ROACH CONVEYORS®

OWNER'S MANUAL

Motor Driven Zone Accumulator

796MDZ • 796MDZC

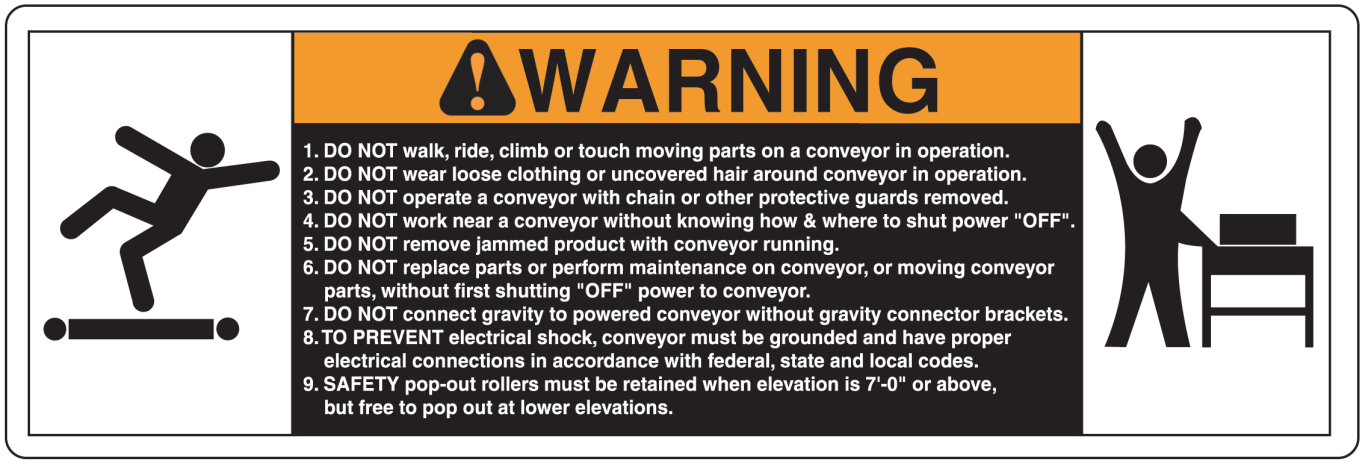
DO NOT OPERATE BEFORE READING THIS HANDBOOK

KEEP IN A SAFE PLACE – DO NOT DISCARD

TECH HANDBOOK FOR POWERED ROLLER CONVEYORS
TABLE OF CONTENTS

CAUTION LABELS

ABOVE: Label attached to all protective guards (drives, spool guards, etc.)



ABOVE: Label placed near all drive assemblies and at 30' intervals

CAUTIONS, WARNINGS AND HAZARDS INTRODUCTION

This manual was prepared as a "how-to-guide" for installers, end-users and maintenance personnel. It is also intended to educate both owner (purchaser) and all individuals working around the unit, of potential hazards.

With proper installation and maintenance, conveyors are essential for achieving a variety of functions essential in today's industrial marketplace. By following a simple, periodic maintenance schedule, the life of a typical conveyor (or, most any type of machinery--including our automobiles!) will increase when compared to a similar unit in an application receiving little or no maintenance. You may find that a conveyor can become your best workplace friend by following simple safety guidelines. **Failure to follow even the most basic safety suggestions can result in serious personal injury**.

Conveyors contain many moving parts--pulleys, belting, chains, sprockets, shafts, rollers, etc. Therefore, it is imperative to become familiar with basic unit operation and know all points of potential hazards.

Remember, when working around or near conveyors (and **any** industrial machinery) it is **your** responsibility to become familiar with the unit, to know potential hazards (many are noted with caution labels) and to operate unit in strict accordance with the safety guidelines in this manual.

Keep this manual in a safe place for future reference. It should be placed where appropriate personnel may maintain proper maintenance and records.

This manual must be read by all new users before operating or working near this unit.

⚠WARNING

DO NOT OPERATE BEFORE READING THIS MANUAL!
KEEP IN SAFE PLACE--DO NOT DISCARD!

CAUTIONS, WARNINGS AND HAZARDS

⚠WARNING

⚠ NEVER connect belt conveyors directly to gravity conveyors, machinery or fixtures without using connector brackets & pop out roller.

⚠ ALWAYS anchor permanent supports to floor (or mounting surface). Use 3/8" x 2-1/2" (or longer) wedge anchors for permanent installation in concrete flooring.

⚠ It is the responsibility of the customer and installation personnel to supply and install net or mesh guarding on overhead mounted conveyors to prevent product and/or debris from falling to floor in areas where required.

⚠ If belt conveyor pulleys are adjusted during installation or maintenance, nip point guard (at drive end on end drive unit) must be readjusted. Nip point guard (take-up end) is automatically adjusted when take-up pulley is adjusted. Nip point guards at both ends of conveyor (center drive) must be readjusted. Center drive guards MUST be replaced after installation or maintenance.

⚠ Before unit is ready for operation, snub roller guard (cover) must be adjusted to ensure safe unit operation.

⚠ Belt lacing must be kept in good condition for safe work environment.

⚠ source before attempting any adjustments.

⚠ To check drive sprocket tension, shut "OFF" and lock out power source before any adjustments are attempted.

⚠ Electrical controls must be designed by a qualified electrical engineer to ensure that appropriate safety features (emergency stops, pull cords, switches, etc.) are installed on unit for safe operation. Before conveyor start-up, all operators and other personnel coming in contact with unit must be properly trained and must have read accompanying Tech Handbook.

⚠ Upon start-up, if belt tracks to one side, turn unit "OFF", lock out power source and confirm that conveyor is square and that all prime tracking components are square with bed. Belt tracking adjustments should be performed by trained personnel ONLY. Read section on "Belt Tracking" completely before attempting belt tracking adjustments.

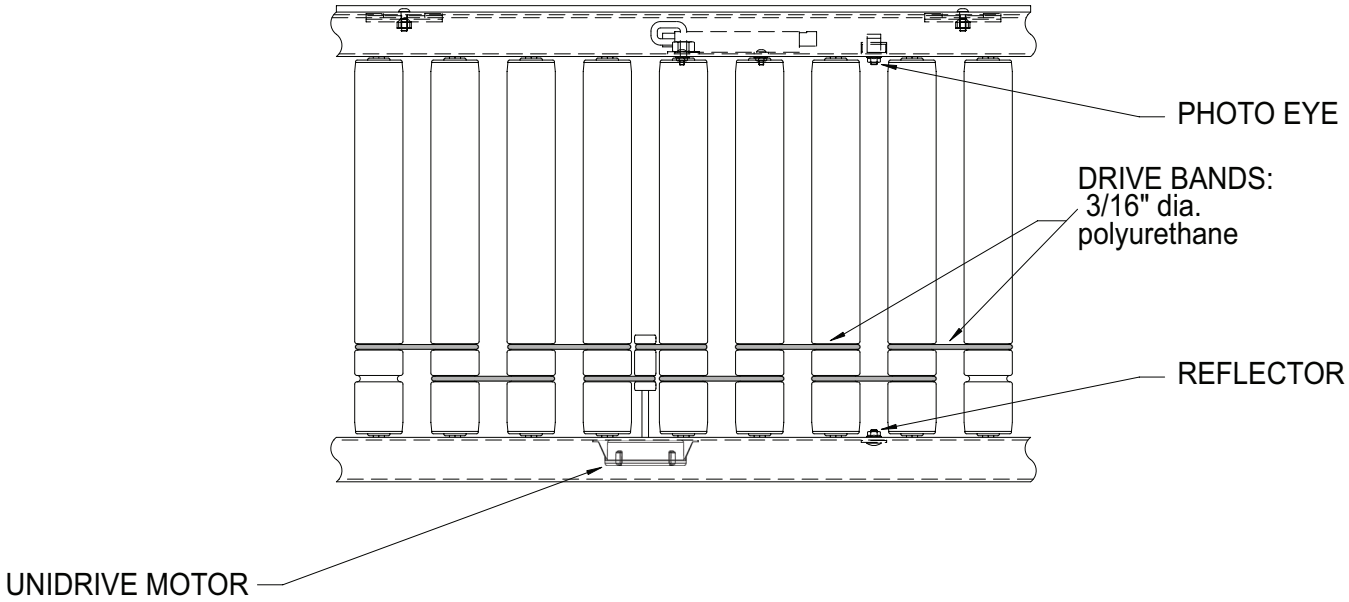
⚠ Only trained personnel shall perform maintenance functions. Before maintenance operations are performed, shut conveyor "OFF" and lock out power source to prevent unauthorized start-up. When maintenance is completed, only authorized personnel shall be permitted to start conveyor following maintenance or other emergency shut-off.

WARNING

WARNING: All personnel coming in contact with this conveyor should be aware of the following safety guidelines BEFORE USING OR WORKING AROUND CONVEYOR. NOTE: ALWAYS notify Roach Manufacturing® whenever any conveyor is used in an application or condition other than was originally intended. Failure to notify Roach® may allow conveyor to be operated in a hazardous operating condition. Injuries resulting from negligence or violation of safety instructions hereby removes responsibility of product liability claims from Roach®.

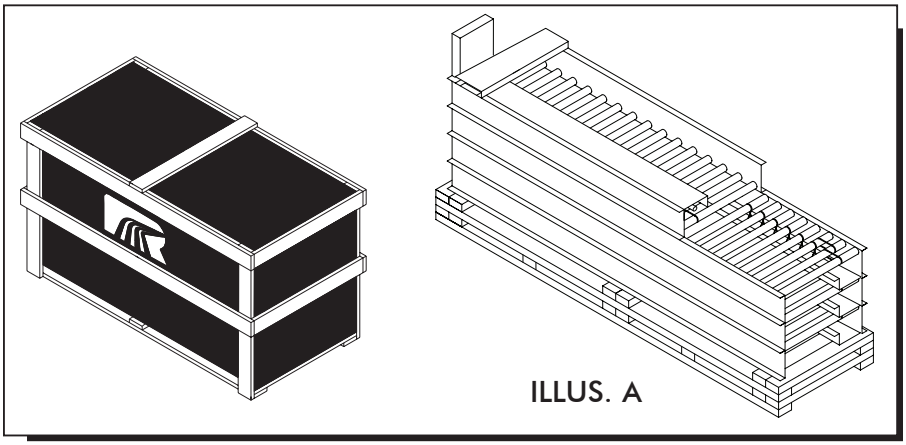
- Do not operate conveyor with protective guards removed. This includes chain guards, belt guards, snub roller guards, center drive guards and any other safety guard.
- Do not walk, ride, climb, or touch moving parts on a conveyor in operation.
- Do not wear loose clothing or uncovered hair around conveyor.
- Do not work near conveyor without knowing how & where to shut power "OFF" and lock out power source.
- Do not remove jammed product with conveyor running.
- Do not replace parts or perform maintenance on conveyor, or moving conveyor parts, without first shutting "OFF" power to conveyor and locking out power source.
- Do not connect gravity to powered conveyor without safety gravity connector brackets.
- To prevent electrical shock, conveyor must be grounded, and have proper electrical connections in accordance with federal, state, and local codes.
- Safety pop out rollers in conveyors installed above 7'-0" elevation must be retained by guard rail, clips, etc. Safety pop out rollers must be allowed to pop out when conveyors are installed at or below 7'-0" elevation.
- It is the responsibility of conveyor end-user to comply with all safety standards including OSHA and other federal, state, and local codes or regulations. Install protective guarding and other related safety precautionary equipment to eliminate hazardous operating conditions which may exist when two or more vendors supply machinery for related use.
- Any violation of above safety instructions hereby removes all product liability claims from Roach Manufacturing Corporation®.

ABOUT MDZ CONVEYORS



Each zone of the MDZ Conveyor is driven by a 24 VDC UniDrive© pancake motor. The motor sheeve is connected with 3/16" Ployurethane drive belts, which turns each roller in that zone. These accumulation zones are controlled with a photo eye sensor.

RECEIVING AND INSPECTION
SHORTAGES, DAMAGES AND RETURN AUTHORIZATIONS



ILLUS. A

NOTE: Do not return goods to factory without prior, written return authorization. Unauthorized returns are subject to refusal at factory.

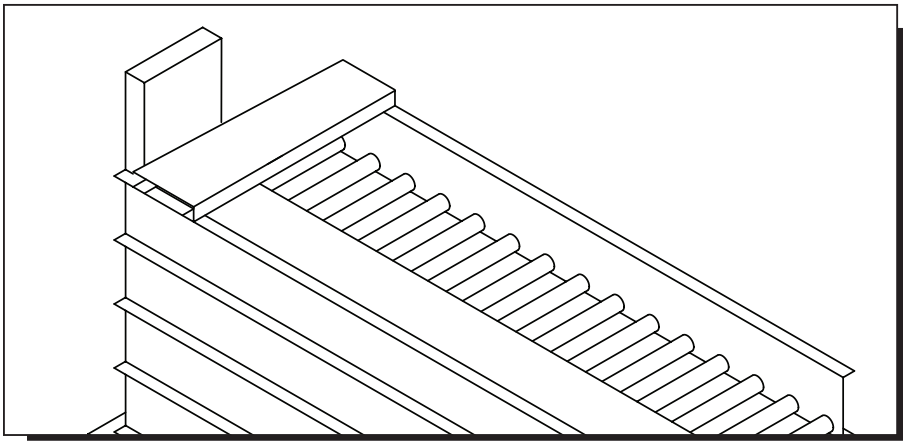
Before uncrating, check the quantity of items received against bill of lading to confirm that all material has been received. Examine the condition of the equipment to determine if any damage has occurred.

Also, it is possible that some items may become separated from the original shipment. Therefore, when receiving goods, it is imperative that the bill of lading (or, accompanying freight documentation) be checked to ensure receipt of ALL units ordered including ALL accessories.

Damage and/or shortage in shipment should be reported immediately to both vendor and carrier. Obtain a signed damage report from carrier agent and send copy to vendor. **Do not repair any damage before obtaining this report.**

For damaged shipments, consult factory to determine if entire shipment must be returned to factory for repair **or** if an immediate order should enter production to produce a new, replacement shipment.

UNCRATING



NOTE: Carefully examine shipment during uncrating to ensure that essential components are not discarded. This includes guard rail and other necessary hardware.

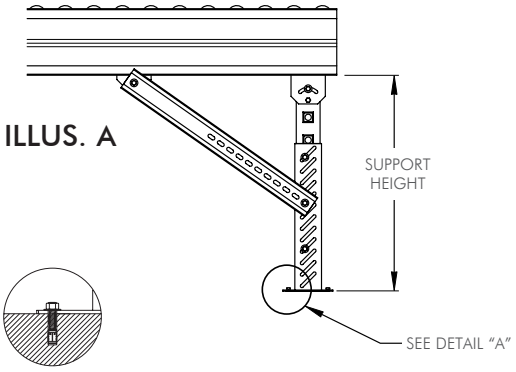
After receipt and initial inspection is completed, carefully remove crating and look for essential components and specific accessories that may have been boxed and attached (or 'banded') to crating material. Guard rails and hardware are often packaged and shipped in this manner. Save all hardware for subsequent use by installation personnel.

The drive section will be shipped mounted to its actual operating bed section (see illustration above).

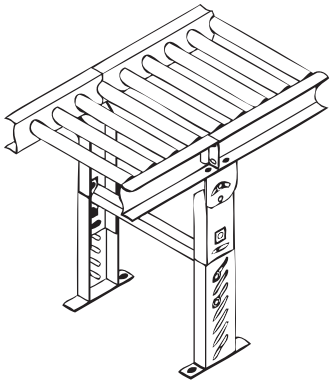
Some items (electric motors, gearbox, etc.) may be shipped direct from their manufacturer to final destination. Thus, the conveyor may consist of two or more separate shipments.

GENERAL INSTALLATION INFORMATION IDENTIFYING/INSTALLING PERMANENT FLOOR SUPPORTS

ILLUS. A



Detail "A"



ILLUS. B

⚠WARNING

Always anchor permanent supports to floor (or mounting surface). Use 3/8'' x 2-1/2'' (or longer) wedge anchors for permanent installation in concrete flooring.

*MINIMUM/MAXIMUM SUPPORT HEIGHT			
SM-1	7-1/4" — 10-1/4"	SM-7	34-1/4" — 46-1/4"
SM-2	10-1/4" — 13-1/4"	SM-8	46-1/4" — 58-1/4"
SM-3	13-1/4" — 16-1/4"	SM-9	58-1/4" — 70-1/4"
SM-4	16-1/4" — 22-1/4"	SM-10	70-1/4" — 82-1/4"
SM-5	20-1/4" — 26-1/4"	SM-11	80-1/4" — 92-1/4"
SM-6	24-1/4" — 36-1/4"	SM-12	92-1/4" — 104-1/4"

Permanent supports may be installed on conveyors at various locations. However, it is most common to use single tier permanent floor supports at each end of a powered section (see illustration A above) and where intermediate bed sections are adjoined (see illustration B above). Notice intermediate supports have two lag bolts in a diagonal pattern while end (terminal) supports have four lag bolts, one in each of the four foot plate mounting holes.

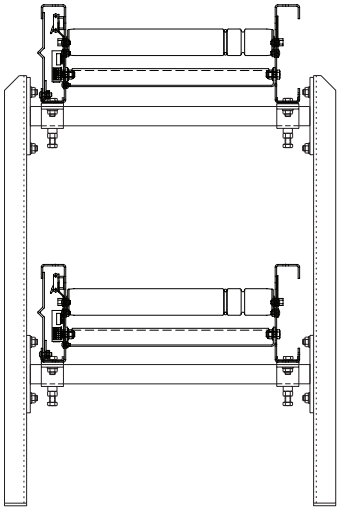
When two (or more) powered conveyors are placed end-to-end, a single tier permanent support may be used at the end junction commonly supporting both units. Check load rating of support before using this method of installation.

Adjust elevation to top of conveyor by loosening bolts in support uprights, raising or lowering conveyor and fully tightening bolts at desired elevation. Tighten all bolts in supports **before** unit operation. Complete support installation by lagging support attachment plates to floor. Confirm that unit is level across width of conveyor before completing final support height adj.

*Supports are normally shipped at minimum support height. See chart above.

INSTALLATION OF POLYTIER SUPPORTS

MIN. ELEVATION = 11" ELEV. (3-1/2" + FRAME)



NOTE: To install, raise conveyor to desired elevation, place cross pipe underneath frame, attach cross pipe to upright legs and use U-shaped retainer ("hat") bracket to connect cross pipe to lower conveyor flange.

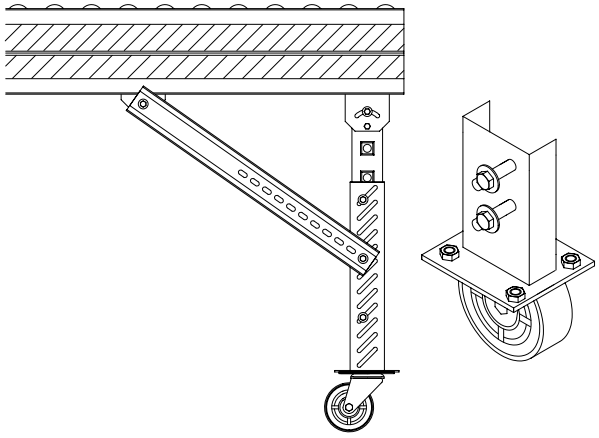
POLYTIER SUPPORT CHANNEL HEIGHT					
PSM-1	23"	PSM-6	53"	PSM-11	83"
PSM-2	29"	PSM-7	59"	PSM-12	89"
PSM-3	35"	PSM-8	65"	PSM-13	95"
PSM-4	41"	PSM-9	71"	PSM-14	101"
PSM-5	47"	PSM-10	77"	PSM-15	107"

Polytier supports provide convenient installation method for two or more tiers of conveyor. To install, raise conveyor to desired elevation (approximate). Place 1" inside diameter cross pipe underneath lower conveyor flange. Attach cross pipe to upright legs. Use U-shaped retainer ("hat") bracket with coupling plate to connect cross pipe to conveyor flange. Do not tighten fully at this time.

Standard elevation style attachment brackets offer unit elevation of 3-1/2" + frame and includes bracket welded to cross pipe which is bolted to upright legs during installation.

When unit is at operating elevation and unit has been checked across width for level, tighten locking bolts in U-shaped bracket. Add knee braces for unit rigidity.

GENERAL INSTALLATION INFORMATION
INSTALLING KNEE BRACES AND CASTERS



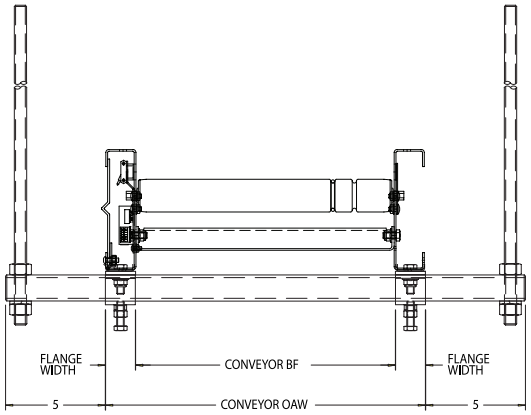
NOTE: Install knee brace (when supplied) after final permanent support installation and elevation adjustment.

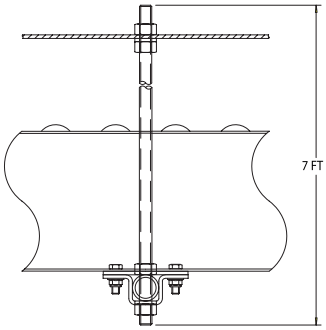
Knee braces add strength to permanent supports and stability to units in portable applications. Install knee brace (when supplied) after final permanent support installation and elevation adjustment. Its pivot bracket is bolted to underneath side of lower conveyor flange and slotted end is attached to outer side of support.

Casters (when supplied) are generally installed at the factory. However, when receiving casters direct from their supplier, final attachment to support is necessary. A special slotted pre-punched caster attachment plate is supplied on supports designed for casters.

A standard support is not designed for attachment to casters. Field modification or replacement of outside support assemblies is required.

INSTALLATION OF CEILING HANGERS





WARNING

It is the responsibility of the customer and installation personnel to supply and install net or mesh guarding on conveyors mounted overhead to prevent product and/or debris from falling to floor in areas where required.

Ceiling hangers are frequently used in high-elevation applications for suspension from ceiling. The 5/8" diameter (#11 UNC) all threaded rod is supplied to allow infinite vertical adjustment along the length of the suspension rod (see illustration above).

Attach and firmly tighten U-shaped retainer ("hat") bracket with coupling plate to underneath side of frame with hardware provided to hold cross pipe (1" inside diameter) against underneath side of conveyor.

Do not tighten cross pipe locking bolts (these attach in the bottom of the U-shaped retainer bracket) until threaded suspension rods have been firmly secured to ceiling structure.

To adjust conveyor elevation, tighten or loosen lower nut and jam nut on threaded suspension rods to desired elevation. A lock washer must be used on suspension rods to maintain unit at desired elevation.

When unit is at operating elevation and unit has been levelled across bed width, tighten locking bolts in U-shaped bracket to secure position of cross pipe.

MAINTENANCE SAFETY PRECAUTIONS
BEFORE PERFORMING MAINTENANCE

WARNING

Only trained personnel shall perform maintenance functions. Before maintenance operations are performed, conveyor must be shut "OFF" and disconnects locked in the "OFF" position to prevent unit from unauthorized start-up.

One of the most important guidelines for maximizing conveyor operation and personnel safety is to implement a regular maintenance schedule and train personnel on the appropriate needs of the specific unit.

Only trained personnel shall perform maintenance functions. Before maintenance operations are performed, conveyor must be shut "OFF" and disconnects locked in the "OFF" position to prevent unit from unauthorized start-up during maintenance. All personnel should be informed of the safety procedures associated with unit maintenance and performance.

Do not perform any work on conveyors or conveyor system while in operation unless it is impossible to otherwise conduct adjustment, lubrication or other maintenance function. Only experienced, trained personnel possessing advanced hazards-training should attempt such critical operations.

MAINTENANCE AND FOLLOW-UP DETAILS

WARNING

Only trained personnel shall perform maintenance functions. When maintenance is completed, only authorized personnel shall be permitted to start conveyor following maintenance or other emergency shut-off.

While performing maintenance do not wear loose clothing. Immediately report any hazardous conditions--sharp edges, pinch (or nip) points or other conditions that may result when several manufacturers supply machinery which may create operating hazards.

When using mechanical aids such as hoists, cables, or cranes exercise extreme caution to prevent damage to conveyors or other integrated machinery which may create a working hazard when maintenance is completed and units are in operation.

Clean up any spilled lubricants or other materials used in the maintenance process or those which may be deposited during unit operation. Eliminating poor housekeeping practices increases unit efficiency while creating safer personnel working conditions.

After maintenance, conduct visual inspection to ensure that all safety devices and guards have been replaced. Confirm that all units are clear of tools, debris or other items. Before starting conveyor, check condition of unit caution labels (see "CAUTION LABELS" at front of handbook). If labels have been destroyed or are not clearly legible, call 870.483.7631 to receive replacement labels. Placement of caution labels is critical to avoid unauthorized unit operation which may result in hazardous working conditions for all related personnel coming in contact with conveyor.

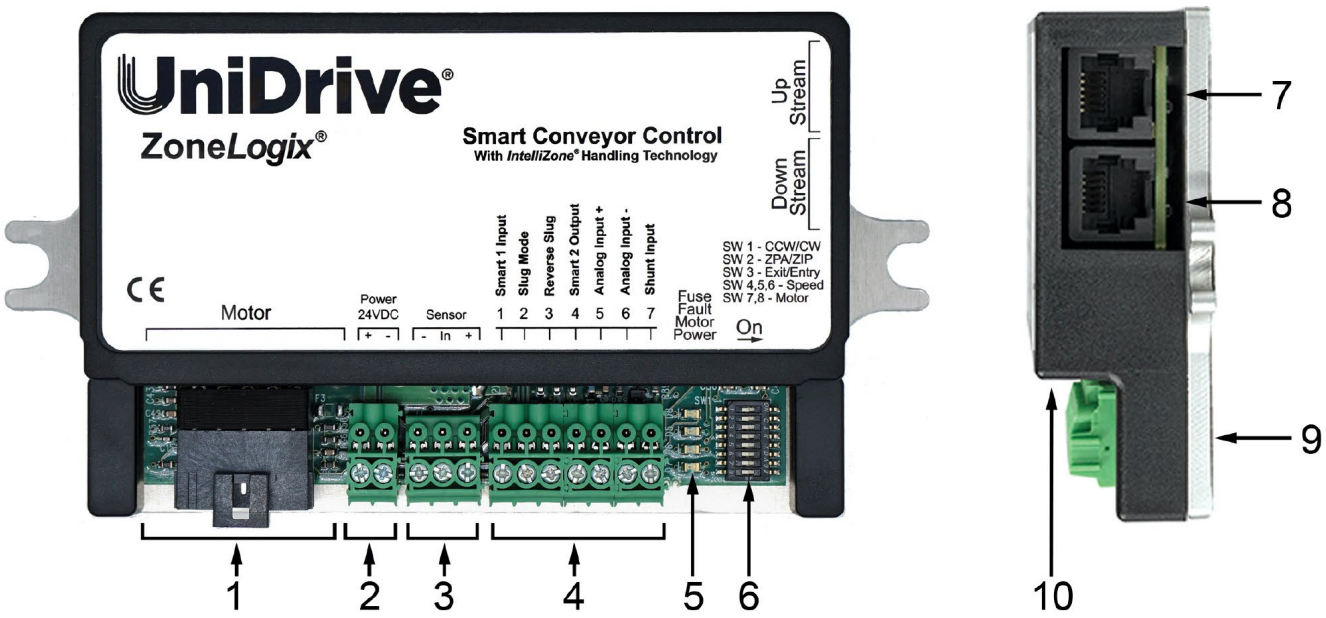
Warn personnel that conveyor is being prepared for start-up and to stay clear of unit. Do not start conveyor until all personnel are clear. When maintenance is completed, only authorized personnel shall be permitted to start conveyor following maintenance or other emergency shut-off.

MAINTENANCE AND LUBRICATION
REPORT ON MISCELLANEOUS MAINTENANCE PERFORMED

REPORT ON MAINTENANCE			
CONVEYOR MARK NO.	REPAIRED BY	INSPECTION DATE	DETAIL OF MAINTENANCE COMPLETED (OR INSPECTION) LIST PARTS REPLACED OR REPAIRS

TECHNICAL
MOTOR & DRIVE CARD

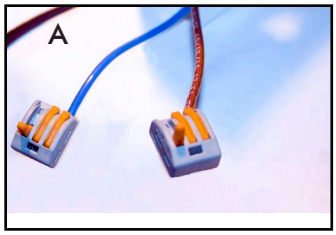
The UniDrive® system uses an extremely reliable 4 5/8" diameter brushless DC motor with an electronically controlled operating speed ranging from 56 to 350 RPM, while producing high torque at low speeds.

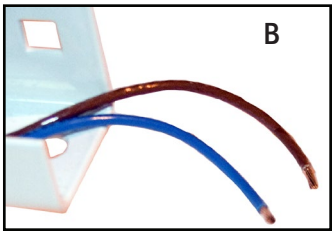


1) Motor Connection Header
2) +24V DC Power Input Header
3) PNP Sensor Connection Header
4) Smart/User Input-Output Connection Header
5) LED Indicators
6) Configuration Switches
7) Upstream Peer-to-Peer RJ-25 Connection
8) Downstream Peer-to-Peer RJ-25 Connection
9) Mounting Plate/Heat Sink
10) Cover

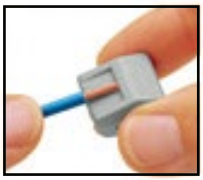
CONNECTING BED SECTIONS

To connect bed sections locate the WAGO connectors shown in illustration A and the coordinating wires on the next bed section shown in illustration B.



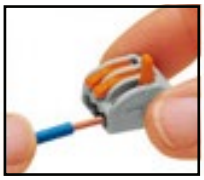


Match wire colors and connect as demonstrated below.



Strip

Strip wire .25"



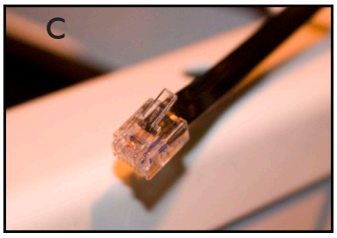
Lever

Push up lever and insert conductor

Connection

Lower the lever to its closed position.

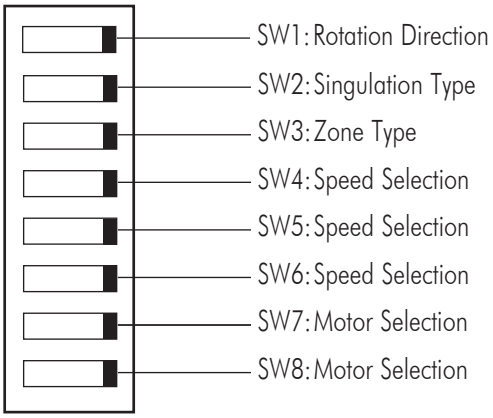
Next locate the peer-to-peer cable shown in illustration C and connect it to the first card in the next bed section in the modular connector shown in illustration D.



All power to conveyor should be off when making connections.

D

Table 1: Configuration Switches



OFF Setting	ON Setting
Counter-Clockwise	Clockwise
ZPA Mode	ZIP Mode
Exit or Transport	Entry or Transport
See Table 3	
See Table 3	
See Table 3	
See Table 2	
See Table 2	

Table 2: Motor Selection

Motor - UD048*	Motor - UD060
OFF	ON
OFF	OFF

*Standard on most MDZ Conveyors.

Table 3: Motor Speed Selection (RPM)

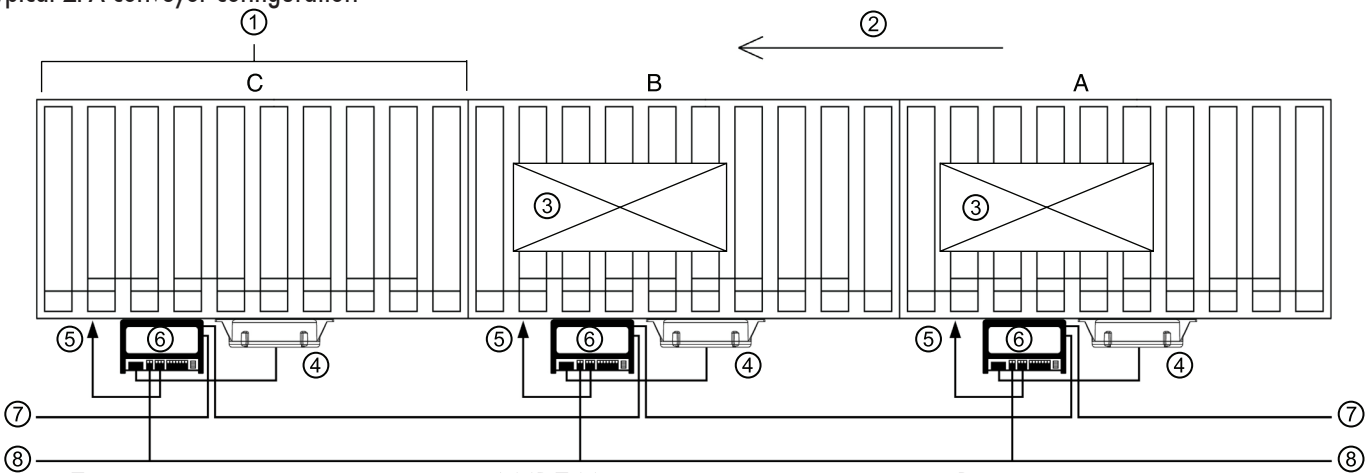
Motor - UD048	Motor - UD060	SW4	SW5	SW6
280	350	OFF	OFF	OFF
248	310	ON	OFF	OFF
216	270	OFF	ON	OFF
184	230	ON	ON	OFF
152	190	OFF	OFF	ON
120	150	ON	OFF	ON
88	110	OFF	ON	ON
56	70	ON	ON	ON

ZPA is short for zero pressure accumulation. The DriveControl provides true zero pressure accumulation and other control options to a conveyor system. Each DriveControl controls a RollerDrive unit, which in turn drives idler rollers using O-rings or other belts. The DriveControl, the RollerDrive, and the idler rollers (with associated sensors and switches) are assembled into a short conveyor section – a zone.

Zero pressure accumulation occurs as zones hold packages until the next downstream zone clears its sensor. When accumulation occurs, a low signal is passed upstream until each consecutive zone is occupied. Packages never push each other, and no line pressure occurs.

A logic-controlled, zero pressure conveyor is created when a number of zones are connected together and a simple six-wire phone cable links each DriveControl electronically. The RollerDrives only operate when a package is detected by a photoeye. If the downstream zone is empty, the package moves forward.

Typical ZPA conveyor configuration

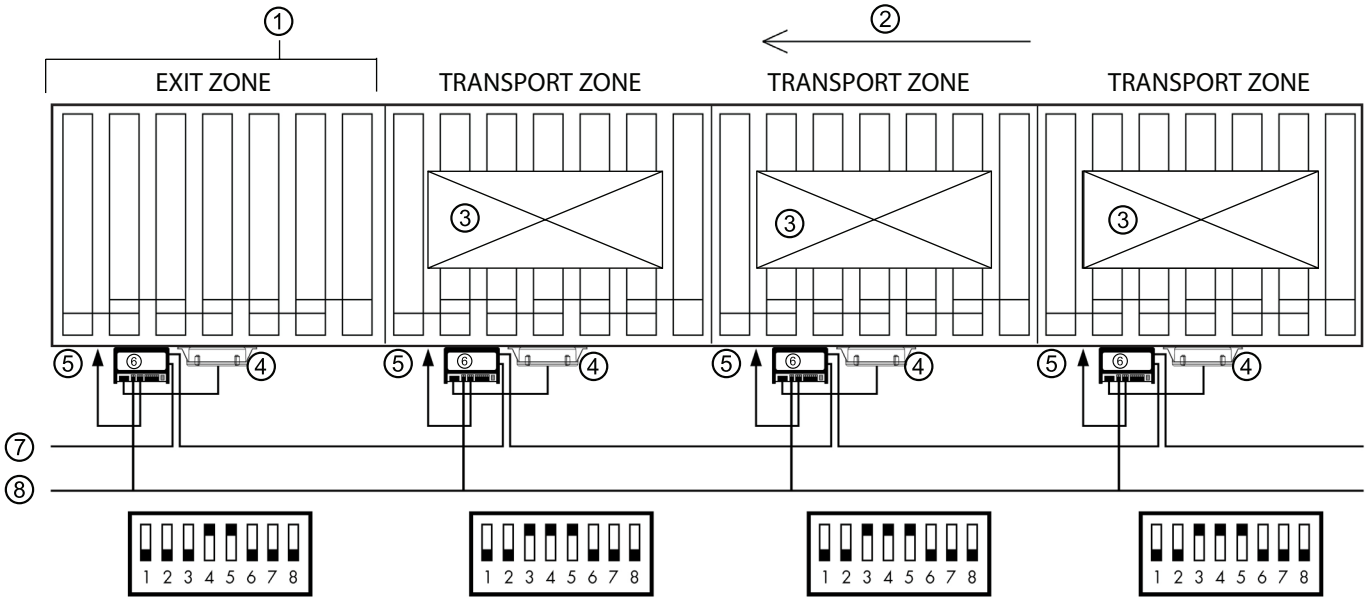


1 Zone
2 Direction of travel
3 Load
4 MDZ Motor
5 Photoeye
6 Control Card
7 Peer-to-peer communication cable
8 +24 VDC / GND

Zone A has a package at the photoeye. The DriveControl of zone A recognizes its presence, checks zone B for availability and requests permission to transfer the package to zone B. Since zone B has also a package, its DriveControl denies the permission until this package has been transfered to zone C (singulation mode), or has at least started being transfered (enhancedsingulation mode). The singulation method depends on the setting of DIP switch SW3.

The HC-Drive Control of zone A will only start to operate the rolleDrives in its zone after it gets permission from the DriveControl of zone B.

Typical ZPA configuration with Entry and Exit Zones



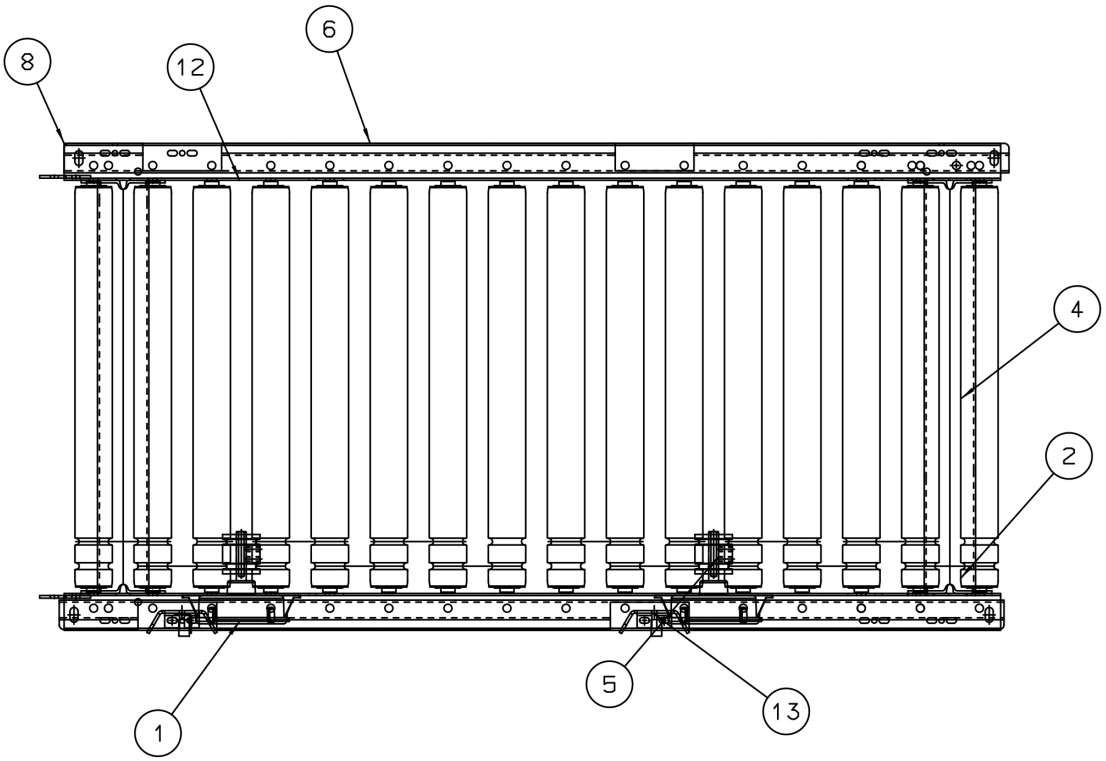
PARTS LIST FOR MDZ CONVEYORS
796 MDZ W/ RETROREFLECTIVE PHOTOEYES

ITEM	DESCRIPTION	PART #
1	UNIDRIVE 60WATT 24V MOTOR	MTW55112
2	3/16" DIA X 9 1/2" LG BLUE DRIVE BAND	VBW71386
3	UNIDRIVE ZONE LOGIX CONTROL CARD	ELW06818
4	FRAME CROSSBRACES	00119-21
5	DRIVE SHEAVE	636776-5
6	48"LG COVER FOR CONTROLS	649208-2
7	48"LG SIDE CHANNEL	649208-1R
8	48"LG SIDE CHANNEL	649208-1L
9	196G ROLLER WITH (2) GROOVES	196G-21-ED1529
10	PHOTO EYE GUARD	649207-4
11	PHOTO EYE MTG. BRACKET	M09275
12	1" REFLECTOR TAPE BRT-THG-1-100	MCW06306-01
13	PHOTO-EYE ZLD18-2AB1G2 1095724 RETRO	ELW08590
14	STEEL TURN PANEL SCREW MMC 91382A230	FSW09989
15	COMMUNICATION CABLES	ELW08506-30
16	48"LG FSG	649208-3R
17	48"LG FSG	649208-3L

ORDERING REPLACEMENT PARTS

To order any replacement parts or when calling for assistance with any powered roller conveyor, **ALWAYS** provide the unit serial number. Shown at left, this is placed on the conveyor frame opposite the control side and is typically near the center.

To order replacement parts or add-on components, contact the Roach distributor who originally furnished the unit if possible. If this is not possible, contact the National Sales Office at 870-483-7631 for the name of the authorized Roach distributor in your area. Have unit model number and serial number **BEFORE** calling. Refer to unit drawings in this handbook for part numbers if ordering replacement parts.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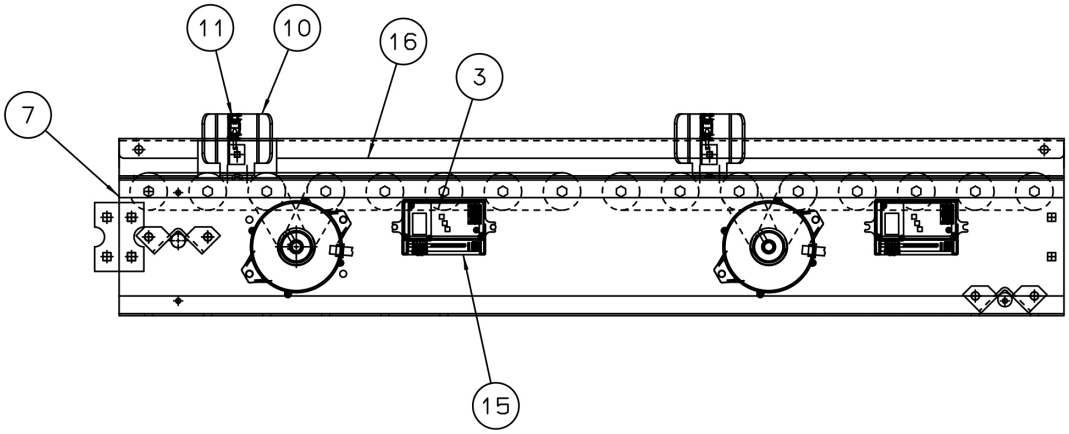
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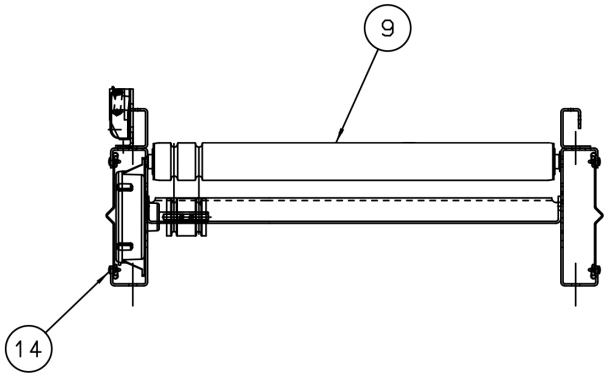
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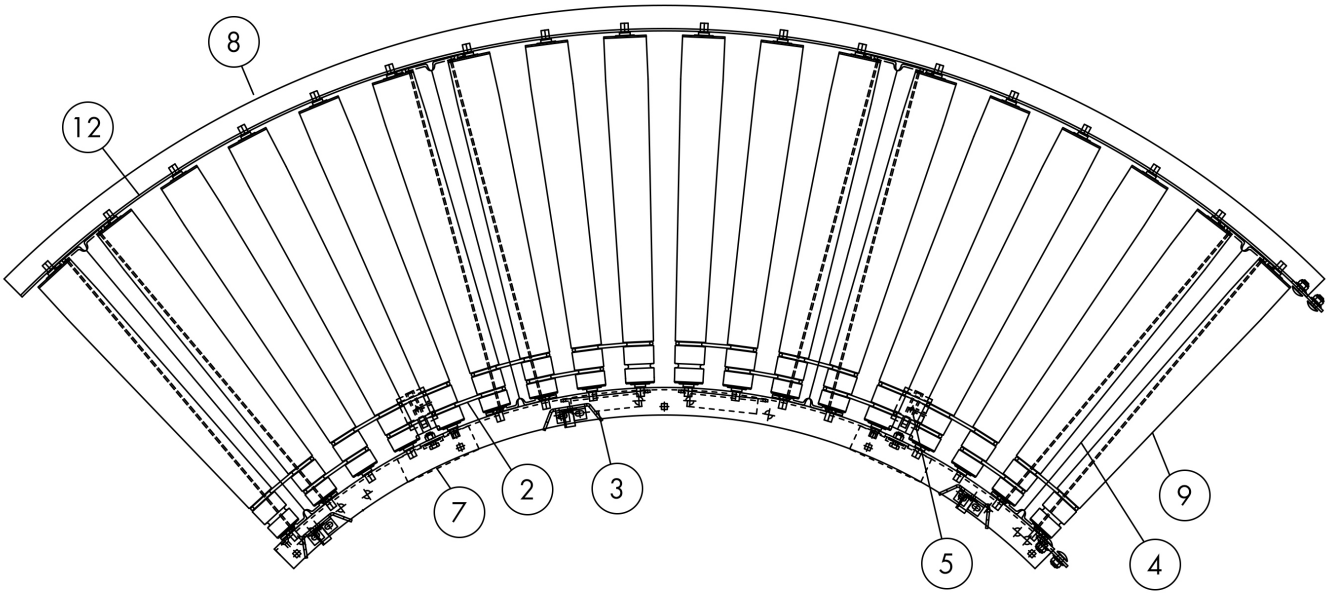
PARTS LIST FOR MDZ CONVEYORS
796 MDZC W/ RETROREFLECTIVE PHOTOEYES

ITEM	DESCRIPTION	PART #
1	UNIDRIVE 60WATT 24V MOTOR	MTW55112
2	3/16" DIA X 9 1/2" LG BLUE DRIVE BAND	VBW71386
3	UNIDRIVE ZONE LOGIX CONTROL CARD	ELW06818
4	FRAME CROSSBRACES	00119-21
5	DRIVE SHEAVE	636776-5
6	COVER FOR CONTROLS (BOTTOM HOLDER)	644239-4
7	INSIDE CHANNEL	649207-2
8	OUTSIDE CHANNEL	649207-5
9	ROLLER TAPERED	649207-7
10	PHOT0 EYE GUARD	649207-4
11	PHOTO EYE MTG. BRACKET	M09275
12	1" REFLECTOR TAPE BRT-THG-1-100	MCW06306-01
13	PHOTO-EYE ZLD18-2AB1G2 1095724 RETRO	ELW08590
14	2"ANGLE GUARD	649207-3
15	COMMUNICATION CABLES	ELW08506-30
16	INSIDE COVER	644239-6
17	FSG-2	M08985H-90-53.5

ORDERING REPLACEMENT PARTS

To order any replacement parts or when calling for assistance with any powered conveyor, **ALWAYS** provide the unit serial number. Shown at actual size, this is placed on the conveyor frame near the location of the drive assembly.

To order replacement parts or add-on components, contact the Roach distributor who originally furnished the unit
if possible. If this is not possible, contact the National Sales Office at 870-483-7631 for the name of the authorized Roach distributor in your area. Have unit model number and serial number **BEFORE** calling. Refer to unit drawings (in rear section of handbook) for part numbers if ordering replacement parts.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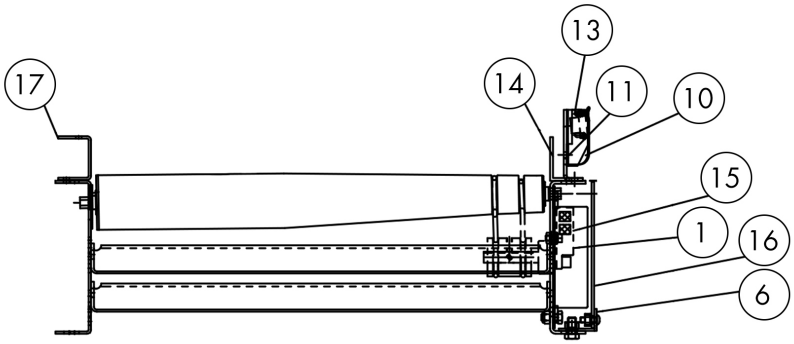
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NOTES

ROACH CONVEYORS

WARRANTY

- Materials used by Roach Conveyors are of good quality.
- Any part proving to be defective in materials or workmanship upon Roach inspection, will be replaced at NO cost, FOB, Trumann, Arkansas, for one year. Installation expense will be paid by others.
- Roach liability includes furnishing said part or parts; Roach is not liable for consequential damages, such as loss of profit, delays or expenses incurred by failure of said part or parts.
- Failure due to abuse, incorrect adjustments, exposure to corrosive or abrasive environment or operation under damp conditions does not constitute failure due to defects in workmanship or materials.
- Component parts not manufactured by Roach (motors, gear reducers, etc.) will be repaired or replaced at the option of their manufacturer. Contact nearest authorized service center for all warranty claims.

NOTE: Motors or gear reducers tampered with before inspection shall be considered free of ALL Warranty Claims.

--All specifications are subject to change without notice--
--Drawings are intended for illustration ONLY and are not to scale--

808 HIGHWAY 463
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