

Magnus VLF Autoloader

Picker-Fetcher-SSR Integration Alignment

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Creo Inc.
3700 Gilmore Way
Burnaby, BC
Canada V5G 4M1
(604) 451-2700

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Revision History

Revision	Date	Author	Comments
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1. SCOPE

This document describes how to align the Picker, Fetcher, and SSR to interact correctly on all Magnus VLF Autoloaders.

Note: Adequate air supply must be available to complete this alignment.

The correct alignment sequence for these mechanisms is:

1. Setting the fetcher running rollers.
2. Setting the height of the fetcher above the plenum.
3. Setting the clearance between the SSR wings and the fetcher.
4. Setting the clearance between the wedgemaster and the load table.
5. Setting the picker relative to the fetcher.

2. TOOLS

- Digital level
- Metric rulers (metal, one 15 cm with slide stops, one 30 cm)
- Hex keys
- 6 mm and 11 mm open-end wrenches
- Go/no go block (17 mm and 22 mm)

3. SETTING THE FETCHER RUNNING ROLLERS

The three rollers at the rear of the fetcher must be adjusted in their slots so that fetcher can move above the load table and above the SSR wings without any interference. They have to make ride over the panels smooth. To do this:

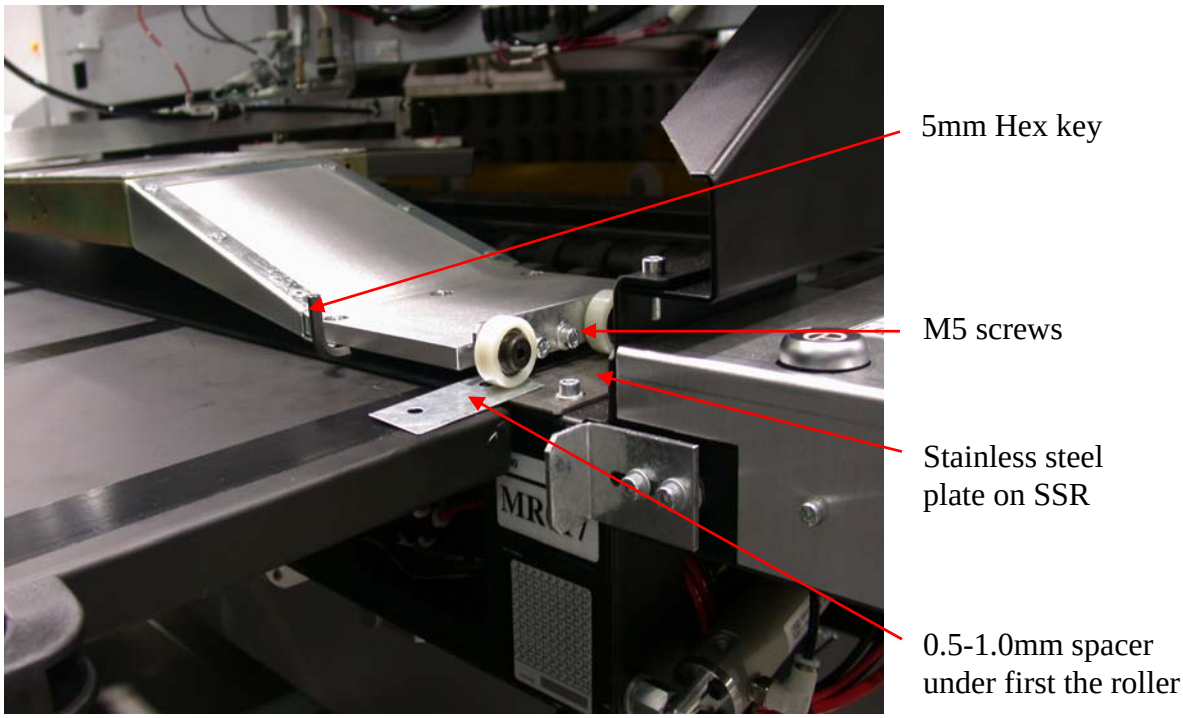


Figure 1: Aligning the fetcher running rollers

1. Bring the fetcher over the SSR such so all three rollers will be on the stainless steel plate on SSR.
2. Put 5mm spacer (5mm Hex key) under the carrying plate as shown
3. Loosen the four M5 screws at the roller plate and push the rollers all the way down to the contact with the stainless steel plate.
4. Space up the farthest from MCU roller with 0.5-1mm spacer.
5. Tighten all four screws.
6. Adjust hinges of the SSR access panel to make rollers running smoothly over the transition. Top of the access panel should be at the same elevation as the stainless steel plate on SSR.

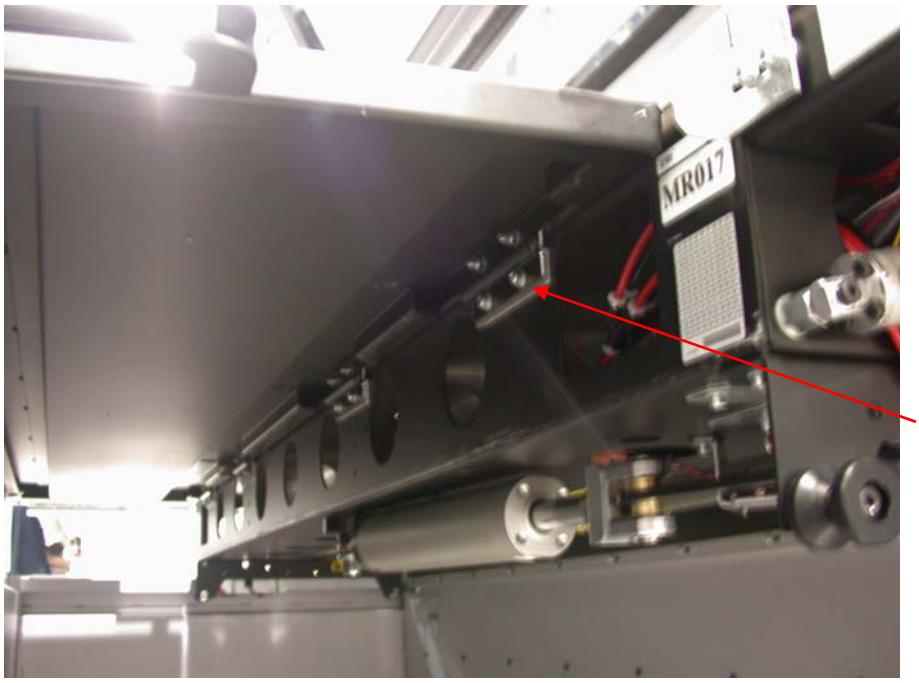


Figure 2: Aligning the access panel to the SSR

It is acceptable if only one roller (closest to the MCU) runs on the SSR access panel because the panel is inclined.



Figure 3: Fetcher running rollers on the SSR access panel

4. SETTING THE HEIGHT OF THE FETCHER ABOVE THE PLENUM

The distance from the lowest surface of the Concord nose (CN) of the fetcher to the top surface of the plenum should be between 17 mm and 22 mm.

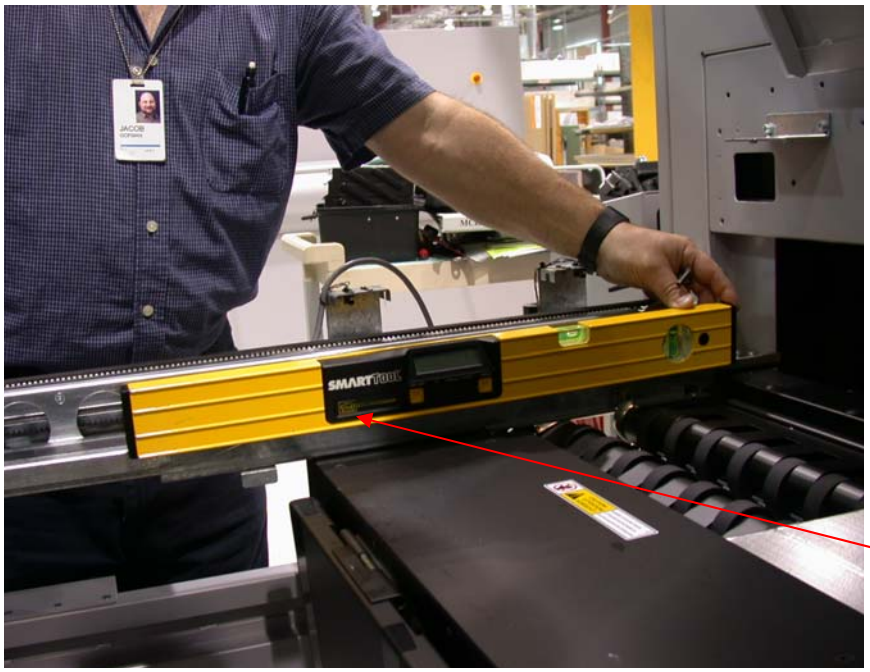


Figure 4: Fetcher CN roller guide level

1. Make sure that fetcher Concord nose roller guide is leveled. Use shims or spacing washers to level it if it is not.
2. Put the fetcher Go/no go block on the plenum right against the bottom corner of the Concord nose (fetcher moving part) as shown.

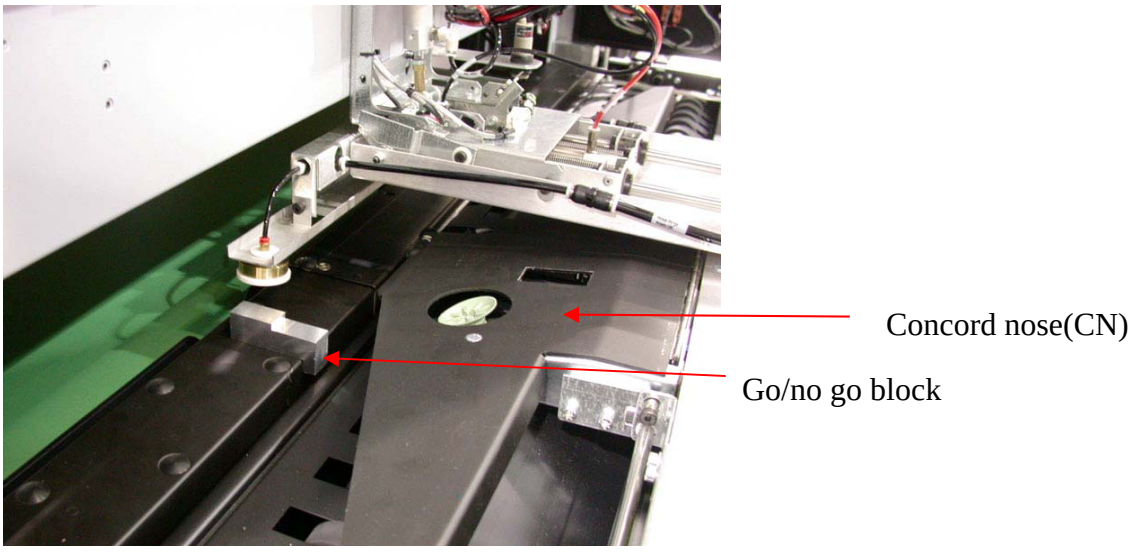


Figure 5: Go/no go block on the Plenum

3. Place the bottom of the Concord nose on the top of the 22 mm part of the go/no go block.

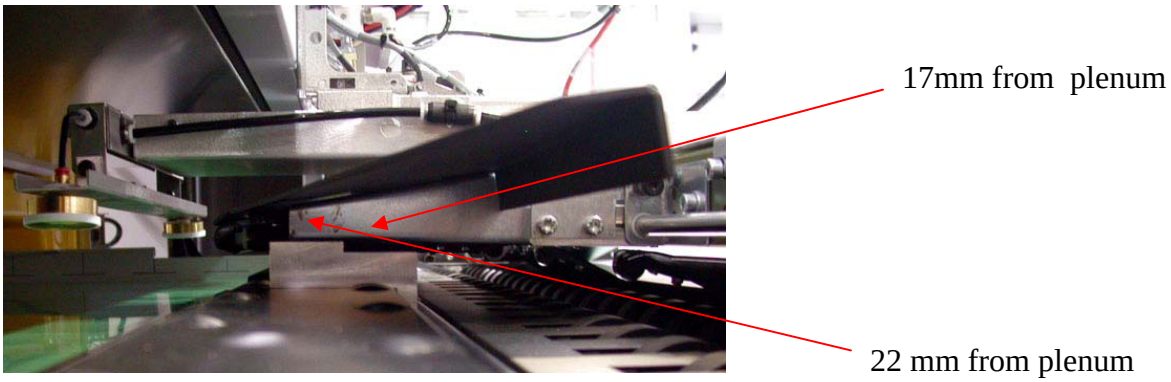


Figure 6: Concord nose on the go/no go block

Note: Use any 22 mm high item if you do not have the go/no go alignment block.

4. Adjust the Concord nose guide roller. Hold the roller down in contact with the guide and tighten the M5 screw.

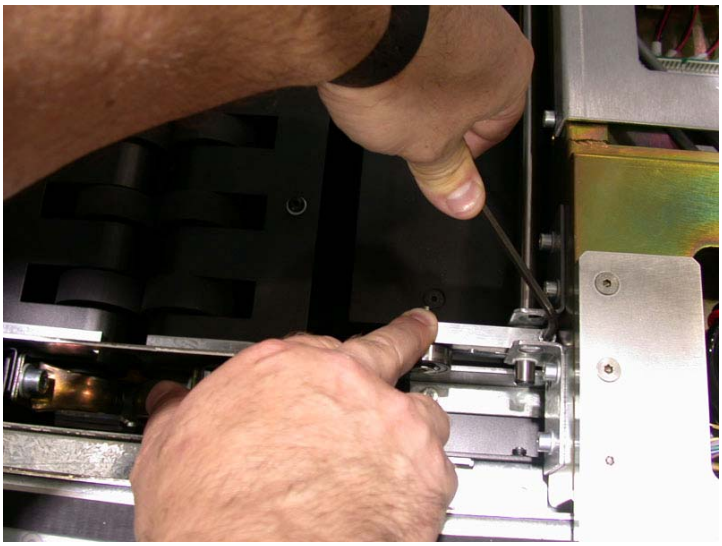


Figure 7: Adjusting the guide roller

5. Move the fetcher slightly away from the MCU until the bottom surface of the Concorde nose is off the block (the Concorde nose will drop down). Move the fetcher towards the MCU and check that the bottom of the Concorde nose passes above the lower (17 mm) surface of the block but runs into the higher (22 mm) part of it.

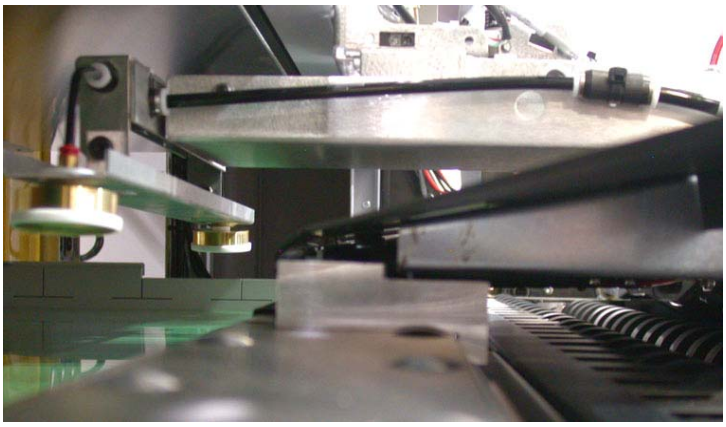


Figure 2: Concord nose runs into 22 mm part of alignment block

but is above 17mm part

Note: Use any 17 mm high item if you do not have the go/no go alignment block.

5. SETTING THE CLEARANCE BETWEEN SSR WINGS AND THE FETCHER

With the SSR rollers closed, check that the small plastic wheels on both wings contact the rubber driving roller with equal force. To check that:

1. Simultaneously pull both plastic wheels about 3-5 mm up. The preload spring forces of the wings will pull them back—these forces should be equal (just by feeling) and the wheels should touch the rubber roller when you let them go. If the force on one side feels stronger than the other, pull the strongest side slightly up to unbend the wing and re-check the forces.

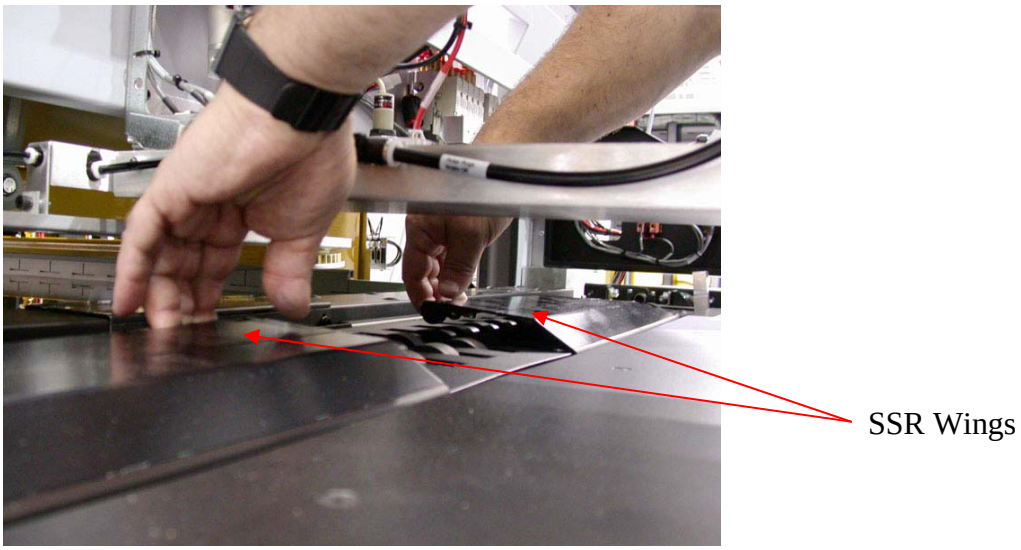


Figure 3: SSR wings preload force adjustment

2. Open the SSR rollers, idle the fetcher, and move the fetcher above the SSR rollers. Open the access panel. Using a flashlight, check the clearance between the SSR wings and the bottom part of the fetcher. If any interference exists then close the access panel, move the fetcher to

the device side, and push the wings slightly down. Move the fetcher back and re-check the interference again. A clearance of 1-3 mm is acceptable.

3. Check the SSR wings preload again after the SSR to fetcher clearance alignment. Adjust if necessary.

6. SETTING THE CLEARANCE BETWEEN THE WEDGEMASTER AND THE LOAD TABLE

The correct position of the fetcher Concord nose is needed for reliable handoff of the plate from the fetcher to the load table vacuum cups. This is measured as the clearance between the lowest point of the wedgemaster and the load table surface (can be measured above MAB-to-skin panels) and should be between 6 mm and 14 mm.

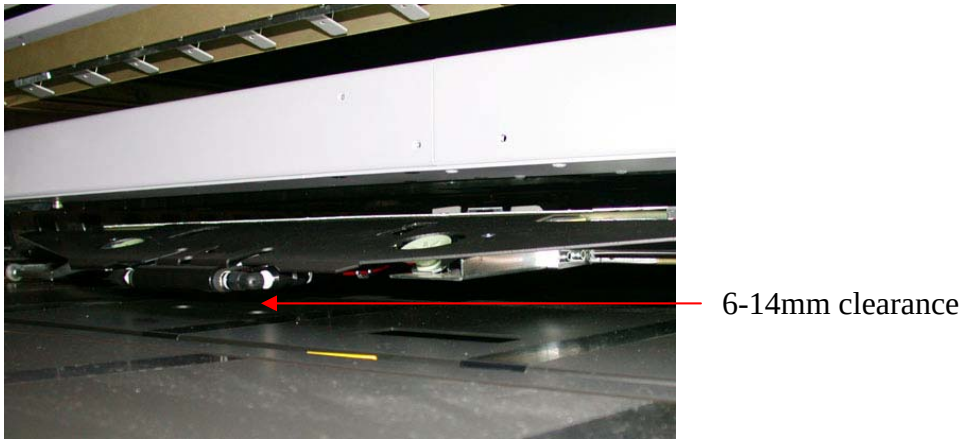


Figure 4: Wedgemaster to load table clearance

The clearance between the wedgemaster and the load table is set at the factory. If however the gap is too small or too big, it is possible to make minor adjustments in the field.

1. Loosen the two M5 screws and push the bracket back or forward within the clearance between the screws and the holes. The clearance between mounting holes size and the screws is usually enough to adjust the WM/table clearance.

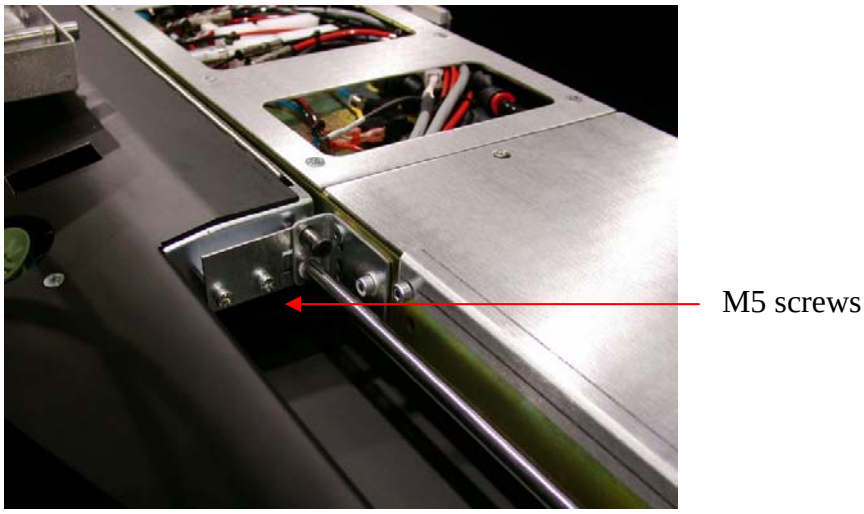


Figure 5: Wedgemaster clearance adjustment

Note: Very little movement of the bracket will significantly change the height of the wedgemaster above the load table.

2. Tighten the M5 screws and re-check the clearance. Repeat steps 1 and 2 if necessary.

7. SETTING THE PICKER RELATIVE TO THE FETCHER

The gap between the bottom of the picker slider and the upper surface of the fetcher should be between 2 mm and 5 mm when the picker is in the retracted position without a plate.

1. In case if the picker slider sits too low and touches the fetcher top, unscrew the picker up/down cylinder rod from the rod end by 1-2 threads. It will bring the end of the picker slider with the hook up.

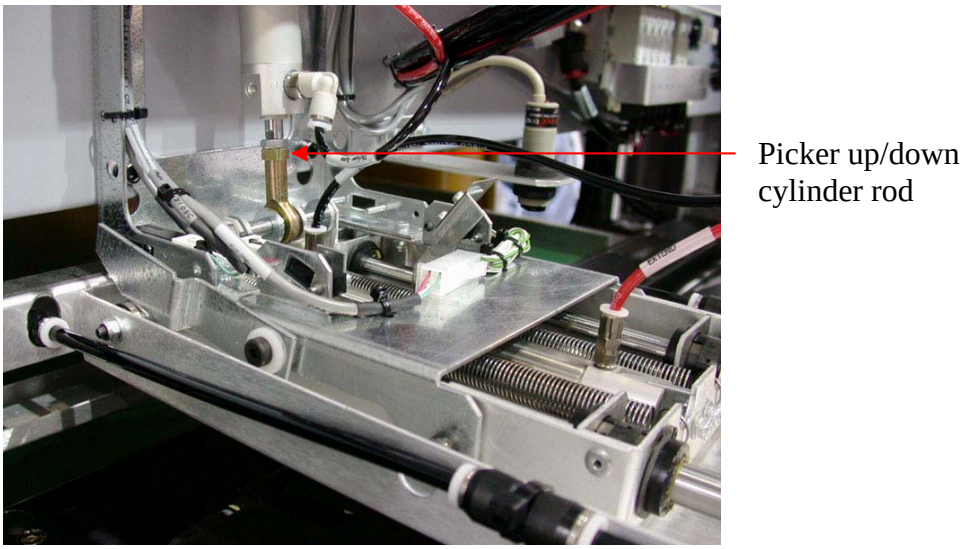


Figure 6: Picker up/down cylinder rod end and nut.

2. The picker hook (tail) should be adjusted vertically and be flush with the bottom of the picker slider. Make sure it is not interferes with the fetcher top cover and gets into the fetcher pusher

plate slot with and without plate on p-caps. Loosen picker hook screws, push the picker slider all way down until the bottom of the picker slider contacts with the fetcher top cover and hook will slide up. This will position hook flush with the bottom of the picker. Tighten the screws back. Bend the hook slightly up(about 1.5mm) with pliers to prevent it from catching the edges of the fetcher cover when it moves.

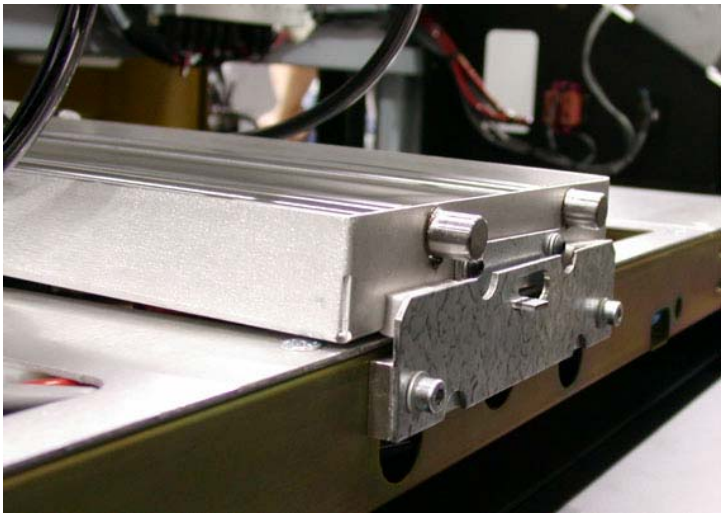


Figure 7: Fetcher pusher plate to picker hook interaction