Trendsetter VLF Autoloader

Delicate Media Picker Field Upgrade

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Revision History

Revision	Date	Author	Comments
PRE-1	06 Oct 2003	Angus Gillon	Initial draft
PRE-2	07 Oct 2003	Angus Gillon	Inserted photos
PRE-3	14 Oct 2003	Angus Gillon	Added procedures for adjustments
PRE-4	16 Oct 2003	Angus Gillon/ Carl van Maarseveen	Updated firmware adjustments and photos

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CONTENTS

Revision History i

1. Tools Required 1

2. Preparation 1

3. Removing the Old Picker 2

4. Installing the New Picker 3

5. Checking Picker Alignment 3

6. Upgrading the SSR Unit 6

7. Final Setup and Adjustments 6

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1. TOOLS REQUIRED

- Metric set of hex keys
- Imperial set of hex keys
- Digital level
- Verification tools (50-2437A)

2. PREPARATION

1. Create backup files of all current NVS parameters (*fsave all, nvs dump*)
2. Turn the main power switch to OFF.
3. Turn off the air and drain the Trendsetter VLF system.
4. Remove the picker cover, rear safety guards and track covers.
5. Remove the SSR unit from the Autoloader.
6. Replace the MPE board with the new 2MB version (503-00075A).
7. Remove the home sensor bracket from the track. Label the 3 sensor cables.
8. Install the new sensor bracket (57-6901B) and connect the 3 sensor cables.

   Note: Newer Autoloaders will already have the correct bracket installed. For these devices, just move the home sensor to the correct location.

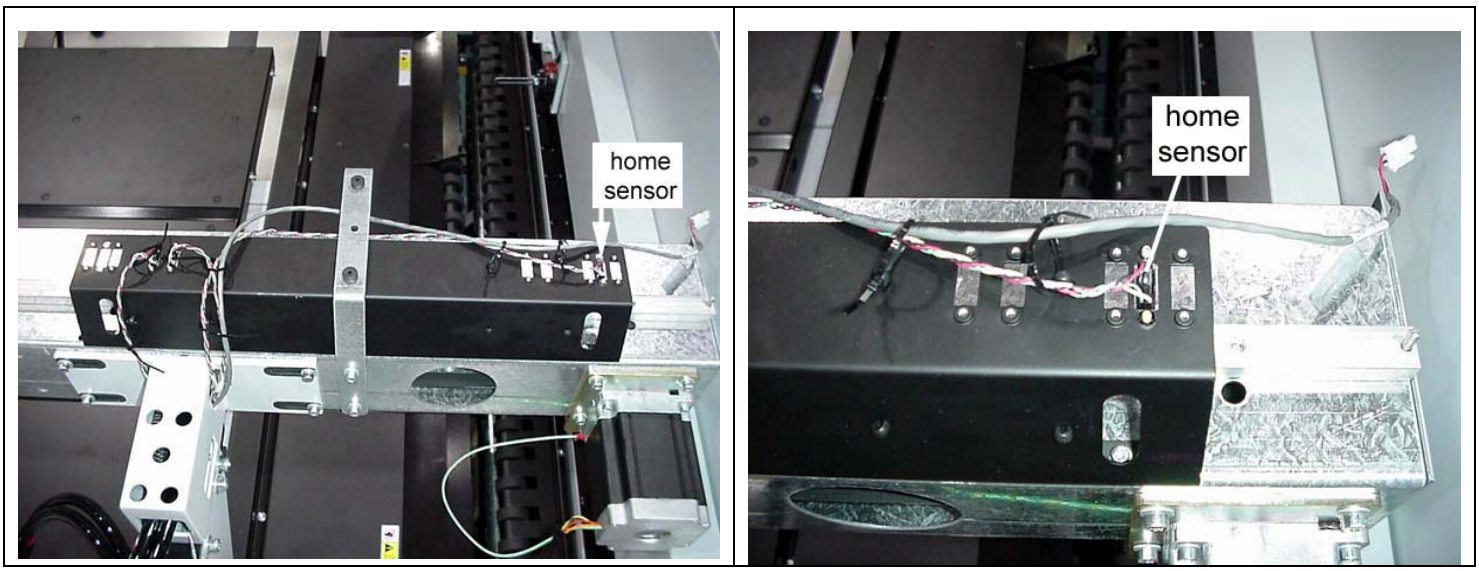


Figure 1: Sensor bracket installed

9. Record the current picker alignment for reference:

    - Picker level: Place the digital level across the pcup lift arm bracket.
    - Picker to plenum distance: Move the picker into the cassette unit until the picker wings are just inside the plenum. Use the verification tool or a straight ruler to measure from the underside of the picker body to the top of the plenum.
    - Picker to table distance: Move the picker until it is slightly over the table. Measure from the underside of the picker body to the top of the table.

    Note: The actual dimensions are not important at this stage. When the new picker is installed, the recorded dimensions will be used to confirm that the new picker is in the correct location.

3. REMOVING THE OLD PICKER

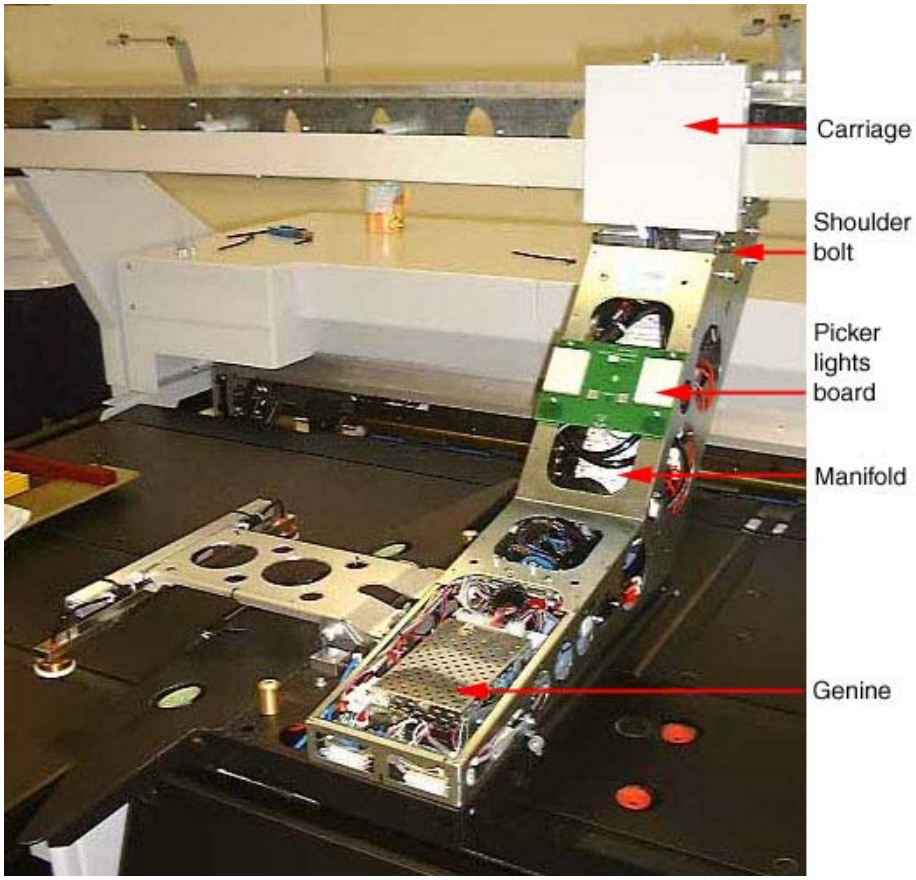


Figure 2: Picker components

1. Move the picker to the middle of the table and support it with a foam pad for protection.
2. Detach the cable from J24 on the picker Genine board.
3. Remove the picker light board for access to the two main airlines coming from the track.
4. Detach the two airlines.

5. Remove the two shoulder bolts that attach the picker to the carriage, using an imperial hex key.
6. Remove the entire picker assembly.

4. INSTALLING THE NEW PICKER

1. Open the dropleaf gate for access to the picker carriage.
2. Place the new picker on the table, near the center.
3. Carefully remove the two picker skins.
4. Slide the picker carriage close to the picker.
5. Insert the cable and hoses into the picker arm.
6. Remove the picker light board to access the manifold.
7. Connect the two hoses to the two manifold hoses.
8. Replace the picker light board.
9. Connect the cable to the Genine board at J24 SCON2. Connect the ground wire to the Genine board's corner mounting screw.
10. Route the cables and hoses in the arm so that they do not interfere with any connections.
11. Carefully lift the picker up to the picker carriage.
12. Securely tighten the two shoulder bolts that attach the picker to the carriage, using an imperial hex key.
13. Turn the Autoloader air supply shut-off valve ON. The p-cup arm and the pusher fingers will lift up.



WARNING: When moving the picker by hand, never push or pull on the picker body.

5. CHECKING PICKER ALIGNMENT

1. Check the x-axis alignment to establish the picker safe zone.
   - Move the picker to the edge of the table on the cassette side and pin the picker to the track with a 4mm hex key.

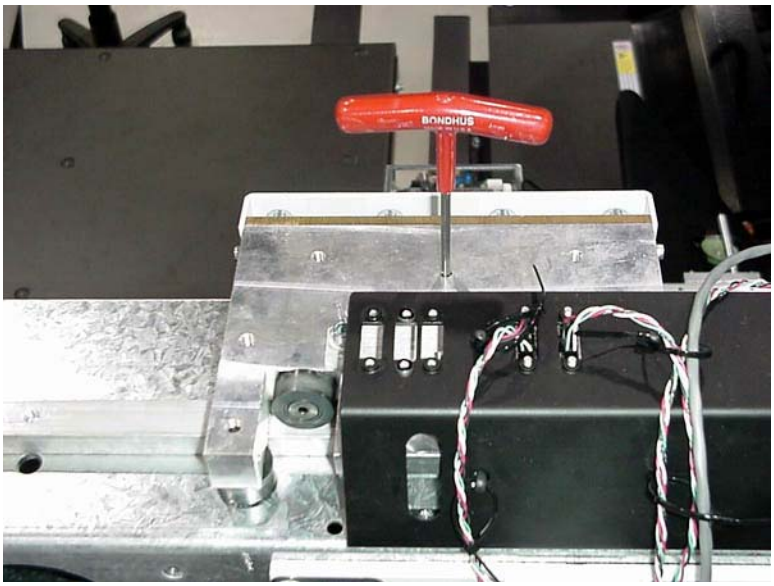


Figure 3: Pinning the picker to the track

- Lift the table slightly and measure the distance from the edge of the picker body to the edge of the table. It should be 0 mm (+2 mm toward the table, -4 mm away from the table)



Figure 4: Placing the picker flush to the table

2. Adjust the picker x-axis alignment.

   - Loosen the track support arm flange-to-track fasteners. There are four on each side.
   - Slide the track in the appropriate direction by hitting the support arm with a soft, heavy (dead-blow) hammer in the opposite direction. Don't hit the track itself.
   - Tighten all eight fasteners.
   - Recheck the picker x-axis position.

3. Check the picker alignment and compare the dimensions with those recorded in Step 9 of Section 2: Preparation.

   - Picker level: Place the digital level across the pcup lift arm bracket.

     To adjust the picker level:

     - Loosen the five fasteners that hold the left track support arm to the Trendsetter VLF frame.
     - Rotate the adjustment screws located on the underside of the support arm until the angle is correct.
     - Tighten the fasteners on the track support arm.

     To adjust the picker height:

     - Loosen the five fasteners that hold the left track support arm to the Trendsetter VLF frame.
     - Rotate the adjustment screws located on the underside of the support arm until the height is correct.
     - Tighten the fasteners on the track support arm.

   - Picker to plenum distance: Move the picker into the cassette unit until the picker wings are just inside the plenum. Use the verification tool or a straight ruler to measure from the underside of the picker body to the top of the plenum. Record the dimension.
   - Picker to table distance: Move the picker until it is slightly over the table. Measure from the underside of the picker body to the top of the table. Record the dimension.

6. UPGRADING THE SSR UNIT

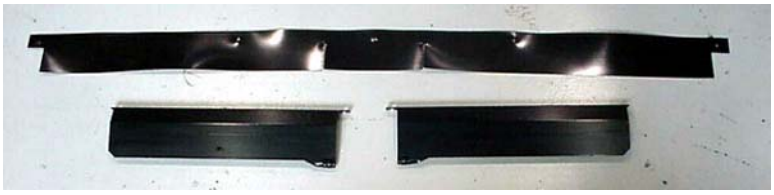


Figure 5: SSR upgrade parts

1. Remove the two end panels from the SSR unit.
2. Remove the top black panel, the plastic batwing cover, and the batwings.
3. Install the new batwing assemblies (500-00911A, 500-00915A) and the new plastic cover (252-03086A).
4. Reinstall the top black panel and end panels.
5. Reinstall the SSR unit into the Autoloader.
6. Turn the main power switch to ON.

7. FINAL SETUP AND ADJUSTMENTS

1. Check that the MPE firmware version is correct, and upgrade as required. The current MPE firmware is 2.2x beta (Oct 2003), and the next release will be 3.x.

   Note: The MPE firmware for operating the DM picker will not fit on the regular MPE board (10-3692B). The new 2MB MPE board must be installed (503-00075A).

2. Restore the NVS parameters.
3. Run the *NVS Upgrade* function.
4. Type:

```
set media # mcode 5 [repeat for each media]
set val sshin 2
set val psf 1
set val psrp -130
```

5. Save all the settings.
6. Check that all picker actuators and features work correctly. Type the following sets of commands:

`picker pcup on`
`picker pcup off`
`picker pcup down`
`picker pcup up`
	`picker pvac on`
	`picker pvac off`
	`picker pvac up`
	`picker pvac down`
		`picker float on`
		`picker float off`

`picker fetchfloat on`
`picker fetchfloat off`
	`picker pshr down`
	`picker pshr up`
		`picker ss down`
		`picker ss up`
		`picker ss halfdown`
		`picker ss roll away`
		`picker ss roll home`
		`picker ss up`

`picker ss vac on` `picker ss vac off`	`picker pushdown on` `picker pushdown off`	

7. Calibrate the picker (*cal picker*).
    - Place two plates in the cassette with one slip sheet in between the plates. Do not place a slip sheet on the top plate.
    - Type `cal picker`. (This will calibrate the slip sheet sensor and the vacuum thresholds).
8. Adjust the ss picker rollbar half down position.

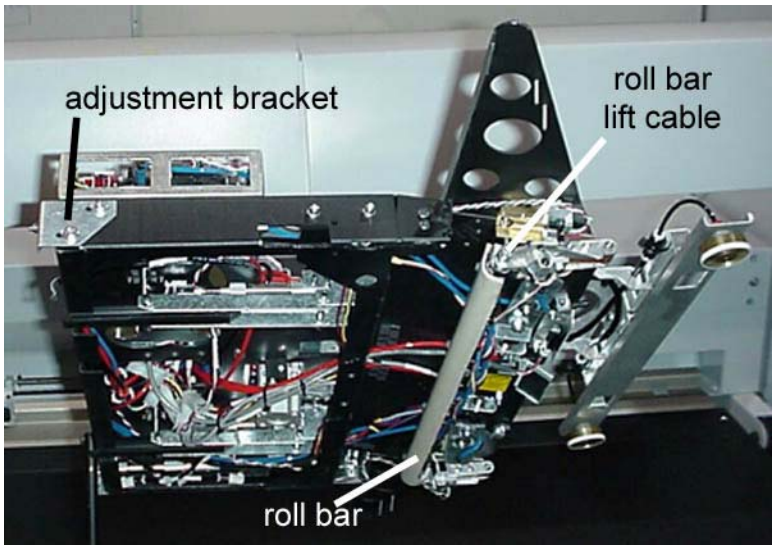


Figure 6: View of DM picker from the underside

- Initialize the picker and the SSR, then open the cassette doors and SSR roller by typing:

```
ale init
cass door open
ssh rlr open
picker idle
```

- Move the picker until the ss picker roll bar is over the SSR roller (the roller closest to the cassette). See Figure 7 (a).

- Lower the roll bar to the half down position by typing:

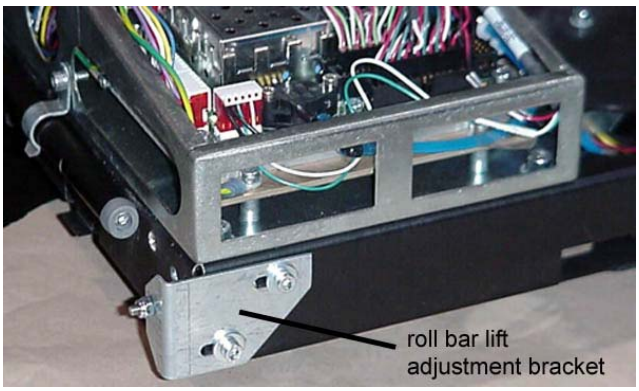
```
picker ss up
picker ss halfdown
```

- Carefully lift the picker up one inch (the roll bar should be clear of the roller) and move the picker until the roll bar is centered over the SSR roller closest to the cassette unit.
- With the roll bar resting on the roller, remove the slack from the roll bar actuator cables. Loosen the two screws on each bracket at the tail end of the roll bar lift cylinders. Slide each bracket until the cable is tight but the roll bar is still touching the roller and then tighten the screws. See Figure 7 (b).

  Note: Do not tighten the locknuts holding the brackets to the cylinders. Some free play is required.



(a) SS picker roll bar over the SSR roller



(b) Bracket for adjusting roll bar lift

Figure 7: Setting the roll bar halfdown position

- Carefully move the picker back and forth over the SSR roller. You should see both ends of the roll bar drag on the SSR roller, but not lift up more than 1 mm.
- Move the roll bar up and half down a few times to confirm the adjustment. Repeat the adjustment as required.

9. Adjust the slip sheet pick position (*set val sspo*)

   Using *cal picker sspo*

   - Check the cassette to plenum height on all cassettes and adjust if required.
   - With the cassette empty, type `cal picker sspo.` After the calibration is complete you will see the following message:

```
* for machine serial number > BA050, set
slipsheet_pick_offset, #xx
```

```
 * for machine serial number < BA038, set
slipsheet_pick_offset, #xx

 * newer machines have a cutout in the center of the
cassette edges ( to clear the wedgemaster)  as well as 2
"V" cutouts, older ones do not have the center cutout.
```

The **#xx** value is the new sspo setting.

- Type `set val sspo` and enter the **#xx** value that corresponds to the machine serial number you are working on. Type `save`.

Without using *cal picker sspo* (`if` *cal picker sspo* does not work)

- Check the cassette to plenum height on all cassettes and adjust if required.
- Place two plates in a cassette with a slip sheet in between them. Move the backstop tight to the plates and place another slip sheet on top of the top plate.
- Change *set verbose alcmd* to 2.
- Using the single step mode, pick a slip sheet and have the picker move it to the SSR but do not hand it off to the SSR rollers. To do this, type:

```
ale step on
pick
ale step
```

Repeat *ale step* until you see the message `'Al cmd : Pick: Transfer slipsheet Only to rollers.'`. After this point the picker should be above the SSR with the roll bar down and rolled away with the slip sheet attached.

- Using a steel rule, measure the slip sheet paper overlap. The distance from the edge of the roll bar to the edge of the slip sheet should be 8-9 mm.



Figure 8: Measuring the slip sheet paper overlap

Note: The 8-9 mm dimension is for the last plate in the cassette. For a full cassette, the dimension is 5 mm of overlap.

- Adjust the *set val sspo* parameter to achieve the 8-9 mm overlap and save.

  For example, if the ruler measurement is 12 mm, then subtract 3 from sspo.

- Stop the ale step process and reset the picker by typing

```
ale step off
ale step
abort
clear
```

- Repeat this procedure until the 8-9 mm overlap is achieved.
- Check all of the other cassettes for accuracy.

10. Adjust the plate drop position on the table (*set val xpdo*).

- Type the following commands to position a plate near the registration blocks:

```
ale init
pick
fetch
table vac on
pdoor open
table up
```

- Check that the plate is centered on the two registration blocks with a maximum distance of 3 mm from the center (6 mm difference between sides).
- Adjust the *set val xpdo* parameter as required and save.
- Remove the plate and lower the table.

11. Adjust the slip sheet handoff position (*set val psrp*).

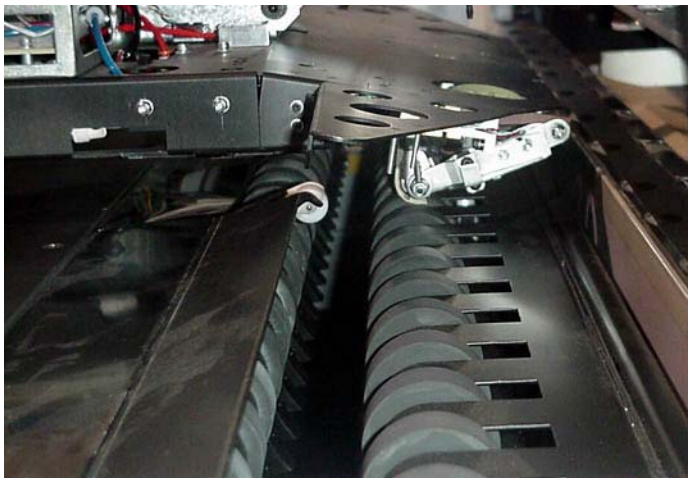


Figure 9: Adjusting the slip sheet handoff position

- Move the picker to the initial slip sheet release position with the following commands:

```
cass door open
picker move –130
picker ss halfdown
ssh rlr open
```

- Visually measure the distance from the centerline of the roll bar to the centerline of the SSR roller.
- Raise the roll bar and move the picker to the new location.

  For example, if the picker roll bar centerline is 10 mm away from the SSR roller centerline (towards the cassette unit), then type:

```
picker ss up
picker move –120.
```

- Repeat until the roll bar is centered over the SSR roller.
- Change *set val psrp* to the last value and save.

12. Pick and fetch a few plates. Watch and listen to the sequence to confirm that the adjustments are correct.