INSTALLATION AND MAINTENANCE MANUAL

BELT CONVEYOR MODEL: MDRBC-18

DO NOT OPERATE EQUIPMENT BEFORE READING

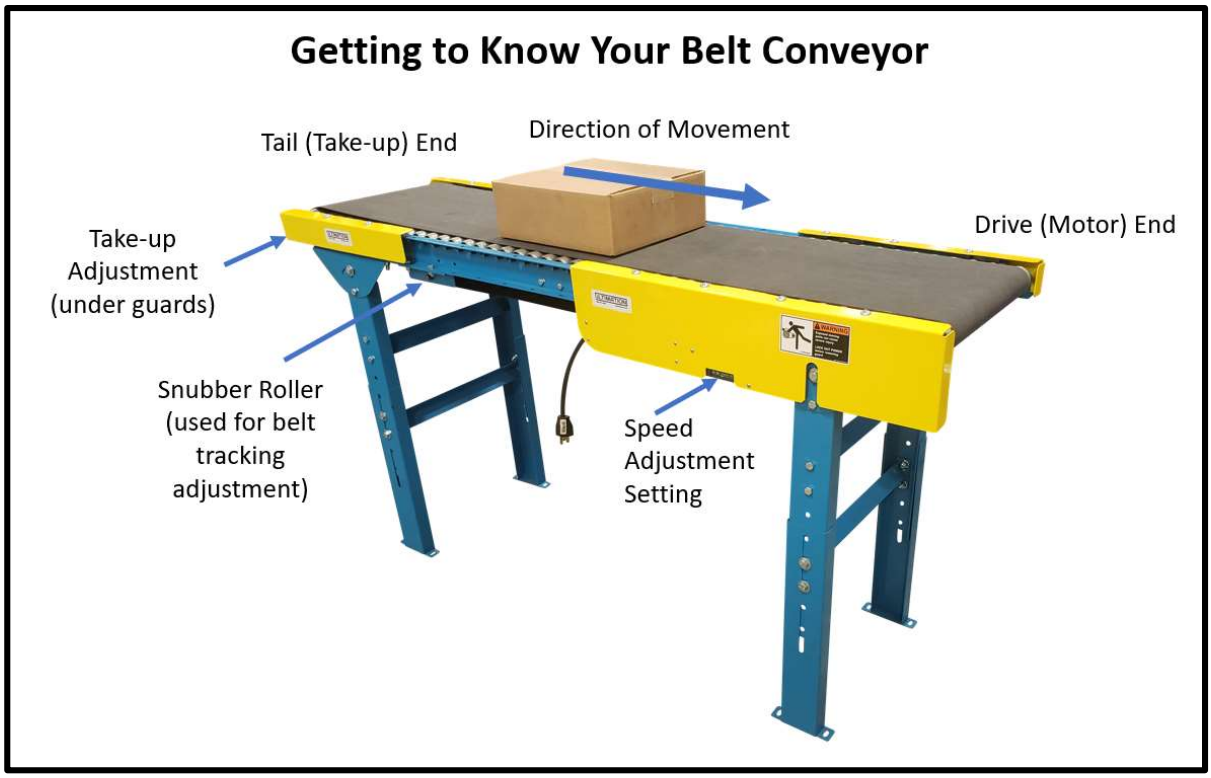
ULTIMATION

TABLE OF CONTENTS

INTRODUCTION

This manual has been created to assist with the maintenance, operation and installation of the MDRBC belt conveyor. It is important that all maintenance personnel are trained properly in operation and maintenance of the conveyor. Damage or injury caused by non-compliance with this manual is not the responsibility of Ultimation Industries, LLC.

GETTING TO KNOW YOUR BELT CONVEYOR



RECEIVING, INSPECTION AND UNCRATING

1) Compare the bill of lading with what you have received.
2) Examine the equipment for damage during shipping.
3) Immediately report shortage or damages to the shipping carrier. All shipments are insured; however, the customer is responsible to report any damage (including with photos) immediately upon receipt to the carrier and Ultimation Industries, LLC.
4) Move all crates to area of installation.
5) Remove crating and packaging.
6) Look for boxes, accessories, bags or components such as fasteners, manuals, guard rails, etc. that may be banded or fastened to the crating material to ensure you do not discard any loose parts (Guards, fasteners or other components) that were packaged for loose shipping.

ORDERING REPLACEMENT PARTS

Assembly drawings with replacement parts listings have been provided in this manual.

Procedure for ordering replacement parts:

1) Contact Ultimation Industries, LLC
2) Give the Conveyor Model Number and/or Serial Number
3) Give Part Number and complete description from Parts Listing.
4) Tell us if you are in a breakdown situation.

SAFETY INFORMATION - INSTALLATION

GUARDS AND GUARDING

Interfacing of Equipment

When two or more pieces of equipment are interfaced, special attention should be given to the interfaced area to ensure the presence of adequate guarding and safety devices.

Guarding Exceptions

Wherever conditions prevail that would require guarding under this standard but such guarding would render the conveyor unusable, seek guidance from your safety professional.

Overhead conveyors for which guarding would render the conveyor unusable or would be impracticable, should have prominent and legible warnings posted in the area or on the equipment and where feasible lines should be painted on the floor delineating the danger area.

When a conveyor passes over a walkway, roadway or work station, it is considered guarded by location if all moving parts are at least 2.44 meters (8 feet) above the floor or walking surface or are otherwise located so that personnel cannot inadvertently come in contact with hazardous moving parts. Check your state and local laws and codes for overall compliance.

Although overhead conveyors may be guarded by location, spill guards, pan guard or equivalent should be installed if material may fall off the conveyor and endanger personnel.

HEADROOM CLEARANCE

When conveyors are installed above exit passageways, aisles or corridors, there should be provided a minimum clearance of 2.00 meters (6 feet 8 inches) measured vertically from the floor or walking surface to the lowest part of the conveyor or guards.

Where system function will be impaired by providing the minimum clearance of 2.00 meters (6 feet 8 inches) through an emergency exit, alternate passageways should be provided.

It is permissible to allow passage under conveyors with less than 2.00 meters (6 feet 8 inches) clearance from the floor for other than emergency exits if a suitable warning indicates low headroom. Check your state and local laws and codes for overall compliance.

SAFETY INFORMATION - OPERATION

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

Where safety is dependent upon stopping / starting devices, they should be kept free of obstructions to permit access.

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

Do not ride the load-carrying element of a conveyor under any circumstances. Warning labels reading **"DO NOT RIDE CONVEYOR"** should be affixed by the manufacturer of the conveyor.

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

A conveyor should be used to transport only a load that it is designed to be handle safely.

Under no circumstances should the safety characteristics of the conveyor be altered.

Routine inspections and preventative and corrective maintenance programs should be conducted to ensure that all safety features and guards are retained and functioning properly. Inspect equipment for safety labels. Make sure personnel are aware of and follow safety label instructions.

Alert all personnel to the potential hazard of entanglement in conveyors caused by items such as long hair, loose clothing and jewelry.

SAFETY INFORMATION - MAINTENANCE

ATTENTION: ELECTRICAL POWER MUST BE TURNED OFF AND LOCKED / TAGGED OUT following your company's machine specific procedures when servicing the conveyor to prevent accidental restarting by other persons or interconnecting equipment.

Maintenance and service should be performed by trained, qualified personnel only.

Where lack of maintenance and service would cause a hazardous condition, the user should establish a maintenance program to ensure that conveyor components are maintained in a condition that does not constitute a hazard to personnel.

ADJUSTMENTS OR MAINTENANCE/SERVICE DURING OPERATION

Conveyors should **NOT** be maintained or serviced while in operation.

When a conveyor is stopped for maintenance or service, the starting devices, prime mover, powered accessories or electrical must be locked / tagged out in accordance with your company machine specific formalized procedure designed to protect all persons or groups involved with the conveyor against an unexpected restart. Personnel should be alerted to the hazard of stored energy, which may exist after the power source is locked/tagged out. All safety devices and guards should be replaced before starting equipment for normal operation.

GUARDS AND SAFETY DEVICES

Guards and safety devices should be maintained in a serviceable and operational condition. Warning signs are the responsibility of the owner of the conveyor and should be maintained in a legible / operational condition.

SAFETY INFORMATION - ELECTRICAL

ELECTRICAL CODE

All electrical installations and wiring should conform to federal, state and local codes.

When conveyor operation is not required for a maintenance procedure, electrical power must be turned off and locked / tagged out following your company's machine specific procedure.

CONTROL STATIONS

Control stations should be so arranged and located that the operation of the affected equipment is visible from them. Control stations should be clearly marked or labeled to indicate the function controlled.

A conveyor that would cause injury when started should not be started until personnel in the area are alerted by a signal or by a designated person that the conveyor is about to start.

Where system function would be seriously hindered or adversely affected by the required time delay or where the intent of the warning may be misinterpreted (i.e., a work area with many different conveyors and associated devices), a clear, concise and legible warning sign needs to be provided. The warning sign should indicate that conveyors and associated equipment may be started at any time, that danger exists and that personnel must keep clear. These warning signs should be provided along the conveyor at areas not guarded by position or location.

Remotely and automatically controlled conveyors, and conveyors where operator stations are not manned or are beyond voice or visual contact from drive areas, loading areas, transfer points and other potentially hazardous locations on the conveyor path not guarded by location, position or guards should be furnished with emergency stop buttons, pull cords, limit switches or similar emergency stop devices.

All such emergency stop devices should be easily identifiable in the immediate vicinity of such locations unless guarded by location, position or guards. Where the design, function and operation of such conveyor clearly is not hazardous to personnel, an emergency stop device is not required.

The emergency stop device should act directly on the control of the conveyor concerned and should not depend on the stopping of any other equipment. The emergency stop devices should 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 board, together with obsolete diagrams, indicators, control labels and other material that might confuse the operator.

SAFETY DEVICES

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

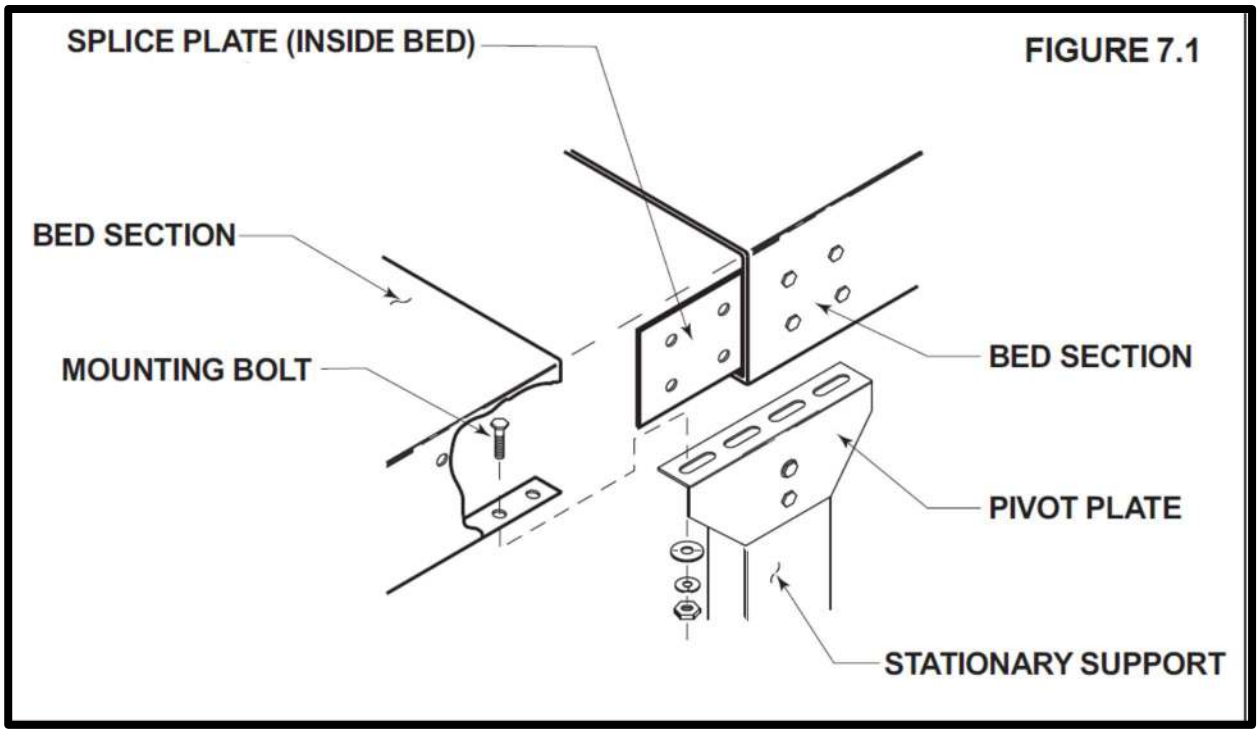
Conveyor controls should be so arranged that, in case of emergency stop, manual reset or start at the location where the emergency stop was initiated should be required for the conveyor(s) and associated equipment to resume operation.

Before restarting a conveyor that has been stopped because of an emergency, an inspection of the conveyor should be made and the cause of the stoppage determined. The starting device and electrical power must be turned off and locked / tagged out according to your company's machine specific procedure 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. **Replace all safety devices, guards and guarding prior to equipment start-up.**

INSTALLATION

FLOOR SUPPORT INSTALLATION

Floor supports are typically mounted at Drive and Tail locations. Fasten leg supports to conveyor sections with the provided fasteners as shown (Figure 7.1).



CONVEYOR SET-UP

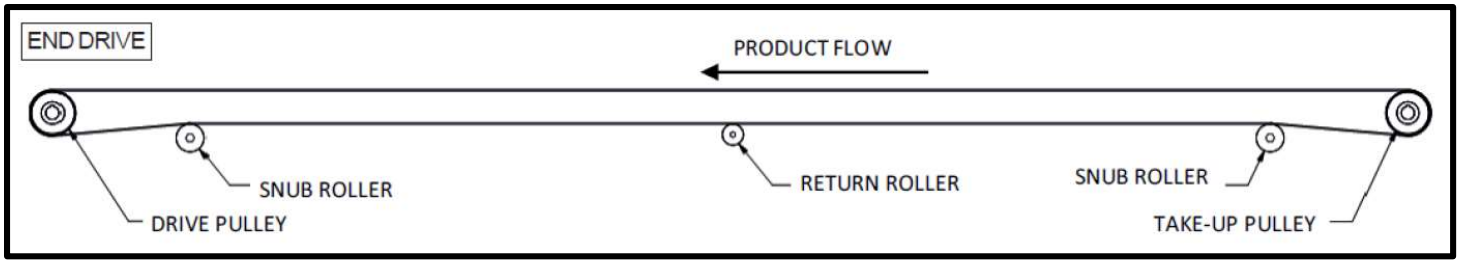
1) Locate center line of the conveyor by marking a chalk line on floor.
2) Determine flow of conveyor related to drive. The belt will always move towards the drive end.
3) Fasten floor supports to Drive and Tail sections.
4) Check to ensure that the conveyor is square and level across the length. Adjust leg supports as necessary to achieve desired height.
5) Install the belt and track belt per instructions on page 9-10.

INSTALLATION (Continued)

BELT INSTALLATION

The belt has been cut, laced and pre-installed to the proper length at the manufacturing facility and is ready for operation after set-up. To install or replace a belt, follow these steps:

1) Loop belt over snub rollers, return rollers and end pulleys as shown in Figure 9.1. Bring laced ends together and thread lacing pin through loops as shown in Figure 9.2.
2) Adjust the take-up or tail pulley to remove excess slack from the belt. Keep the pulley square by moving both tension bolts an equal amount. Maintain just enough tension so that the drive pulley will not slip when carrying the rated load. **Note: Over tightening the belt will make it difficult to track and may damage the belt.**
3) Check for squareness of all frame sections, end units, drive units, etc. All snubber rollers and pulleys must be squared with the frame before making any belt adjustments.



4) Use belt tracking instructions to properly track the belt.

START-UP OVERVIEW

1) Ensure that conveyor sections, leg supports, etc. were installed properly.
2) Ensure that drives, rollers, and belt are installed, aligned and tensioned properly.
3) Ensure set screws are tight in sprockets, bearings and pulleys.
4) Ensure that all drive, mounted bearings and fasteners are securely tighten.
5) Ensure that all motor and control wiring is connected properly.
6) Ensure that the conveyor is not loaded with product.

BELT TRACKING

Your conveyor has been set-up and test run prior to packing for shipment. However, during the shipping process the conveyor is subjected to forces that can affect the tracking of the belt.

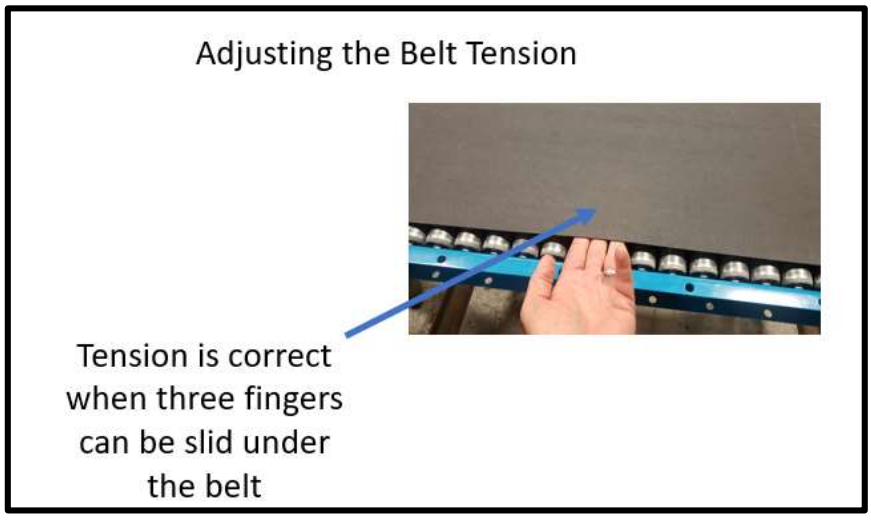
Belt conveyors require periodic tracking adjustment which is a customer responsibility.

HOW TO ADJUST BELT TRACKING

The belt is tracked by adjusting snub rollers, return rollers, tail pulley and drive pulley. The initial goal is to center the belt on pulley at the tail end of the conveyor, then move to the drive end if needed. All adjustments should be made in small increments (1/16 in. at a time). Allow adequate time for the belt to react to each adjustment. It may take many complete belt revolutions to see the effect of each adjustment. **CONVEYOR POWER MUST BE TURNED OFF WHEN MAKE ANY ADJUSTMENTS.** The same tracking principles apply to conveyors supplied with end drives, center drives or underside take-ups.

PRIOR TO TRACKING

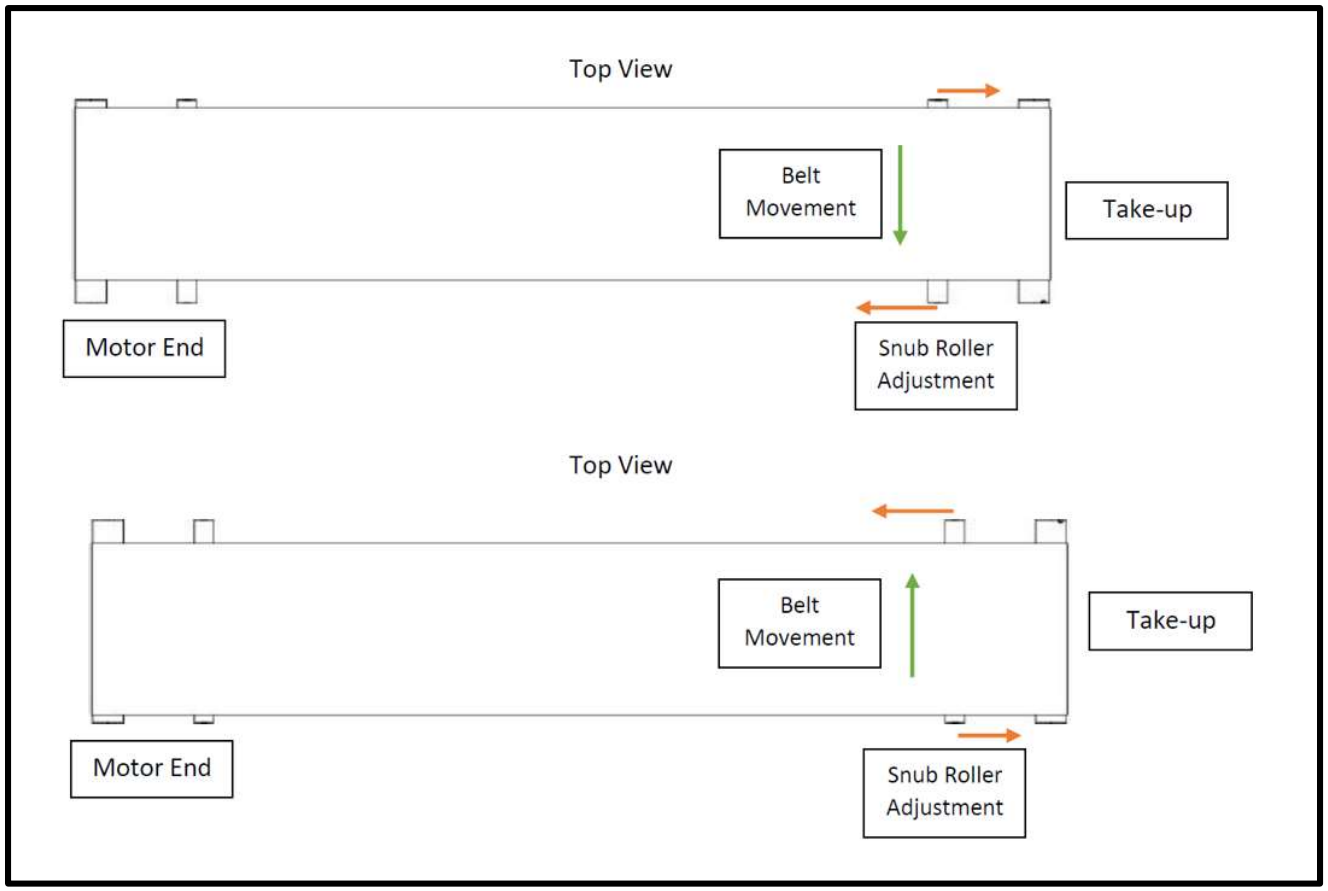
1) Make sure conveyor frame is cross square.
2) Confirm that conveyor is level across its width and length, and that the leg supports are securely attached.
3) Make sure snubber rollers, return rollers, tail pulley and drive pulley are square with the frame.
4) Confirm belt has been properly threaded through the conveyor, and that the belt tension is correct. Belt tension is correct when you can slide (3) fingers under the side of the belt.



BELT TRACKING PROCEDURE FOR END DRIVE

1) Before making any adjustments to tracking, make sure all snubber rollers are square with the frame and mark initial belt position.
2) Run the conveyor for a few minutes so that the belt can take its position. If the belt shifts to one side, adjust the snub roller shown below to steer the belt to the center of the take-up.
3) When adjusting the snubber rollers for tracking purposes, always adjust on one side while leaving the opposite side fastened in place.
4) Only adjust the snubber rollers closest to the take-up as they have the greatest effect on alignment.
5) Make all adjustments in small increments. Fine tuning of belt tracking takes time.

BELT TRACKING (Continued)



Snubber Roller Adjustment Point

Move the snubber roller forward or backward on one side at a time only

Move the snubber roller backwards by 1/16” at a time to move the belt more toward the other side of the conveyor

MAINTENANCE SCHEDULE

DAILY MAINTENANCE

- Inspect all conveyors to ensure that all guarding is securely in place.
- Inspect belt tracking for a minimum of (3) full belt revolutions.

WEEKLY MAINTENANCE

- Inspect conveyor for loose bolts and set screws.
- Inspect bearings and motors for excessive noise or heat.
- Inspect belt to ensure that there is not excessive wear and that all splices are intact.
- Inspect belt tension. The tension should be enough to:
- Prevent slippage between drive pulley (sheaves for spurs) and belt under a full load.
- Force belt to conform to the crown on crowned pulleys.
- Inspect rollers to ensure that they rotate freely without excessive noise.

MONTHLY MAINTENANCE

- Inspect conveyor for loose bolts.

QUARTERLY MAINTENANCE

- Grease all pulley shaft bearings.
- Inspect conveyors for worn or broken drive belts. Replace as necessary. If belt shows signs of abrasion, check for hindrance with the belt or foreign object in the roller groove.

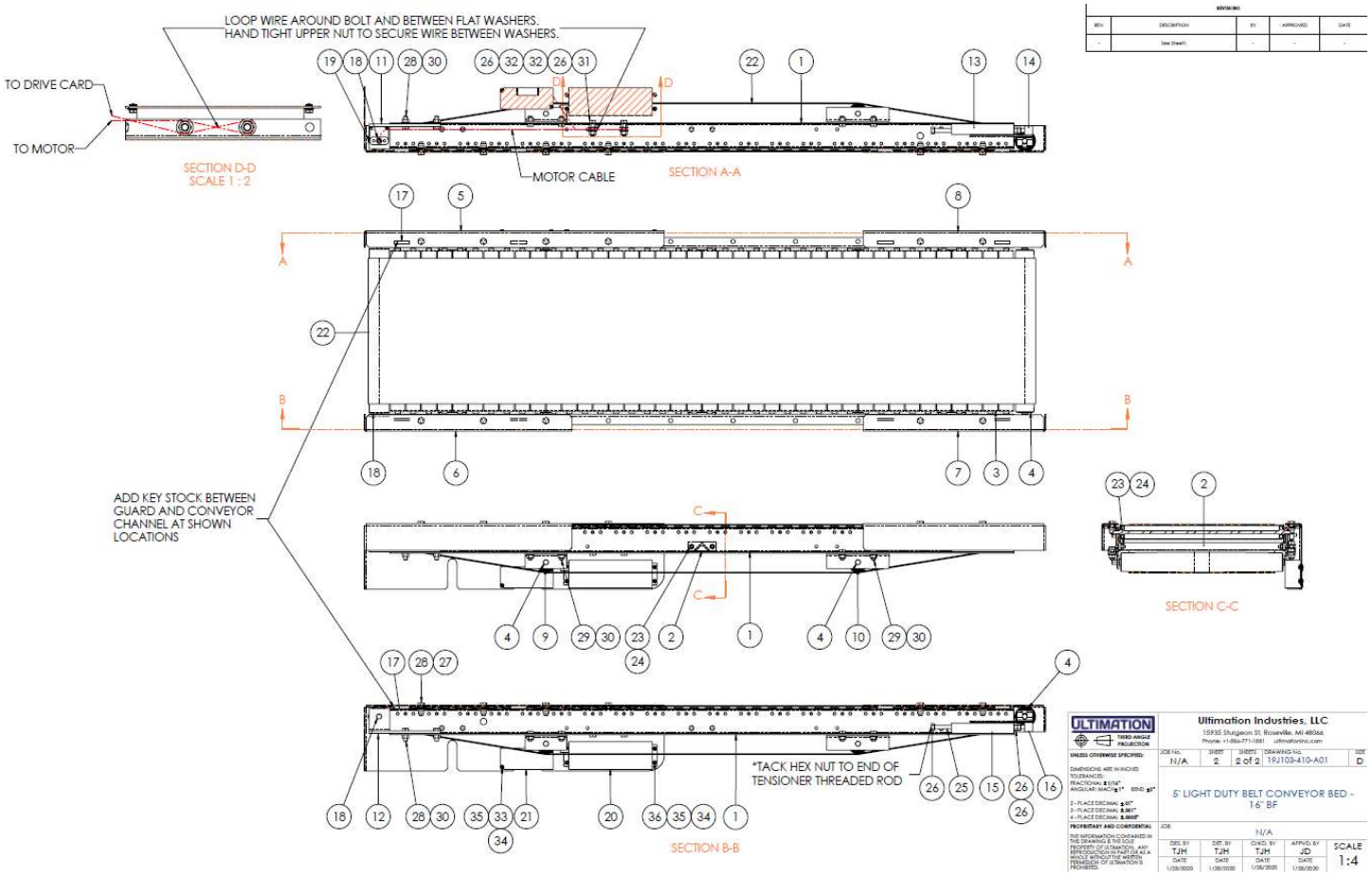
SEMI-ANNUAL MAINTENANCE

- Tighten all bearing set screws if not completely tight.

TROUBLE SHOOTING

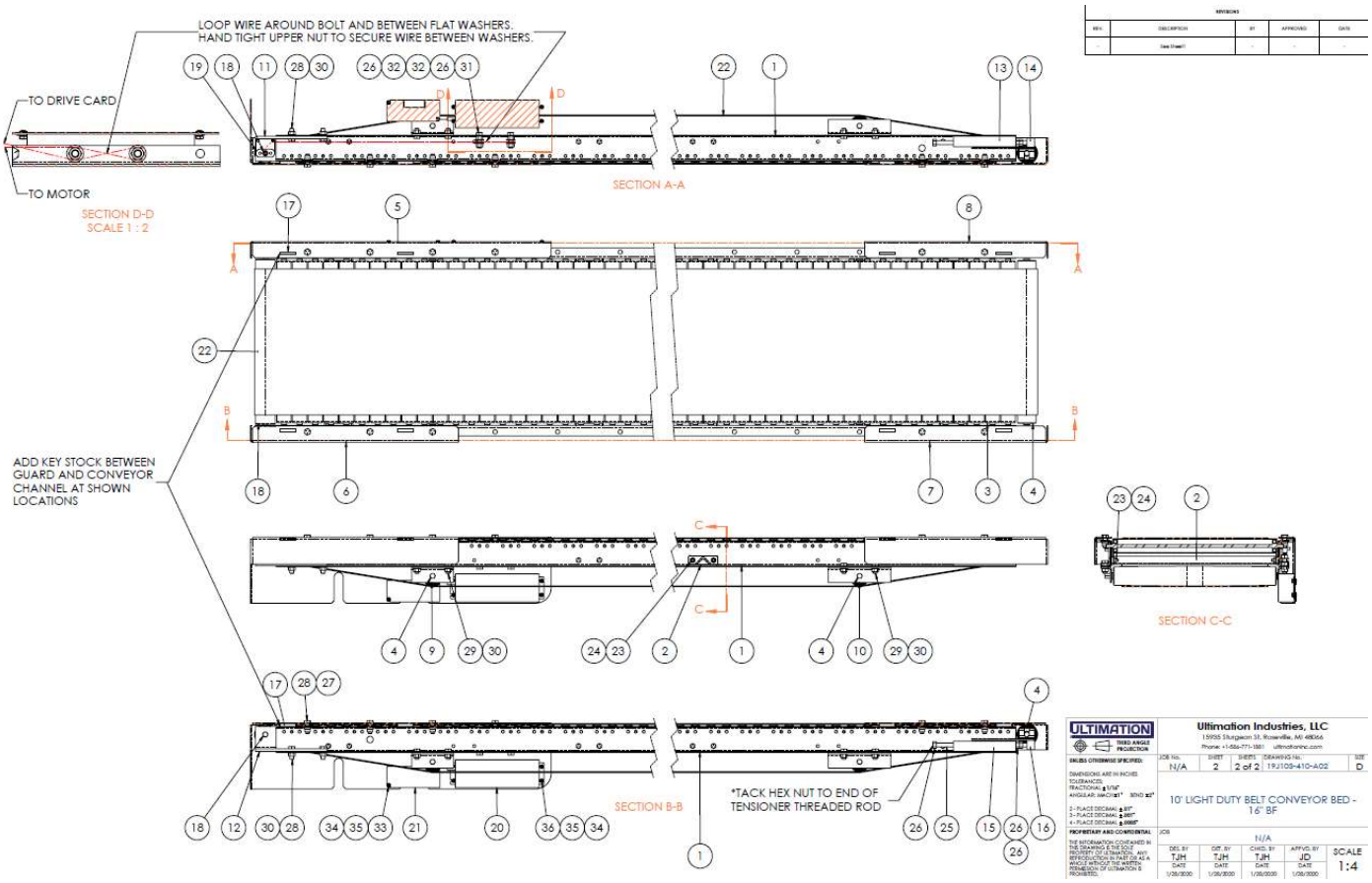
TROUBLE	CAUSE	SOLUTION
Conveyor motor will not start or motor quits frequently	Motor is overloaded	Inspect conveyor for overloading and remove excessive load
	Motor is drawing excessive current	Check heater and/or circuit breaker and replace if necessary
Loud popping or grinding noise	Defective bearing	Replace defective bearing
	Loose set screws in sprockets or bearing	Tighten loose set screws
Motor or reducer is overheating	Overloaded conveyor	Check to ensure that the conveyor belt is not over capacity and reduce load
	Voltage to conveyor is too low	Have a qualified electrician test the voltage and correct if necessary
Belt does not move, but drive is running	Overloaded conveyor	Check to ensure that the conveyor belt is not over capacity and reduce load
	Belt is too loose	Tighten belt using belt take-ups
	Lagging on drive pulley is worn	Replace drive pulley lagging and tighten belt
Belt tracks off at one point along conveyor length	One or more idlers near trouble point are out of line	Adjust the idlers near the trouble point
	Conveyor sections might be out of square or level	Make necessary adjustments to square the conveyor sections
	Residue/debris build up on pulleys or idlers	Remove residue/debris from pulleys and idlers
Belt tracks to one side of drive or tail pulleys	Drive pulley, tail pulley or idlers located near the pulley are not aligned properly or square with the conveyor bed	Adjust pulleys and idlers as necessary
Belt tracks to one side	Conveyor not level or straight	Ensure that belt sections are aligned and leveled properly
	Residue/debris build up on pulleys or idlers	Remove residue/debris from pulleys and idlers

DRAWING AND PARTS LIST (5' LONG CONVEYOR)



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	U10709	Light Duty Conveyor Side Channel, 10' Lg.
2	5	U10808	16BF Light Duty Conveyor Spreader
3	80	U10717	1.4" OD x 16" BF Gravity Roller
4	3	19J103-400-D01	16" BF x 1.9" OD Trapezoidal Crown Pulley
5	1	19J103-400-D02	Rear Left Conveyor Bed End Guard
6	1	19J103-400-D03	Rear Right Conveyor Bed End Guard
7	1	19J103-400-D04	Front Right Conveyor Bed End Guard
8	1	19J103-400-D05	Front Left Conveyor Bed End Guard
9	2	19J103-400-D06	Stationary Snubber Bracket for Light Duty Belt Conveyor
10	2	19J103-400-D07	Adjustable Snubber Bracket for Light Duty Belt Conveyor
11	1	19J103-400-D08	LH Power Motor Bracket for Light Duty Belt Conveyor
12	1	19J103-400-D09	RH Power Motor Bracket for Light Duty Belt Conveyor
13	1	19J103-400-D10	LH Take-up #1 for Light Duty Belt Conveyor
14	1	19J103-400-D11	LH Take-up #2 for Light Duty Belt Conveyor
15	1	19J103-400-D12	RH Take-up #1 for Light Duty Belt Conveyor
16	1	19J103-400-D13	RH Take-up #2 for Light Duty Belt Conveyor
17	8	19J103-400-D14	1/4" Square x 1 1/2" Spacer Bar for Light Duty Belt Conveyor
18	1	Itoh Denki PT# PM486FE-17-391-D-024-KF	16" BF x 1.9" OD Trapezoidal Crown Pulley MDR
19	1	Itoh Denki #MBC-071	Mounting bracket for Itoh MDR, hex flat up
20	1	Mean Well #HLG-150H-24A	Power Supply
21	1	Itoh Denki #CB-01657	Drive Card
22	1	N/A	10' Conveyor Belt for 10' Light Duty Conveyor Bed
23	20	N/A	1/4"-20 x 0.75" HHCS, Grade 5, Zinc Plated
24	20	N/A	1/4"-20, Grade 5, Flange Lock Nut, Zinc Plated
25	2	N/A	3/8"-16 X 9" Threaded Rod
26	10	N/A	3/8-16 Hex Nut, Grade 5, Zinc Plated
27	11	McMaster 94850A170	3/8"-16 U Style Spring Clip Nut
28	15	N/A	3/8"-16 x 1.00" HHCS, Grade 5, Zinc Plated
29	8	N/A	3/8"-16 x 3/4" HHCS, Grade 5, Zinc Plated
30	12	N/A	3/8"-16 Flange Lock Nut, Zinc Plated
31	2	N/A	3/8"-16 x 1.25" HHCS, Grade 5, Zinc Plated
32	4	N/A	3/8" SAE Flat Washer, Zinc Plated
33	2	N/A	#8-32 x 1 1/4" Pan Head Phillips Screw, Grade 5, Zinc Plated
34	6	N/A	#8 Split Ring Lock Washer, Zinc Plated
35	6	N/A	#8-32 Hex Nut, Grade 5, Zinc Plated
36	4	N/A	#8-32 x 1/4" Pan Head Phillips Screw, Grade 5, Zinc Plated

DRAWING AND PARTS LIST (10’ LONG CONVEYOR)



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	U10707	Light Duty Conveyor Side Channel, 5' Lg.
2	3	U10808	16BF Light Duty Conveyor Spreader
3	40	U10717	1.4" OD x 16" BF Gravity Roller
4	3	19J103-400-D01	16" BF x 1.9" OD Trapezoidal Crown Pulley
5	1	19J103-400-D02	Rear Left Conveyor Bed End Guard
6	1	19J103-400-D03	Rear Right Conveyor Bed End Guard
7	1	19J103-400-D04	Front Right Conveyor Bed End Guard
8	1	19J103-400-D05	Front Left Conveyor Bed End Guard
9	2	19J103-400-D06	Stationary Snubber Bracket for Light Duty Belt Conveyor
10	2	19J103-400-D07	Adjustable Snubber Bracket for Light Duty Belt Conveyor
11	1	19J103-400-D08	LH Power Motor Bracket for Light Duty Belt Conveyor
12	1	19J103-400-D09	RH Power Motor Bracket for Light Duty Belt Conveyor
13	1	19J103-400-D10	LH Take-up #1 for Light Duty Belt Conveyor
14	1	19J103-400-D11	LH Take-up #2 for Light Duty Belt Conveyor
15	1	19J103-400-D12	RH Take-up #1 for Light Duty Belt Conveyor
16	1	19J103-400-D13	RH Take-up #2 for Light Duty Belt Conveyor
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19	1	Itoh Denki #MBC-071	Mounting bracket for Itoh MDR, hex flat up
20	1	Mean Well #HLG-150H-24A	Power Supply
21	1	Itoh Denki #CB-01657	Drive Card
22	1	N/A	5' Conveyor Belt for 5' Light Duty Conveyor Bed
23	12	N/A	1/4"-20 x 0.75" HHCS, Grade 5, Zinc Plated
24	12	N/A	1/4"-20, Grade 5, Flange Lock Nut, Zinc Plated
25	2	N/A	3/8"-16 X 9" Threaded Rod
26	10	N/A	3/8-16 Hex Nut, Grade 5, Zinc Plated
27	11	McMaster 94850A170	3/8"-16 U Style Spring Clip Nut
28	15	N/A	3/8"-16 x 1.00" HHCS, Grade 5, Zinc Plated
29	8	N/A	3/8"-16 x 3/4" HHCS, Grade 5, Zinc Plated
30	12	N/A	3/8"-16 Flange Lock Nut, Zinc Plated
31	2	N/A	3/8"-16 x 1.25" HHCS, Grade 5, Zinc Plated
32	4	N/A	3/8" SAE Flat Washer, Zinc Plated
33	2	N/A	#8-32 x 1 1/4" Pan Head Phillips Screw, Grade 5, Zinc Plated
34	6	N/A	#8 Split Ring Lock Washer, Zinc Plated
35	6	N/A	#8-32 Hex Nut, Grade 5, Zinc Plated
36	4	N/A	#8-32 x 1/4" Pan Head Phillips Screw, Grade 5, Zinc Plated

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