

POWERED BY

TREW

INSTALLATION & MAINTENANCE MANUAL



SERIES 1500

MDR BELTED
STRAIGHT INTERMEDIATE SECTION

TABLE OF CONTENTS

1 - OVERVIEW

| | |
|----------------------------------|-----|
| Zero Pressure Accumulation (ZPA) | 1.1 |
| Standard Zones | 1.2 |

2 - COMPONENTS

| | |
|--|------|
| Motor Control Card - Auto & Full Control | 2.1 |
| Take-Up Assembly | 2.3 |
| Motorized Drive Roller (MDR) | 2.6 |
| <i>Replacement of MDR</i> | 2.6 |
| Photo Eye Sensor | 2.9 |
| <i>Replacement of a Photo Eye Sensor</i> | 2.9 |
| <i>Standard Retro-Reflective Photoelectric Sensor</i> | 2.9 |
| <i>Standard Background Suppression Diffused Photoelectric Sensor</i> | 2.10 |
| Seamless Belt | 2.11 |

3 - PREVENTIVE MAINTENANCE

| | |
|-------------------------|-----|
| Maintenance Precautions | 3.2 |
| Inspection | 3.3 |
| Replacing Rollers | 3.5 |
| Lubrication | 3.6 |

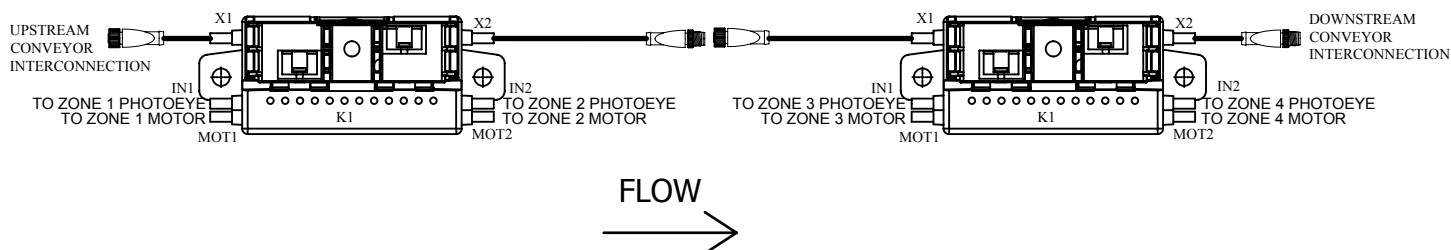
4 - TROUBLESHOOTING

| | |
|-------------------------------|-----|
| Possible Problems & Solutions | 4.1 |
| Troubleshooting Help | 4.8 |

OVERVIEW

Zero Pressure Accumulation (ZPA)

An MDR conveyor with accumulation is composed of several 'zones', as shown in the image below. Each zone is powered by a motorized drive roller (MDR). The MDRs are controlled by a communications network, allowing the zones to communicate with each other to achieve the desired accumulation method. The rollers in a zone do not rotate until product has been detected in the adjacent upstream zone. In other words, the rollers in Zone 2 do not rotate until the photo eye sensor in Zone 1 detects a product. The rollers in Zone 3 do not rotate until the photo eye sensor in Zone 2 detects a product.



There are two types of accumulation release: Singulation release and Slug release. Singulation release allows one product to be released at a time after the downstream zone has cleared. Slug release allows a predetermined amount of product to be released at one time after the downstream zone has cleared. Slug release is typically used in Palletizing or Machine loading conditions. The type of release to be used is usually determined at design time.

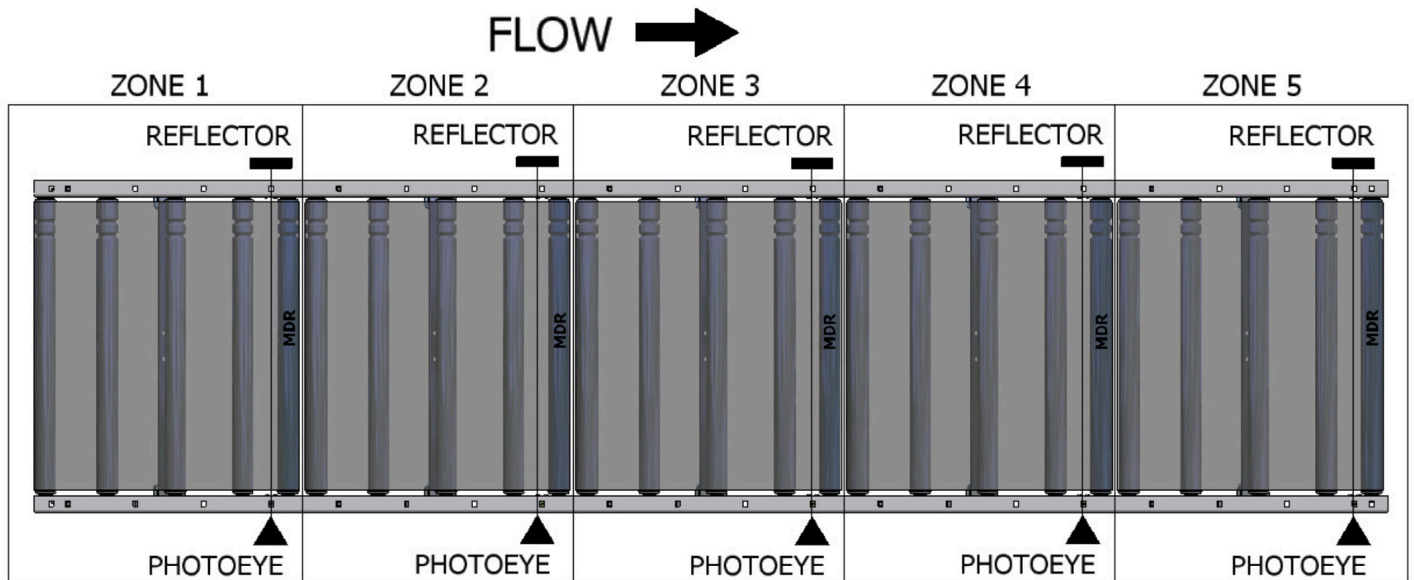
Accumulation begins when a product is forced to remain in Zone 4. The photo eye sensor in Zone 4 detects the product and turns off the motorized drive roller in Zone 4, stopping all the rollers in that zone. When a second product is detected by the photo eye sensor in Zone 3, the motorized drive roller in Zone 3 is turned off, stopping all the rollers in that zone. This accumulation sequence is repeated for each succeeding zone as long as the product in Zone 4 is forced to remain in position.

When the product in Zone 4 can be released, the motorized drive roller is turned on and the product moves down the conveyor system. When the product clears the photo eye sensor in Zone 4, the motorized drive roller in Zone 3 is turned on and the product moves from Zone 3 to Zone 4. This release sequence is repeated for each succeeding zone as long as product is not intentionally stopped in any given zone. The subsequent gap between products is approximately equal to one zone length. This accumulation sequence may be started anywhere along the length of the conveyor.

The MDR accumulation is a true zero--pressure accumulation (ZPA). This means that the product being conveyed never comes in contact with any other product; provided it is dimensionally compatible with the zone (product length is less than the zone length).

Standard Zones

The image below shows a typical zone layout for a standard intermediate zone. Each zone has one motorized drive roller (MDR), photo eye sensor, reflector, motor control card, and carrier rollers.



COMPONENTS

Motor Control Card - Auto & Full Control

The motor control card provides true zero pressure accumulation and other control options to a conveyor system. Each motor control card manages the functionality of (2) motorized drive rollers which in turn drives idler rollers using O-rings or other belts. The ZPA motor control card, MDR and idler rollers, with associated sensors and switches, are assembled into a short conveyor section - or zone. A logic-controlled, ZPA conveyor is created when a number of zones are connected together and a four-wire M12 connector links each motor control card electronically. The MDRs only operate when a package is present and is detected by a photo-eye. If the downstream zone is empty, the package moves forward. The motor control card has several design features allowing the integration of workstations, lifts and turntables into a conveyor design. If the ZPA motor card is to control only (1) motor (one zone), the second zone logic must be turned off with mode 2 (single).

Changing the Operation of the ZPA

Additional control signals can be sent to the motor control cards by using various I/O signals on its connectors. The logic is passed from board to board through modular RJ-11 telephone communication cables. By setting rotary switches (S_1 , S_2 , S_3), you can change its speed, direction and operating mode, respectively.

Motor Control Card Circuit Protection

The motor outputs are protected by safety fuses with 5A-rated current. They prevent damage to the motor control chips from back EMF that might be generated by the MDR when it is rotated by an outside force such as heavy packages arriving at high speed from powered or gravity-fed conveyors. This is referred to as “over-driving” the MDR. Care should be taken to minimize over-driving.

Motor Control Card Replacement

WARNING

Before attempting to repair or replace a drive roller, drive card, controller device, or any other device connected to these components, be sure that power to the controls is locked out to prevent premature or accidental start-up. Failure to follow this instruction may result in serious personal injury, and/or equipment damage.

- 1 Turn off and lock out the power supply to the conveyor
- 2 Remove the auxillary power cable from the card
- 3 Remove the drive roller cable connector and the control cable or com-link from the drive card
- 4 Remove drive card and mounting bracket from the conveyor
- 5 Remove drive card from mounting bracket and inspect for Red LED
- 6 Inspect the original card and observe the jumper and switch settings
- 7 Set the switches and jumpers on the new card to match the old one
- 8 Replace old drive card with spare drive card
- 9 Carefully connect the control cable or com-link and drive roller cable to the card
- 10 Reconnect the auxillary power cable to the card
- 11 Unlock the power supply and turn the conveyor on

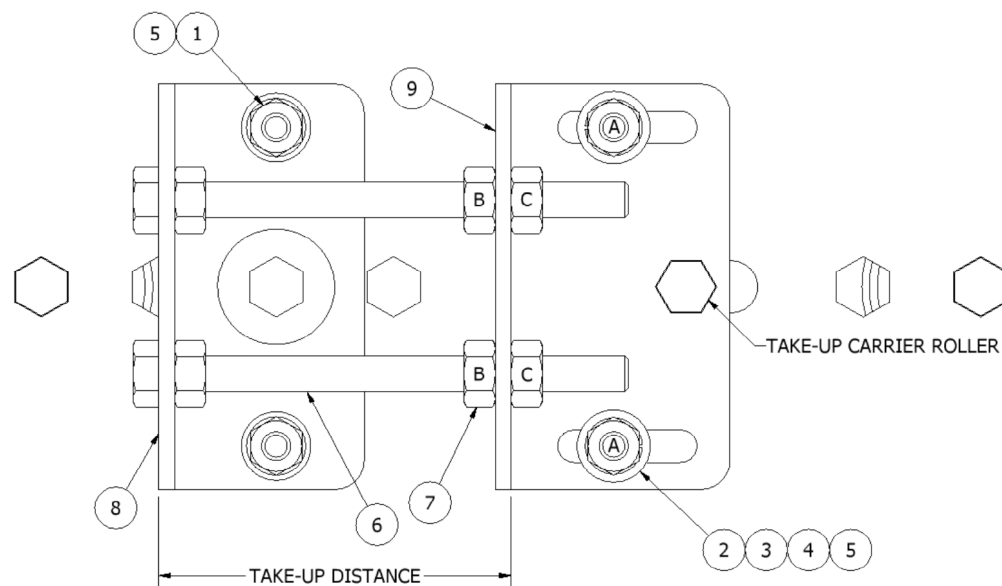
Note: Only follow motor card bracket steps if applicable, as motor card brackets are not used on Intermediate Set High.

Take-Up Assembly

The take-up assembly is used to adjust the overall tension of the seamless belt for each zone. Unlike standard belt conveyor the tension does not need to be adjusted to track the belt. The belt is guided by a notched v-guide that rides in one of the grooves on the roller.

The belt needs to be tightened to a point where the current reading through the motor control card does not exceed 1.4 Amps at no load. The belt need not be extremely taunt to operate.

Warning: Over tightening the belt may result in premature motorized & carrier roller failure.



Standard Belted Zone Take-Up Assembly

| ITEM | PART NUMBER | DESCRIPTION |
|------|--------------|---|
| 1 | 10201-010205 | 1/4" - 20 UNC HEX FLANGE NUT |
| 2 | 10201-010214 | 1/4" - 20 UNC HEX NUT |
| 3 | 10201-010602 | 1/4" WASHER - A |
| 4 | 10201-010655 | 1/4" LOCK WASHER |
| 5 | 10201-011030 | 1/4" - 20 UNC X .75 FLAT HEAD SOCKET CAP SCREW |
| 6 | 10201-001551 | 5/16" - 18 UNC X 4.00" HEX BOLT, FULLY THREADED |
| 7 | 10201-010215 | 5/16" - 18 UNC HEX NUT |
| 8 | 11309-001921 | TAKEUP MOTOR BRACKET |
| 9 | 11309-001922 | TAKEUP IDLER BRACKET |

Take-Up Assembly Components

Loosening a Take-up Assembly

- 1 Turn off and lock out the power supply to the conveyor
- 2 Disconnect motor roller cable from motor control card for the zone being worked on
- 3 Measure & record Take-up Distance for both sides of conveyor
- 4 Loosen the bolts and nuts at location A with 7/16in. socket or 7/16in. box wrench and 5/32in. hex wrench
- 5 Loosen the nuts at location B & then location C with 1/2in. open-ended wrench until the Take-up Idler Bracket allows free movement of the Take-up Carrier Roller in the slot of the frame

Note: Depending on the zone length & between frame dimensions of the conveyor section, the take-up idler bracket may need to be completely removed to allow removal of the carrier roller.

Tightening a Take-up Assembly

- 1 Turn off and Lockout / Tag-out all power to the conveyor section
- 2 Disconnect motor roller cable from motor control card for the zone being worked on
- 3 Make sure bolts & nuts are loose at location A
- 4 Make sure the hex shaft of the carrier roller can freely move in frame slot
- 5 Proceed to tighten both location B nuts evenly with 1/2in. open-ended wrench. Make sure the nuts at location C are far enough to the end of Item 6 to allow full adjustment of take- up
- 6 The Take-up Distance should be the same both at the top and the bottom of the bracket. Also the take-up brackets on either side of the conveyor should have the same Take-up Distance
- 7 Tighten the nuts at location C to ensure no movement of the carrier roller
- 8 Plug the motor cable back into the motor control card & power up the conveyor
- 9 The Take-up Assembly will be in the correct location when the current readings, using a digital multimeter, are between the range of 1.0 – 1.4 Amps at no load conveyor speed. The lower the current reading in the range the better

Warning: Over tightening the belt may result in premature motorized & carrier roller failure.



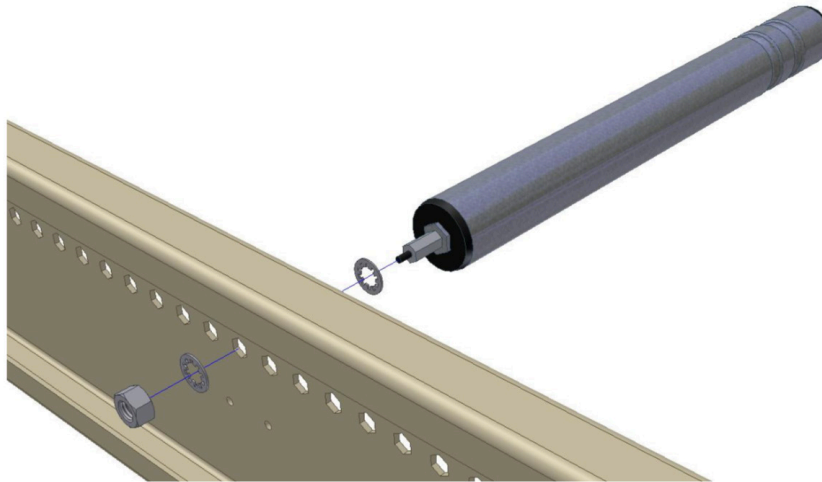
- 10 If the current is above 1.4 Amps, follow the loosening procedure above until the correct current is achieved
- 11 Once the correct tension is achieved make sure the nuts at location C & B are fully tightened, and then the bolts and nuts at location A can then be tightened

Motorized Drive Roller (MDR)

The motorized drive roller (MDR) is the muscle of the conveyor zone. It provides the torque and speed required to move the product to the next zone. The MDR has the motor and gearing encapsulated inside the roller tube.

Replacement of MDR

- 1 Turn off and Lockout / Tag-out all power to the conveyor section
- 2 Make sure that the Gear Ratio matches that of the roller that is being replaced. Standard Gear Ratios would include: 16:1, 20:1, 24:1, 36:1, 64:1, and 96:1. This is important if the conveyor system is comprised of more than one speed
- 3 The replacement roller should include:
 - a Motorized Drive Roller
 - b Hardware Kit
 - i. star washers – Qty. 2
 - ii. motor nut
 - iii. motor instructions
- 4 Install a star washer on the threaded motor shaft
- 5 Insert the MDR connector into the hex hole and gently pull the cable extending from the motor through
- 6 Insert the threaded hex shaft into the hex hole. Push the spring loaded idler shaft inwards and line the roller up with the hole. Release the idler shaft and allow it to pop into the hole in the frame. The image on **Page 2.6** shows an exploded view of the process
- 7 Install the outer star washer



- 8 The motor nut threads on to the motorized drive roller shaft, and should be to the proper torque of: **See Page 2.7 for Proper Torque Information.**
- 9 Tools required to achieve proper torque can be seen below






- 10 Plug the motor cable into the motor control card
- 11 Turn on power to the conveyor section
- 12 Check to see if roller operates by passing your hand in front of the photo eye sensor of the zone that is being serviced or the photo eye sensor located upstream with respect to flow
- 13 If the MDR does not operate review the **Troubleshooting Section**

⚠ WARNING

These checks must be performed with the power to the conveyor section turned "ON". Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

Proper Torque

| | | |
|---|--|---|
| Gear Ratios Vary. | | |
|  |  |  |
| EC110 and EC100: 30 ft-lbs +/- 5 ft-lbs (40.7 N-M +/- 6 N-M) | | EC310: 50 ft-lbs +/- 5 ft-lbs (67.8 N-m +/- 6 N-m) |

| |
|---|
|  |
| ITO: 22.5 ft-lbs +/- 5 ft-lbs (30.5 N-M +/- 6 N-M) |

Photo Eye Sensor

A photo eye sensor is used to sense the presence of the product. Two styles of photo eye sensors are used on standard Hilmot Conveyor: Retro-Reflective Photoelectric Sensor & Background Suppression Diffused Photoelectric Sensor.

Replacement of a Photo Eye Sensor

- 1** Turn off and Lockout / Tag-out all power to the conveyor section
- 2** Locate end of Photo Eye Sensor cable and unplug from the roller drive card
- 3** Carefully remove cable from any holes in conveyor frame.
Note the routing path of the cable
- 4** Remove fasteners from the Photo Eye Sensor mounting bracket
and remove Sensor from conveyor
- 5** Install new Sensor at the same location as the old sensor
- 6** Route the new Sensor cable through the same path as the old sensor cable
- 7** Install Sensor cable plug into the roller drive card

Standard Retro- Reflective Photoelectric Sensor

The image and diagram below displays the cable connection types for the Tru-View ML17 series photoelectric sensors - 3.5m sensing range - Polarized retro-reflective mode - PNP Dark-Operated Sensor.

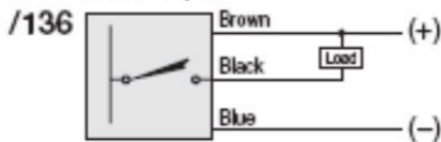
Wiring Diagrams



Cable Connection

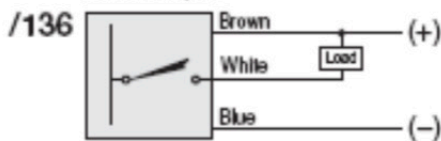
Normally Open

NPN Output



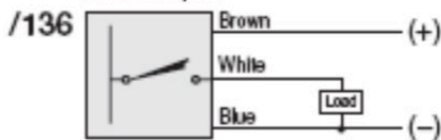
Normally Closed

NPN Output



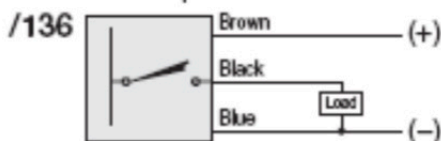
Normally Open

PNP Output



Normally Closed

PNP Output



4-in-1 Output

The 4-in-1 output offers one normally open and one normally closed output, both of which automatically detect the connected load, so the outputs either source or sink current depending on the load. A single sensor can operate as NPN normally open, NPN normally closed, PNP normally open, or PNP normally closed.

4 IN 1
FOUR OUTPUTS
ONE SENSOR



Seamless Belt

The seamless belt is used when small product and smooth conveyance is required. Two styles of belts are used in Hilmot Belted Zone Conveyor: Smooth Top Belts & Longitudinal Belts.

- Smooth Top Belts - The smooth top belts are commonly used when the conveyor is not at an incline. Commonly these belts are thinner than the longitudinal belts
- Longitudinal Belts – The longitudinal belts have ribs running the length of the belt. This gives increased friction for moving packages. These belts are commonly used in incline and decline areas

Replacement of a Seamless Belt

- 1 Turn off and Lockout / Tag-out all power to the conveyor section
- 2 Make note of any irregular wear characteristics
- 3 Loosen Take-ups by the procedure listed in the Take-up Assembly section of this manual
- 4 Remove all rollers by the procedures listed in the Motorized Roller & Carrier Roller sections of the manual
- 5 Remove seamless belt
- 6 Follow procedures outlined in the manual to replace the components that are in direct contact with the seamless belt and tighten the take-up

Replacement of a Strip Belt

- 1 Turn off and Lockout / Tag-out all power to the conveyor section
- 2 Make note of any irregular wear characteristics
- 3 Loosen Take-ups by the procedure listed in the Take-up Assembly section of this manual
- 4 Cut off old belts that are worn. Remove any old tracking tape that is present
- 5 Apply tracking tape to the motorized roller and end idle roller at equal distance from the inside of the frame. Apply 3 full wraps around the roller at the designated place
- 6 Wrap strip belt around all rollers in the zone, next to but not over the tracking tape for that respective belt, and bring the lacing together on top of one of the middle rollers
- 7 Insert lace pin and crimp or tuck ends of lace pin
- 8 Follow procedures outlined in the manual to replace the components that are in direct contact with the seamless belt and tighten the take-up

PREVENTATIVE MAINTENANCE

The satisfactory performance and reliability of this equipment is dependent upon a proficient preventive maintenance (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 preventive maintenance 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 maintenance process more efficient and accurate. It is recommended that each conveyor have its own record. Properly kept, the conveyor record sheet will form a mechanical history of the equipment covered.

Preventive maintenance 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 preventive maintenance.

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

WARNING

Before performing any maintenance or lubrication services, follow the lockout/tagout procedure in the Safety section to ensure that the equipment is safe to work on. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

Maintenance Precautions

WARNING

You must read and understand these precautions completely before operating, setting up, running, or performing maintenance on the equipment. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

- 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

Generally, 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
- 5 Operating personnel will most likely treat clean equipment with more care

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

The total value of inspection procedures is determined largely by the consistency and regularity of the schedule. A definite interval of inspection must be established and obeyed. This is usually easier to accomplish if a "round robin" system of inspection is used. 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. Results of these general inspections should be documented in the conveyor record of the unit inspected.

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

Daily Inspection

Walk the entire length of conveyor system and observe the following:

- 1** With the conveyor running, listen for abnormal noises that could indicate:
 - Worn bearings in rollers, motors, reducers, etc.
 - O-Belt making contact due to misalignment or improper adjustment
- 2** With the conveyor shut down, look for the following:
 - Strings or other foreign material wrapped around bearings, shafts, or rollers. Remove all foreign material immediately
 - Shavings or belt dust under conveyor that would indicate misaligned or damaged components
 - Oil leakage that would indicate faulty bearings or seals in rollers, motors, reducers, etc.
- 3** Check pneumatic regulators for proper setting and listen for air leaks

Weekly Inspection

- 1 Visually inspect belts and rollers for wear, improper alignment, or buildup of foreign materials and repair/clean as required
- 2 Visually inspect all motors
- 3 Check pneumatic water traps and drain as required

Inspection Every 6 Months

- 1 Clean and lubricate all drive chains with SAE-10 to SAE-40 oil
- 2 Check all set screws and tighten as necessary. These may work loose during normal operation
- 3 Check all bolted connections and tighten as needed. Bolted connectors may work loose during normal operation

WARNING

Before performing any maintenance or lubrication services, follow the lockout/tagout procedure in the Safety section to ensure that the equipment is safe to work on. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

Carrier Roller

The carrier roller is used to take the weight of the product and also distributes the torque generated by the motorized drive rollers via o-belts, chain, timing belts, strip belts, or full-width belts. Generally, no more than nine carrier rollers per motorized drive roller are used in each zone.

Replacement of Carrier Roller

- 1 Turn off and Lockout / Tag-out all power to the conveyor section
- 2 Use an appropriate tool to push in the spring loaded axle on the roller and free that side of the axle from the frame of the conveyor
- 3 Carefully disengage the opposite end of the roller from the frame. Make sure the axle is not pinched on the frame causing damage during removal
- 4 Remove the disengaged roller entirely from the frame section
- 5 Carefully maneuver the roller to allow the drive belts to be removed from the grooved end of the roller. Set old roller aside
- 6 Install new roller by first maneuvering grooved end through the drive belts, ensuring the belts are aligned in the appropriate grooves
- 7 Insert the axle of the replacement roller through the conveyor frame
- 8 Use an appropriate tool to push in the spring loaded axle and lower the roller into position, aligning the axle with the hex hole in the conveyor frame
- 9 Unlock and turn on the power to the conveyor section

WARNING

Before performing any maintenance or lubrication services, follow the lockout/tagout procedure in the Safety section to ensure that the equipment is safe to work on. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

Lubrication

Motors and Carrier Rollers

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

WARNING

Before performing any maintenance or lubrication services, follow the lockout/tagout procedure in the Safety section to ensure that the equipment is safe to work on. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

WARNING

Be sure to replace the drive guarding after inspection or maintenance. Failure to follow this instruction may result in serious personal injury and/or equipment damage

SUPPORT

When troubleshooting equipment problems, it is essential to completely understand how the system functions during normal operation. Thoroughly review the operational description, the circuit drawings, and the electrical diagrams sent with your equipment. Once the system operation is understood, it is usually best to start at the problem, and then work back to the source.

Procedures are discussed at length in the following pages; however, there are certain guidelines that should be followed for all troubleshooting problems.

- 1** Locate the problem
- 2** Listen and observe
- 3** Identify problem as electrical, mechanical, or pneumatic
- 4** Determine symptoms through observations
- 5** List short and long term solutions
- 6** Select a solution or possible solutions
- 7** Implement and document one solution at a time

Troubleshooting a Dead Zone on the Conveyor

Perform the following visual checks prior to any troubleshooting:

- 1 Visually check and confirm that all wires are plugged in, intact and all connectors are secure
- 2 Visually check and confirm that there are no obstructions to the rollers
- 3 Inspect the photo eye sensor and check for proper operation as described in the Preventative Maintenance section of this manual.

WARNING

These checks must be performed with the power to the conveyor section turned “ON”. Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

Controller Check

The controller typically controls 2 zones. If the 2 zones are not functional, check individual M12 cables. Unplug and plug in the MDR and PE.

Check the controller. If no voltage is detected, check the in-line fuse.

If the in-line fuse is functional, check the power supply. Unplug and plug in black cable. Replace drive card.

Power Supply Check

The power supply typically supplies voltage to multiple zones. If the power supply is defective, all zones supplied will be inoperative. If only one or two zones are inoperative, check the individual connection cables and connectors going to each card.

Check the input voltage into the power supply. Check the power supply fuse or the circuit breaker. Replace if defective.

Motor Control Card / Motorized Drive Roller Checks

This check determines if the motor control card and the motorized drive roller are functional and must be done with power to the conveyor turned on.

Motor Control Card / Motorized Drive Roller Checks

This check determines if the motor control card and the motorized drive roller are functional and must be done with power to the conveyor turned on.

WARNING

These checks must be performed with the power to the conveyor section turned “**ON**”. Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

- 1 Determine if red fault light is on the drive card
- 2 Unplug and plug black auxillary cable into ZPA card
- 3 Unplug and plug M8 and M12 cables
- 4 Check that photoeyes are aligned and motors are torqued down
- 5 Remove drive card and make sure rotary rotary dials are the same as previous card

If the motorized drive roller rotates, the motor control card is defective. Replace the motor control card using the procedure **Motor Control Card section** of this manual **(2.4)**. If the motorized drive roller still does not rotate, the motorized drive roller is defective. Replace the motorized drive roller using the procedure in the **Motorized Drive Roller (MDR) section** of this manual **(2.5)**.

No Voltage to the Motor Control Card

This check determines if there is power being supplied to the motor control card and must be done with power to the conveyor turned on.

No Voltage to the Motor Control Card

This check determines if there is power being supplied to the motor control card and must be done with power to the conveyor turned on.

WARNING

These checks must be performed with the power to the conveyor section turned “**ON**”. Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

- 1 Determine which motor control card is being used at the zone location
- 2 If the voltage is not between 24-26VDC, check the downstream zone motor control card for voltage. If the same condition exists (voltage is not between 24-26VDC), check the Power Supply with a Multi-Meter
- 3 If the voltage is between 24-26VDC, check the M12 and M8 connectors

The Troubleshooting Appendix gives a general guide for some of the common problems that might be seen with Motorized Drive Roller Conveyor.

Note: The troubleshooting guide does not cover issues involving zones controlled by a programmable logic controller.

| Symptom | Probable Cause | Corrective Action |
|-------------------------------|--|--|
| Zone will not run (dead zone) | Mechanical Transmission | Insure proper mechanical connection (O-bands, drive chain loops, timing belts, etc.) between MDR & carrier rollers |
| | No voltage to motor control card | Check voltage across motor control card |
| | | Check power supply |
| | | Inspect interconnect wiring for loose wires |
| | Motor control card dip switch settings are incorrect | Verify dip switch settings according to electrical interconnect drawing |
| | Motorized drive roller is defective | Replace motorized drive roller |
| | Disconnected photo-eye sensor | reconnect photo-eye sensor |
| | Faulty communication cable | Replace communication cable |
| | | Replace motor control card |
| | DC common is not connected between power supplies | Verify DC common are connected |
| Zone runs in wrong direction | Motor control card dip switch settings are incorrect | Verify dip switch settings according to electrical interconnect drawing |
| | Faulty power supply | Replace power supply |
| Zone runs continuously | Photo-eye sensor misaligned on upstream zone | Align photo-eye sensor, clean photo-eye sensor lens |

| Symptom | Probable Cause | Corrective Action |
|--|--|--|
| Zone runs continuously (continued) | Disconnected photo-eye sensor | Reconnect photo-eye sensor |
| | Faulty communication cable | Replace motor control card |
| Motorized drive roller makes excessive noise | Faulty motorized drive roller | Replace motorized drive roller |
| Zone runs at a different speed than rest of conveyor | Gear ration of MDR is incorrect | Verify proper MDR, and replace if needed |
| | Speed potentiometer on motor control card is incorrect | Using a terminal screwdriver, adjust potentiometer on motor control card |
| | Motorized drive roller is defective | Replace motorized drive roller |
| Large batch of zones do not operate | Faulty power supply | Replace power supply |
| | Breaker blown at main panel | Reset breaker - if problem persists call for servicing |
| | Breaker blown at local power supply | Reset breaker - if problem persists call for servicing |
| | Disconnect switched at local power supply | Turn disconnect to ON position |
| | Interconnect wires - loose connection | Check wiring |
| Boxes run into each other | Photo-eye sensor not operating | Verify photo-eye sensor wiring |
| | | Verify proper photo-eye sensor alignment |
| | | Clean photo-eye sensor lens |

| Symptom | Probable Cause | Corrective Action |
|--|--|--|
| Boxes run into each other (continued) | Dead zone | See: zone will not run (dead zone) |
| | Speed set too high | See: zone runs at different speed than rest of conveyor |
| | Package larger than zone | Verify package size to original conveyor specifications |
| | Photo-eye sensor location is incorrect | Move photoeye sensor to proper location specified conveyor purchase |
| | Motor control card dip switch settings are incorrect | Verify dip switch settings according to electrical interconnect drawing |
| Green lights on card not lit | Motor control card is faulting | See: motor control card section of this maintenance manual for fault information |
| | No voltage to motor control card | Check voltage across motor control card |
| | | Check power supply |
| | | Inspect interconnect wiring for loose wires |
| Product bounces sporatically while in transportation | Conveyor sections do not have smooth transition at conveyor connection | Readjust conveyor height |
| | Debris on conveyor | Remove debris from conveyor |
| | Debris on conveyed product | Remove debris from conveyed product |
| Irregular movement of package while in transporation | Package large than zone | Verify package size to original conveyor specifications |
| | Different zone speeds | See: zone runs at different speed than rest of conveyor |

Support

If you need further assistance:

Website:

www.poweredbyTrew.com

Email:

info@trewautomation.com

Phone:

1.800.571.8739

Monday - Friday, 8:00am - 5:00pm CT