



Technical Documentation

ZRF-P 2045 TIMING BELT CONVEYOR

Each serial number is unique to that specific conveyor and provides mk North America with complete order details.

The conveyor serial number is located on the frame at the drive end of the conveyor. See section 2 for more details.

Your serial number is also recorded above.

Ensure the serial number tag above matches the serial number on your conveyor.

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1 GENERAL INFORMATION

1.1 Foreword

Congratulations on purchasing a conveyor from mk North America, Inc., a leading manufacturer of quality low profile conveyors. Our more than 25 years experience in material handling allows us to offer robust solutions with long life and reliable operation. We strive to make the best products in the industry even better and we are committed to making sure our customers get top notch support before, during, and after each and every sale.

1.2 The importance of reading your manual

Inside this manual you will find the instructions on how to set up and maintain your mk conveyor properly, as well as maximize its performance. Please take the time to read this manual and familiarize yourself with these set up and maintenance instructions. These instructions will help assure a long product life that requires a minimum amount of service and keeps your conveyor working at its maximum capacity.

1.3 If you need assistance

If you need assistance there are a variety of ways to get it. You can contact our customer service team Monday through Friday, 8am-5pm (Eastern Time) at 860-769-5500. You can also visit our website for additional information and technical documentation at www.mknorthamerica.com. In addition, your local representative can provide support in many instances.

1.4 When your shipment arrives

- 1) Check your shipment
 - a) If you have not already done so, visually inspect the shipping crate/container for any damage caused during shipment.
 - b) Carefully unpack the crate/container making sure to inspect the components for damage that may have occurred inside the packaging materials.
 - c) If you find any damage, please contact the carrier and mk North America, Inc.
 - d) Lastly, check the contents against the packing slip provided by mk for any discrepancies. If you should find any, please contact mk North America, Inc.
- 2) Locate your ordered items
 - a) Each mk conveyor will ship in its own custom built container, carefully packaged in the most economical way.
 - b) Review the packing slip against your Purchase Order.

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2 DECODING YOUR SERIAL NUMBER

- The conveyor's serial number is located on the frame at the drive end of the conveyor.
- See image below for label example.
- **YOUR SERIAL NUMBER IS ON THE FRONT COVER OF THIS MANUAL.**
- We have provided an area in the back of this manual for you to add any notes about this unit.



Serial #: This number is unique to this item. With this number we can access all of the original order details.

Date: This is the date that the unit was scheduled to ship.

Type: This description refers to the type of unit that is associated with the particular serial number. The type should NOT be substituted for the serial number when inquiring.

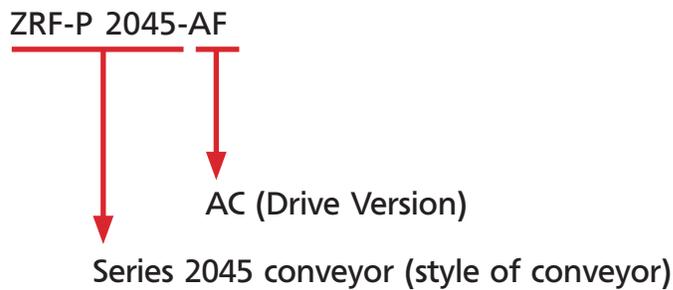
DWG#: This number, if applicable, refers to the specific drawing that was created for this unit. The first drawing number refers to the overall system. The second drawing number is for the specific conveyor.

SO#: This is the shop order number in which this unit was built. This is an mk North America, Inc. internal number. This number is also referenced on any related invoices, etc.

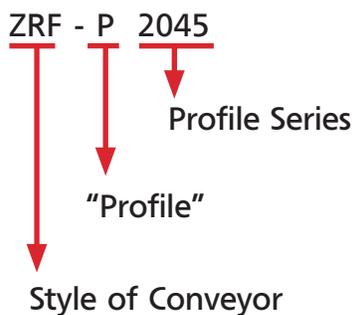
3 CONVEYOR DESCRIPTION

3.1 Conveyor Description

1.) Explaining the type of conveyor:



2.) Designations:



- GUF (Gurt Foerderer) Belt Conveyor
- KTF (Kettengurt Foerderer) Chain Conveyor
- KFG (Knickfoerderer Gurt) Bent Belt Conveyor
- KGF (Kurvengurt Foerderer) Curve Belt Conveyor
- MBF (Modulband Foerderer) Modular Belt Conveyor
- SBF (Scharnierband Foerderer) Hinged Belt Conveyor
- SRF (Staurollen Foerderer) Accumulating Roller Conveyor
- ZRF (Zahnriemen Foerderer) Timing Belt Conveyor

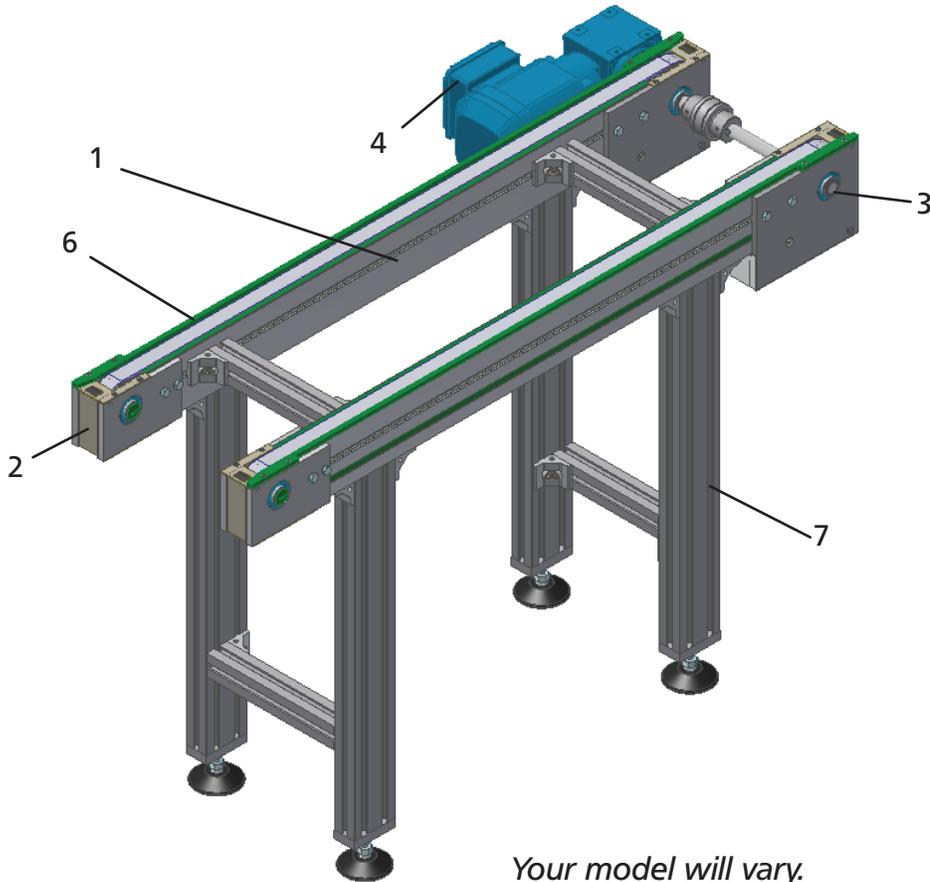
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3 CONVEYOR DESCRIPTION (CONT.)

3.2 Conveyor Components

The ZRF-P 2045 has many typical conveyor components. Below is a description of the basic parts and options for the ZRF-P 2045 conveyor. The items you receive will vary based on your actual purchase order. Items may appear different on your model based on your particular order requirements. Consult your approval drawing for specific items included in your order.



Typical Components

- 1) Conveyor Frame
- 2) Idler End
- 3) Drive End
- 4) Gearmotor
- 5) Speed Control (Not Shown)
- 6) Timing Belt
- 7) Support Stand

4 WARRANTY INFORMATION

Warranty

mk North America, Inc. (MKNA) offers a COMPLETE ONE YEAR WARRANTY from the date of delivery, to the original purchaser of the MKNA equipment (CUSTOMER), to be free from defects in material and workmanship; under normal use and with proper installation, maintenance and cleaning.

Additionally MKNA offers a LIMITED 10 YEAR WARRANTY on all equipment that MKNA is the original manufacturer of, to be free from defect and workmanship.¹

This warranty is extended by MKNA only to CUSTOMER, and is non-transferable. All warranty requests shall be made by CUSTOMER.

MKNA will replace or repair, at our factory or any other location we designate², any defective part within the warranty period and without charge. It is at MKNA's sole discretion whether to repair or replace. CUSTOMER will provide MKNA with a prompt written notice of the defect, including the serial number of the unit (when applicable) and the date of delivery.

At MKNA's request CUSTOMER will return all defective parts for evaluation at MKNA. MKNA will provide CUSTOMER with a return goods authorization number (RGA#). No parts will be returned without a RGA#. The RGA# must clearly be marked on all labels, packages and packing slips.

CUSTOMER shall pay all costs for packaging, shipping, duties and/or any other related costs in the sending or receiving of parts. CUSTOMER is responsible for all labor associated with sending or receiving of parts.

MKNA PROVIDES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; UNLESS IT IS AGREED TO BY MKNA AND CUSTOMER IN WRITING PRIOR TO PLACEMENT OF ORDER. Such agreement requires approval of MKNA Management.

UNDER NO CIRCUMSTANCES SHALL MKNA BE HELD LIABLE FOR DAMAGES OR LIABILITY FOR LOSS OF PRODUCTION, PRODUCT, EQUIPMENT OR PROFITS OR LIABILITY FOR DIRECT, INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES TO PERSONS OR PROPERTY, WHATSOEVER. CUSTOMER agrees that it is their sole remedy for liability of any kind, including negligence with respect to the equipment and services furnished by MKNA shall be limited to the remedies provided herein. This warranty shall not apply to any failure of the unit or its components caused by lack of maintenance and/or improper maintenance, incorrect adjustments, misuse or unreasonable use or exposure to chemicals and/or environments which the unit is not designed for. Unauthorized modification of the unit or the use of non-MKNA replacement parts and building components voids this warranty.

¹ The limited 10 year warranty does not apply to equipment and components manufactured by others. Such equipment and components are subject to any limitation contained in the original manufacturer's warranty and include, but are not limited to: bearings, belts, casters, controllers, motors and pneumatic devices.

² No work will be performed by MKNA or an MKNA factory authorized service representative at the site of installation unless in MKNA's opinion it is impractical for Customer to remove and return the defective part to MKNA's factory.

EXCEPT AS EXPRESSLY STATED HEREIN, THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, OF THE EQUIPMENT OR SERVICES FURNISHED BY MKNA OR FACTORY AUTHORIZED SERVICE REPRESENTATIVE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

mk North America, Inc. reserves the right to change, modify or discontinue products and/or specifications with or without notice.

All of mk North America, Inc. products are covered by this warranty.

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5 SAFETY REQUIREMENTS

READ AND UNDERSTAND ALL OF THESE WARNINGS PRIOR TO OPERATING EQUIPMENT.



⚠ DANGER
Climbing, sitting, walking or riding on conveyor at any time will cause severe injury or death.
KEEP OFF.



⚠ DANGER
DO NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.



⚠ WARNING
Exposed moving parts can cause severe injury.
LOCK OUT POWER before removing guard.



⚠ WARNING
Moving equipment can cause severe injury.
KEEP AWAY.



⚠ WARNING
Gearmotors may be **HOT**.
DO NOT TOUCH gearmotors.



⚠ WARNING
Loosening stand height or angle adjustment screws may cause conveyor to drop down, causing severe injury.
SUPPORT CONVEYOR SECTIONS PRIOR TO LOOSENING STAND HEIGHT OR ANGLE ADJUSTMENT SCREWS.

⚠ WARNING
Injury is possible if the stands are not lagged to the floor, cross ties are not used, or angle braces are not present. Never place a conveyor in operation until all proper mounts are installed and secured. It is the end user's responsibility to ensure that the support system is safe and secure.

⚠ WARNING
Never operate equipment unless all operating instructions are understood and all guards, interlocks, covers, safety devices or circuits and protective components are functioning properly.

⚠ WARNING
Never operate or service this equipment if under the influence of alcohol, drugs or other substances or conditions which decrease alertness or judgement.

6 WEAR ITEMS & MAINTENANCE

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6.1 Important Notes About Wear Items & Maintenance

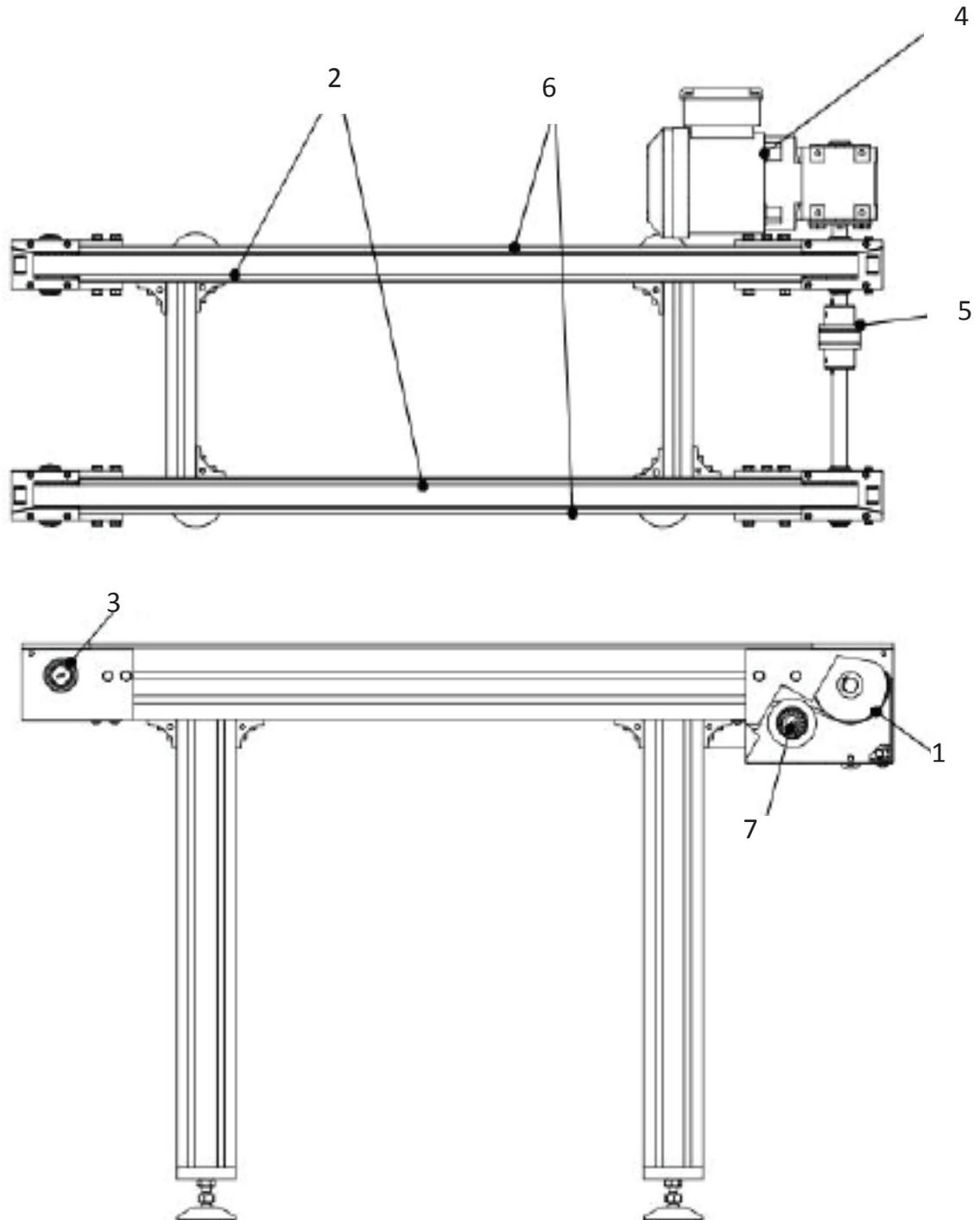
The following information regarding life of the wear items and service or adjustment intervals of the functional elements are only GUIDELINES. Conveyors are application-specific products whose life expectancy can vary depending on their relative loads and speeds, and which can be significantly influenced by environmental factors.

- All moving components and screw connections should be checked every 6 months.
- All safety-relevant components should be part of a regularly scheduled weekly inspection
- The proper function of these components must be confirmed at all times.
- Do NOT operate conveyors if safety-relevant components are damaged or missing.
- All parts which contact the pallet should be cleaned weekly (example: belt).
- Belts require little special care. They are easily cleaned using lukewarm soapy water.
- Remove heavy grease coatings with ethyl alcohol.
- Blow off debris from belts with structured surfaces using compressed air.

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6 WEAR ITEMS & MAINTENANCE (CONT.)

6.2 ZRF-P 2045 AF



NOTE: Not all items shown in all views for clarity. Not all views are to scale.

(Cont.)

6 WEAR ITEMS & MAINTENANCE (CONT.)

6.2 ZRF-P 2045 (Cont.)

Maintenance Work for ZRF-P 2045 AF

Position	Description	Action *	Interval in Hours (Months)
1	Pulley	I, C	500 Hours (Max. 3 Months)
		R	If wear is indicated
2	Timing Belt	I, C	500 Hours (Max. 3 Months)
		R	If stretch is greater than 3%
3	Bearing	I	1,000 Hours (Max. 6 Months)
4	Gearmotor	I	Service & Maintenance per manufacturer's documentation
5	Coupling	I	500 Hours (Max. 3 Months)
6	Wear strip	I, C	500 Hours (Max. 3 months)
		R	If wear is indicated
7	Tensioner	I, C	500 Hours (Max. 3 Months)
		R	If wear is indicated

* LEGEND: *Inspect, Replace, Tension, Clean, Lubricate (grease).*

Wear Items for ZRF-P 2045 AF

Position	Description	Part Number
1	Pulley	7-20.002-432-003
2	Timing Belt	Inquire with mk North America
3	Bearing	7-20.002-401-006
4	Gearmotor	Inquire with mk North America
5	Coupling	Inquire with mk North America
6	Wear strip	Inquire with mk North America
7	Tensioner	7-20.002-432-100

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7 CONVEYOR BELT MAINTENANCE - TRACKING & TENSIONING



All work to be performed by qualified personnel only.
Conveyor power must be disconnected before replacing belt.

General Remarks:

- Belts may need to be tracked due to shifting during shipping.
- Prior to delivery of the mk conveyor, the belt was tensioned and tracked at the factory.



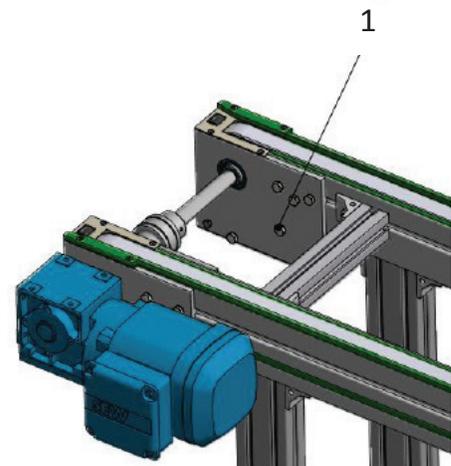
7 CONVEYOR BELT MAINTENANCE - TRACKING & TENSIONING (CONT.)



All work to be performed by qualified personnel only.

Belt Tracking

Loosen screw (1).
 This is the tensioner, it is an eccentric shaft with a pulley.
 The tensioner now is free to turn.
 Adjust screw as required.
 Tighten screw (1) before applying power to the conveyor.



Belt Tensioning - Do NOT tension the belt while it is running. Lock out power before tensioning.

Fine tune timing belt tracking on set screw (1) until timing belt is with the correct tension.

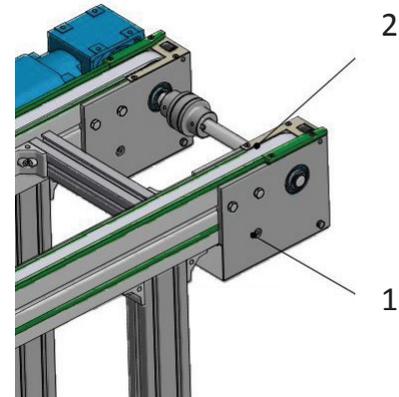
IMPORTANT: Turn on clockwise.

The correct tension is checked in the point (2).

IMPORTANT: The timing belt has proper tension when it can be lifted by hand off the surface 2 to 4 mm.

After adjusting the tension, tighten screw (1) from the first step.

Belt should only be tight enough to ensure engagement between the belt and pulley.



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8 CONVEYOR MAINTENANCE - BELT REPLACEMENT



All work to be performed by qualified personnel only.
Conveyor power **must** be disconnected before replacing the belt.



8 CONVEYOR MAINTENANCE - BELT REPLACEMENT (CONT.)

General Remarks:

- Prior to replacing the belt, the tail assembly must be completely loosened and retracted - instructions for this are below.
- Any interfering parts must also be removed.
- Reassemble in reverse order.
- Replacement belts must be tracked and tensioned prior to use (see Section 7).

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8 CONVEYOR MAINTENANCE - BELT REPLACEMENT (CONT.)



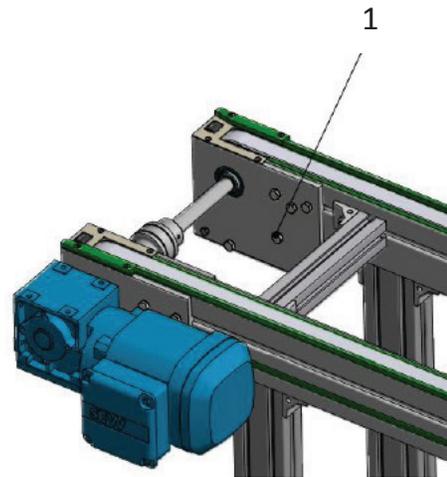
All work to be performed by qualified personnel only.

At the Drive

Loosen screw (1).

This is the tensioner, an eccentric shaft with a pulley.

The tensioner now is free to turn. You can now proceed to the following steps.



At the Drive

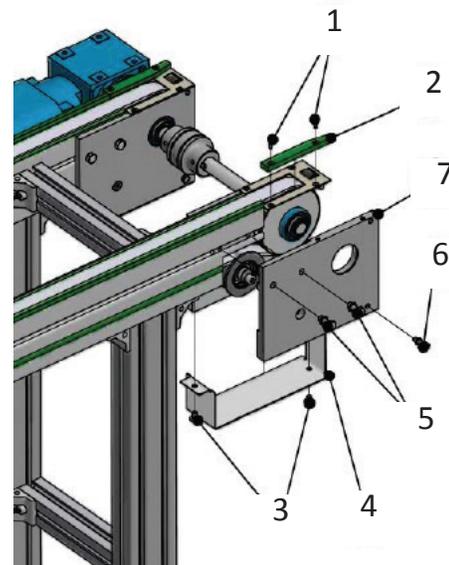
Loosen screws (1) and remove wear strip (2) and the upper guard.

Loosen screws (3) and remove the guard (4).

Loosen screws (5) and (6).

Remove plate (7) without damaging the bearing.

NOTE: When replacing the belt on the motor side, you will need to remove the motor first.



8 CONVEYOR MAINTENANCE - BELT REPLACEMENT (CONT.)



All work to be performed by qualified personnel only.

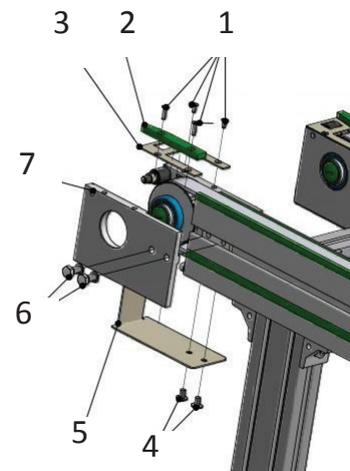
At the Idler

Loosen screws (1) remove wear strip (2) and the upper guard (3).

Loosen screws (4) and remove guard (5).

Loosen screws (6).

Remove plate (7) without damaging the bearing.

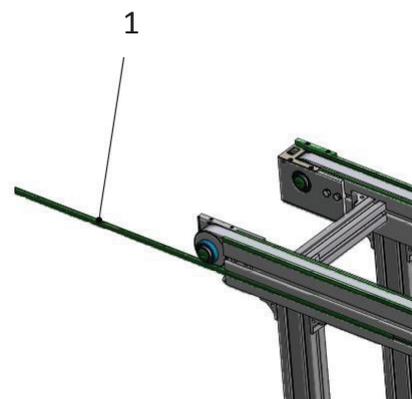


Remove the cover strip (1) by pulling it.

Now it is possible to remove the old timing belt.

After changing the belt, reassemble the conveyor in reverse order.

Prior to running the conveyor; track and tension the belt as shown in Section 7.



9 NOTES & CONTACT INFORMATION (CONT.)

9.2 Contacting mk North America, Inc.



Email: sales@mknorthamerica.com



Phone: 860.769.5500



Fax: 860.769.5505

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ZRF-P 2045
Timing Belt



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