

# Narrow Belt Accumulator Conveyor

## Installation and Maintenance Manual



### **Important Message**

**Trew places an emphasis 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

AC	Alternating Current
AIMs	Accumulation Interface Modules
ANSI	The American National Standard Institute
ASME	The American Society of Mechanical Engineers
CEMA	The Conveyor Equipment and Manufacturers Association
CFR	Code of Federal Regulations
DC	Direct Current
HD	Heavy Duty
In.	Inch
LH	Left Hand
LRT	Lift Roller Transportation
MDR	Motorized Drive Roller
NBA	Narrow Belt Accumulator
NBC	Narrow Belt Conveyor
OSHA	Occupation Safety and Health Agency
PE	Photoeye
PLC	Programable Logic Controller
PM	Preventive Maintenance
PN	Part Number
PSI	Pounds per Square Inch
PSP	Power Supply Pro
RH	Right Hand
RMA	Return Material Authorization
RSH	Roller Set High
RSL	Roller Set Low
SME	Subject Matter Expert
V	Voltage
VAC	Volts Alternating Current
VDC	Volts of Direct Current

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## 1.1 Overview

Trew's Narrow Belt Conveyor: Narrow Belt Accumulation (NBA), as shown in Figure 1, and Live Roller Transportation (LRT) conveyor is a belt-under-roller conveyor that is air-operated. Rollers are driven when air pucks are actuated and moves a pressure roller channel upwards pressing the belt into the bottom of the carrier rollers. (See Figure 1). The belt is a narrow belt that is side justified to the desired maintenance side. The belt rides along low friction rollers held by a lift channel that spans most a zone's length.



Figure 1: Narrow Belt Conveyor

For LRT, the lift channel is lifted by air pucks which are always expanded so the belt is always engaged and driving the rollers above. For NBA, system accumulation and release are accomplished via the NBA zone controller's Accumulation and Release modes. These built-in mode options allow gentle handling of a wide range of products while enabling single zone or slugs of product to be released to downstream operations.



Narrow Belt Conveyor line solves the issues of fulfillment systems to maintain high rates which often come with complicated conveyor controls and aggressive platforms This can cause lack of product handling integrity, leading to product jams and damaged goods. The NBA can avoid these issues by utilizing high-density, low-pressure technology systems.

NBA Benefits include:

- Configuration and Flexibility – NBA provides pre-configured, on-conveyor intelligence that can be quickly adjusted to account for a wide variety of product types, sizes, and weights while maintaining high throughput and gentle product handling.
- Fast & Easy installation – Factory assembled mounted and connected controllers and photoeyes enable quick plug and play installation. Air supply is a simple tubing connection from bed to bed.
- Reduced Maintenance & Response Time – NBA Components are easily accessible due to quick-mount design, use of a rugged belt with reliable tracking, and take-up designs, along with a reduction in spare parts. These design features allow for less down time and optimized operational performance.
- Intuitive Smart Controllers with built-In options maximize system efficiency. See Figure 2 and Table 1 for information on the Smart Controller.

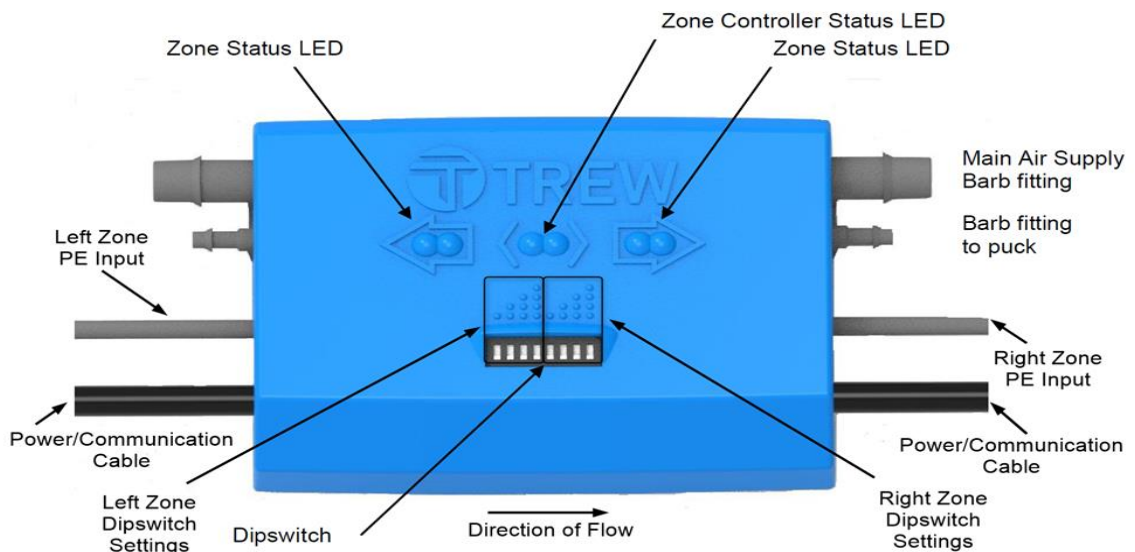


Figure 2: Smart Controller

Table 1: Dual Zone Controller

	Accumulation Mode	Singulation Mode	Release Delay	Slug Terminator	Accumulation Mode	Singulation Mode	Release Delay	Slug Terminator
Dip #	1	2	3	4	5	6	7	8
Up	Auto Slug	Local	0.3 Sec.	On	Auto Slug	Local	0.3 Sec	On
Down	Singulation	Standard	Off	Off	Singulation	Standard	Off	Off

## 1.2 Standard & Local Singulation

Standard singulation enables standard low-pressure accumulation that deactivates a zone once the downstream photoeye is blocked. A Local singulation option is also available for low speed or small product applications but should only be activated at the direction of a Subject Matter Expert (SME) as it is prone to increase product backpressure when not used correctly. Local singulation deactivates a zone when the local and downstream photoeyes are blocked.

## 1.3 Auto Slug

Auto Slug allows the conveyor to accept slugs of product, or index slugs of product downstream unlocking the potential of high-capacity throughput. When enabled, the smart conveyor network knows a downstream zone is free and indexes product forward. When using the Auto Slug feature, for slug acceptance, it is important to set every fourth zone to Standard Singulation to reduce backpressure when accumulating.

## 1.4 Accumulation delay

Any controller can be set to have an Accumulation delay, which delays a zone 0.3 seconds before accumulating, allowing product to condense more.

## 1.5 Release Options

Release options allow you to match operations to system throughput using Singulation release and Slug release options. The NBA discharge bed has an AIMs (Accumulation Interface Modules) that takes an external 120 VAC or 24 VDC signal from a downstream unit or Programmable Logic Controller (PLC) and tells the last zone when to release. The length of the release zone can be confined within a single zone (aka singulation release) or multiple release zones (aka slug release), the length of the release zone is terminated with dip switches 4 or 8 are in the up position.

### 1.5.1 Singulation Release

A Singulation Release will release product from the discharge zone. As released product clears the discharge photoelectric sensor, product stopped at the next upstream zone is released.

### 1.5.2 Slug Release

Slug releases cause a group of zones to be released simultaneously. As the slug of product releases, upstream zones will index forward to fill the emptied downstream space. Slug releases are typically used with higher rate systems and can yield efficiencies up to 95%. The Slug releases length is initiated from the zone that receives the signal and is terminated by dipswitch settings. Slug lengths are limited to 60' unless specified by a SME.

## 1.6 **Disabling Zones**

Zones may be disabled by setting dip switches 1-4 or 5-8 in the up position. Disabling zones should be used when there is a controller controlling one zone. For example, if a controller is placed on a 3' bed, but it is only set to control the left zone, the right side (5-8) needs to be disabled for the unit to work correctly.

## 1.7 **Narrow Belt LRT**

The Narrow Belt Transportation has the same pneumatically actuated lift assemblies as the Accumulation versions but is not controlled by a dual zone controller. These pneumatically actuated lift assemblies are linked together by a single regulator designed to lift and lower them at once. If the source of air disconnected to this unit, the zones will disengage and reduce the likelihood of product being damaged. The benefit to having similar components used between LRT and NBA is a reduction in spare parts as well as the opportunity to add future accumulation if needed.

## 1.8 **Narrow Belt Conveyor Guidelines**

All Narrow Belt Conveyor (NBC) zones and take-up will disengage if air is not supplied to the unit, but power is engaged. Low air pressure switches are required to ensure that this results in the unit shutting down if not enough air is being supplied to the unit.

All NBC (NBA and LRT) units will stop running if power is cut to the motor or the Dual Zone Controller power supply, even if the lift assemblies remain actuated.

Units longer than 120' will require an additional zone filter/regulator. Units longer than 210' will require an additional power supply.

All products must be aligned to a specific side of the NBA unit to accumulate properly. Skew beds are available as a drive bed option and touch up skew kits are recommended to be installed every 100' thereafter.

## 1.9 Modules

NBA has three main modules that can be configured for different applications – End Drive Bed, Intermediate Bed, and Idler Bed. See Figures 3.

### 1.9.1 End Drive Bed (Accumulation/Transportation)

- RSL or RSH
- 2", 3" C-C rollers
- Straight/Skewed rollers
- Coated roller option available for 3" C-C



Figure 3: End Drive

This end drive bed assembly is a 144” long narrow belt conveyor bed with carrier rollers, drive assembly and the end pulley for beginning a conveyor unit. The drive assembly has an air actuated take-up for the belt as well. The drive bed comes with a power supply that supplies up to 35 controllers or a max conveyor length of 210’-0” , whichever is smaller.

The drive is available in different bed frames, drive hands, roller centers, roller skew, roller coatings, roller types, conveyor speeds, drive horsepower’s and paint color. All narrow belt conveyor units must use an end drive bed at the charge end of the conveyor unit. A Transportation variant of this unit will come without photo eyes and zone controllers. See Figure 4.

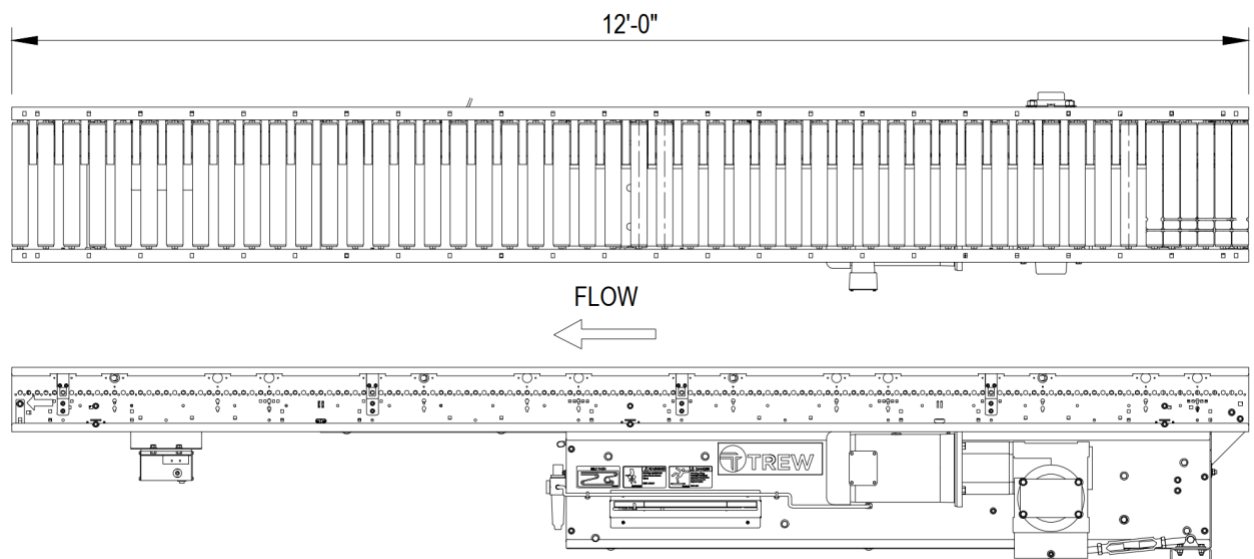


Figure 4: Narrow Belt Conveyor End Drive

### 1.9.2 Intermediate Bed (Accumulation/Transportation)

See Figures 5 and 6.

- Roller Set Low (RSL) or Roller Set High (RSH)
- 3', 6', 9', 12' lengths available
- 2", 3" C-C rollers
- Coated roller option available for 3" C-C



Figure 5: Intermediate Bed

Narrow belt conveyor intermediates are the beds to be placed between the end drive bed and the end idler bed. See Figure 6 below. Intermediates do not have end pulleys and are open-ended on both sides. Accumulating intermediate beds include control modules, PEs, reflectors, air tubing, pressure lifting assemblies.

and return rollers for the belt. They come in 3'-0" increments from 36" long to 144" long with either RSL or RSH frames. The intermediate sections are available in different bed frames, drive hands, roller centers, roller coatings, roller types, and paint color. A Transportation variant of this unit will come without photo eyes and zone controllers.

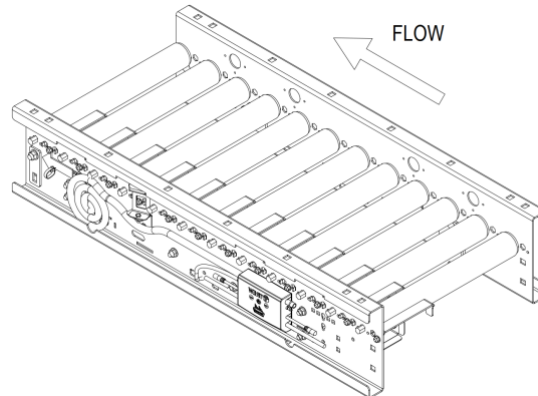


Figure 6: Intermediate (Left Hand)

### 1.9.3 Idler Bed (Accumulation/Transportation)

See Figures 7 and 8.

- RSL/RSH
- 2", 3" C-C rollers
- Coated roller option available for 3" C-C
- Discharge zone – with/without brake
- Shipped with a 24VDC and 120VAC AIMs.

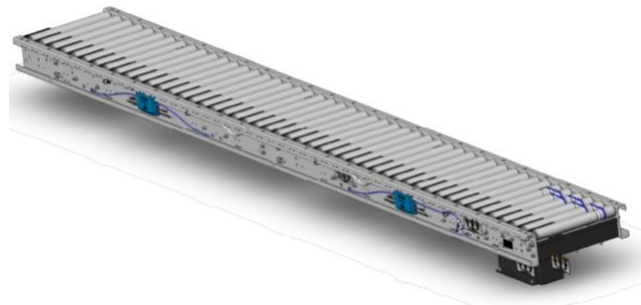


Figure 7: Idler Bed

The End Idler bed is an assembly that includes control modules, PEs, reflectors, air tubing, pressure lifting assemblies, return rollers for the belt and the idler box assembly for terminating a conveyor unit. (See Figure 8). The end idler bed may

be ordered with an optional brake as well. All narrow belt conveyor units must terminate with an end idler bed at the discharge end of the conveyor unit. All Narrow Belt Accumulation beds are shipped with an AIMs (Accumulation Interface Modules) that will allow the last zone of the unit to be controlled by the downstream unit or PLC (24VDC or 120VAC).

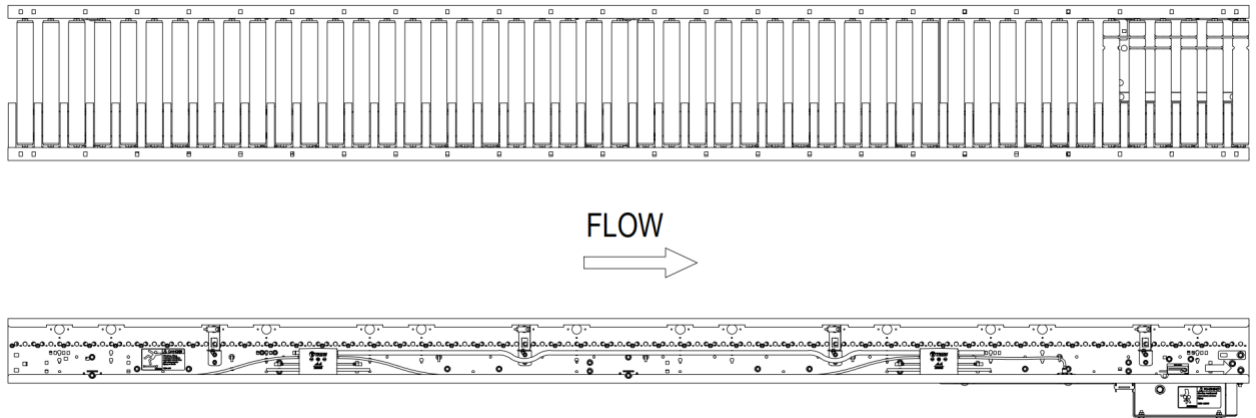


Figure 8: Narrow Belt Conveyor End Idler (Accumulating, RSL, RH shown)

AIMs Modules (Ships loose, accumulation only) – Can accept an external 120VAC or 24VDC signal to release a single zone or slug of product.

### 1.10 NBC Lift Assemblies (Accumulation/Transportation)

Narrow Belt conveyor lift assemblies are actuated by a single pneumatic actuator per zone. This allows for less exterior tubing which means easier access, and less damage to air hoses from belt wear. See Figure 9.

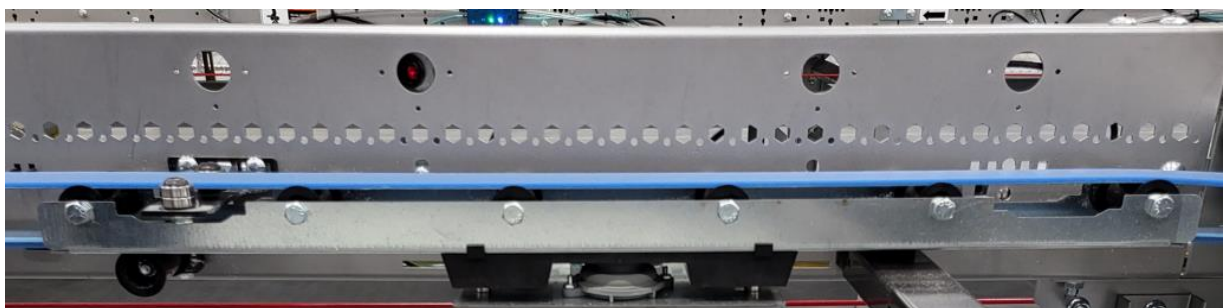


Figure 9: Lift Assemblies

### 1.11 Belt Retention

Innovative low-profile design captures the belt, enabling reliable tracking and roller performance, while reducing maintenance and repairs. The top portion of



the belt is retained by crowned carrier rollers and adjustable bearing guides as shown in Figure 10. The bottom portion of the belt is captured and protected within the lower section of the lift channel, thus significantly reducing belt maintenance. See Figure 11 for an example of the belt within the lower section of the lift channel.

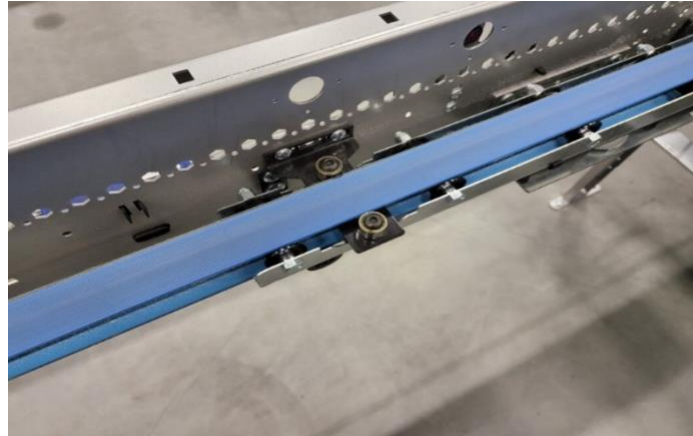


Figure 10: Belt retained by crowned carrier rollers

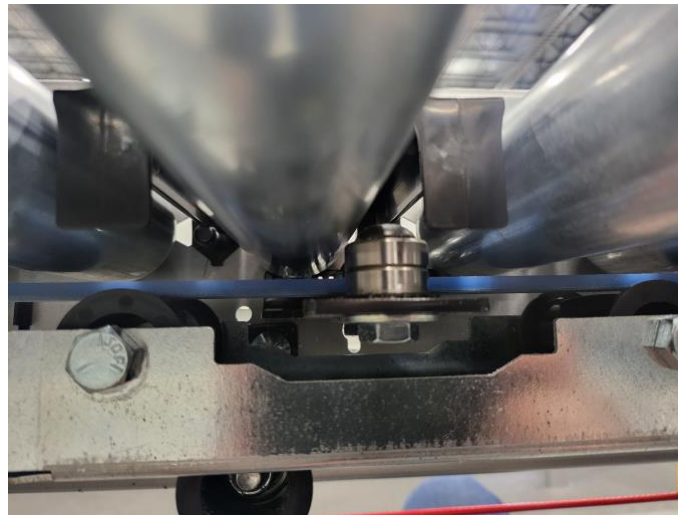


Figure 11: Belt in Lift Channel

## 1.12 Offset Brackets and Bed Splicing

NBA RSH and RSL Beds are joined by our standard splice plates “A” in Figure 12. RSL beds require an additional shingle offset bracket to ensure the RSL.

frames are offset to maintain consistent product flow and reduce catch points.  
(See Figure 13). The kit contains the following parts:

P/N: 1006824 – Offset Shingled Frame Rail Connector Assembly

Qty 2 – P/N:1006825 RSL Shingled Rail offset Plate RAL9004

Qty 8 – P/N:10201-010200 – 3/8 – 16 UNC Hex Flange Nut

Qty 8 – P/N:10201-010800 – 3/8 – 16 UNC X 0.75 Carriage Screw

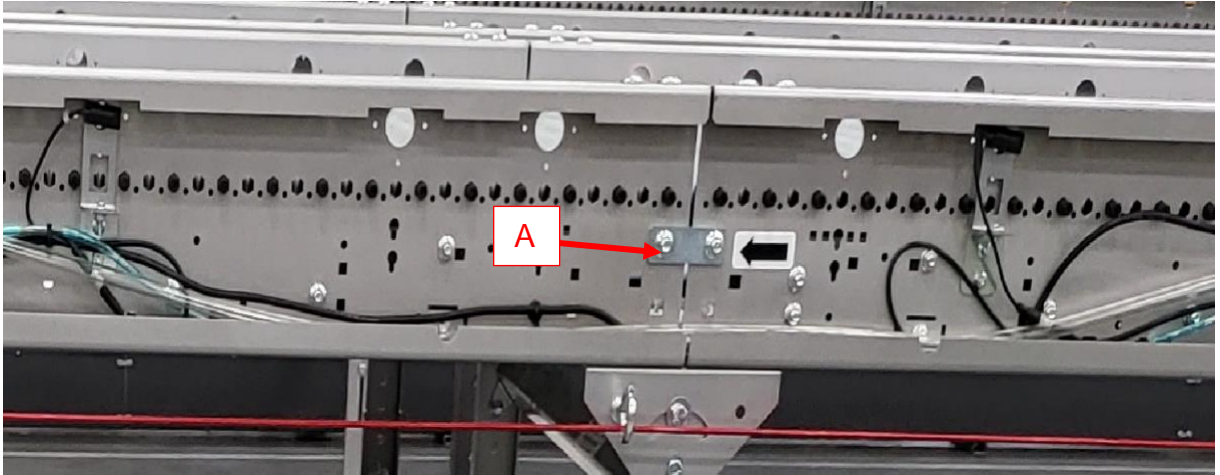


Figure 12: Bed Splicing Plate

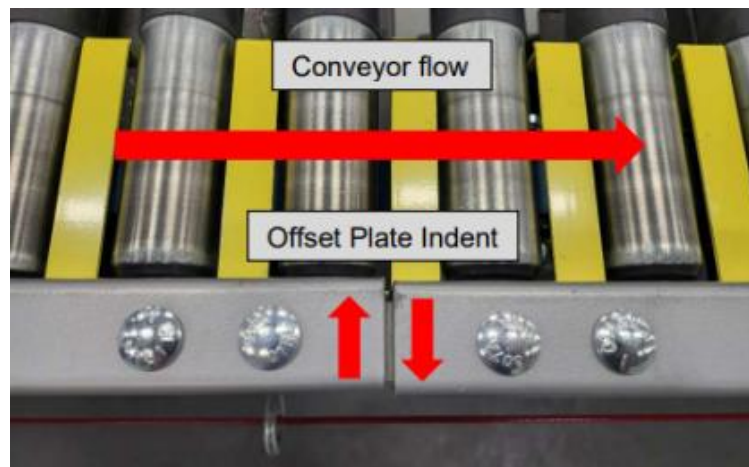


Figure 13: Bed Splicing-Offset

## 1.13 Accessories

### 1.13.1 Drive Belts (O-Bands)

NBA conveyor utilizes drive O-bands to connect individual rollers together at a terminal end.

O-bands can wear or stretch over time, eventually allowing excess slippage in the roller groove. When this happens, the rollers in the zones may not rotate and inadequately convey packages. Replacement of O-bands is quick and easy.



Figure 14: O-Bands

### 1.13.2 Carrier Rollers

The carrier roller takes the weight of the product and transfers the torque generated from the narrow belt to move the conveyed products as shown in Figure 15.



Figure 15: Carrier Roller

### 1.13.3 Guide Rail

Guide rails must be installed to ensure all conveyed products will stay on the conveyor. The Rollers Set Low style of frames function as self-guiding rails. Roller Set High style unit is compatible with both Valu-Guide and “C” shaped channel pan guide. See Figure 16.



Figure 16: Guide Rail

#### 1.13.4 Power Module

Power Modules are used to provide power to the modules in the conveyor frame of the NBA conveyor (see Figure 17 below). Each module of the NBA conveyor will have its own (or sometimes more than one) power supply assembly.



Figure 17: Power Module

#### 1.13.5 Brake Kit

Brake kits may be ordered separately from the conveyor. It is imperative that they are installed in the location they are shown in the Installation drawing set provided by engineering. The kit (PN 1005754) will arrive preassembled as shown in Figure 18. Figure 19 shows an installed Brake Kit.

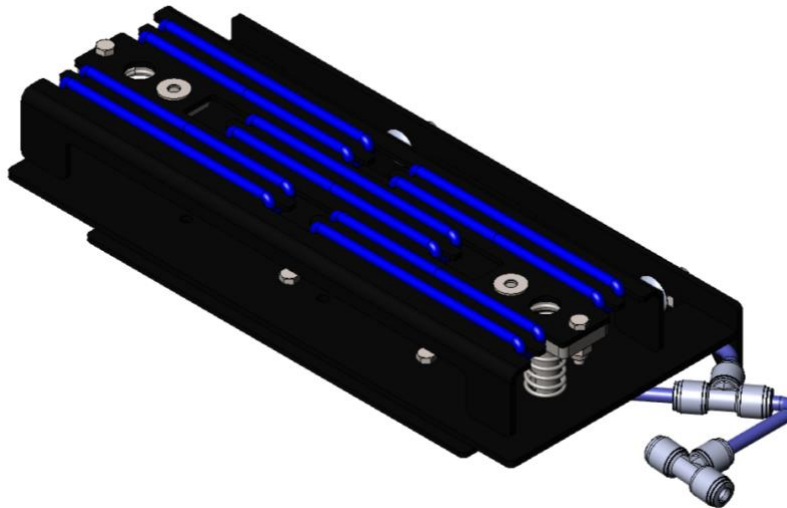


Figure 18: Brake Kit



Figure 19: Installed Brake Kit

#### 1.13.6 AIMs

AIMs are required when trying to input a discrete signal into the NBA's network of controllers. See Figure 20 for example of installed AIMs. AIMs must be used to communicate with downstream networks (PLC or MDR controls). End Idler beds will be shipped out with AIMs standard. Multiple AIMs may be used on a single unit for various applications. If necessary, P/N: 1005769 will be ordered.

P/N: 1005769 – Release Module Field Assembly, Narrow Belt Acc  
Qty 1 – P/N:1005713 – Release Module Mounting Bracket RAL9004  
Qty 2 – P/N:10201-010200 – 3/8 – 16 UNC Hex Flange Nut  
Qty 2 – P/N:10201-010800 – 3/8 – 16 UNC X 0.75 Carriage Screw  
Qty 4 – P/N:10201-010206 – 6-32 UNC Hex Flange Nut  
Qty 4 – P/N:10201-011007 – 6-32 UNC X 1.125 Screw RHMS, Slotted  
Qty 1 – 10700-060823 – NBA Release Module



Figure 20: Installed AIMs Module

### 1.13.7 Lane Full Photoeye Kits

Lane Full Photoeye Kits are required when trying to relay that a unit is filled with product. This works by discreetly wiring the signal from one photoeye back to the control cabinet. The following kits can be installed depending on the PLC voltage:

24 VDC Photoeye (PE) Kits – P/N: 10803-060961 (See Figure 21 below)

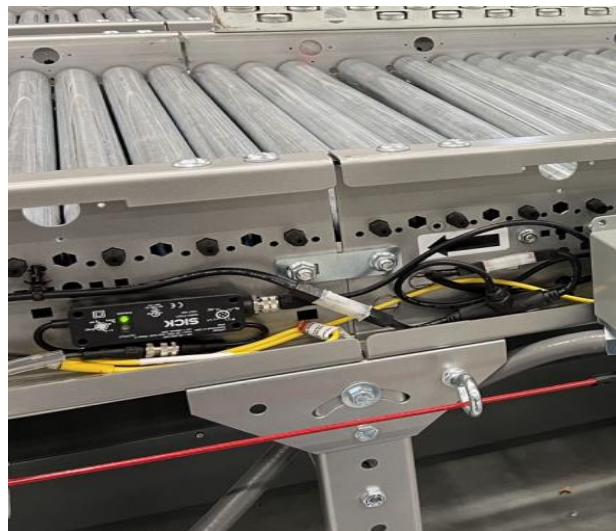


Figure 21: Photoeye Kit

120 VAC PE Kits - P/N: 10803-060962 (See Figure 22)

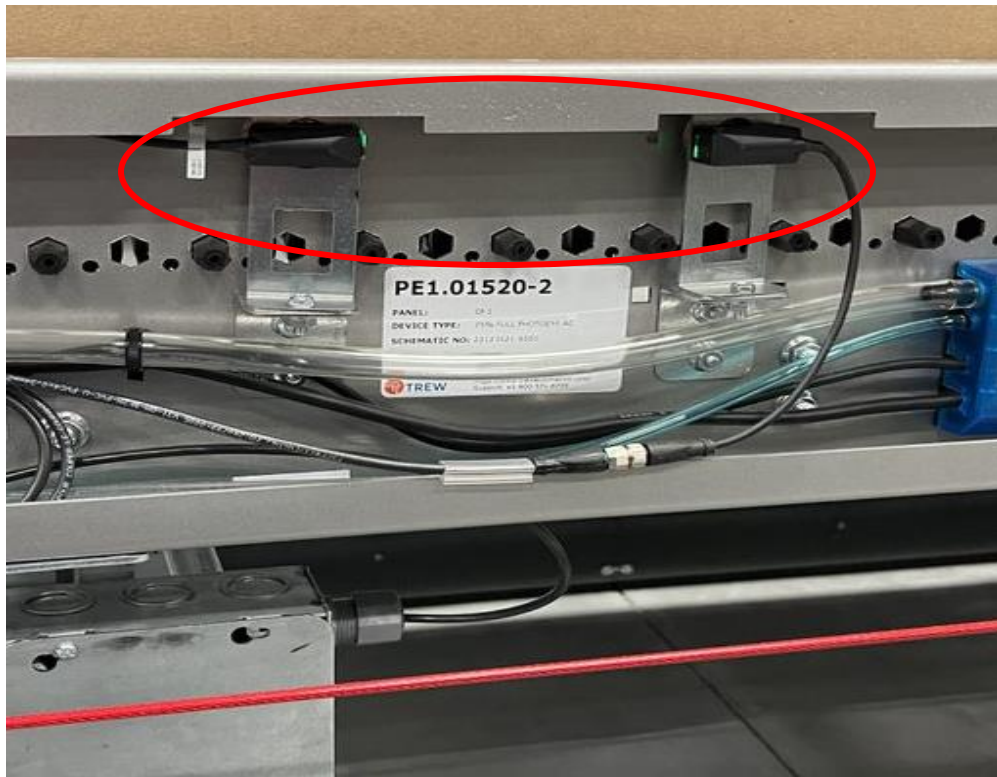


Figure 22: DC Photoeye Kit



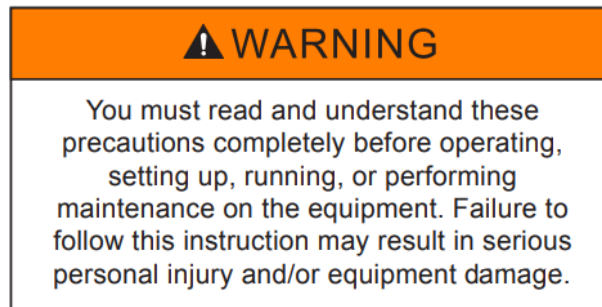
# Chapter 2 – Safety



## 2.1 Safety Introduction - Important Message

Failure to adhere to the instructions in this manual and to the conveyor's warning labels may result in personnel injury or damage to the conveying equipment. Alteration or Modification of any NBA Equipment may also be unsafe.

To mitigate the risk of injury, critical warnings in this document will be boxed with an orange warning label. An example of these critical warning messages is shown below:



Special attention to all WARNING, DANGER and CAUTION signs is strongly recommended.

The safety precautions in this manual are intended to compliment the following:

Federal and State safety laws, regulations, and codes.  
Facility safety rules and practices.

Other useful safety references are as follows:

The American National Standard Institute (ANSI) website:

<https://webstore.ansi.org>.

The Conveyor Equipment and Manufacturers Association (CEMA)

[www.cemanet.org](http://www.cemanet.org).

Code of Federal Regulations (CFR), Title 29 Labor, Part 1010-Occupational Safety and Health Standards.

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## 2.2 Safety Rules, Procedures and General Practices

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

- 1) 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.
- 2) The area around loading and unloading points must be kept clear of obstructions that could endanger personnel.
- 3) 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.
- 4) Personnel working on or near a conveyor must be instructed as to the location and operation of pertinent stopping devices.
- 5) A conveyor must be used to transport only the material it is designed to carry.
- 6) Under no circumstances must the safety features of the conveyor be altered if such alterations endanger any personnel.
- 7) Routine inspections and preventive or corrective maintenance actions must be conducted to ensure that all guards and safety features and devices are retained and function properly.
- 8) 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.
- 9) 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.
- 10) 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:

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

### **2.3 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 some 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.

## 2.4 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 23 shows typical signs that are attached to this equipment.



Figure 23: Safety Labels on Conveyor

## 2.5 General Safety Practices

General conveyor safety rules are as follows:

- 1) Keep jewelry, clothing, hair, etc., away from the conveyor.
- 2) Know the location and functionality of all start/stop devices and keep those areas free from obstruction.
- 3) Clear all personnel away from the equipment before starting the conveyor.
- 4) DO NOT touch moving conveyor parts.
- 5) DO NOT walk, ride, or climb on the conveyor.
- 6) DO NOT operate the conveyor with any of the protective guards removed.
- 7) DO NOT attempt to clear any project jams while the conveyor is running.
- 8) DO NOT load the conveyor beyond the specified design limits.
- 9) DO NOT attempt to make repairs to the conveyor while it is running.
- 10) DO NOT modify the equipment without checking with the manufacturer.
- 11) DO NOT operate or perform maintenance on the conveyor when taking any type of drug or sedative.
- 12) DO NOT operate or perform maintenance on the conveyor when under the influence of alcohol or when over-fatigued.
- 13) Report any unsafe condition to your supervisor or maintenance staff.

## 2.6 Compressed Air Safety

There are two points on the NBA conveyor where high pressure air is located. First, high pressure air is at the regulator input. Secondly, there is high pressure air present at the drive regulator for the tensioner. High pressure air has certain safety regulations as outlined by OSHA.

Never apply compressed air to the skin or direct it at a person. Even air at a pressure of 15 Pounds per Square Inch Gauge (PSIG) can cause significant

injury. Never use a compressed air hose to clean dirt or dust from your clothing or body.

When using compressed air for cleaning purposes, ensure pressure does not exceed 30 PSIG (per OSHA regulations).

Always use goggles or a face shield over approved safety glasses for this application.

Wear ear protection. Exposure to excessive noise can damage hearing. Noise reducing mufflers can be fitted to machines to lessen the noise health hazard.

Never crimp, couple, or uncouple pressurized hose. Shut off valves and bleed down pressure before making any hose connections.

Use heavy duty clamps and fittings made especially for compressed air hose. Use only the correct type and size of hose end fittings and connectors.

Never use frayed, damaged, or deteriorated hoses. Always store hoses properly and away from heat sources or direct sunlight. A hose failure can cause significant injury. Hose Reels can decrease your chances of injury, as well as help hoses last longer.

When blowing compressed air through a hose or air line, ensure that the open end is held securely. A free end can whip and can cause injury. Open the supply air valve carefully and ensure that any ejected particles will be restrained. A blocked hose can become a dangerous "compressed air gun."

Make sure all hoses exceeding 1/2-inch ID have a safety device at the source of supply or branch line to reduce the pressure in case of hose failure (per OSHA regulations).

Do not use air directly from a compressor for breathing purposes unless the system has been specifically designed for such purpose and suitable breathing air filters and regulators are in place.

Isolating valves should be of the self-venting type and designed to be locked in the "off" position so that air pressure cannot be applied accidentally while the machine is being worked on.

Never alter or install an A.S.M.E. safety relief valve that has a higher PSIG rating than the pressure vessel rating to which it is installed.

Only pressure vessels built to a national or international standard should be used for air receivers.

## **2.7 Guards and Guarding**

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

## **2.8 Interfacing of Equipment**

When two or more pieces of conveying equipment can cause injury, special attention (warning labels and physical guards) should be used to mitigate the risk of injury.

## **2.9 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.

### **2.9.1 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.

### 2.9.2 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.

### 2.9.3 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.

### 2.9.4 Control Stations

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

### 2.9.5 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 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.

### 2.9.6 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.

### 2.9.7 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.

### 2.9.8 Emergency Stops and Restarts

Conveyor controls must be arranged so 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)".

## **2.10 Belt Weld Press Safety**

The Belt Weld press will be hot. Heat resistant gloves must be used when operating the press.

Belt Weld Press must always be attended when in use. Leaving the Belt Weld Press unattended may cause others to touch the press and get burned.

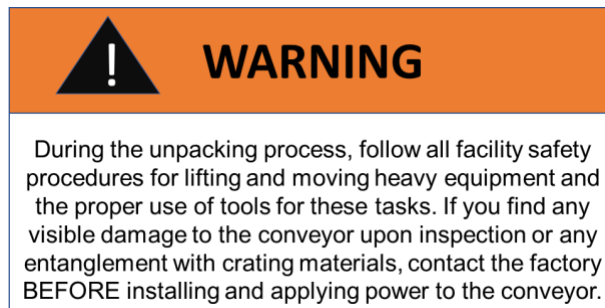
Remove the power cord to ensure the power is off prior to opening the Belt Weld Press.

Only use the Nitta belt welder when performing belt splice/welding. Using non-Nitta belt welder is not compatible and may result in equipment damage.

# INSTALLATION



### 3.1 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.
- 3) 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. The recipient is responsible for filing claims for shipping shortages or damage when that recipient bears the freight charges.
- 4) Please notify the distributor or contact your Trew customer service representative whenever shipment shortage or damage occurs so that support services can be provided and 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 visit our website at

**[www.trewautomation.com](http://www.trewautomation.com)** or call:  
Customer Service Department  
(740) 490-0300  
Monday through Friday  
8:00 am to 5:00 pm EST.

## 3.2 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: The identification tags (See Figure 24) provide data points which can reduce the time when communicating customer service issues.**



Figure 24: 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  $(\pm)1/8"$ .
- 6) Adjust the frame level within a tolerance of  $(\pm)1/16"$  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) Check to make sure the section is square. (See Step 2 above)
- 9) 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.
- 10) After all the beds and supports for a unit are installed, install the drive, belt, and any accessories there may be (guide rail, etc.).
- 11) Run in the unit and adjust the unit as needed.

### 3.3 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 25).

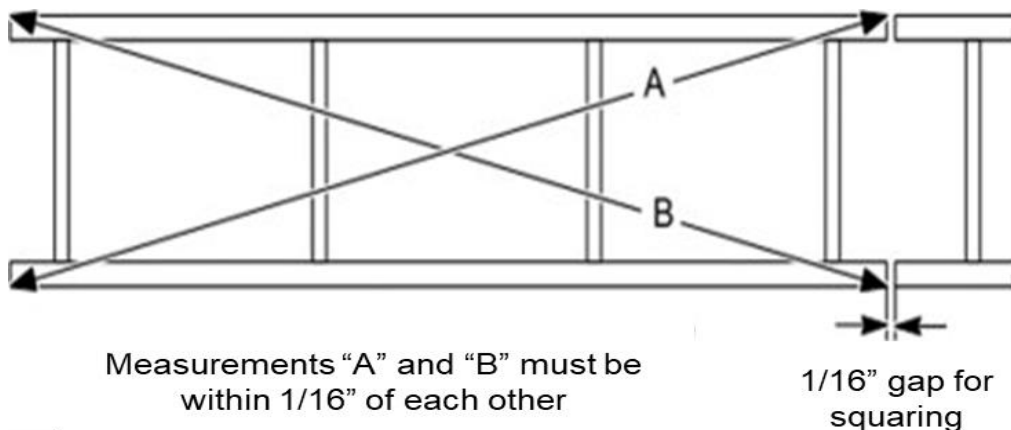


Figure 25: Squaring Conveyor

- 1) Measure each section diagonally from corner to corner as designated by Lines A and B in Figure 25. 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 26.



Figure 26: 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 - 4, as necessary.

### 3.3.1 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 suspended from overhead structures, adjust the conveyor using the adjustment nuts on the Hanger Crossmember Support Rod (rod is supplied by others) to achieve a level conveying surface. (See Figure 27)



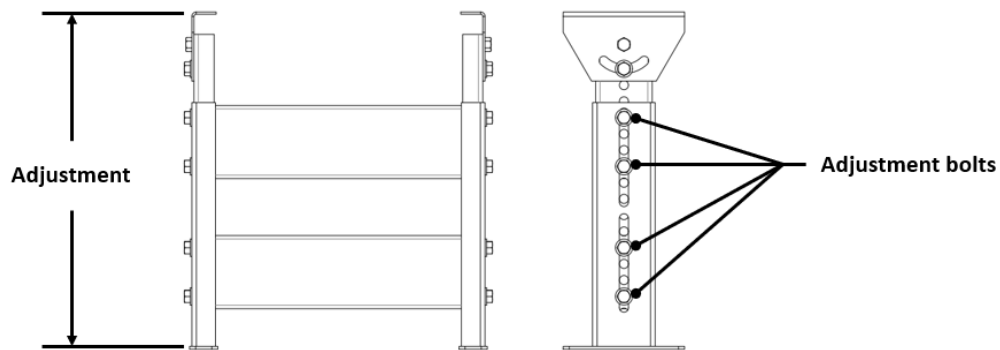


Figure 27: Adjustment/Adjustment Bolts

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 28)

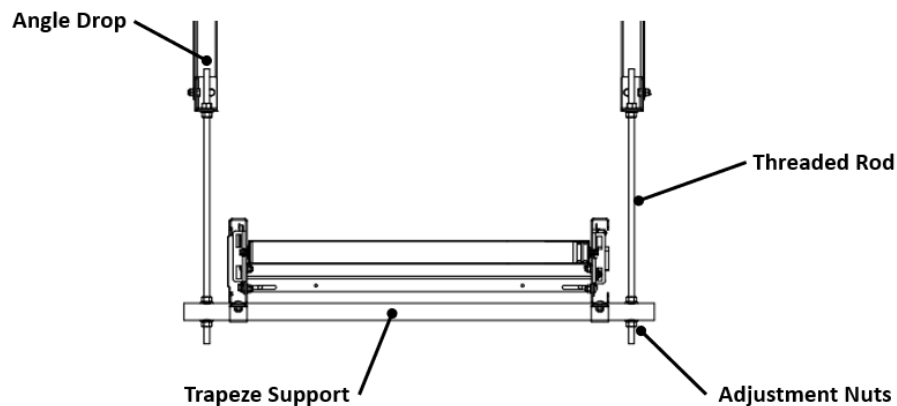


Figure 28: Adjustment for Overhead Structures

### 3.4 Lateral Straightness

Lateral straightness tolerances must be within +/- 1/2 inch per 100 feet. Check each bed section joint to ensure there are no bumps or discontinuities. Use a laser or string line to check the lateral straightness of the conveyor. to sight from the drive to the tail.

### 3.5 Bracing

Knee braces are used to give leg supports better stability by connecting to both leg support and conveyor as shown in Figure 29. Knee braces must be located on the downstream side of the support. The angle between knee bracing and conveyor should be no less than  $30^\circ$  and not to exceed  $45^\circ$ . If the leg support height is greater than 30", the gap between knee bracing cannot exceed 40'.

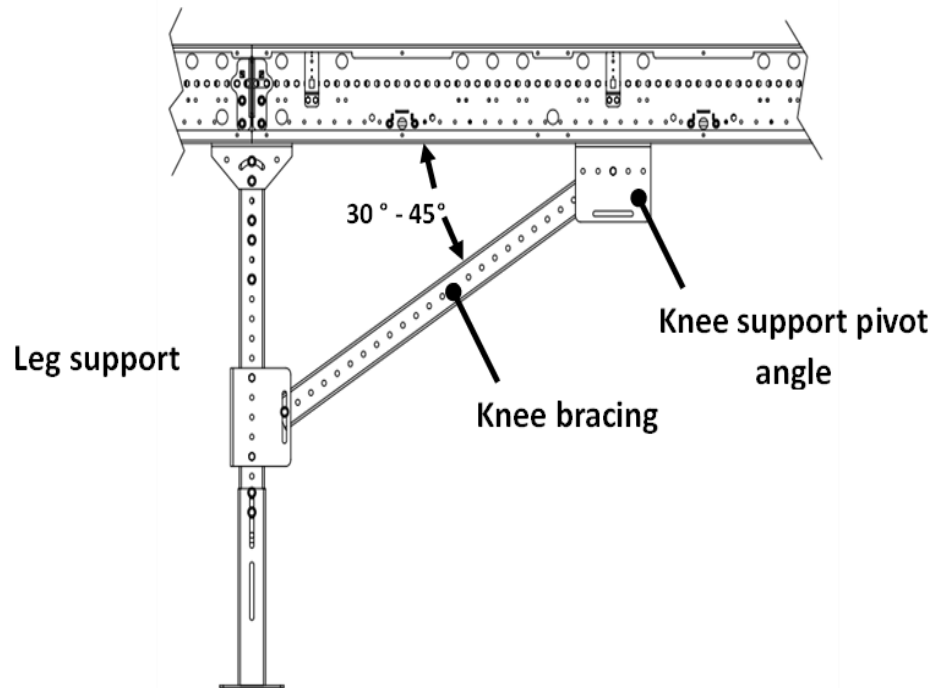


Figure 29: Knee Bracing

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 30.

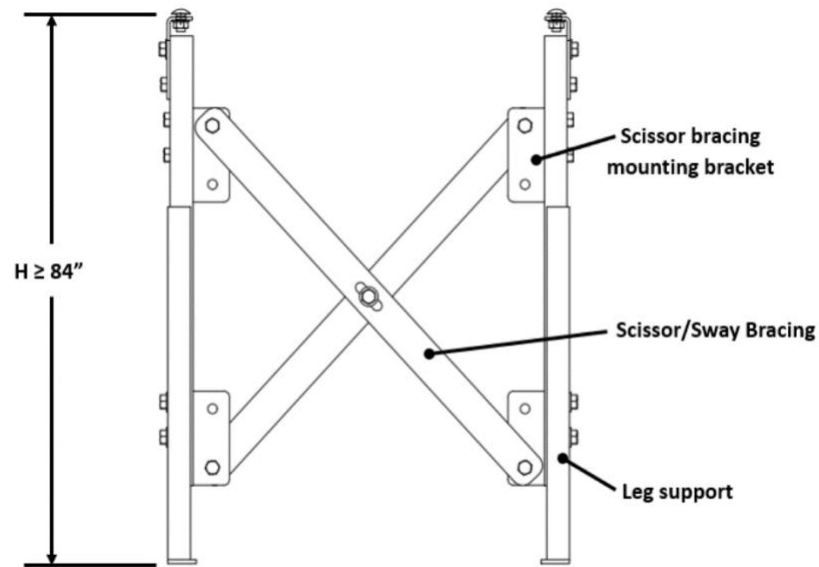


Figure 30: Scissor Bracing

### 3.6 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 31 below). The Splice Coupler is shipped with all NBA beds and should be used without exception.

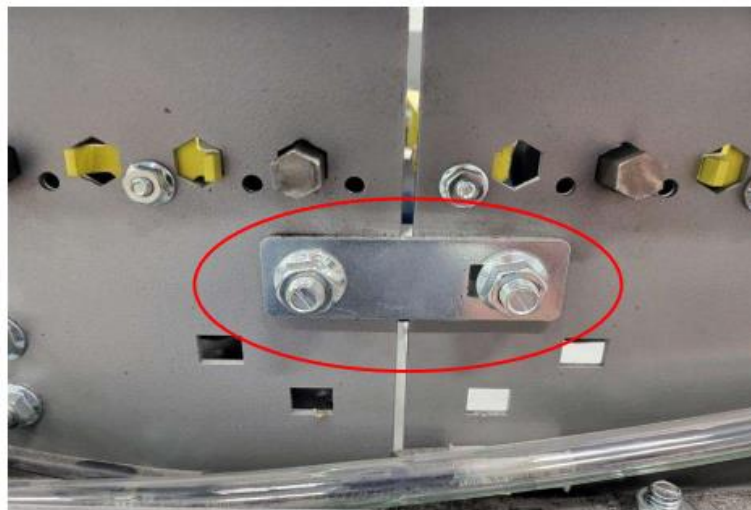


Figure 31: Splice Bracket

### 3.7 End Drives

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 32. 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.

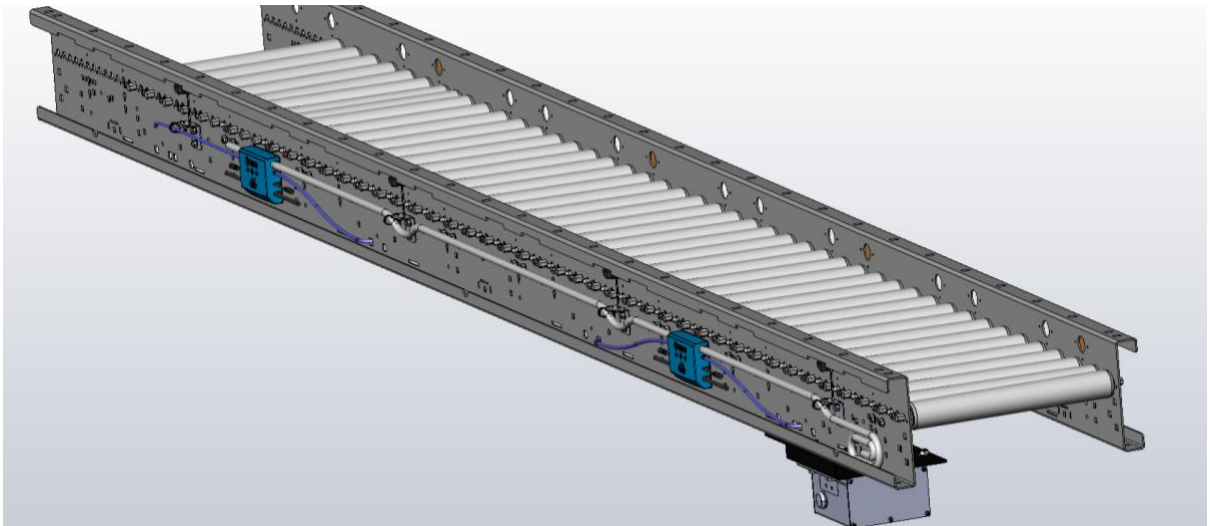


Figure 32: End Drive

### 3.8 Belt Overview

The NBC Conveyor line utilizes the Nitta® Belt made by the Nitta Corporation of America. The Nitta Belt requires a Belt Vulcanization Kit and Belt Cutter Kit (outlined below). Welding instructions for the Nitta Belt are outlined in the Section entitled “Belt Welding”.

### Belt Vulcanization Kit

P/N: 1008708 – Belt Vulcanization Kit

Qty 1 - P/N: 1005796 – Belt vulcanization machine

Qty 1 – P/N: 1005797 – Presetter, resin

Qty 1 – P/N: 1005798 – Impression fabric (wear item)

### Belt Cutter Kit

P/N: 1008707 – Belt Cutter Kit

Qty 1 – P/N: 1005793 – Belt finger cutter machine

Qty 1 – P/N: 1005794 - Cutting sheet (wear item)

Qty 1 – P/N: 1005795 – Cutting blade (wear item)

## 3.9 Belt Installation

The NBA Narrow Belt is 45mm wide. The NBA Narrow Belt length is determined by the total length of a given conveyor. The Belt is located under the rollers in channels along the drive side of the Bed Frame and will be fed through on a “blind” feed. Because of this “blind” feed of the belt, a tool is used to aid in feeding the belt. This feeding tool can be as simple as duct taping a piece of rubberized belt to the end of the NBA belt (See Figure 33). Belt path labels are present on the drive and idler side of the conveyor to assist with threading. See Figures 34 and 35 for examples of installed belt and belt path labels.



Figure 33: Example of Belt Feeding Tool

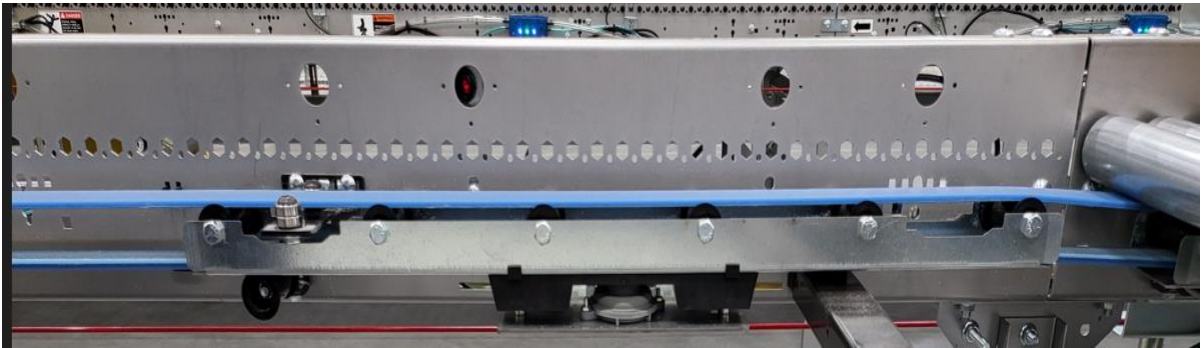


Figure 33: Installed Belt

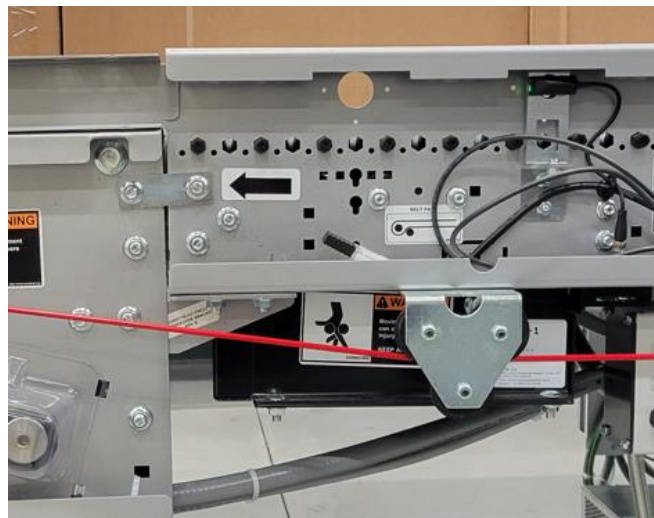


Figure 34: End Idler Belt Path Labels

### 3.10 Belt Welding

(The following procedure for Belt Welding is taken from [Endless Procedure for CFTG-60FS-4.5 Fast-Cook.pdf](#) by Nitta Corporation of America.)



**See Safety Section in this manual prior to using Belt Press**

Pre-heat press – (See Figure 35). Make sure the press is closed. Plug press into correct power source to begin pre-heat-cycle. After running a diagnostic check for about 6 seconds, the press will begin to pre-heat to its programmed temperature of 185°C. If the set temperature is incorrect, then reference press manual to set temperature of 185°C and set time to 300 seconds. Pre-heating will take about 10 minutes. Be careful only to touch the control panel for now and avoid touching the start switch (yellow button beside control panel)



Figure 35: Belt Press

Place Belt Ends in Lower Mold of Pre-Setter - Loosen clamps on lower mold of pre-setter and slide finger-prepared ends together (rubber side down) centered between marks on mold. (See Figure 36). Use a thin metal edge (such as steel ruler or screwdriver) to push tips of fingers or aramid fibers back between fingers if needed. Fasten clamps to hold the belt in place.



Figure 36: Belt ends Inserted in Pre-Setter

Cover Belt with CF-45 Fabric - Cover top of belt material (polyurethane side up) with CF-45 Fabric Sheet as shown in Figure 37.

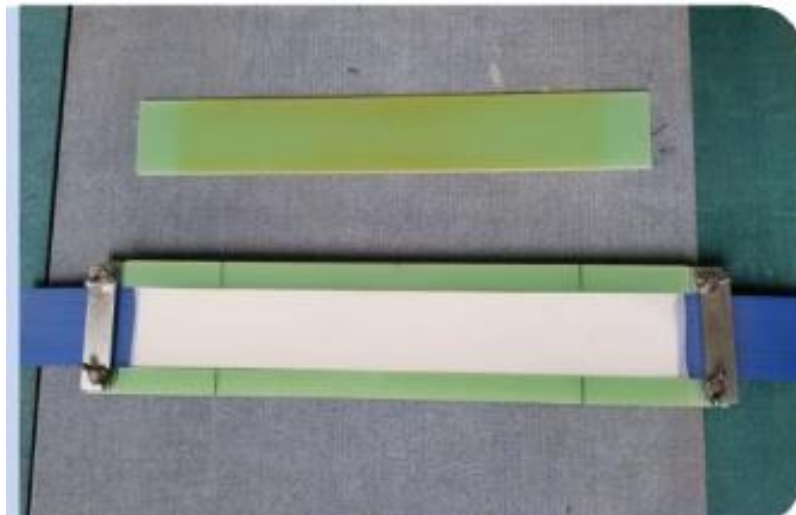


Figure 37: Belt Covered with CF-45 Fabric

Cover all with Upper Mold of Pre-Setter - Place upper plate of pre-setter on top of CF-Fabric sheet, centering over splice area. See Figure 38.





Figure 38: Upper Mold of Pre-Setter

Place Mold in Press – See Figure 39. Open press and insert mold with belt. Make sure the mold is placed between the metal position guides and that the marks on the mold are located within the heating plate.



Figure 39: Mold in Press

Clamp Press Shut and Tighten. Then, Push Start Switch (See Figure 40) - Close press. Fasten hook and turn pressure knob clockwise until it slips. Push the start button to initiate the press cycle. Make sure the green heating indicator light above the start button is turned on. The heating cycle will finish after 5 minutes, and then the cooling fans will turn on. Let the cooling fans run until the current temperature drops to 80°C (about 12 minutes).



Figure 40: Pilot Lamp and Start Switch

Once Press Cools, Remove Belt and Inspect – See Figure 41. Once temperature reaches 80°C, disconnect press. Turn knob counterclockwise, release clamp, and open press. Remove mold from press, then loosen mold clamps and remove belt from mold. See Figure 39. Peel away CF-45 Fabric. Inspect the belt to be sure there are no large bubbles on the surface, cord filaments sticking out, or cracks or grooves between fingers. If all is okay, trim any excess polyurethane material from the edge using scissors.



Figure 41: Remove Belt from Mold

### 3.11 NBA Belt Tensioning

With indicator in “red” stage, turn valve clockwise to set air take up to 50 Pounds per Square Inch (PSI). This will move the indicator to “green” stage as shown in Figure 42.



Figure 42: Air Take Up Regulator

- 1) Check belt tension (See Figure 43).



Figure 43: Checking Belt Tensioning

- 2) Test conveyor.

**NOTE: If additional tension is required, PSI can be increased but not exceed 60 PSI.**

### 3.12 Mounting Guide Rails

Install the guide rails to the top flange of the conveyor beds. 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 (Figure 44). Position

the guide rail in a shingled manner with the adjoining conveyor guide rail so there is a smooth product flow transition from pan guide to pan guide.

**Note: Guide rail supports are placed every 6'-0". Any guiderail 18" tall and over should have Guide rail supports.**



Figure 44: Guide Rail

### 3.13 Accessories

3.13.1 24VDC Power Supply – 24VDC Power supply is needed for every 210' of conveyor. The Power supply bracket is mounted under the bottom side of the NBA rail.

The installer will disconnect the 4-pin connection between two of the NBA controllers near the power supply. They will then add the Power T cable in between those disconnected cables. (See Figure 45).

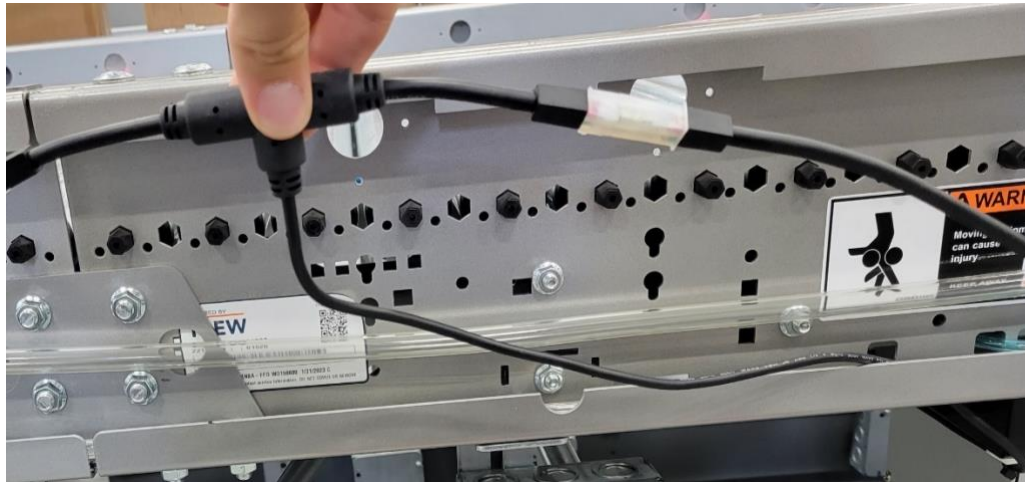


Figure 45: Power T Cable

The flying lead side of the power T cable will be fed through a hole in the conveyor to let it reach the side of the mounted power supply. The M12 field connector will be added to the flying lead side of the Power T cable.

- White wire to pin 1 of the field connector.
- Black wire to Pin 3 of the field connector.
- Screw the M12 field connector into the M12 connector on the side of the PSP.

Wire 120VAC power to the PSP's Alternating Current (AC) input terminals inside the box. Wire should run through the plugged threaded hole in the top of the power supply. See Figures 46 and 47 for details.

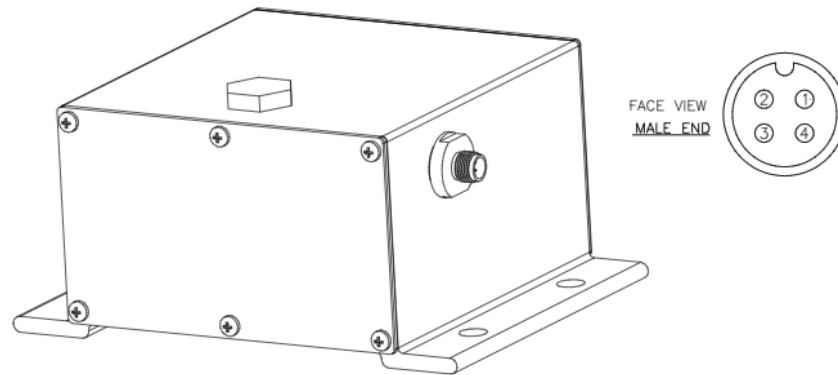


Figure 46: Face View of Power Supply

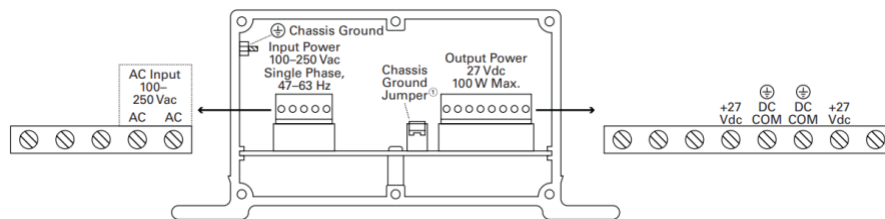


Figure 47: Power Supply

### 3.13.2 Unit to Unit Connections

When connecting two separately powered NBA networks with an extension cable, a Power Isolation Cable (P/N: 10230-060869) must be used. Multiple power supplies powering networks without isolated power will result in controllers being damaged. If the units are both right-handed (controllers are present on the right side of the unit with respect to flow) or left-handed (controllers are on the left side of the unit with respect to flow) an extension cable may be needed (see Extension Cable Section below) to connect the two networks. Additionally, due to the NBA controllers default programming, special attention must be made while connecting a LH unit's network to a RH unit's network (shown below) or connecting a RH unit's network to a LH unit's network; see what parts are needed below:

- Connecting the networks of a LH unit to a RH unit
- LH to RH crossover cable – P/N: 10707-061073
- Power Isolation cable – P/N: 10230-060869
  
- Connecting the networks of a RH unit to a LH unit
- RH to LH crossover cable – P/N: 10707-061072
- Power Isolation cable – P/N: 10230-060869

### 3.13.3 Extension Cables

The standard NBA bed should have enough slack in the NBA controller cable to reach the next NBA controller. If a special cable routing is required, extension cables are available in 12" or 60" lengths. If connecting two separately powered NBA networks with an extension cable, a Power Isolation Cable (P/N: 10230-060869) must be used. Multiple power supplies powering networks without isolated power will result in controllers being damaged.

- 12" Extension Cable – P/N: 10230-060713
- 60" Extension Cable – P/N: 10230-060714

## 3.14 **AIMs Assembly Description**

Used to release the most downstream NBA zone from an external signal. Could be fired from an output from the panel or distributed IO.

All NBA conveyors with a different type of downstream conveyor will use an AIMs. AIMs assembly will ship loose with each end idler (most downstream bed). The release signal will slug release the NBA conveyor from the most downstream zone all the way back until it sees a slug termination dip switch in the up position (DIP switch 4 or 8).

Assembly Includes:

- NBA Release Module (P/N: 10700-060823)
- Includes relay box, M8 cable, m8 splitter.
- Brackets and hardware for mounting under the conveyor frame.

AIMs details.

- Accepts either an AC output signal or a Direct Current (DC) output signal.
- See box specs and installation drawing for more information.

### Ordering Instructions

One AIMs assembly will come with every NBA end idler bed which is ordered by mechanical engineering. Electrical Engineering would order additional AIMs only if an external slug signal is needed at a second location within the NBA conveyor.

This would be ordered through a sales order with any other assemblies or Trew stocked parts.

### Installation Instructions

- 1) Mount the assembly kit below the NBA conveyor on the most downstream zone.
- 2) Disconnect the most downstream photoeye from the NBA controller and add the M8 splitter between the two disconnected cables.
- 3) Plug cable to the open end of the m8 splitter and wire the flying leads to the orange terminals (5 and 6) in the relay box.
- 4) See installation drawing for a wiring guide.
- 5) Wire from the external source to the appropriate relay terminals.
- 6) Use the grey terminals (1 and 2) for an AC output.
- 7) Use the blue terminals (3 and 4) for a Direct Current (DC) output.
- 8) Set appropriate dip switch settings on the NBA controllers for terminating the release signal.

### **3.15 Zone Control Network Terminators**

The Zone Control Network Terminators are shipped connected to Drive and Idler Beds. Terminators are required at either end of the NBA network to enable the controllers to know if they are upstream or downstream of one another. The unit will not function if the direction is incorrect.



### **3.16 Air Regulator and Power Supply Requirement**

An NBA or LRT unit requires two pneumatic filter/regulators: one for the drive take up of the unit and one for the pneumatic actuators.

There is one filter regulator kit per 120' of NBA. LRT only needs 1 filter regulator kit regardless of overall length per bed as there is no exhausting of the pucks so there is no cycling demand on the regulator.

The zone controller features a simple, no tools necessary mounting clip. The zone controller can be mounted directly to the conveyor side rail with either the male or female cable oriented toward the downstream. The conveyor zone controller may be mounted to either the inside or outside of the rail. Outside of the rail is preferred to allow for viewing of status indicators.

### **3.17 NBA Photo Eye Assemblies**

All photo eyes on the NBA conveyor are by default only used for local control to the NBA controllers.

Often an external photo eye signal will be needed for the PLC to detect full status or something else happening on the NBA conveyor.

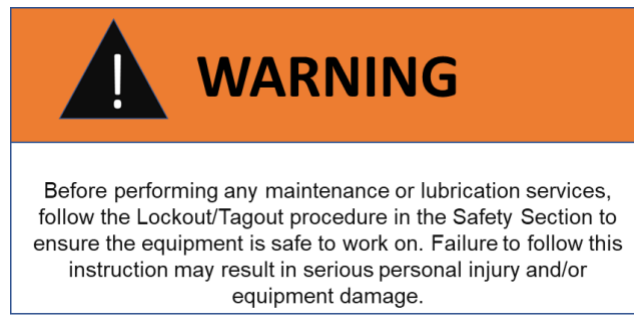
There are separate assemblies based on if the design requires a DC input or AC input back to the external source.

The DC assembly will require mounting a separate photo eye into the frame's pre-punched holes.

The AC assembly will use the signal of an existing photo eye and give a module for wiring the AC input wires.

# PREVENTATIVE MAINTENANCE

## 4.1 General Preventative Maintenance (PM)

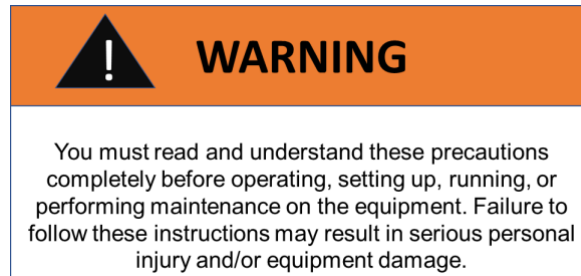


The satisfactory performance and reliability of this equipment is dependent upon a proficient PM program with scheduled equipment inspections under normal operating conditions.

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. If these signs are ignored, a shaft, motor, or other component will need to be replaced. Only qualified maintenance specialists should maintain the mechanical, electrical, and pneumatic portions of the conveyor.

## 4.2 PM Warnings



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

### 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 Schedule

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

Table 3: Troubleshooting

Issue	Probable Cause	Fix
Single zone not running	Motor failure Motor card failure Damaged cabling	Replace motor. Replace motor card. Check cabling for damage
Multiple zones not running	Power supply circuit is off. Damaged cabling Breaker blown at local power supply. Disconnected switch at local power supply	Check power supply for tripped breaker. Check cabling for damage. Reset breaker. Turn disconnect to ON position
Zone runs continuously	Photoeye sensor misaligned on upstream zone. Disconnected photoeye sensor Faulty communication cable	Align photoeye sensor, clean photoeye sensor lens. Reconnect photoeye sensor. Replace motor control card
Light on outside of power supply enclosure (PSE) is not illuminated	Circuit breaker has tripped. No power to the PSE Fuse has blown inside PSE. Pilot light has malfunctioned	Check for tripped breaker. Check incoming power from power drop. Replace fuse. Replace pilot light
Start/stop button not working (if applicable)	Button has malfunctioned. Damaged cabling Fuse blown in power supply enclosure	Replace button. Check cabling for damage. Replace fuse in power supply

Table 3: Troubleshooting (cont.)

Issue	Probable Cause	Fix
Product bounces sporadically while in transportation	Conveyor sections do not have smooth transition at conveyor connection. Debris on conveyor Debris on conveyed product	Readjust convey height. Remove debris from conveyor. Remove debris from conveyed product
Irregular movement of package while in transportation	Package larger than zone Different zone speeds	Verify package size to original conveyor specifications. See: zone runs at different speed than rest of conveyor





# Support Information

## 5.0 Support Information

Technical Support:

Call: 800-571-8739, option #1  
Email: [support@trewautomation.com](mailto:support@trewautomation.com)  
Visit: [cx.trewautomation.com](http://cx.trewautomation.com)  
(login & password required)  
\*\*web site and email for non-urgent requests, only.

If you have a critical/downtime situation, please call, and speak with a technical support representative for the fastest response times.

Parts:  
Call: 800-571-8739, option #2  
Email: [parts@trewautomation.com](mailto:parts@trewautomation.com)  
Visit: [www.hilmotstore.com](http://www.hilmotstore.com)

For warranty requests, please click here for the Returned Merchandise Authorization ([RMA](#)) form. Please note that most parts need to be returned for warranty claims.

For help with part identification, please have the MR tag number.

Field Service:  
Call: 800-571-8739, option #2  
Email: [support@trewautomation.com](mailto:support@trewautomation.com)  
Visit: [www.trewautomation.com/support](http://www.trewautomation.com/support) and fill out the form  
\*\*web site and email for non-urgent requests, only

For all other inquiries or if you are unsure who to contact, please contact your sales representative or email [info@trewautomation.com](mailto:info@trewautomation.com)

800-571-8739  
[info@trewautomation.com](mailto:info@trewautomation.com)

### TREW SERVICES

TREW provides services for all your needs post-system implementation, including:

- Technical Support
- Parts
- Field Service
- Assessments
- Modifications & Upgrades

You can reach all these services by dialing one number:

**800-571-TREW (8739)**

Or emailing:  
**[info@trewautomation.com](mailto:info@trewautomation.com)**