Glide-Line™
255 Schoolhouse Road
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Phone: 215-721-1900
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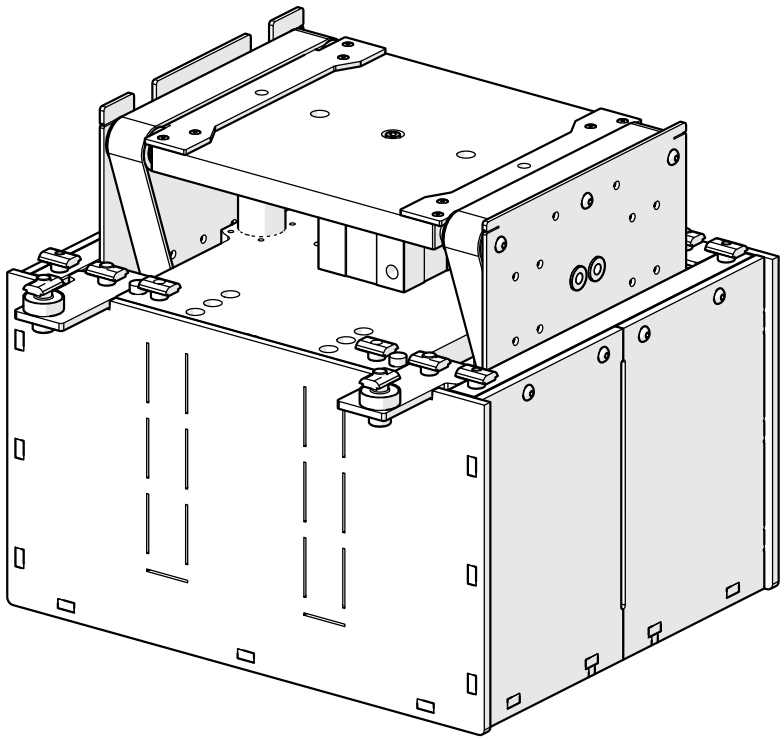
www.glide-line.com

V2.0

# Glide-Line™ LTU

## Installation and Maintenance Manual



V2.0

*Easy. Flexible. Precise. Fast.*

Throughout this manual are the following information blocks indicated in the appropriate sections by signal words as specified by ANSI Z535.4 Standard (section 4).

| | |
|---|---|
|  | Warning – This information must be followed to prevent harm to individuals or damage to equipment. |
|  | Automatic Equipment – This equipment may start or stop automatically. |
|  | Electrical Shock – This equipment has connection to an electrical circuit with potentially hazardous energy levels. |
|  | Consult Manual – This manual must be completely reviewed prior to performing any service. |
|  | Lock Out Power – All sources of energy must be controlled before servicing equipment |

# Table of Contents

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# 1. Introduction

## 1.1. Description of Device

Glide-Line Lift and Transfer Units (LTU) are designed to suit multiple conveyance application demands. All leg sets are designed to bolt to the bottom T-Slot of Glide-Line Conveyor Beam, or to specified locations on devices. To identify which leg set you were supplied, please reference the following part number breakdowns:

Part Number: LTU(A)-(B)-(C)-(D)-D(E)

A = pallet traffic flow is accepted from **2, 3, or 4** directions
B = Pallet Width Range 160mm to 1040mm
C = Pallet Length Range 160mm to 1040mm
D = Belt Type, **S** for Standard polyamide (green), **A** for Antistatic polyamide (black), **P** for Polyurethane (white)
E = Drive Type, reference drive section for available options.

Technical Specifications

| | |
|---|---|
| Lift range (Stroke): | 20mm |
| Lift cylinder bore: | 50mm |
| Lift capacity: | 150 Lbs. @ 80 psi. |
| Pallet length range: | 160mm to 1040mm in 1mm increments |
| Pallet width range: | 160mm to 1040mm in 1mm increments |
| Pneumatic Ports: | G1/8 |

Available Drive Packages:

**24VDC2** = Twin 24VDC Motors, 100 Watt. This option allows each belt to be independently powered.

**AC(X)** = AC powered option, 1/4HP. Motor mounted to Gearbox (ratio to be determined by user) and points directly down from transfer unit. Motor position ranges from A - D

**EXT1** = Slaved Unit. This option is suitable for chaining multiple units together, or allows for configurations with the Satellite Drive Package

**EXT2** = slaved unit. This option allows for tandem slave drive kit to run two LTUs off of one motor. 2 slave sprockets.

Only trained personnel should perform maintenance procedures. Company approved lock-out/tag-out procedures should be strictly adhered to. Please consult this manual before servicing.

## 1.2. Operating Conditions and Environment

Equipment should be in an ambient temperature room. Equipment should not be subject to high humidity or wash-down conditions. Clean-up to be by wipe down / air blow off only.

## 1.3. Chemical and Corrosion Resistance

It is recommended that customers contact the factory and obtain samples of applicable modules to be exposed to conditions of the proposed application to determine resistance of material and its durability. For further information, please contact Glide-Line™ at 215-721-1900.

## 1.4. Unpacking

When the unit arrives, care must be taken to unpack the unit. Units will ship packaged in a box on a skid. Do NOT lift from the drive components, bushings, or belts.

It is important to install conveyors and devices level and straight to achieve the listed performance. A non-level installation could induce moment loading to the conveyors and devices, decreasing the expected service life or preventing proper functionality.

## 1.5. Included Items

List of items that should be included in the shipment.

- LTU
- Mounting Hardware
- Guard Kit

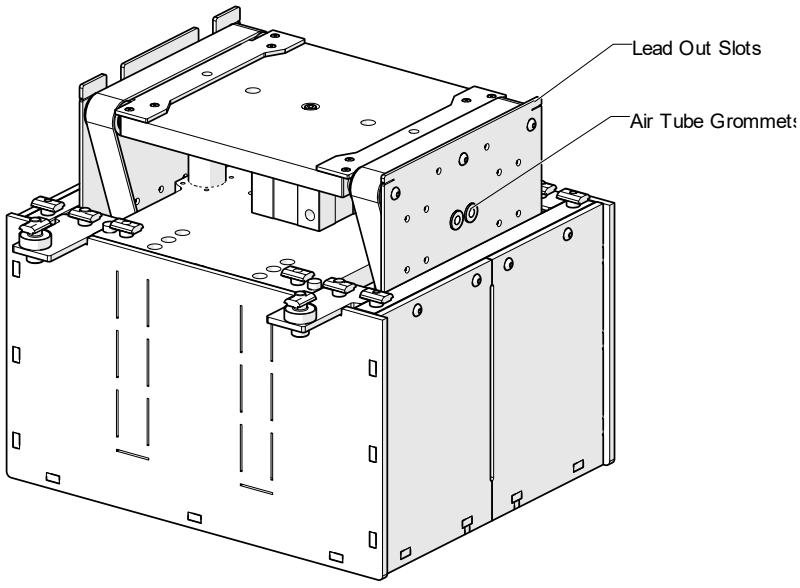


*Figure 1: Tabs can be bent outwards to provide lead in/lead out for pallets*

## 1.6. Configurations

The LTU changes depending on size and drive style. Please note that size is independent of drive style.

LTUs with Width <400mm and length >400mm

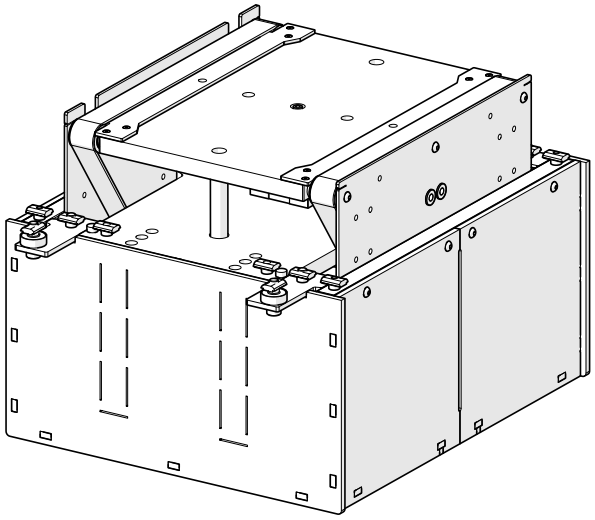

*Figure 2: LTU <400mm by >400mm*

LTUs with width >400mm and length <400mm

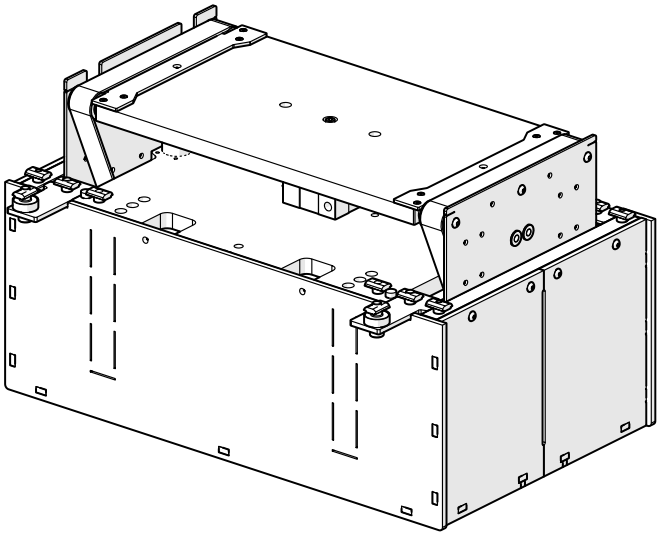

*Figure 3: LTU >400mm by <400mm*

LTUs with width and length >400mm

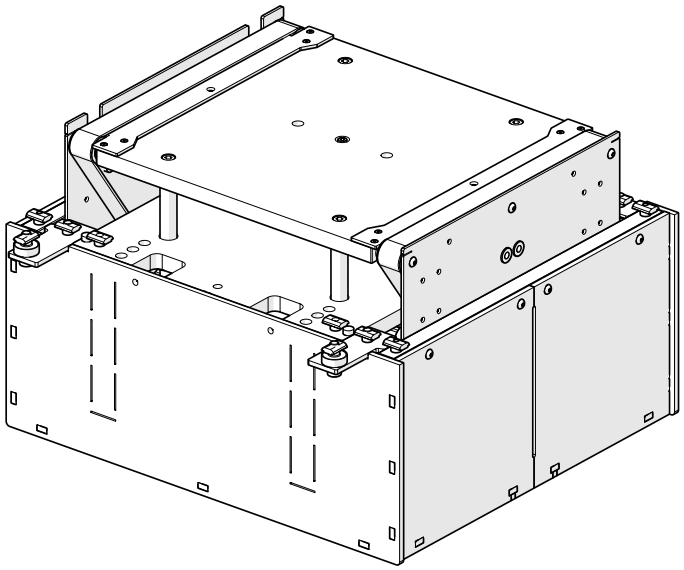

*Figure 4: LTU width and length >400mm*

24VDC Driven LTU

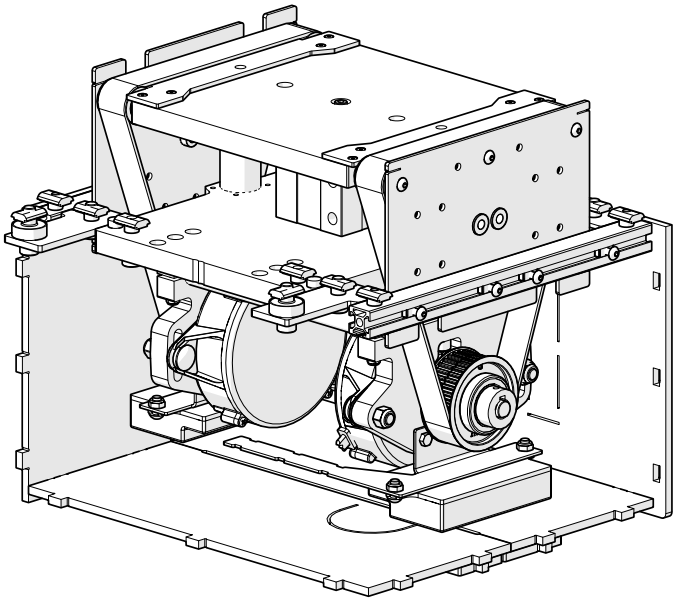

*Figure 5: LTU with 24VDC Motors*

## AC Driven LTU

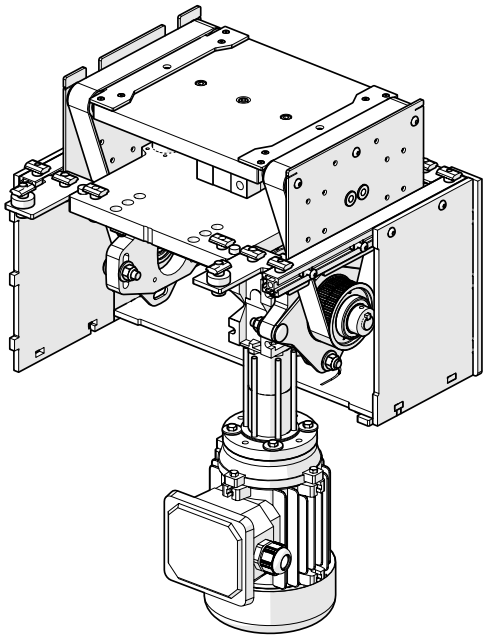

*Figure 6: LTU with AC Motor*

## Slave-Driven

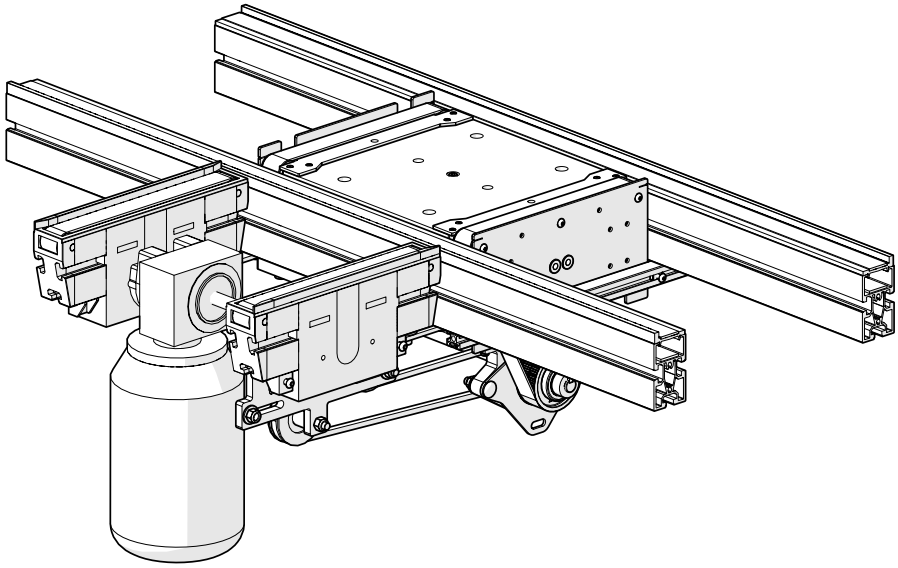

*Figure 7: LTU Slave-Driven from Conveyor*

## 1.7. Basic Order of Operations

1. Pallet is conveyed to device
2. While LTU is in the Middle position, Pallet strikes the stop plate, aligning it to LTU
3. Pallet on the LTU has 3 options:
   a. LTU goes to Low position, stop plate drops below conveyor surface, and Pallet conveys away from LTU
   b. LTU goes to High position, belts engage and transfer pallet to an adjacent line
   c. LTU goes to High position, belts engage in reverse and transfer pallet to an alternate adjacent line
4. LTU returns to Middle position to receive next pallet.

Note: 2 Position LTU has a Middle position and a High position, no Low position. Only a 3 Position LTU can go to Low position.

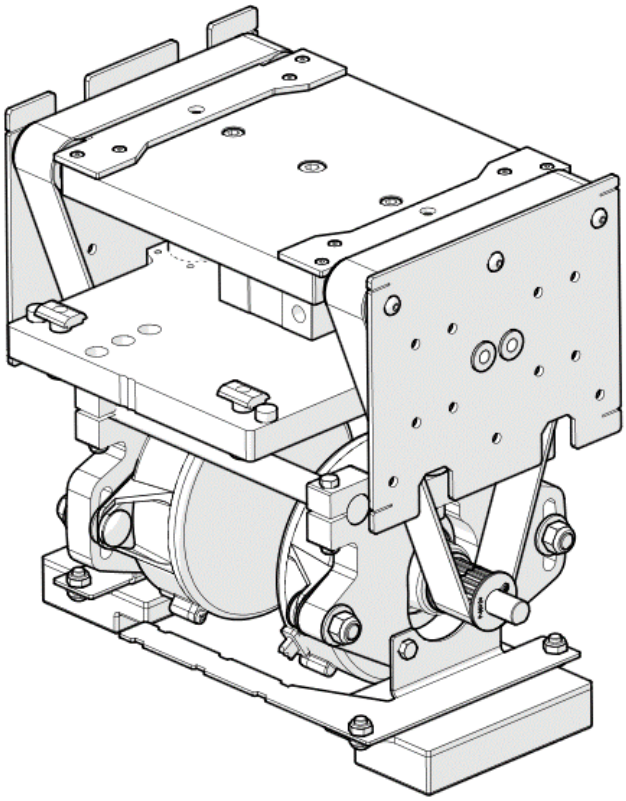

*Figure 8: LTU*

# 2. Installation

## 2.1. Tools Required for Installation

List of recommended and/or required tools for installation.

- Metric Allen Keys
  - 3, 4, 6

## 2.2. Installing Device

This section will go over how to properly install your LTU.

It is highly recommended to install the air fittings prior to installing the LTU. All air fittings with flow controls should be installed in a position they can be accessed after installation of the LTU.

Step 1: Install P-00055 and P-00497 onto the conveyor the LTU mounts to. P-00055 also mounts to the transverse conveyor. Do not tighten P-00055 and P-00497 all the way in case you need to make adjustments.

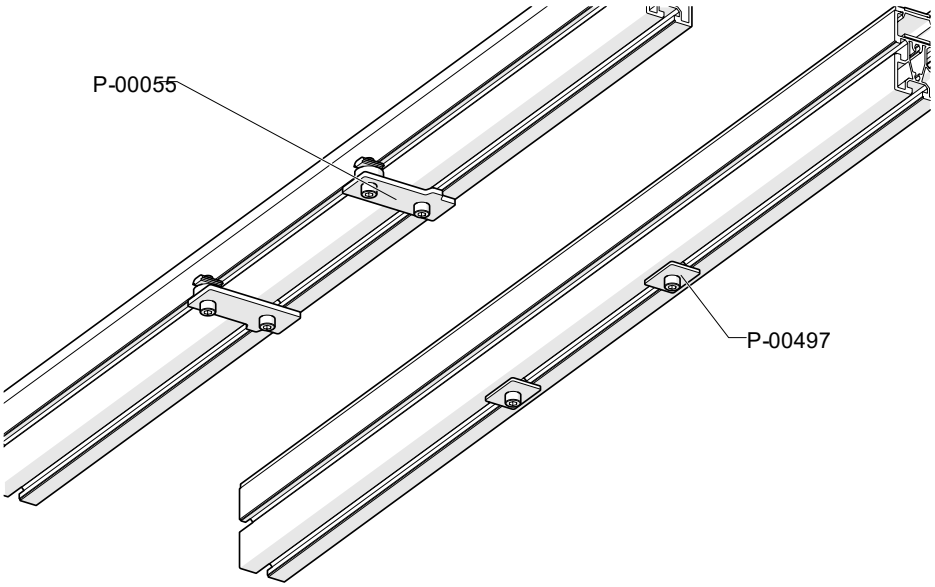


*Figure 9: Installing P-00055 and P-00497*

Step 2: Insert P-00223 into base of extrusion by angling P-00223 to slide in the T-Slot on the bottom of the Conveyor Strand.

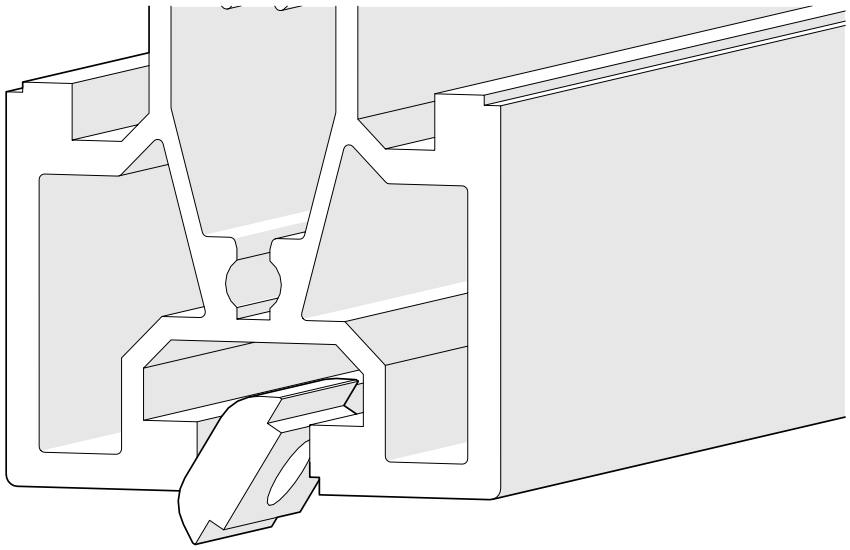

*Figure 10: Inserting P-00223*

Step 3: Align LTU into position, lining up P-00223 with the holes in the middle plate as shown in Figure 10.

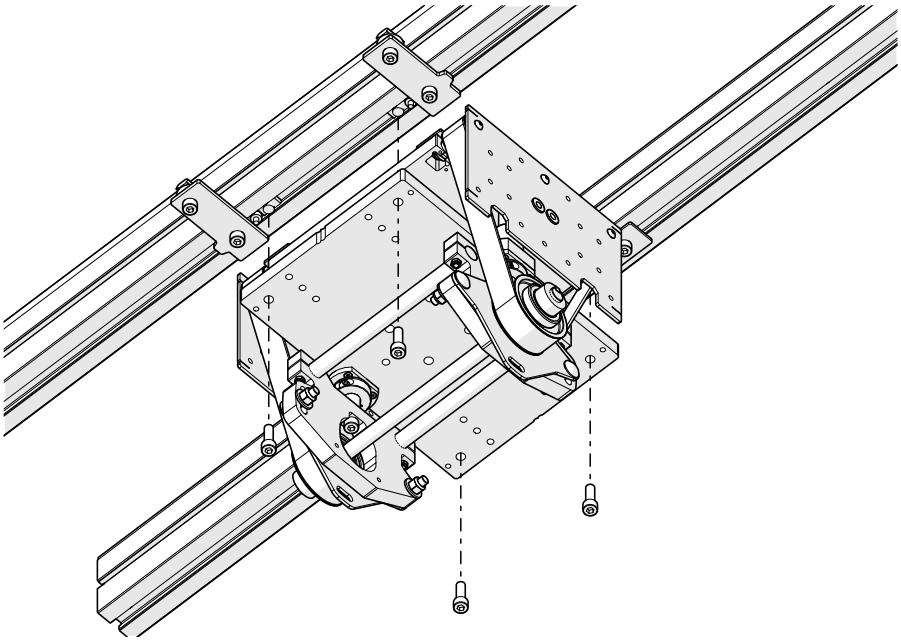

*Figure 11: Aligning LTU*

## Step 4: Insert M8 SHCS and tighten.

Make sure that P-00223 are aligned properly in the extrusion.

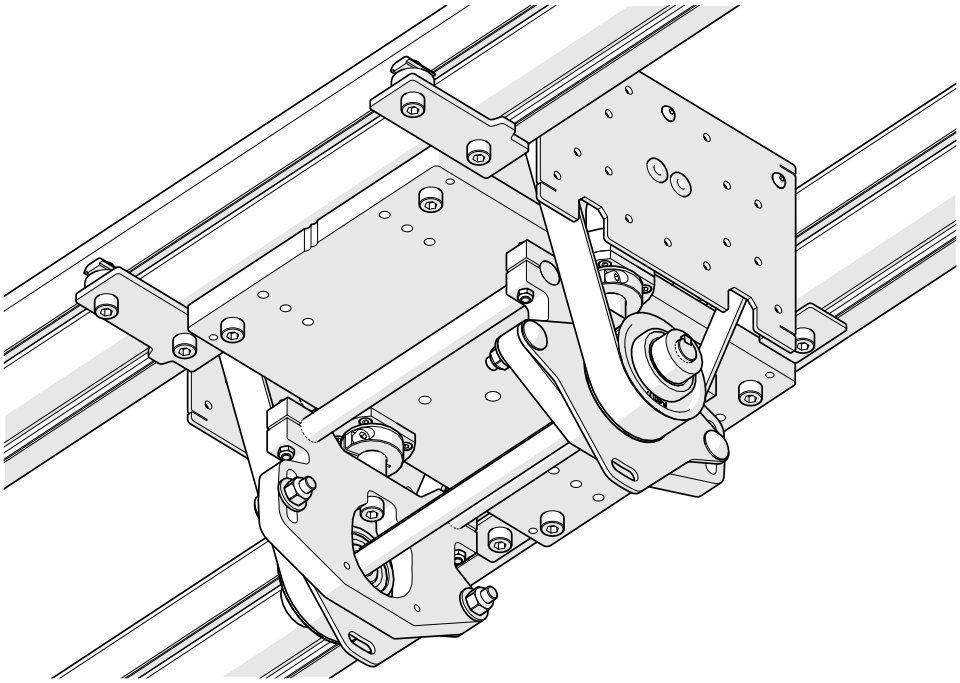

*Figure 12: Mounting LTU*

Mount the LTU to the conveyor. Notice that the middle plate fits between the P-00055 and P-00497 brackets.

Step 5: Install the P-00405 (side rails for guard package). These should be flush with P-00055 and P-00497.

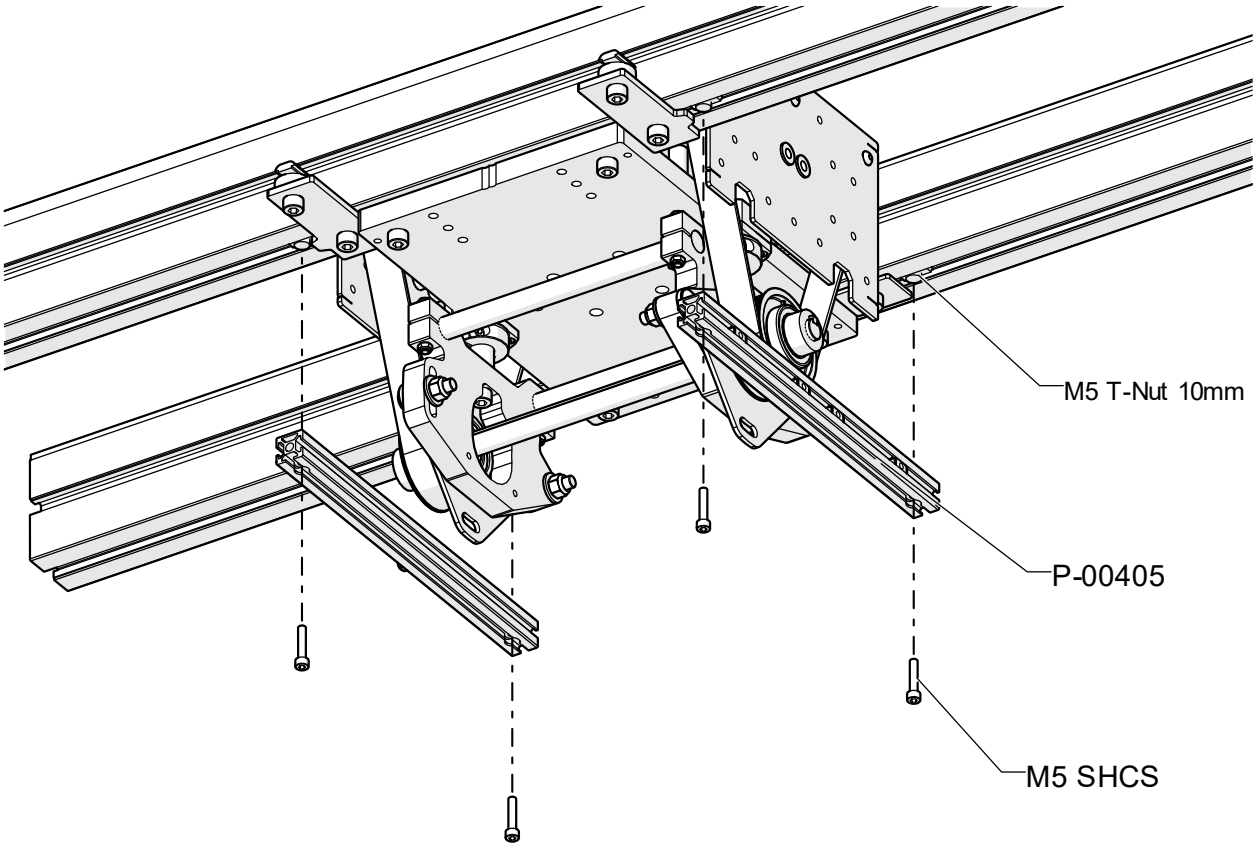


*Figure 13: Installing Side Rails for Guard Package*

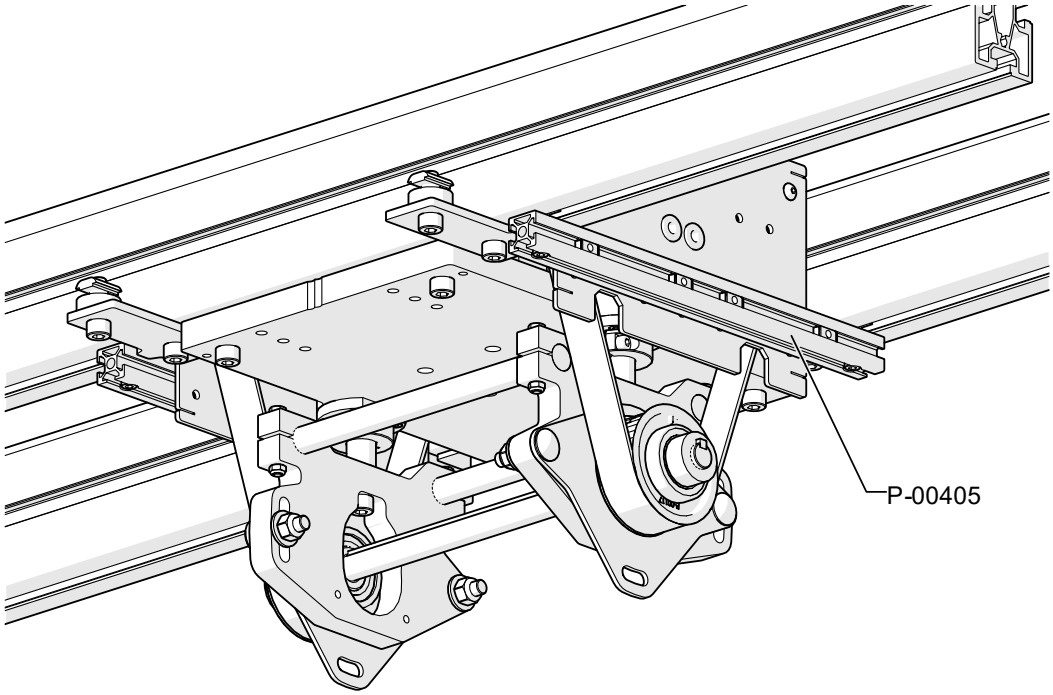


*Figure 14: Installed Side Rail*

Step 6: Install guard package and secure using the M5 BHCS as shown below in Figure 14.

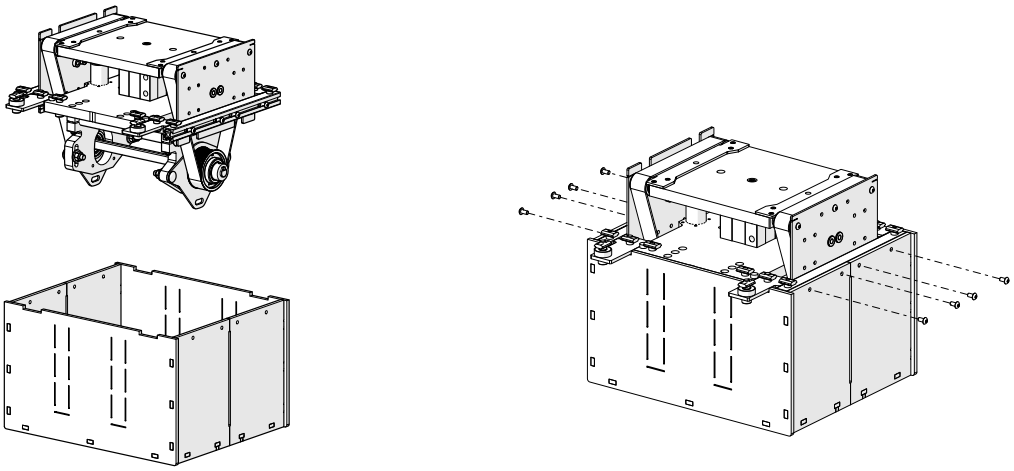

*Figure 15: Installing Guard Package*

## Installing Slave-Driven LTU

Mounting the LTU to the conveyor is the same as the AC and DC driven LTUs. The only difference is installing the chain.

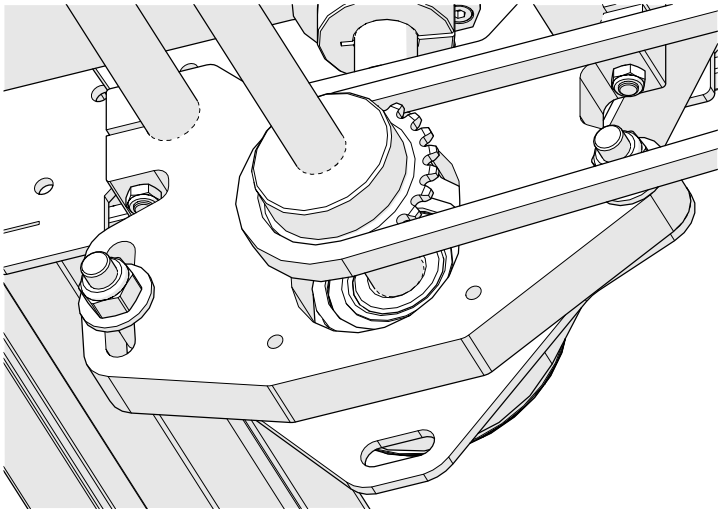

*Figure 16: Slave Driven Chain*

The chain will come loose and open ended. Wrap the chain around the sprocket on the LTU then wind the chain around the pulleys and drive sprocket on the transverse conveyor.

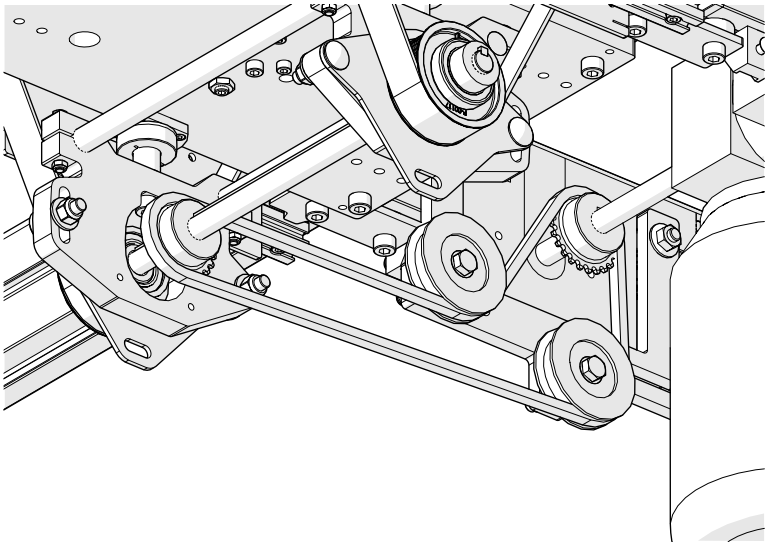

*Figure 17: Chain Layout*

Tighten the M8 HHCS and Hex Nuts on the tensioner pulley to tension the chain and eliminate sag.

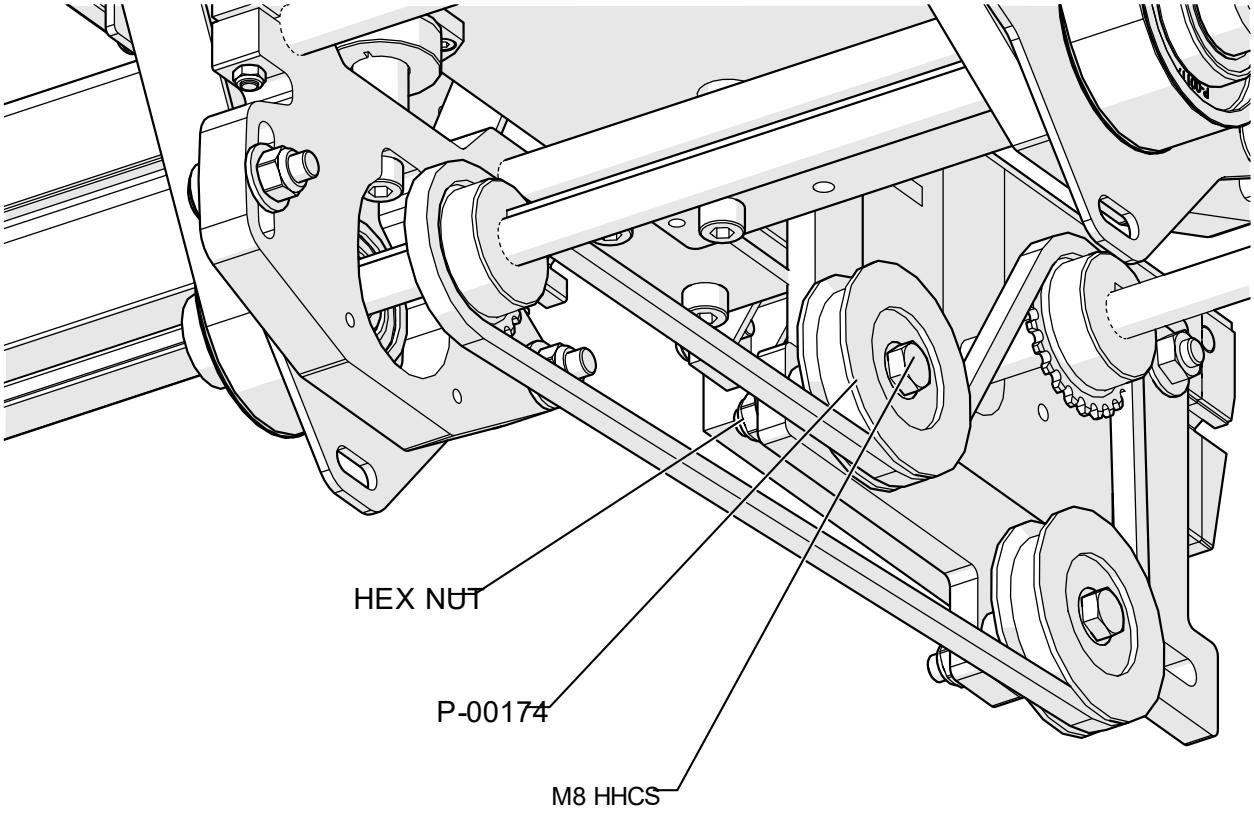


*Figure 18: Chain Drive Components*

Guarding is installed in the same way as other LTU configurations, with cutouts for the chain to pass through.

# 3. Safety Instructions

## 3.1 Operation

| | |
|---|---|
|  | Due to the hazardous moving parts of the device, all personnel in the area of a device should be warned when the device is about to be activated. |

Only properly trained personnel should be permitted to operate Glide-Line™ devices. Training should include emergency procedures.

Machine stopping devices should be clearly marked and easily accessible. Personnel working on or near the equipment should be trained in the location of stopping devices.

The area around machinery should be kept clear.

Devices must only handle loads they were designed to carry.

Safety and warning devices must not be tampered with in any way that could endanger personnel.

Personnel must be made aware of all potential hazards including but not limited to entanglement of items such as long hair, loose clothing or jewelry. Personnel must also be aware of any pinch points present on the device that could result in injury.

| | |
|---|---|
|  | Device should not be operated without safety guards in place. Guards should not be removed by anyone other than authorized personnel. |

All safety devices, including wiring of electrical safety devices, must be designed to work in a failsafe mode to avoid hazardous conditions from occurring during a power failure.

Refer to ANSI Z244.1-1982, American National Standard for Personnel Protection – Lockout/Tagout of Energy Sources – Minimum Safety Requirements and OSHA Standard Number 29 CFR 1910.147 "The Control of Hazardous Energy (Lockout/Tagout)."

# 4. Maintenance

This section will go over how to maintain the conveyor or device, including greasing moving components, disassembly/reassembly for part replacement, and ensuring proper functionality of the conveyor or device.

## 4.1. Tools Required for Maintenance

List of tools needed to replace and maintain wear items.

- Metric Allen Keys
  - 2, 2.5*, 3, 4, 5, 6
- Metric Wrenches
  - 8**, 10***, 13
- Phillips Screwdriver (AC motor only)
- Blue Loctite
- Anti-seize

Notes: * Not needed for DC driven LTU
** Cannot be ratcheting and must be thin
*** Needed only for DC driven LTU

## 4.2. Anti-seize, Loctite

Steps showing how to properly lubricate and maintain moving components (anti-seize, grease, etc. of shafts, bearings, etc).

Make sure to apply anti-seize whenever installing a driveshaft or stainless-steel hardware. Whenever reinstalling hardware make sure to apply a small amount of Loctite to ensure the hardware won't back out over time.

For example, after a belt change, these M5 SS BHCS should have Loctite applied to them to prevent them from backing out.

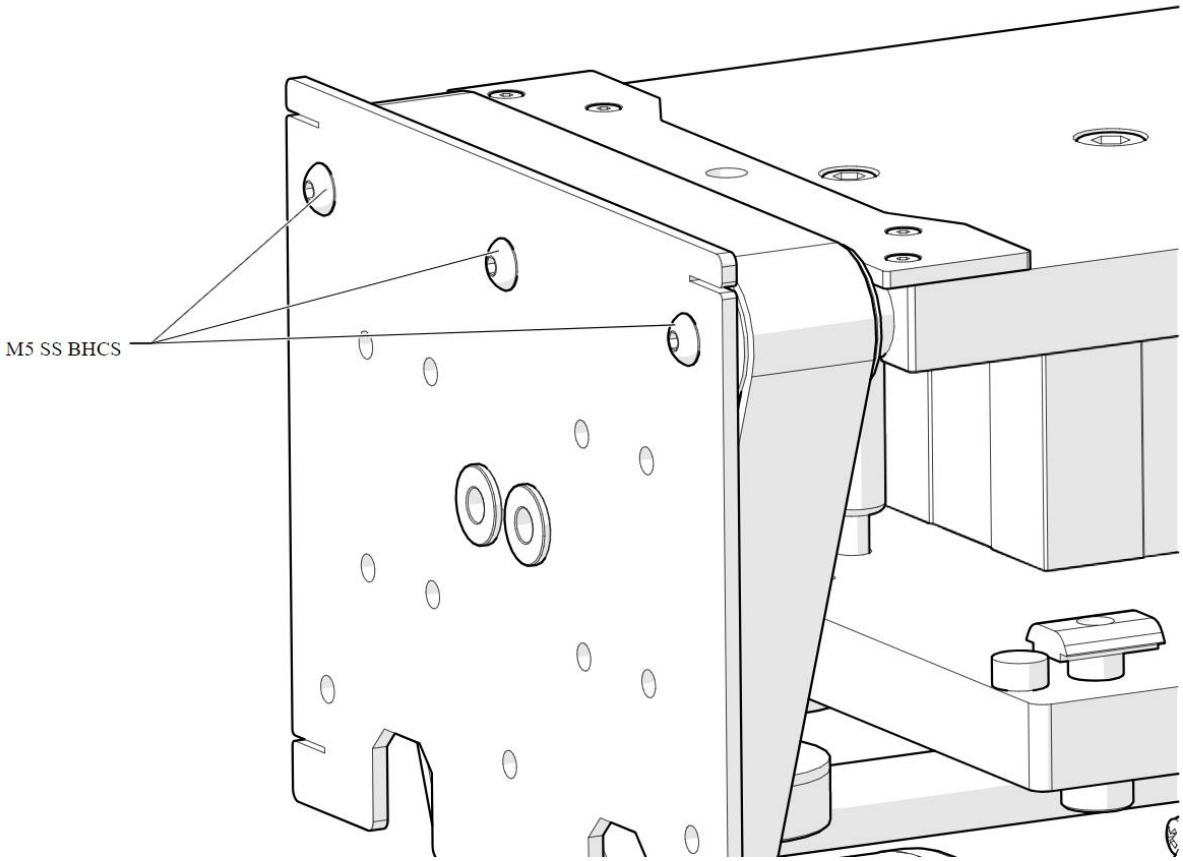


*Figure 19: M5 BHCS*

## 4.3. Replacing Worn Components

Steps showing how to replace worn components such as belts, rollers, bearings, etc. including required disassembly and reassembly. Note: The general belt removal/installation process is the same for all drive configurations (24VDC, AC, slaved).

### 4.3.1 Replacing P-00362

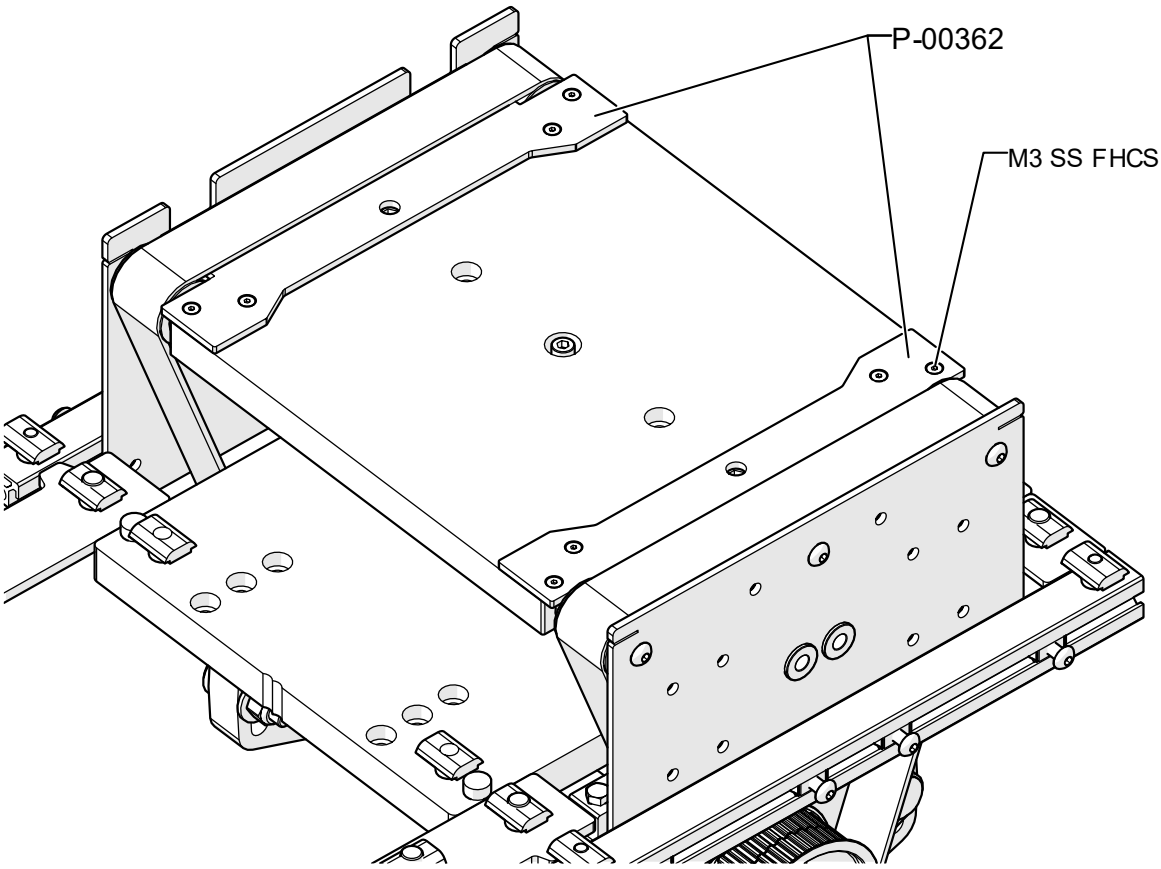


*Figure 20: P-00362 and hardware*

To replace P-00362, you will need a #2.5 allen key. Loosen the M3 SS FHCS then remove P-00362. Put the new one in place, making sure to note the countersinks are facing upwards. Firmly tighten the screws so that they are snug, but do not overtighten as this can damage P-00362.

### 4.3.2 Replacing Belts

**The following steps are for an LTU with a length shorter than 400mm**

Remove LTU guarding by removing M5 BHCS as shown below.

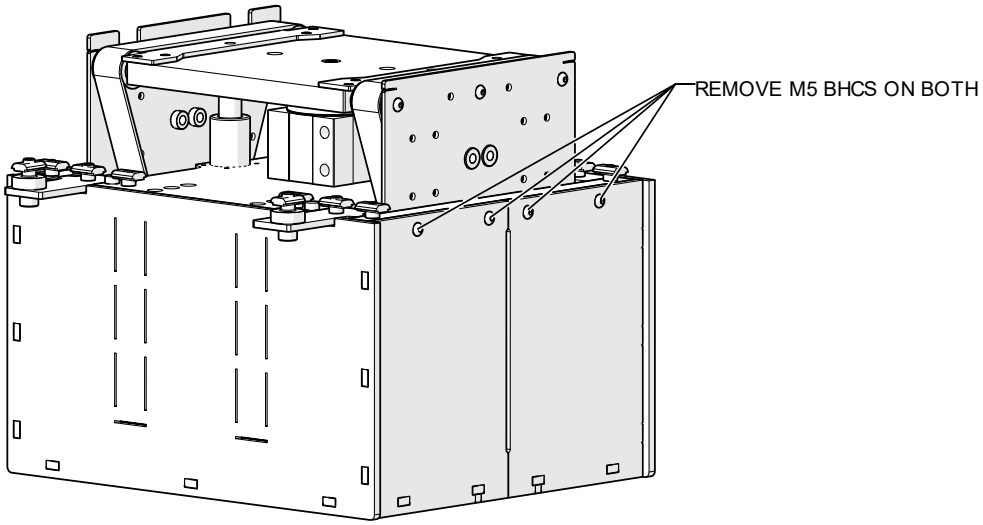


*Figure 21: Screws to Remove*

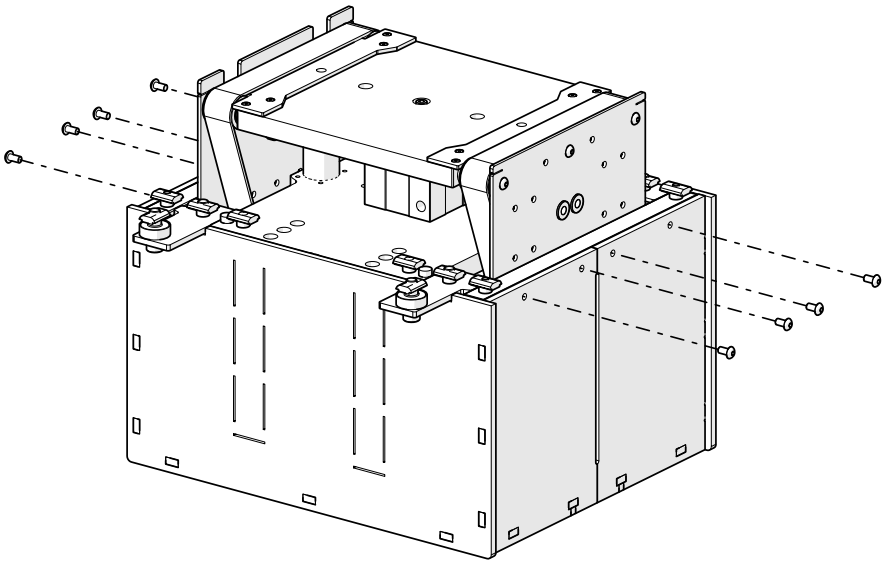

*Figure 22: Removing Screws*

Once the M5 BHCS are removed, the guarding will slide down

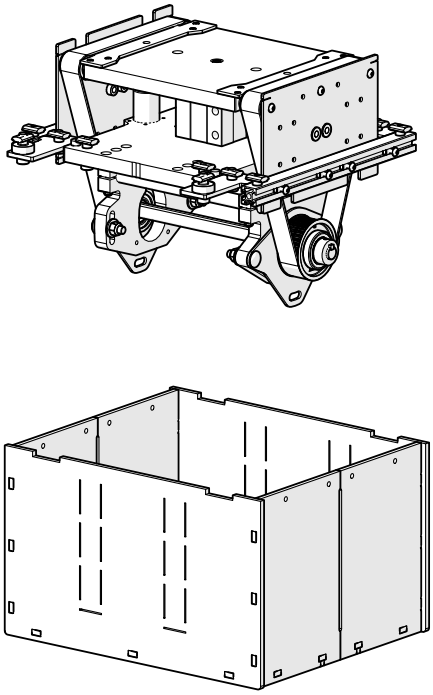

*Figure 23: Removing Guard Package*

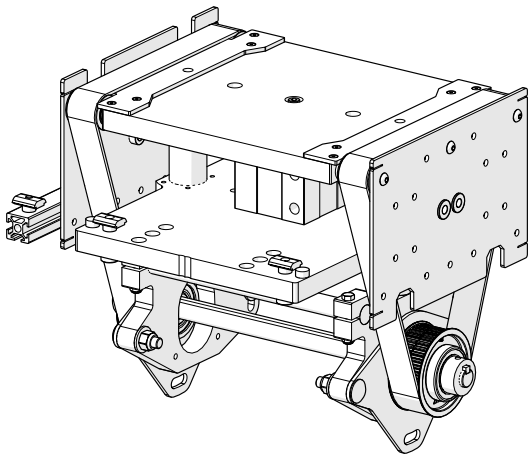

*Figure 24: LTU without Guard Package*

Shown above: removing guarding and LTU without any guarding

Next, loosen the M8 hex nylocks shown below. This will allow the pulley assembly to pivot, releasing tension on the belt

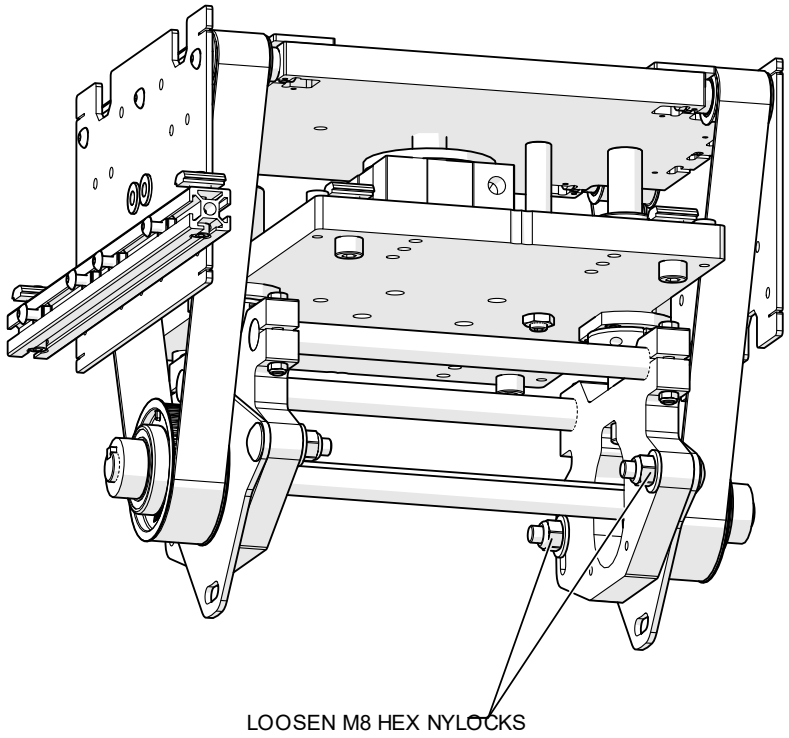


*Figure 25: Loosen M8 Hex Nylocks*

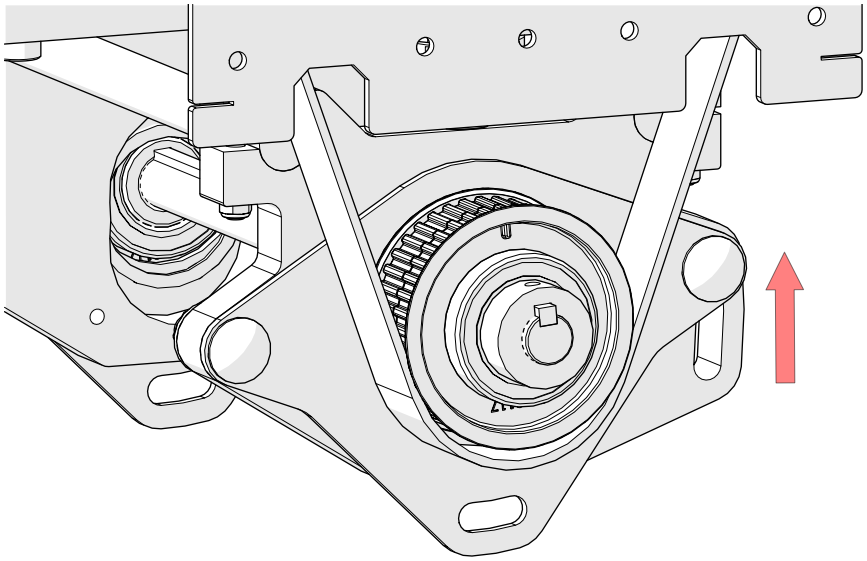

*Figure 26: Releasing Belt Tension*

Once the pulley has been loosened, the belt can be removed from under the pulley.

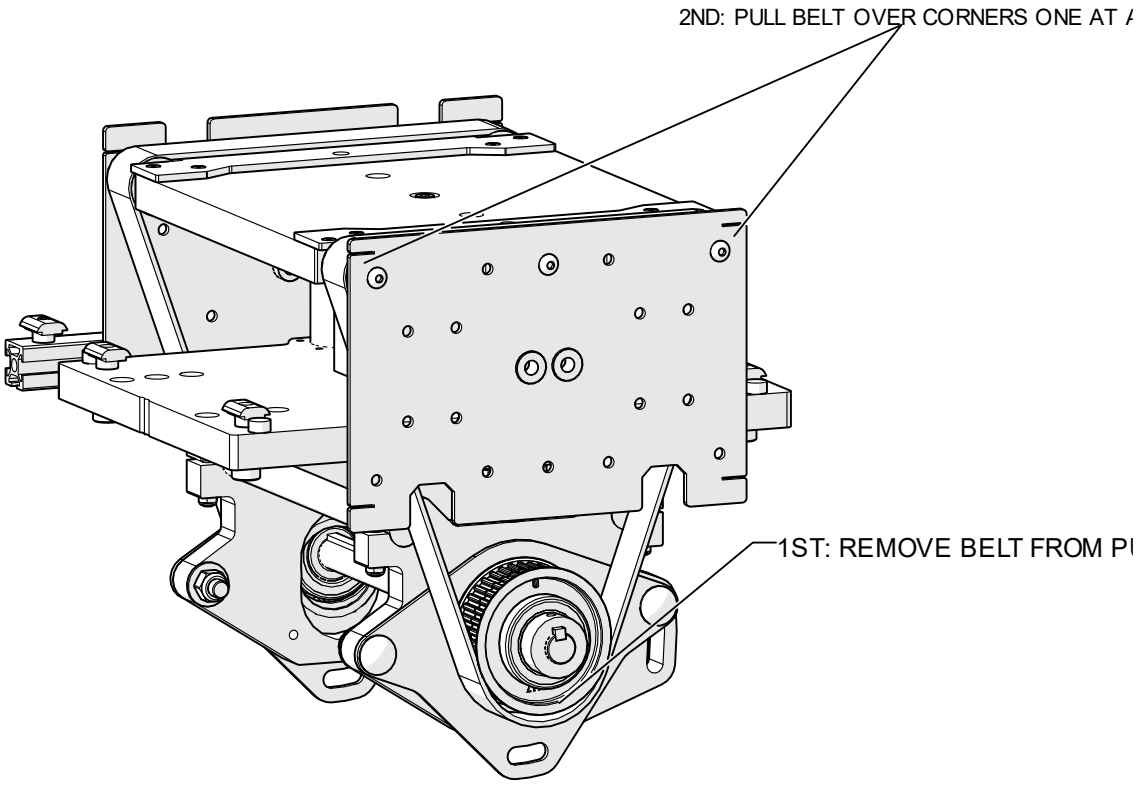


*Figure 27: How to Remove Belt*

Finally, slide the belt over one corner of the side plate one corner at a time. To install the new belt, follow the same steps in reverse order.

For LTUs with length over 400mm

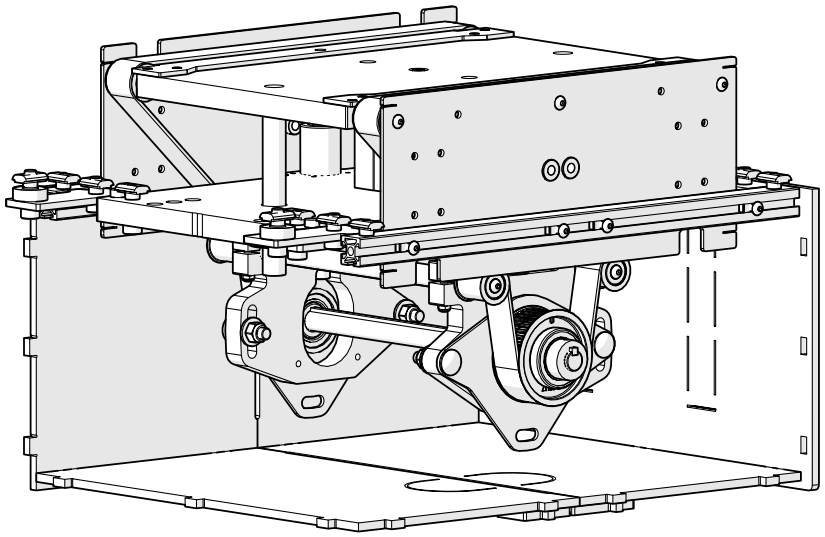

*Figure 28: Cutaway of LTU Guard Package*

For LTUs greater than 400mm in size, the belt change process is similar to LTUs under 400mm.

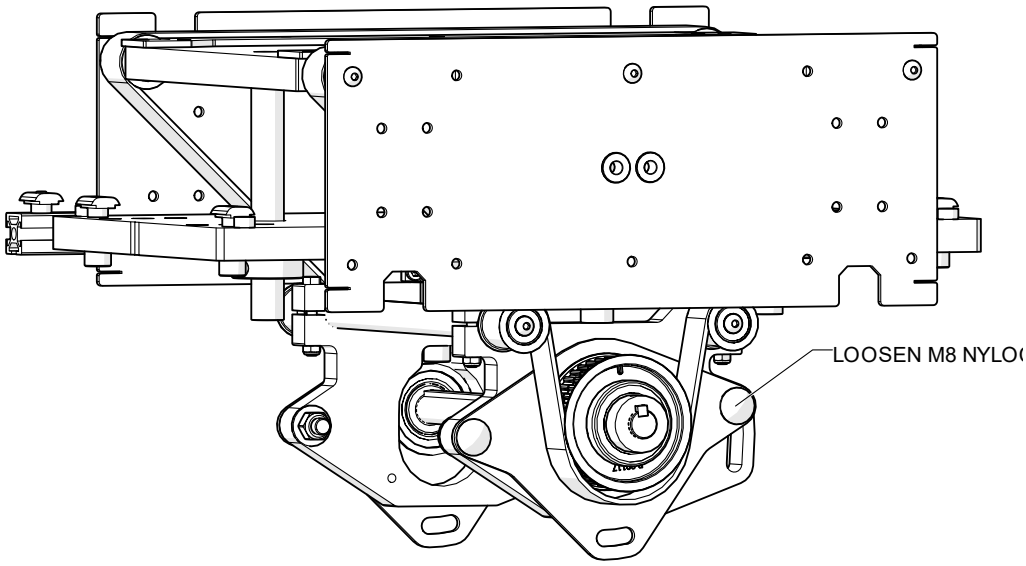


*Figure 29: Loosen M8 Nylock*

Release the belt tension by loosening the pulley assembly following the same steps above.

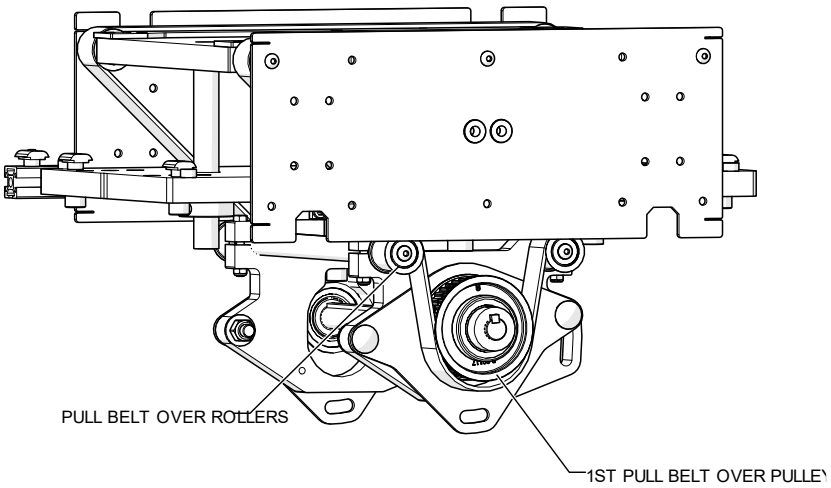


*Figure 30: Release Belt Tension*

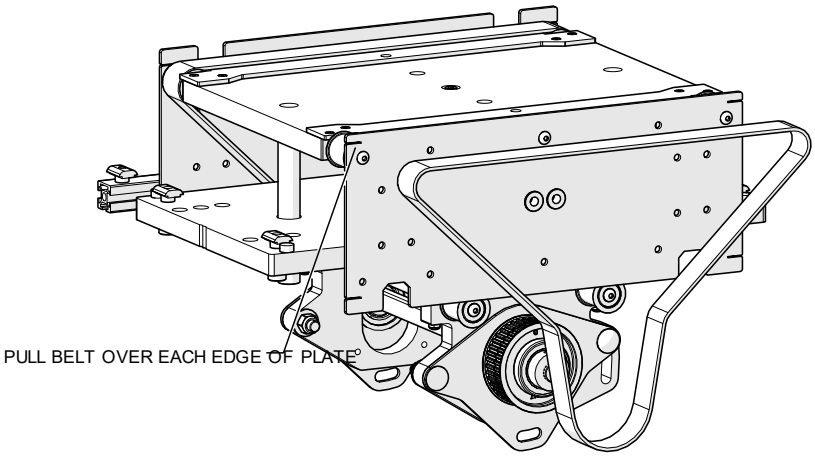


*Figure 31: Removing Belt*

To install the new belt, follow the same steps in reverse order.

### 4.3.3 Replacing

First, loosen M8 HHCS and Hex Nut as shown below.

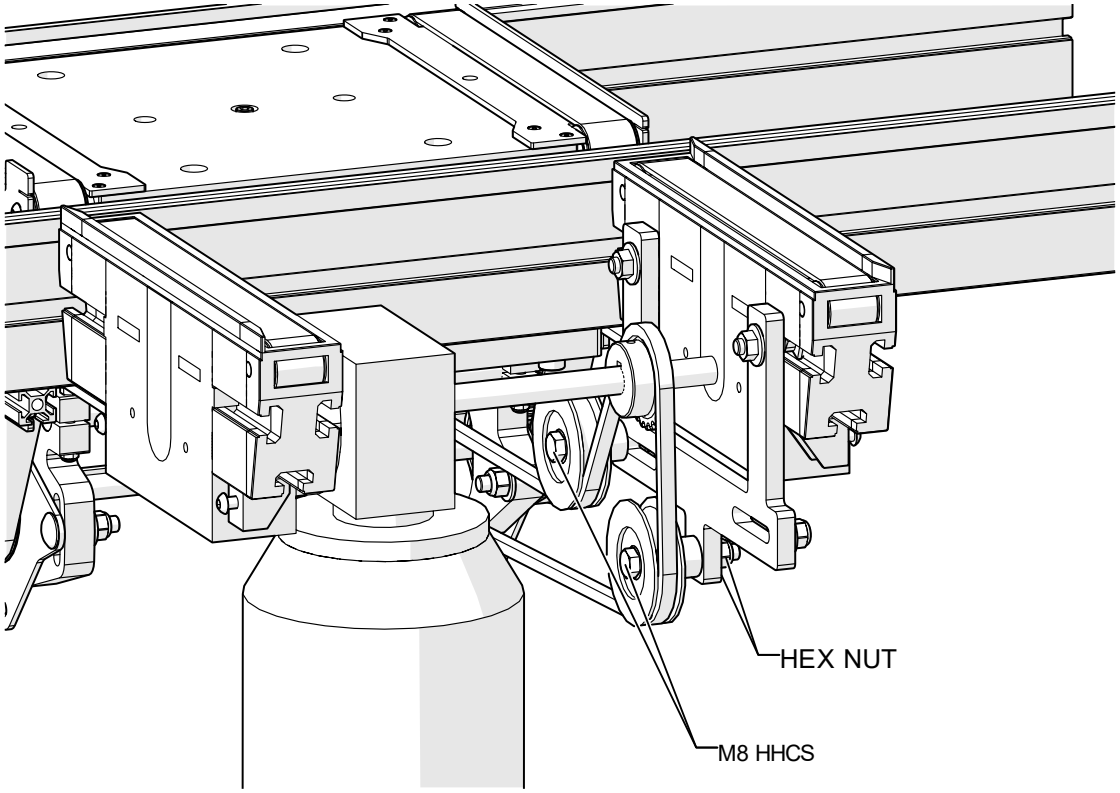


*Figure 32: Loosen M8 HHCS*

Next, remove the M8 HHCS and Hex nut. Note the washer that goes with the hex nut and HHCS that slides through the slot.

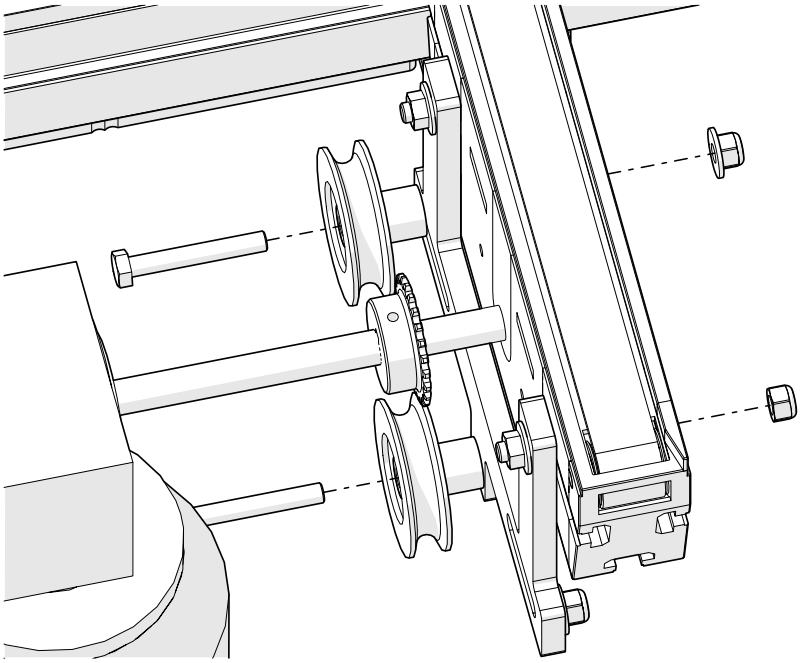

*Figure 33: Removing M8 HHCS*

Remove P-00174 Idlers. Install new ones by following the instructions in reverse order.

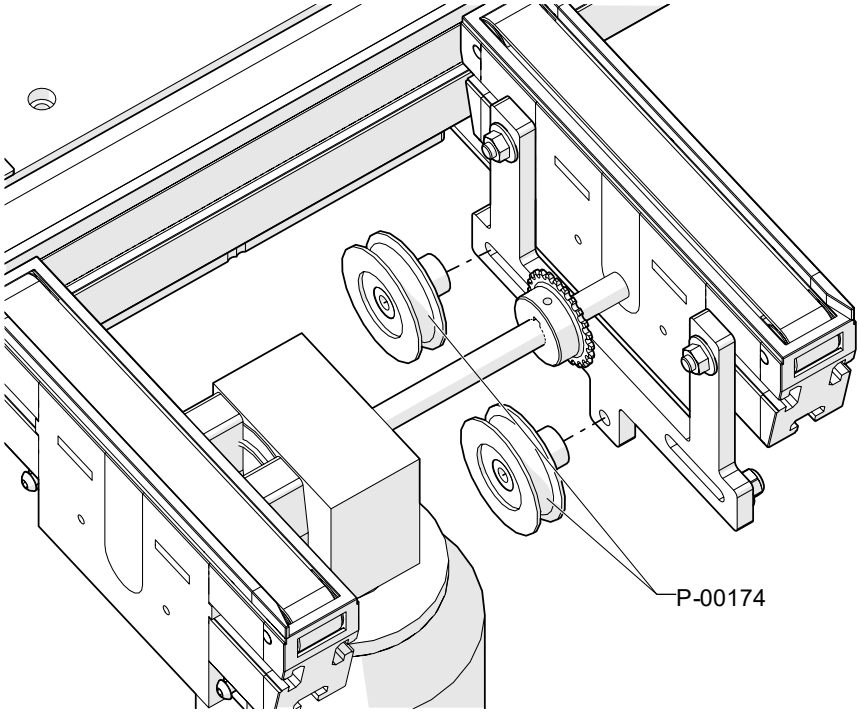


*Figure 34: Removing Pulleys*

# 5. Troubleshooting

This section will answer common questions/issues that customers may face during installation/maintenance of conveyors/devices. For more technical/specific questions, please contact Glide-Line™ at 215-721-1900.

Issue: The belts are slipping on the pulleys.
Solution: Make sure that they are properly tensioned. The belts should not have much slack (longer belts will naturally have more slack than very short belts).

Issue: LTU lift plate actuates up and down too fast/abruptly.
Solution: It is recommended that meter out flow control valves are used on both airports to fine tune the rate at which the LTU lifts and retracts.

Issue: After mounting the LTU, the device seems to have come loose on the extrusion.
Solution: Check to make sure that the P-00223 were installed properly. If they were skewed during installation, it is possible they were not fully seated in the T-Slot, causing them to come loose.

Issue: LTU not stroking high/low enough to clear GL extrusion for transfer.
Solution: The stop urethane collars are not in proper position. For a 2 position and 3 position LTU, top position should measure 66.5mm from bottom side of top plate to top of the bottom plate when full stroked in the up position.

# 6. How to Order Spare Parts

Spare parts may be purchased directly from Glide-Line™.

For a full list of spares for your specific LTU, please reference the serial number located on the outside face of the side stop plate and contact a Glide-Line™ representative at 215-721-1900.

The next section covers spare parts for standard configurations of the LTU, which can be ordered directly from Glide-Line™.

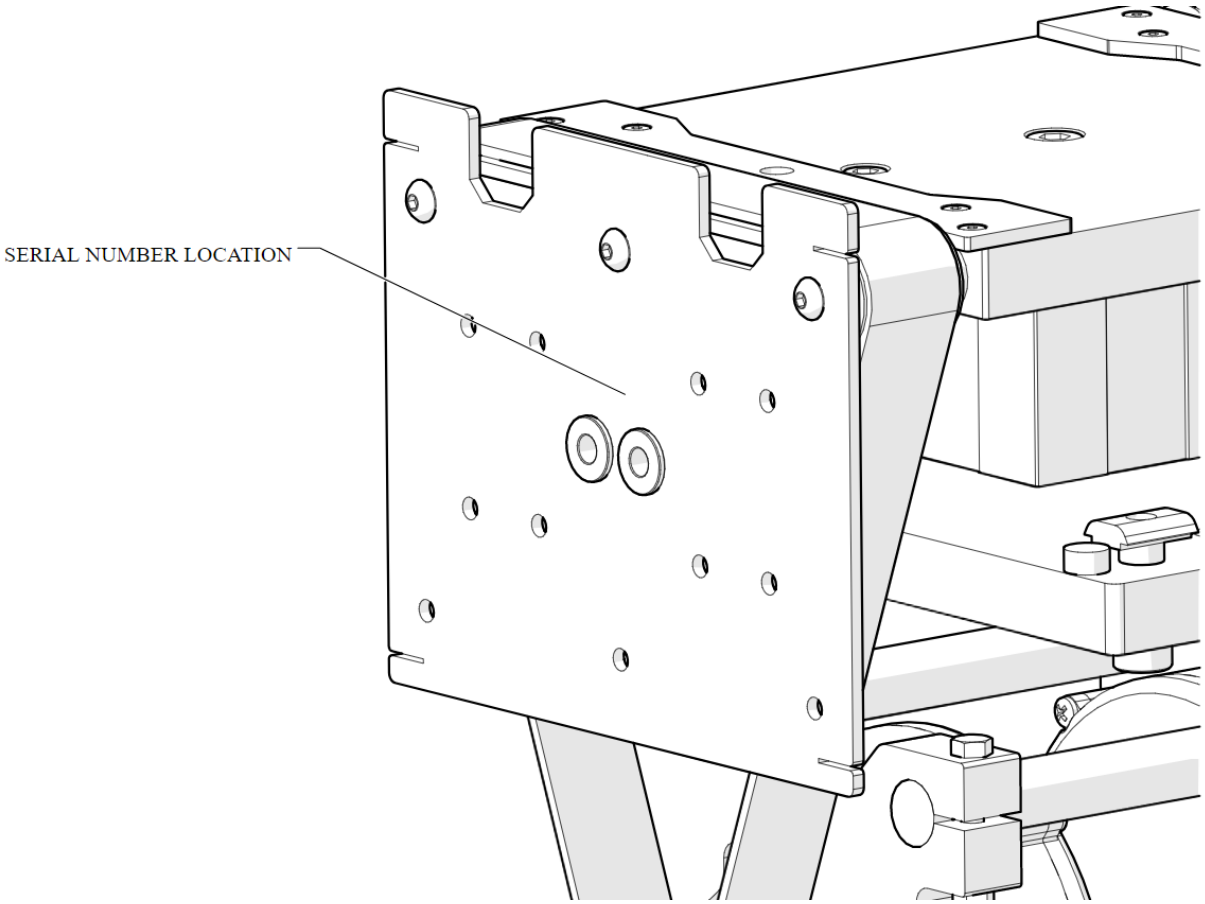


*Figure 35: Serial Number Location*

# 7. Returns

Under no circumstances will a component be accepted without a Glide-Line™ RMA number.

When requesting a Return Materials Authorization (RMA), please have the following information available:

- Customer's name and address
- Customer original purchase order number
- Glide-Line's™ project number or serial number
- Description of part(s) being returned
- Reason for return

To preserve the return, all returned parts must be properly packaged to prevent shipping damage. The Glide-Line™ issued RMA number must be clearly marked and visible on the exterior packaging. The Glide-Line™ issued RMA form must also be included inside the package.

Includes:

- Location, type of service and length of time in service
- Complete description of the faulty operation of the component and the circumstances of failure.
- State requested service – warranty or non-warranty
- Complete shipping instructions for return of component
- Name and telephone number of person to be contacted if there are any questions about the returned part.

If a part is damaged or lost during transit, the customer is responsible for directing a claim to the carrier. The customer is responsible for return freight.

Upon receipt of the defective component(s), Glide-Line™ will examine it for warranty defects. A credit will be issued for the replacement when and if the component is found to be defective.

Following the above procedure correctly will expedite handling of the returned component and will prevent unnecessary additional charges for inspection and testing to determine the problem with the component. For all orders and service, a written Purchase Order for repairs must be enclosed.