Glide-Line™
255 Schoolhouse Road
Souderton, Pennsylvania 18964

Phone: 215-721-1900
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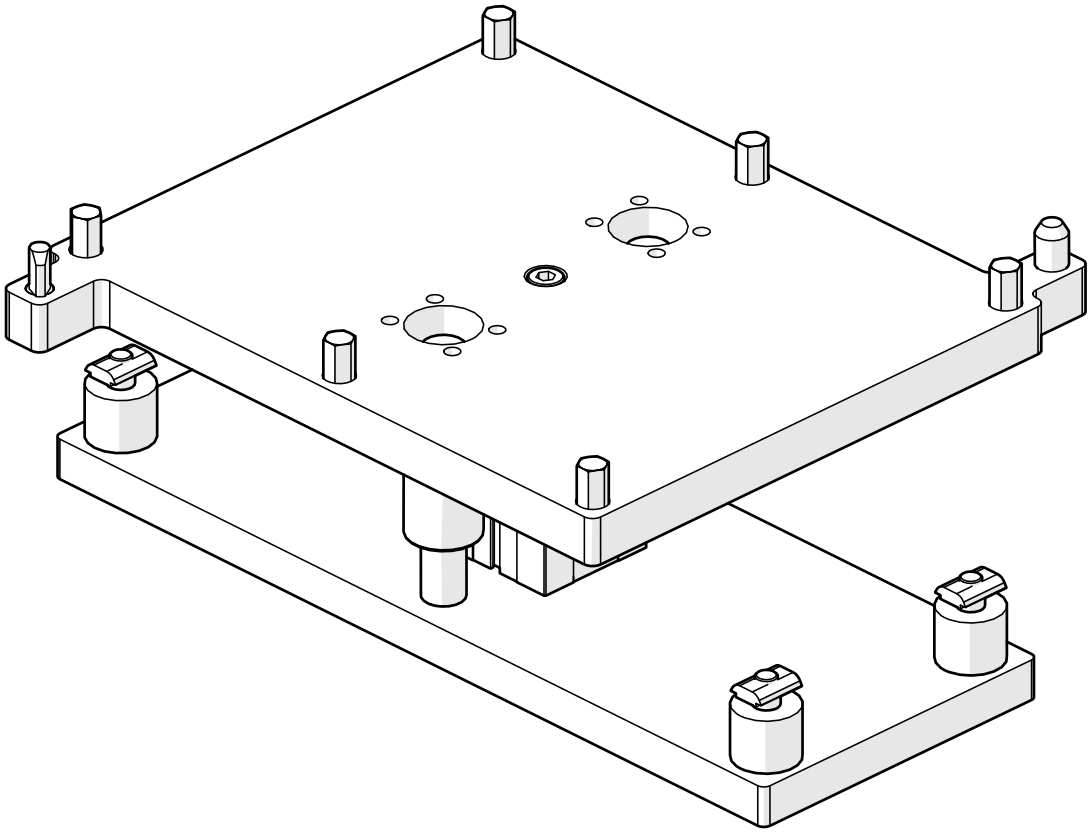
www.glide-line.com

V2.0

Glide-Line™ LLLU

Installation and Maintenance Manual

Easy. Flexible. Precise. Fast.



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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

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1. Introduction

1.1. Description and Technical Specifications

Glide-Line™ Low-Profile Lift and Locate Units (LLLU) are designed to suit multiple conveyance application demands. All LLLUs are designed to bolt to the bottom T-Slot of Glide-Line™ Conveyor Beam.

Part Number: LLLU-(A)-(B)-(C)

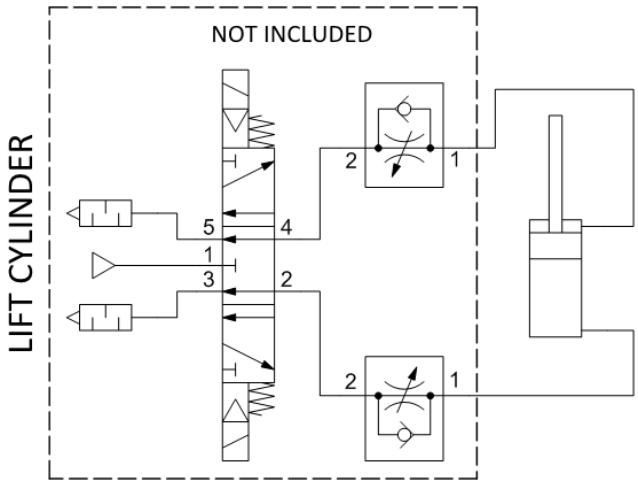
A = Pallet Width Range 160mm to 400mm
B = Pallet Length Range 160mm to 400mm
C = S-standard precision pins or P-high precision pins

Technical Specifications

Lift range:	Fixed 1.5mm above belt
Lift height fine adjustment range:	+/- 10mm
Lift cylinder bore:	40mm
Lift capacity:	150 Lbs. @ 80 psi.
Pallet length range:	160mm to 400mm in 1mm increments*
Pallet width range:	160mm to 400mm in 1mm increments*
Pneumatic Ports:	G1/8

*Glide-Line prides our self on being flexible. Please do not hesitate to contact us for customized solutions outside of the listed size range. For large applications, make sure to see our LPK devices.

Recommended Pneumatic Schematic:
**Fittings and Valves not included
Ports: G1/8



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 done 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 lift components, bushings, or locating pins.

It is important to install conveyors and devices level and straight to achieve the listed performance. A

	Personnel working on or around this equipment must be properly trained in operation, maintenance, and lock-out/tag-out procedures.

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 as shown in Figure 1:

- LLLU
- Mounting Hardware

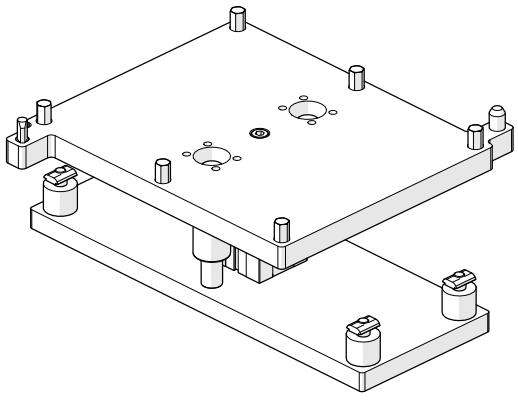


Figure 1: LLLU With Mounting Hardware

1.6. Basic Order of Operations

1. Pallet is conveyed to device
2. Pallet is stopped directly over device by stop (not included)
3. Lift actuates and rises, with the top plate pins engaging the Pallet's locating bushings
4. Lift runs to end of stroke
5. Operations completed to work piece
6. Lift deactivates and lowers, disengaging from pallet
7. Pallet Stop drops
8. Pallet is conveyed out of work area

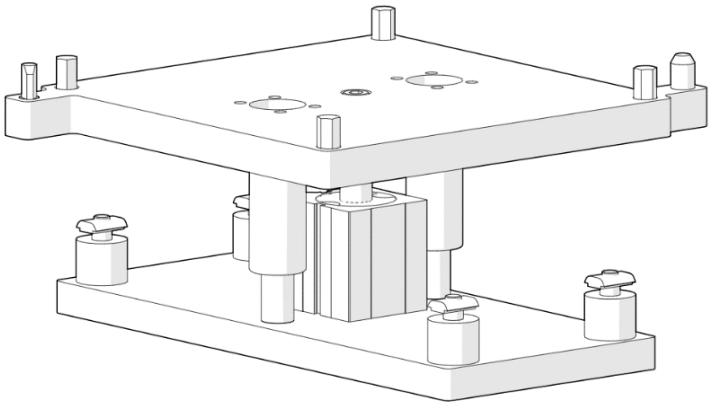


Figure 2: Low-Profile Lift and Locate

2. Installation

2.1. Tools Required for Installation

List of recommended and/or required tools for installation.

- Metric Allen Key Size
  - 6

2.2. Installing Device

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

Step 1: Loosen all four P-00223 and M8 SHCS as shown in Figures 2 and 3.

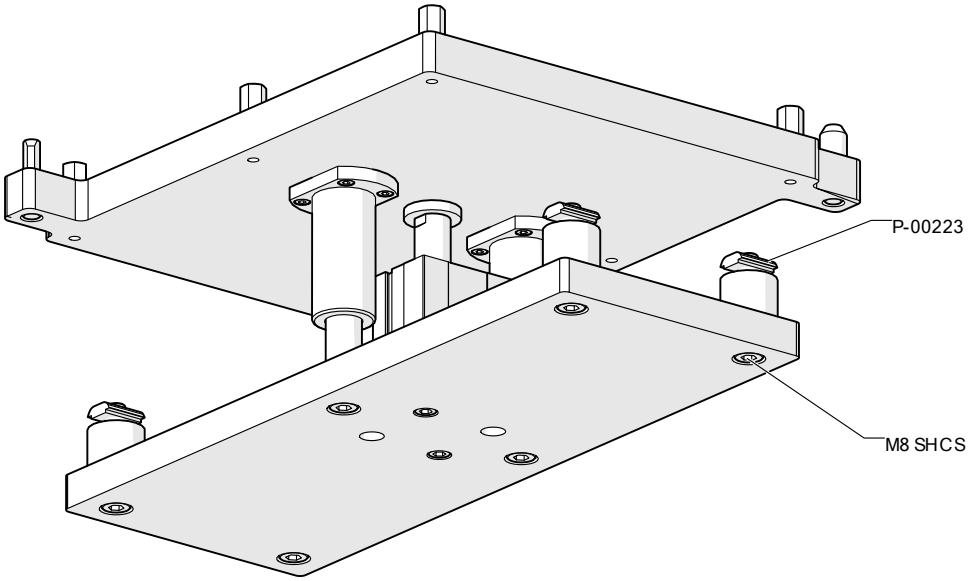


Figure 3: Loosening P-00223 and M8 SHCS

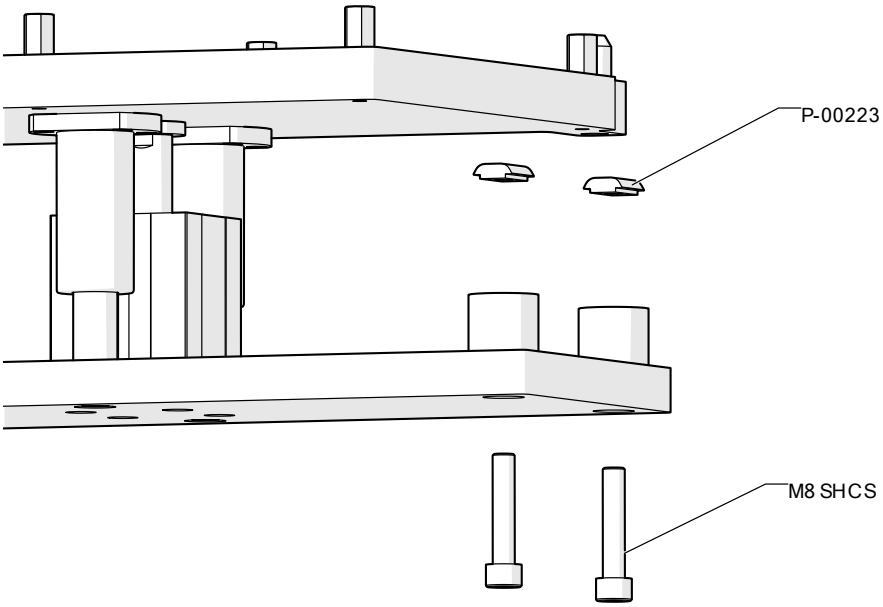


Figure 4: Removing Mounting Hardware

Step 2: Insert P-00223 into T-Slot on base of extrusion as shown in Figure 4.

When inserting P-00223 into the T-Slot, angle P-00223 to enable it to fit through the T-Slot opening. Once pushed up into the slot, you may align P-00223 as shown below in Figure 4.

Note: Extrusion shown as a cross-section view for clarity.

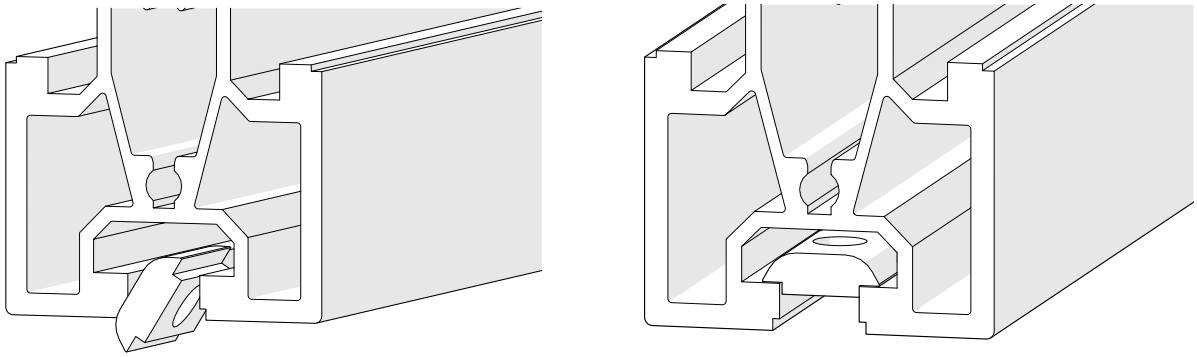


Figure 5: Inserting P-00223 Into Extrusion

Step 3: Align LLLU into position, lining up P-00223 with the spacers and mounting holes in the mounting plate as shown in Figure 5.

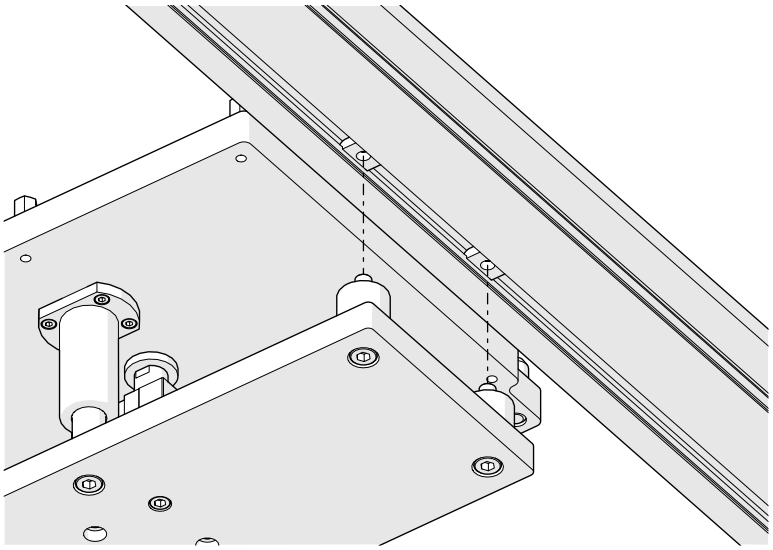


Figure 6: Mounting LLLU Onto Conveyor

Step 4: Insert M8 SHCS and begin to tighten (do not completely tighten yet) as shown in Figure 6.

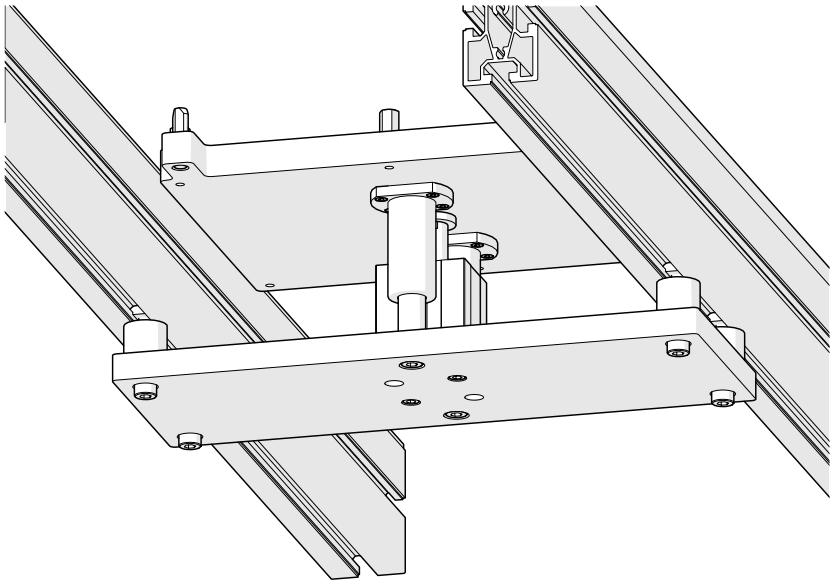


Figure 7: Lining Up M8 SHCS

Step 5: Make sure that P-00223 are aligned properly in the extrusion as shown in Figure 7.

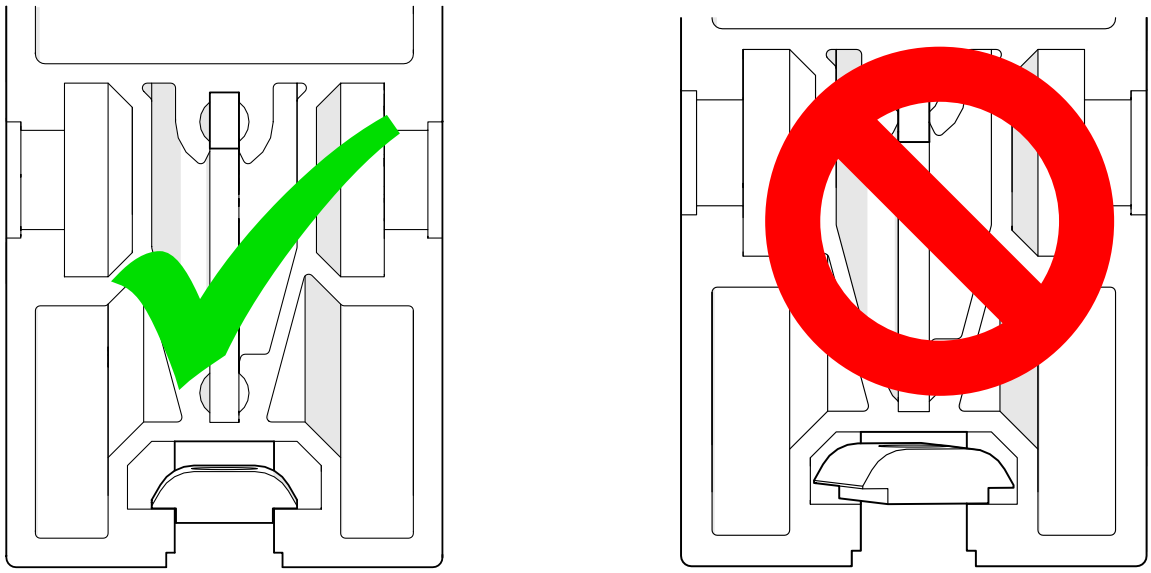


Figure 8: Correct and Incorrect Installation of P-00223

Step 6: After confirming that P-00223 are aligned properly, firmly tighten the M8 SHCS, making sure the LLLU is square with the conveyor strands as shown in Figure 8.

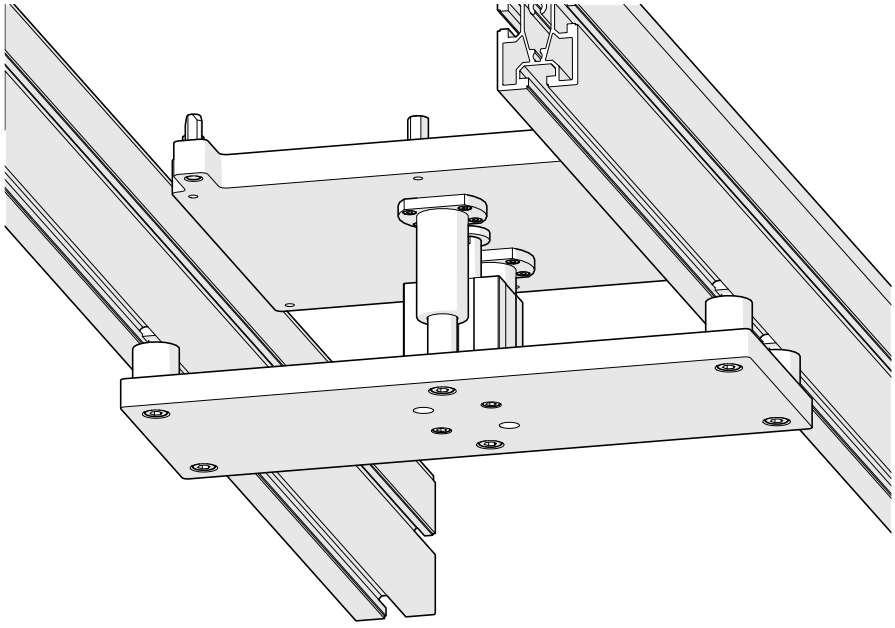


Figure 9: Tightening M8 SHCS

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 LLLU, including disassembly/reassembly for part replacement, and ensuring proper functionality of the device.

4.1. Tools Required for Maintenance

List of tools needed to replace and maintain wear items.

- Metric Allen Keys
  - 5, 6
- Wrench
  - 10mm torque wrench
    - P-00159 Rest Button torque setting = 28 in-lb
- Blue Loctite

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.

4.2. Loctite

Loctite should be used on the M6 SHCS (shown in Figure 12) securing the air cylinder to the mounting plate anytime they have been removed and reinstalled.

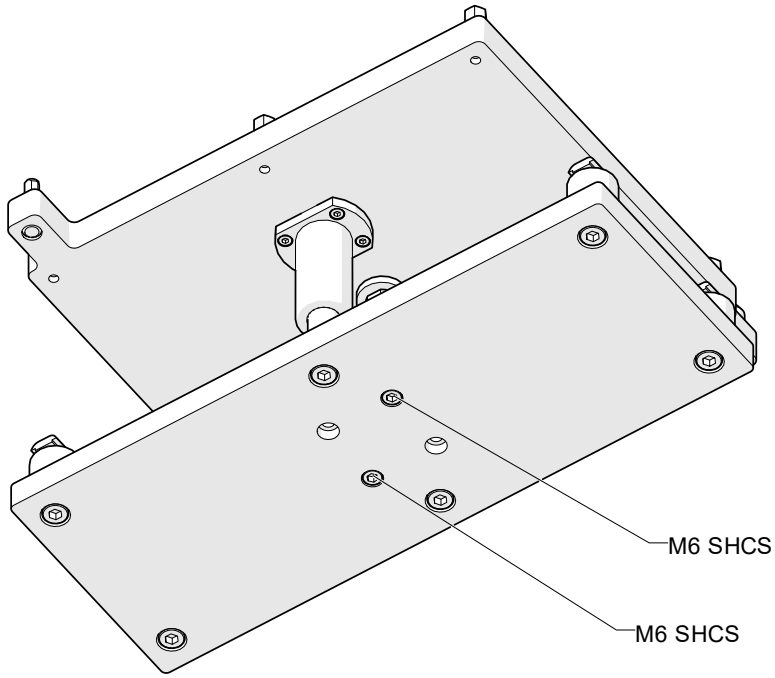


Figure 10: Tightening and Applying Loctite to M6 SHCS

4.3. Replacing Components

This section will go over replacing P-00159 and P-00265 Air Cylinder.

- Use #6 Allen key for M8
- Use #5 Allen key for M6

Step 1: Remove Top M8 SHCS shown in Figure 13.

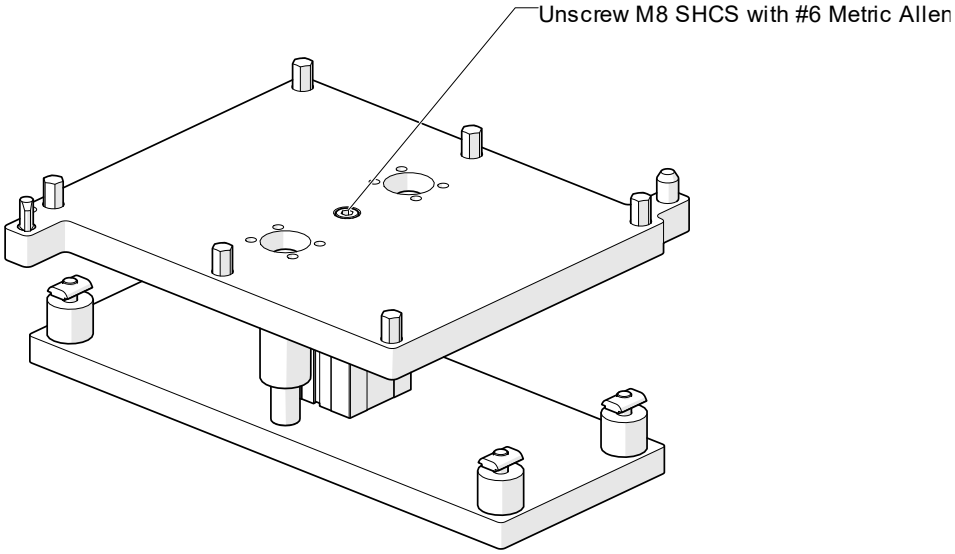


Figure 11: Removing Top M8 SHCS

Step 2: Remove M8 SHCS, Top Plate, and P-00614 Washer (Figures 14 & 15)

Once the M8 SHCS is removed, you may pull up on the top plate. This will allow access to the air cylinder. Be careful not to lose the P-00614 washer that goes between the top plate and the air cylinder rod.

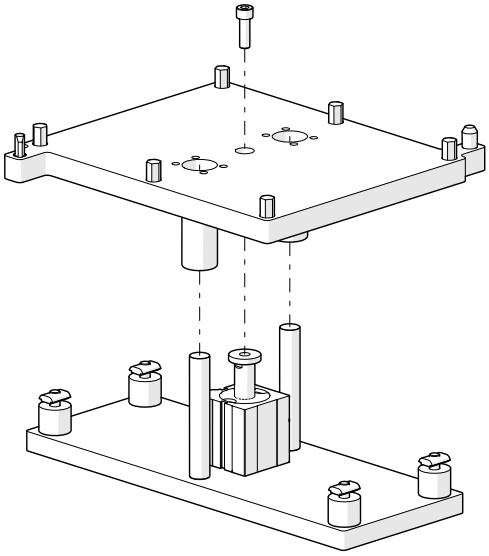


Figure 12: Removing Top Plate Assembly

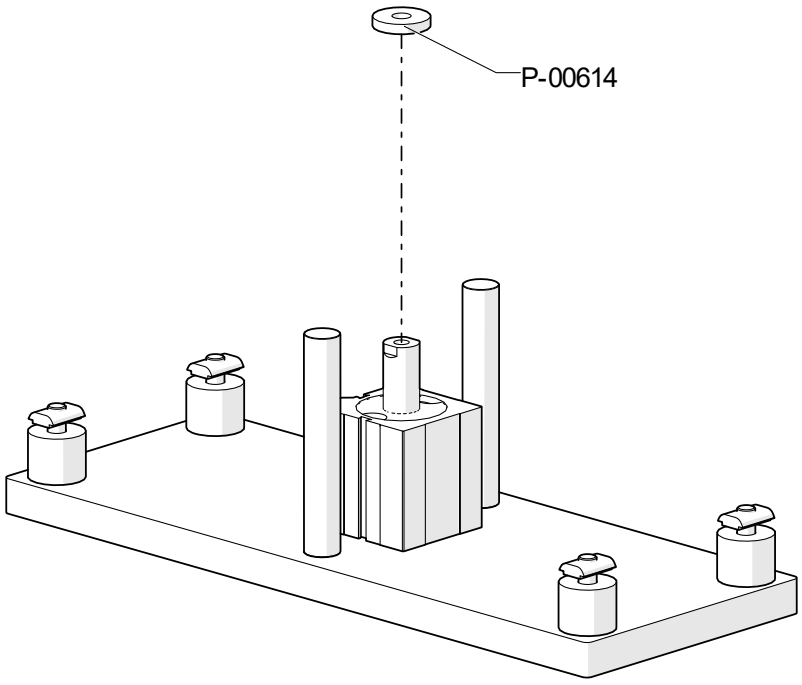


Figure 13: Removing Air Cylinder P-00614 Washer

Step 3: Remove Bottom M6 SHCS (Figures 16 & 17)

Next, remove the M6 SHCS securing the air cylinder to the mounting plate from underneath. Once these are removed, you will be able to remove the air cylinder.

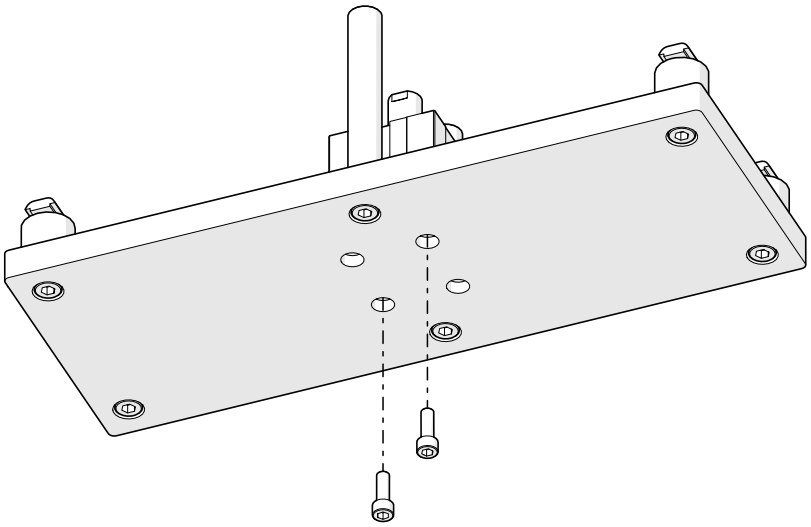


Figure 14: Removing M6 SHCS

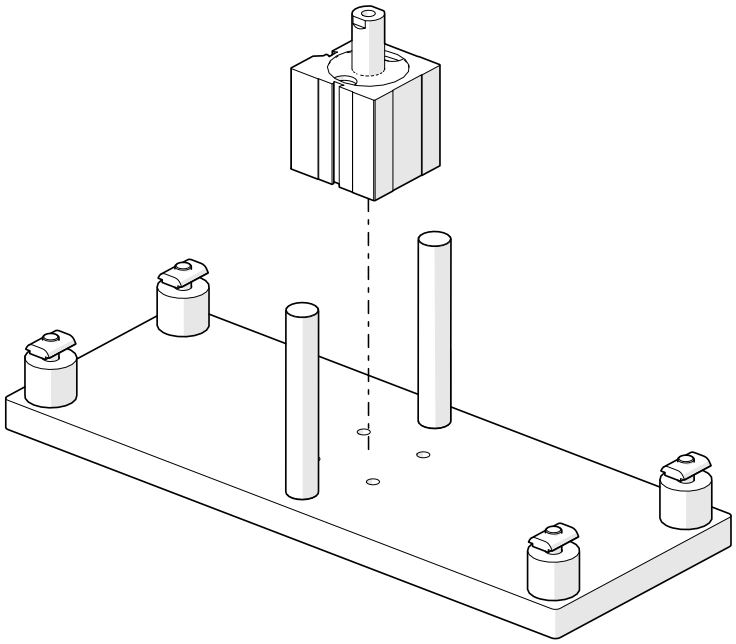


Figure 15: Removing Air Cylinder

Step 4: Replacing P-00265 Air Cylinder (Figure 18)

Align the base of the air cylinder with the respective counterbored holes in the mounting plate. Tighten the M6 SHCS, making sure to use Loctite to prevent them from backing out.

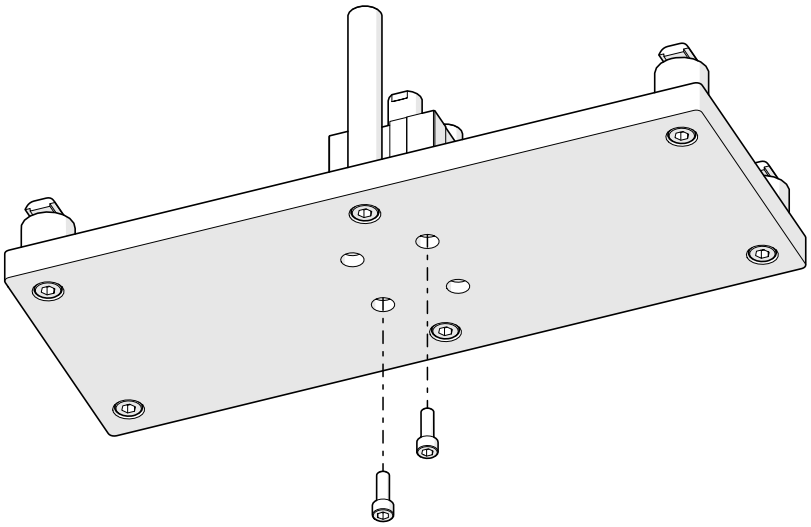


Figure 16: Reinstalling M6 SHCS

Step 5: Align P-00614 Washer (Figure 19)

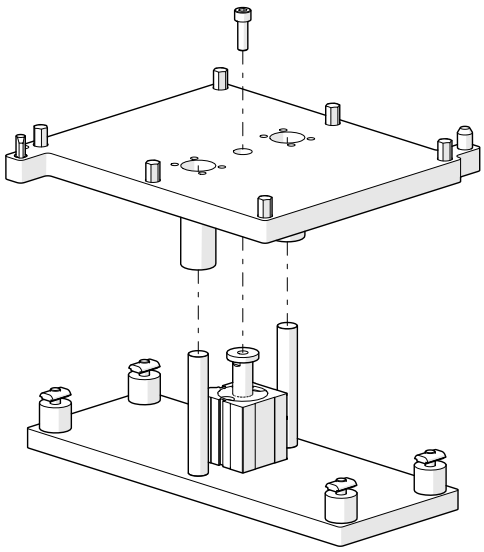


Figure 17: Reinstalling Air Cylinder Washer

Step 6: Reinstall Top Plate Assembly and Secure with M8 SHCS as shown in Figure 20

Check to make sure the lift plate moves up and down without any binding or interference.

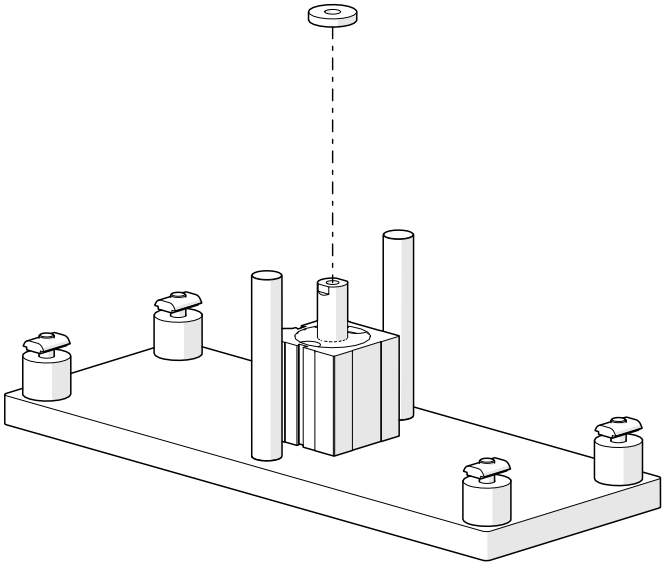


Figure 18: Reinstalling LLLU Top Plate Assembly and M8 SHCS

5. Troubleshooting

This section lists some common issues/solutions that you may come across while operating the LLLU. For more technical/specific questions, please contact Glide-Line™ at 215-721-1900.

Issue: After mounting the LLLU, 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: LLLU lift plate interferes with conveyor strands when actuating up and down.
Solution: Check to make sure the device is square with the conveyor. If the LLLU is skewed, it will potentially interfere with the conveyor strands. Additionally, check to ensure the conveyor is square and level. If the conveyor is not installed correctly, the LLLU will not mount properly to the conveyor.

Issue: LLLU 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 LLLU lifts and retracts.

6. How to Order Spare Parts

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

For a full list of spares for your specific LLLU, please reference the serial number located in the center of the mounting plate as shown below and contact a Glide-Line™ representative at 215-721-1900.

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

Figure 9 shows the location of the serial number.

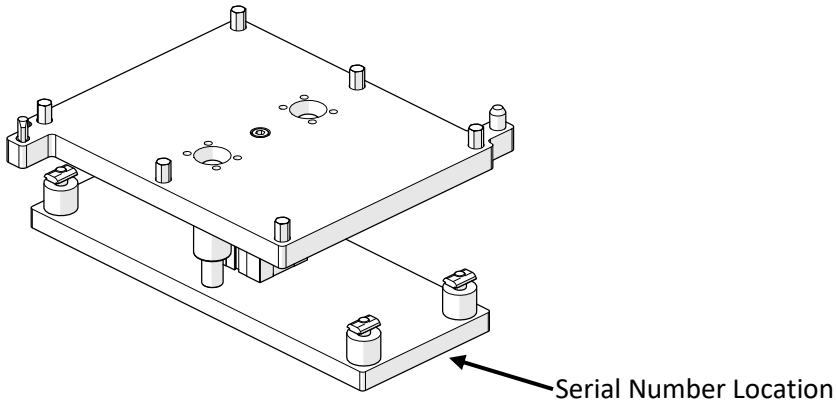


Figure 19: Serial Number Location

6.1 Spare Parts for LLLU

P-00159 Rest Buttons, P-00423 Round Pin, P-00424 Diamond Pin (Figure 10)

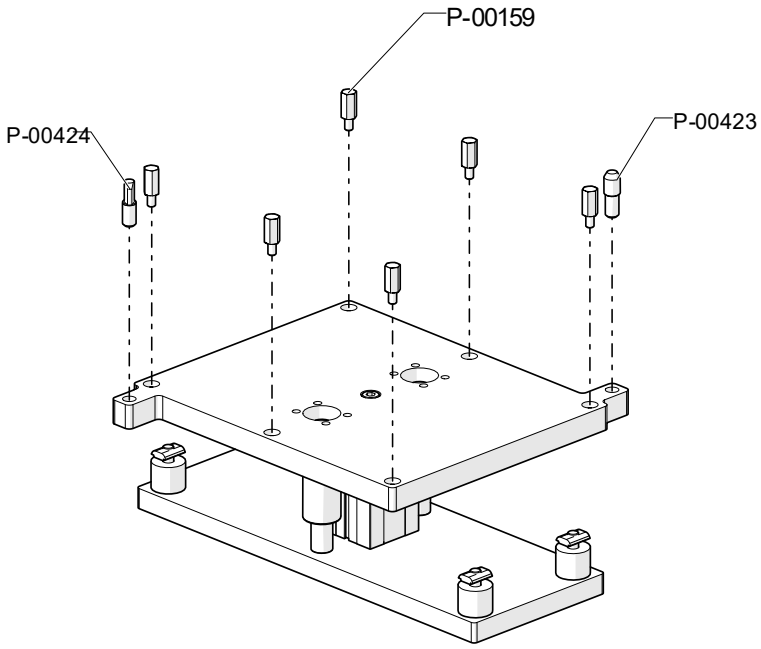


Figure 20: Rest Buttons, Diamond and Round Pins

P-00265 Air Cylinder (Figure 11)

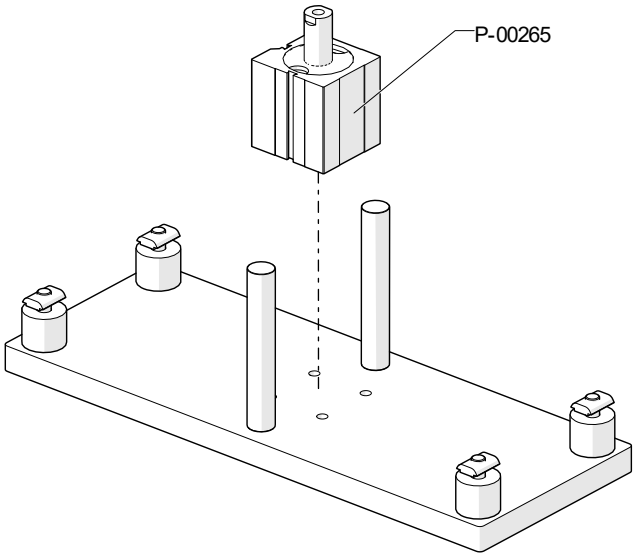


Figure 21: Lift Cylinder

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.