are properly filled at the factory with sufficient lubrication for all mounting positions. The lubricant is Kluebersynth UH1 6-460, a synthesized hydrocarbon formulated for extremely long life. Mobil SHC series lubricant must not be mixed with factory supplied lubricant, Refer to the manufacturer's instructions for more information.

3.2.13 Chains and Sprockets

To keep drive chains in good operating condition, the following procedures are recommended:

- Use a Commercial Grade non-corrosive solvent to flush away foreign materials such as metal particles, dirt, or rust before lubricating.

- Chains should be lubricated with SAE 10 to SAE 40 viscosity oil to prevent galling and seizing of the contact surfaces. Oils formulated for chain lubrication will slow down oil throwing.

- Lubricate all sprockets contact surfaces.

- All lubricant should be applied to the inside of the chain so that centrifugal force will help work the oil into the pin joints instead of throwing it off. A thin lubricant will penetrate the chain joints. Lubrication with an oil cup, spout can, or brush is adequate.

- In an atmosphere that contains abrasive particles, it is better not to have conventional lubricants on the surface of the chain that collect or retain abrasive particles. Use dry lubricants such as molybdenum disulfide or deflocculated colloidal graphite in a volatile carrier.

3.2.14 Motors and Carrier Rollers

All motors and carrier rollers are equipped with sealed bearings. No additional lubrication is required.

Section 4
Preventative Maintenance

(Section Page Range: 55-58)

4.1 General Preventative Maintenance (PM)

The satisfactory performance and reliability of this equipment is dependent upon a proficient PM program with scheduled equipment inspections under normal operating conditions.

Accurate records of maintenance and repairs will help to identify problem areas and repetitive problem patterns. It is imperative that adequate records be kept in connection with the PM program. These records should contain the date of inspection, inspection results, equipment services, repair history, part replacement history, and any other information that will help to make the maintenance process more efficient and accurate. It is recommended that each conveyor have its own record. Properly maintained, the conveyor record sheet will form a mechanical history of the equipment covered.

PM consists of regular service (lubrication, adjustments, cleaning, etc.). In addition, it consists of" keeping your eyes, ears, and nose open." Use your eyes to see potential component failure. Use your ears to listen for abnormal or louder than normal noises. Use your nose to smell a motor running abnormally warm in time to prevent its burnout. These sights, noises, and smells can be indicators of lack of lubrication, misalignment, or other potential trouble. Ignore them and you will be replacing a shaft, motor, or whatever does go out when a component is lacking proper PM.

Only qualified maintenance specialists should maintain the mechanical, electrical, and pneumatic portions of the conveyor.

4.2 PM Warnings

- When testing operating performance, do not start the equipment until all operations and maintenance personnel are notified and clear of the unit being tested.
- Be certain that required safety guards are never removed without authorization.
- Never run the equipment under production conditions without safety guards in place.
- Do not make any equipment repairs while the conveyor is running.
- Keep hands, hair, and clothing clear of any moving parts.
- Never attempt to clear load jams while equipment is running.
- Always use appropriate tools when making repairs or adjustments.
- Observe all warning labels and follow plant safety rules.
- Make sure all connectors are secure and all wires are free from interference, obstruction, and any moving parts.

4.3 Cleaning and Inspection

There are many reasons for cleaning:

1) To allow heat to dissipate (motors and gearboxes).
2) To prevent wear on moving parts.
3) To prevent binding.
4) For proper operation.

Any prescribed cleaning schedule can be modified as experience is gained. A thorough inspection should be performed while cleaning problem areas.

The total value of inspection procedures is determined by the consistency and regularity of the schedule. A definite interval of inspection must be established and obeyed. It is recommended that a general inspection that will ensure a thorough examination of each component and assembly contained in the system be done at least once for each thirty-day period of operation. The results of these general inspections should be documented in the conveyor record of the unit inspected.

The probability of mechanical/electrical problems increases during periods of heavy usage, so an additional inspection immediately before and after these periods is recommended.

Table 2: Preventative Maintenance

Daily	Walk the entire length of the running conveyor system and listen for abnormal noises. Noises may indicate: a) Worn bearings in rollers, motors, reducers, etc. b) The belt rubbing on things it should not be (debris, guards, loose parts, etc.) c) Confirm all safety guards are in place. With the conveyor shut down, look for the following: a) Foreign material wrapped around bearings, shafts, or rollers. b) Shavings or belt dust under conveyor that would indicate misaligned or damaged components. Oil leakage that would indicate faulty bearings or seals in motor/reducers, etc.
Weekly	Visually inspect belts and rollers for wear, improper alignment, or buildup of foreign materials and repair/clean. Visually inspect all motors. Check pneumatic water traps and drain.
6-Month	Clean and lubricate all drive chains with SAE-10 to SAE-40 oil. Check all set screws and tighten, as necessary. These may work loose during normal operation. Check all bolted connections and tighten as needed. Bolted connectors may work loose during normal operation.

5.0 Technical Support

Reach General Support, Parts, or Field Services:
Phone: 1-800-571-TREW (8739)

- 24x7 Technical Support
- Parts
- Field Service
- Assessments
- Modifications & Upgrades
- Warranty Claims / Returns

Scan For Support Website:

trewautomation.com/support

For all other inquiries or if you are unsure who to contact, or if you have a critical/downtime situation please contact your sales representative, or email info@trewautomation.com