

Magnus VLF MCU

Picker and Plenum Series 2 Upgrade

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Revision History

Revision	Date	Author	Comments
1	17 Oct, 2005	A.Blignaut/M.Zisman	Initial draft document.
2	18 Oct, 2005	A.Blignaut/R.Dyck	Procedures edited, pictures added.
A	31 Oct, 2005	A.Blignaut/M.Wight	Steps and pictures added.

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1. SCOPE

This upgrade is to improve the picker motion, to increase the up/down picker speed, and to improve the slip sheet detection reliability.

Before performing this upgrade, the reliability upgrade (FCO CA05234) must be implemented on the device.

To ensure that the productivity of the device is increased after this upgrade, the following FCOs should also be implemented:

- CA05253 Remove burrs on the cassette locator rails
- CA05944 Picker pusher replacement
- CA05091 Picker cylinder mount upgrade
- CA06338 Access panel switch bracket upgrade
- CA06184 Access panel upgrade

2. PARTS/TOOLS

2.1 Parts

518-01334A, Kit Upgrade,Series2 MCU, Picker and Plenum

- Cable 220-01272A
- Cable 220-00371B
- Cable 220-01332A
- Cable 220-01333A
- Cable 220-01409A – plenum SS sensor2
- SS detector – 500-00497B
- Picker P-cups swivel bar – 500-03261A
- Picker motion sensor grid and bracket
- Picker up/down cylinder orifices (A0.15)
- Picker cylinder stop bracket
- Plate width sensor bracket kit – 518-01453A

2.2 Tools

- Small slot screwdriver
- Slipsheet removal unit lifting jacks

3. UPGRADE PROCEDURE

Before starting the upgrade, move the MCU cart to the cassette 1 picking position.

1. Turn the device power and air supply off.
2. Unplug the plate width sensor.
3. Remove the plate width sensor bracket—this bracket will not be used again.

3.1 Upgrading the MCU LIONEL 1 board

1. Disconnect the cable connectors on the LIONEL board from J1, J5, J7, and from cable extension 220-00450A.

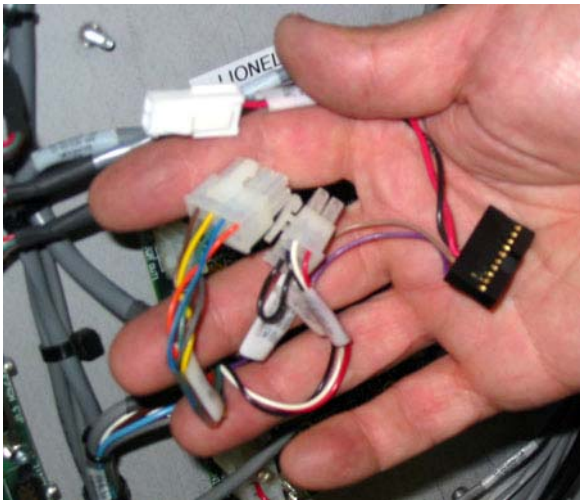


Figure 1: Removing the LIONEL 1 cables

2. Disconnect the LIONEL 1 MCU user interface cable (220-00371A).

Note: Leave the disconnected cable (220-00371A) inside the MCU.

3. Remove both MCU roof panels for better access to route the new LIONEL 1 cable.
4. Connect the replacement cable 220-00371B to the user interface board and secure the plug with two screws using a small slot screwdriver.
5. Route and secure the new cable inside the MCU.
6. Connect the new cable to J1, J5, J7 on the LIONEL board and to the cable extension 220-00450A.

7. Install cable 220-01332A for the picker P-cups. Connect one side of the cable to 220-00371B (12-pin connector). Open the cable guard on the MCU for the cable routing.



Figure 2: Opening the MCU cable guard

8. Leave the cables in the picker area—they will be connected later.

3.2 Upgrading the Picker/Plenum

1. Remove the Slipsheet Removal (SSR) unit drop down panel.
2. For better access to the picker and plenum area, remove the picker and rest it on the SSR bin.
3. Remove the Slipsheet (SS) detector assembly by removing the top two holding screws and unplugging all the cables and hoses.
4. Connect the cables and hoses to the new SS detector and secure them with cable ties.

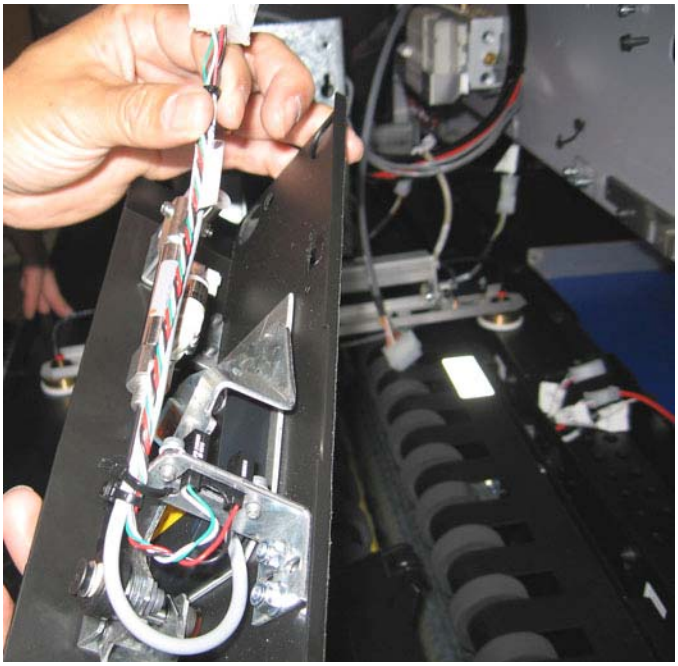


Figure 3: Connecting the new SS detector assembly

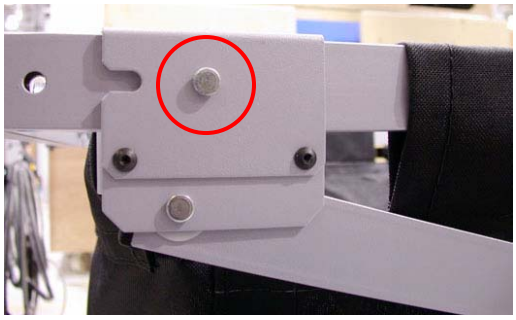
5. Lift the SSR with the bin jacks:

Remove the four bolts securing the SSR bin handle and remove the handle to prevent contact with the front panel.

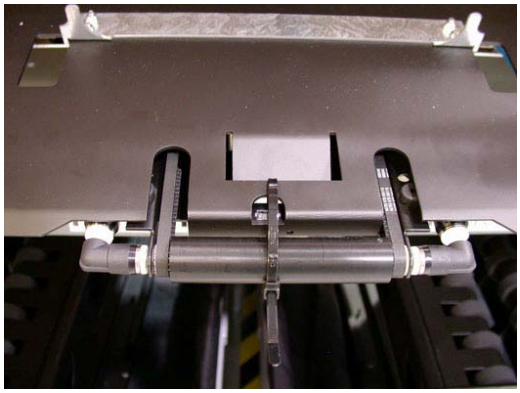


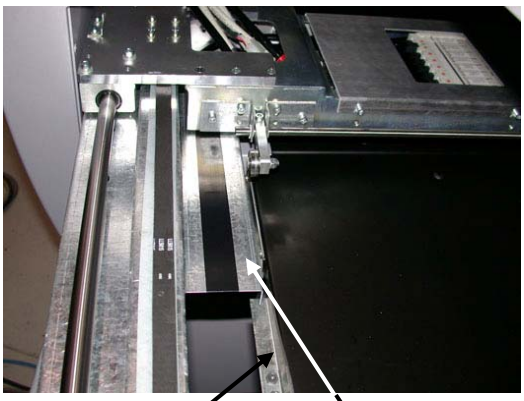
Remove the pins from the slipsheet bin to allow the jacks to raise the bin frame.





Secure the wedgemaster to the fetcher deck with a cable tie to prevent it from dropping down and push the fetcher over the load table. This will allow the fetcher side guide to lift the fetcher flex track support without bending the support as the SSR is lifted.





6. Pull the SSR unit away from the plenum enough to install the SS detector2 cable. Put the SSR back in place after installing the cable.

Note: It is not necessary to lower and remove the SSR unit.

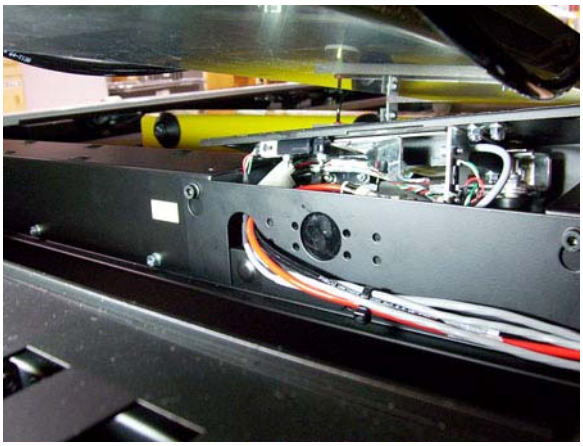


Figure 4: SSR pulled away to install SS detector2 cable

7. Pull the fetcher back over the SSR and remove the cable tie securing the wedgemaster.
8. Install the SS detector assembly.

Note: Ensure that the cables do not get pinched or interfere with the mirror bracket. The mirror must still go in/out freely after installing the SS detector assembly.

9. Replace the picker P-cups swivel bar by removing the pivoting screw in the center of the bar.
10. Replace picker motion sensor grid. The sensor grid should have a clearance of about 1 mm to fit through the sensor fork. Raise and lower the picker to confirm the gap across the range of travel.

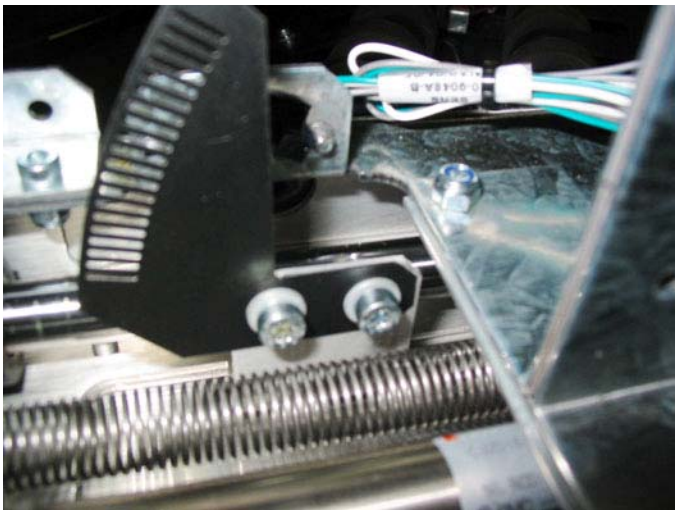


Figure 5: Picker motion sensor grid

11. Install the picker up/down cylinder stop bracket.

12. Install the new picker up/down fittings (the new fittings have a 0.15 mm orifice).



Figure 6: Picker up/down cylinder stop bracket

13. Install the plate width sensor bracket.

Note: An additional bracket will be added for right eject configurations.

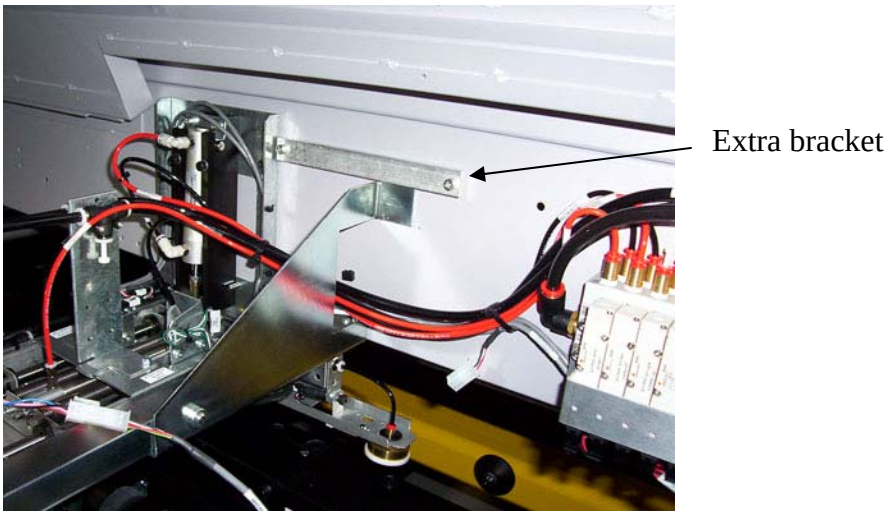


Figure 7: Additional bracket for right eject configurations

14. Install the plate width sensor.

15. Install the plate width sensor extension cable (220-01272A).

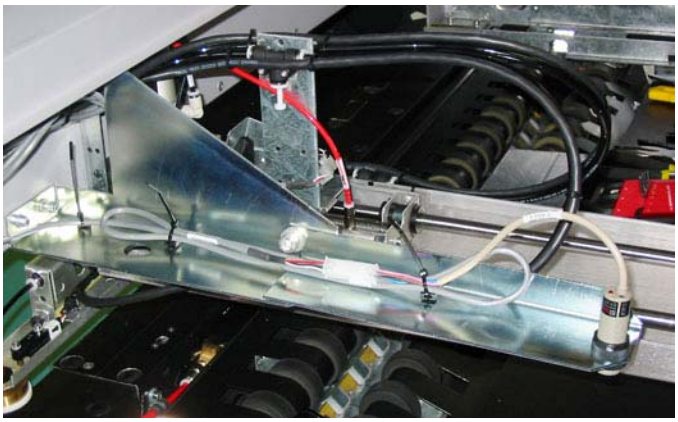
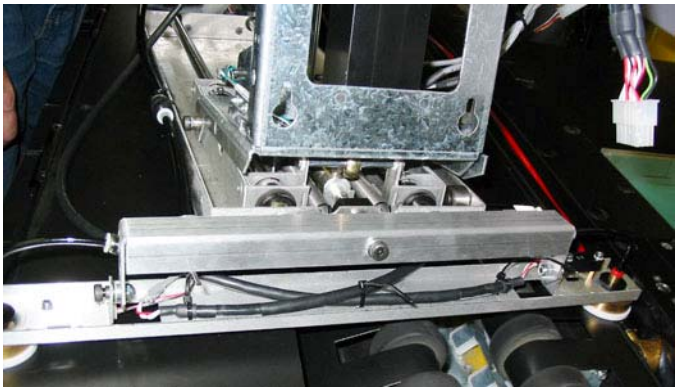
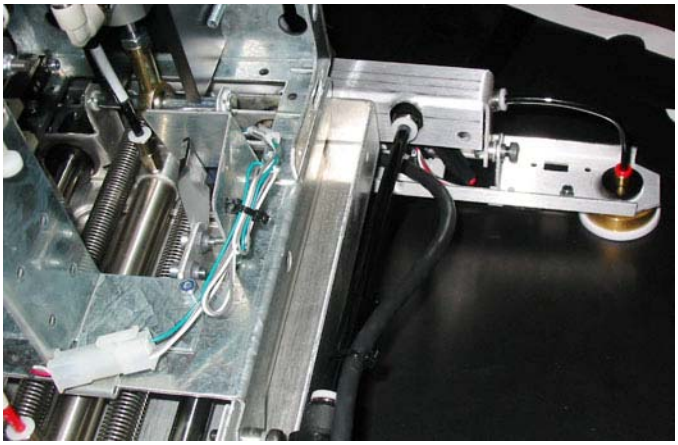


Figure 8: Plate width sensor, cable, and bracket (left eject)

16. Connect the P-cup plate detect sensors (connect 220-01333A to 220-01332A and to P-cups plate detect sensors and to 220-01409A, plenum SS sensor 2 extension).





Use cable ties to secure the P-cup sensor cables to the air lines with a slight bulge at the P-cup bar. This will ensure that the P-cup bar can still swivel freely and that the cables will not be pinched.

Figure 9: P-cup plate detect sensor cables

17. Connect the plate width sensor cable.

18. Install the SSR drop down panel.

19. Apply a piece of reflective tape on the SSR below the plate width sensor.

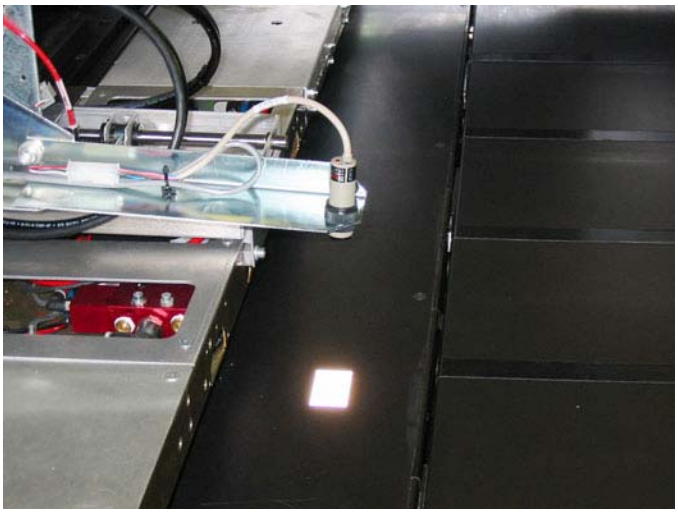


Figure 10: Reflective tape

4. TESTING THE FUNCTIONALITY

1. Turn the device power and air supply on.
2. Check that the SS detector mirror goes in/out freely. Type:

   ```
   >>picker slider out
   >>picker slider in
   ```

Calibrating the SS detector sensor

3. Put slipsheet on the plate inside MCU. Type:

   `>>picker slider out` . Write down the reading (A for the slipsheet).

4. Remove the slipsheet. Write down the reading (B for the plate).

Note: The difference between A and B should be >100, otherwise turn on sssensoradaptivethresh option under set bay#.

5. Calculate the threshold value C:

   C = B+(A-B)/3

   The threshold is set closer to the plate reading because the plate readings have less variability.

6. Apply the threshold value to `>>set mhmedia#  plenumsssensorthresh`
7. Change the separator on-time to 0 to increase throughput. Type:

   ```
   >>set mhmedia# seperatorOnTime 0
   ```

   If the slipsheets are not separating from the plates, increasing this value to 2 may help.

8. Type :

   ```
   >>picker slider in
   >>picker down
   ```

9. Check the plate detect sensors reading. Type:

   ```
   >>scan pk_sensorpcupsplatedetect1
   >>scan pk_sensorpcupsplatedetect2
   ```

Note: In later firmware versions, the sensors status will be found using `>>picker` .

10. Push the fetcher into the raised picker to ensure that the fetcher plate stops. Take care not to hit the P-cup sensor cables.

11. Change NVS parameters. Type:

```
>>hwconfig newplatewidthmeasure enable
>>hwconfig newslipsheetmirror enable
>>hwconfig platedetectsensor enable
```