Kodak

Magnus VLF

Delicate Media Picker Upgrade Procedure

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Revision History

Revision	Date	Author	Comments
1	Jul 2005	N.Broers	Draft
2	Aug 2005	A.Blignaut	Formatted and edited procedures.
3	25 Nov 2005	N.Broers	Added and updated procedures
4	19 Dec 2005	A.Blignaut	Procedures and photos added after picker installation at Millenium.
5	26 Oct 2007	A.Blignaut	Picker height jig part number fixed.

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1. INTRODUCTION

The Delicate Media (DM) picker upgrade for the Magnus VLF MCU requires an estimated time of approximately 10 to12 hours for two service engineers.

2. TOOLS NEEDED

- Digital level
- Drill
- Nut drivers
- SSR bin jacks
- Picker height jig 252-09379A

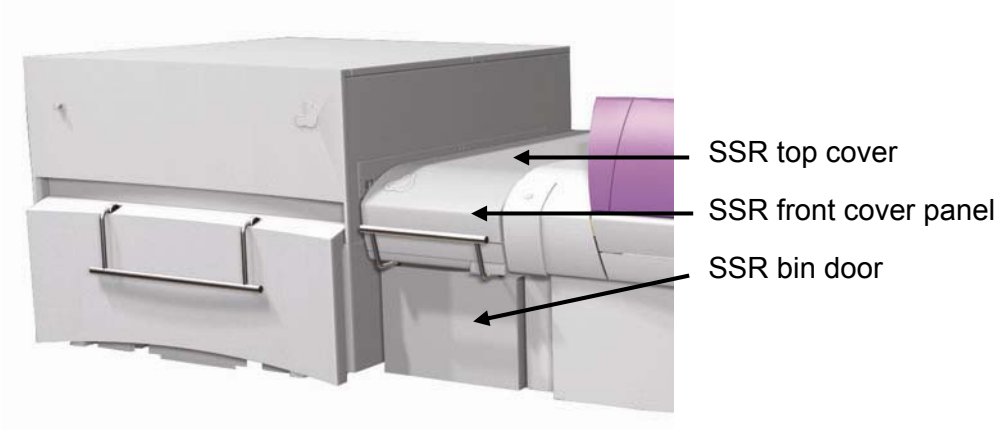
3. UPGRADE PROCEDURE

All fasteners removed will be reused unless damaged or otherwise specified. Spare fasteners are supplied in the upgrade kit.

1. Unload cassette one.
   Some component fasteners must be removed from inside the MCU. To be able to get inside the MCU through the service access door, cassette one must be unloaded.
2. Turn the device power off.
3. Shut off the air supply to the device.

3.1 Removing the Slip sheet Removal Unit and Picker

1. Open the MCU rear doors and the service access door on the side of the MCU.
2. Open the Slip sheet Removal Unit (SSR) top cover.

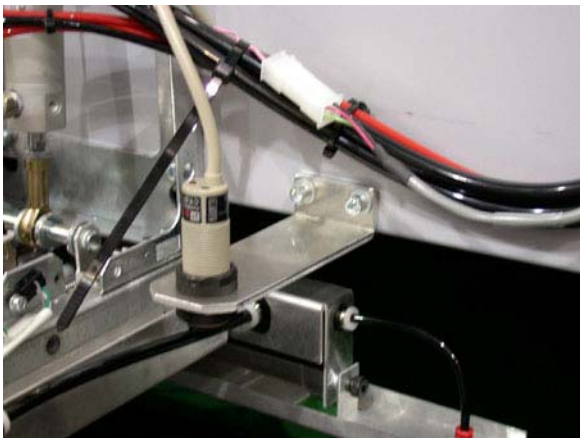


3. Open the SSR bin door and pull the SSR bin out.
4. Remove the bin door (P32) and the front cover panel.

5. Open the rear SSR service access door and lower the service access panel. Remove the access panel stop bracket and remove the access panel.



6. Remove the SSR top cover and supporting strut. Access to the eight screws is from inside the MCU. This panel will not be reused.
7. Remove the picker cylinder cover.
8. Disconnect the cables and tubes from the existing picker and from the picker manifold.
9. Remove the picker from the MCU panel. This will not be reused.
10. Remove the manifold from the MCU panel. This will not be reused.
11. Remove the plate width sensor bracket with the sensor. These will not be reused.



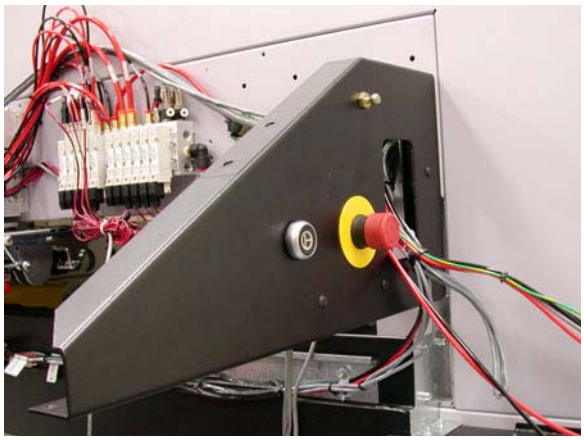
12. Remove the picker pressure control board.
13. Disconnect the cables and air supply to the SSR.
14. Remove the two screws that secure the SSR—one screw on each side.
15. Remove the SSR from the device:
    a. On the SSR bin, put the two bin jacks in place to support the bin top frame and remove the frame locking pins.
    b. Roll the SSR bin in underneath the SSR and raise the bin frame with the jacks until it reaches the height of the SSR.

c. Lift the SSR off the supporting brackets and onto the bin frame.

d. Install the four locking pins that secure the SSR to the bin frame.

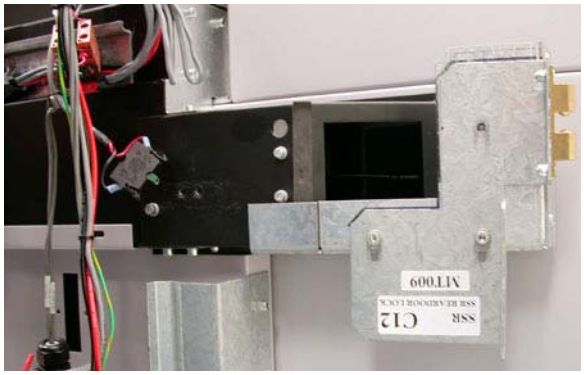
e. Lower the bin frame with the jacks and pull the bin/SSR out from the device.

16. Disconnect the emergency switch cables, the SSR control button cables, and the Omron switch and remove the SSR bracket (C11).



17. Remove the SSR front cover panel bracket.

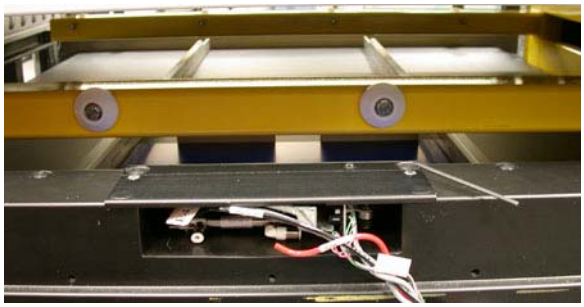
18. Remove the SSR rear bin Omron switch from the rear door locking bracket (C12) and mark the position of the bracket to prevent having to realign the door after reassembly. Remove the bracket (C12).



19. Remove the bracket that C12 was mounted to.

Note: The screws that hold this bracket also partially hold the MCU blower inside the MCU.

20. Remove the SSR sensor mirror assembly and disconnect the cables and tubes from the assembly.

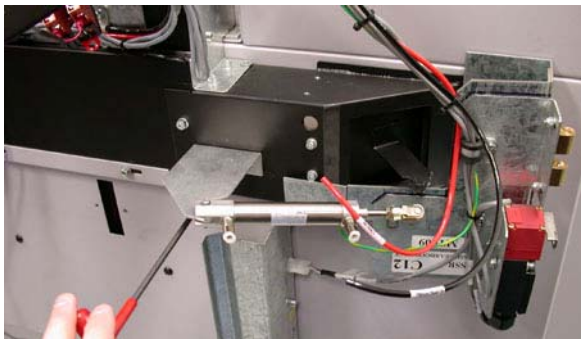


21. Feed all loose cables and tubes back into the MCU through the large square hole in the picker mounting panel.

22. Mark the exact position of the SSR bin detection panel (C69) and remove the panel (the panel below the plenum that is mounted to the plenum).

3.2 Removing the Plenum and Blower

1. Remove the plenum baffle cylinder and bracket.



2. Remove the two screws that secure the fetcher track bracket to the plenum. Mark the exact position of the plenum on the MCU panels and relative to the fetcher track bracket so that it can be installed in the same position and alignment.



3. Inside the MCU, remove the blower from the plenum by removing the remaining two M5 screws inside the MCU.



4. Disconnect the air supply hose on the back of the plenum (inside the MCU).
5. Remove the plenum from the MCU panel by removing the eight button-head screws located on the inside of the MCU panel.

3.3 Replacing the Picker Mounting Panel

The new picker mounting panel is identical to the old panel, but is more rigid to withstand the additional weight of the new DM picker without flexing.

1. Accurately measure the distance from the MAB in the device to the picker mounting panel—measure at the front and rear of the device. Note these measurements for future reference when installing the new panel.



2. Remove the seven screws securing the picker mount backing strip and remove the strip.



3. Disconnect the cassette out sensor that is attached to the picker mounting panel at the front of the device.

4. Remove the picker mounting panel—six screws on the outside of the panel and seven screws on the inside of the panel (inside the MCU).



5. Transfer the cassette out sensor to the new picker mounting panel (252-09061A). The sensor is mounted to the panel at the front of the MCU.

6. Install the new picker mounting panel but do not tighten the screws yet.

7. Install the picker mount backing strip but do not tighten the screws yet.

8. Measure the distance from the MAB in the device to the picker mounting panel and adjust the panel so that you match the measurements made earlier. Tighten the screws that secure the picker mount backing strip and thus the bottom of the picker mounting panel. Recheck the measurements to be within 1 mm of those taken earlier and readjust the panel if necessary.

9. Tighten the screws securing the picker mounting panel to the MCU.

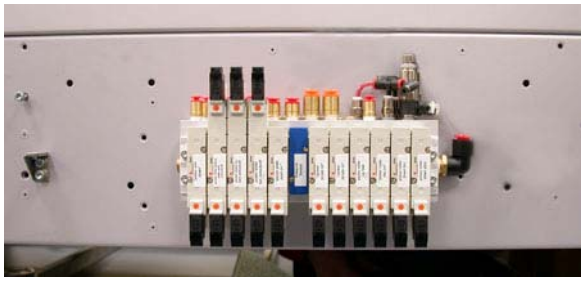
10. Connect the cable to the cassette out sensor.

11. Install the new picker alignment brackets (252-09223A).



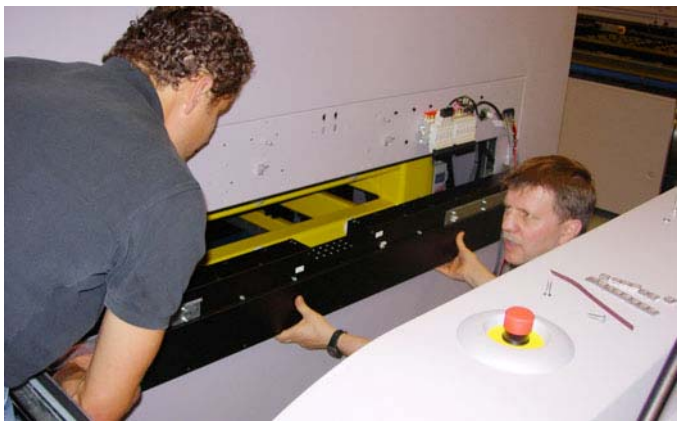
12. If it is not already installed, install a ¼ in. plug (55-0270) in the SSR manifold where the pressure sensor board would be connected. The picker pressure board is no longer used and will not be reinstalled.

13. Install the new manifold (500-02884A) onto the picker mounting panel. For a right eject configuration, the manifold will be installed on the right side of the panel. For a left eject configuration it will be on the opposite side of the panel.



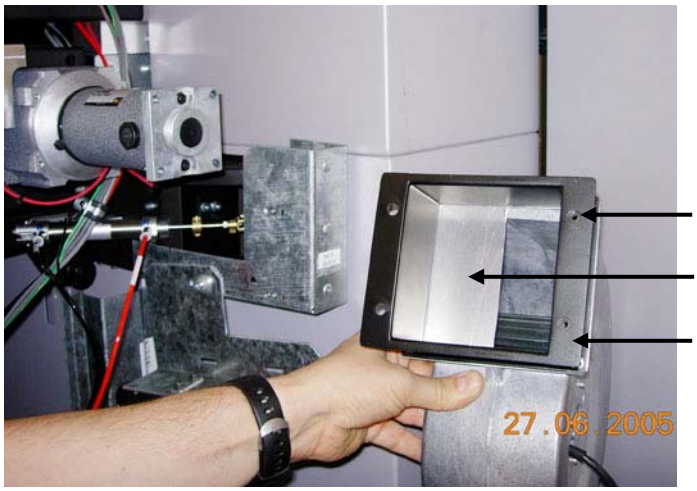
3.4 Installing the Plenum

1. Install the plenum onto the new picker mounting panel and align the plenum with the marks made earlier before tightening the screws.



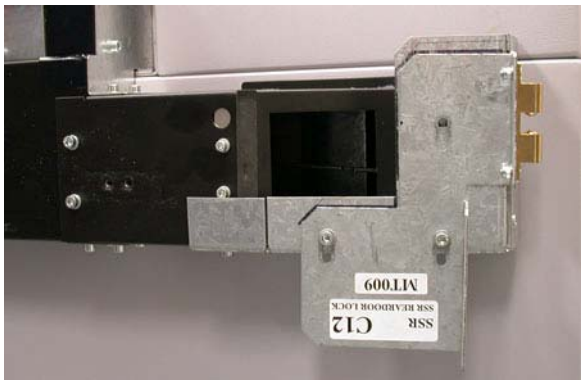
2. Remove the blower adapter from the blower and install the restrictor plate (252-08943A) between the blower and the adapter.

Attention: When the blower is installed, the opening in the restrictor plate and the pems on the adapter must be facing towards the rear of the MCU.

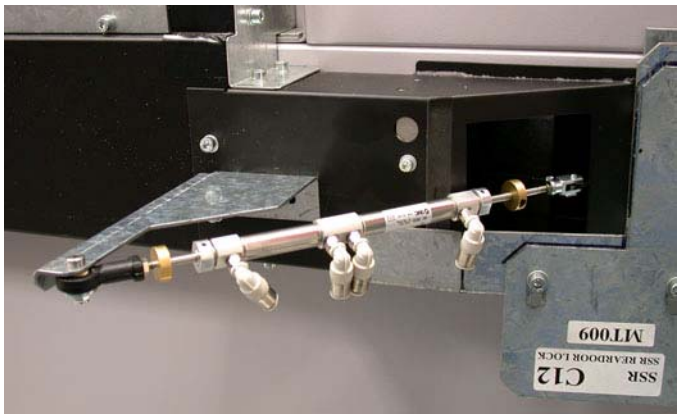


3. Install the blower, restrictor plate, and blower adapter with the two M5 screws on the inside of the MCU.

4. Install the rear bin Omron bracket (C12) so that the blower is fully secured in place.



5. Install the new cylinder assembly and bracket. Mount the bracket on the two holes on the plenum that were used for the old cylinder assembly. Ensure that when the cylinder is fully extended the plenum baffle is fully in (eg. 90deg to the plenum). Tighten the bracket in this position.



6. Install the SSR bin detection panel (C69) using the marks you made earlier to position the panel exactly as it was before.

7. Feed the loose cable and tubes back through the picker mounting panel hole so that they are hanging on the outside of the MCU. The following cables will be unused and

can be fed back into the MCU: E59M, E56, E57, and E58. Secured them with cable ties so that they will not interfere with any moving parts inside the MCU.

8. In the MCU power box, install an extra solenoid and associated cables and tubes:

   a. Replace cable (220-00292A) with the new cable (220-01300A).



   b. Install an extra solenoid at the bottom of the manifold (position 7) and connect the connector “plate float 2” to this solenoid. Label the solenoid with the **plate float 2** label provided in the upgrade kit.

   c. Install two new 5/32 in. fittings into the manifold for the new solenoid.

   d. Connect a red tube to bank A and a black tube to bank B on the manifold. Run the tubes to the new plenum baffle cylinder via the existing cable routing in the MCU. Ensure all cables and tubes are cable tied and do not interfere with the cassette movement. Label the tubes with the **plate float 2 extend** (red tube) and **plate float 2 retract** (black tube) labels provided in the upgrade kit.

9. On the plenum baffle cylinder, connect the following tubes:

   a. The red tube from the new solenoid to the plate float 2 cylinder (longer cylinder) extend port.

   b. The black tube from the new solenoid to the plate float 2 cylinder retract port.

   c. The red **plate float** tube to the plate float cylinder (shorter cylinder) extend port.

   d. The black **plate float** tube to the plate float cylinder retract port.



10. Install the new fetcher deck height bracket onto the plenum. This bracket will replace the existing bracket and allow the deck to go down to a lower position.

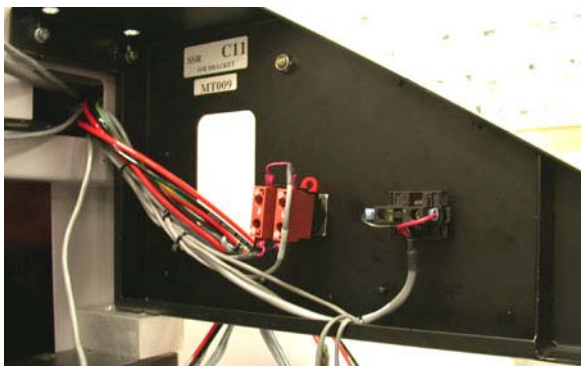
Note: Two brackets are supplied in the kit—one for a right eject configuration (252-09371A) and one for a left eject configuration (252-09372A). Install the appropriate bracket such that the cam profile slopes downwards towards the MCU. Installing the wrong bracket can result in damage to the device when the fetcher deck is moved into the MCU.



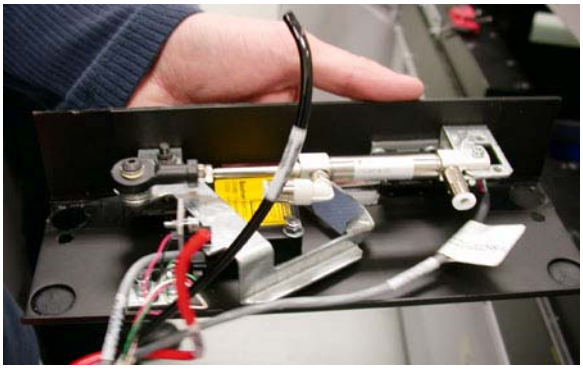
Downward slope towards the MCU

11. Install the SSR bracket (C11) and connect all cables to it.

12. With the exception of the plate width sensor cable, feed the remaining loose cables and tubes through the SSR bracket hole towards the rear of the device.



13. Connect the relative cables and tubes to the slip sheet sensor mirror assembly—take care that the cables and tubes do not interfere with the mirror movement.



14. Mount the slip sheet sensor mirror assembly to the plenum.

Note: Secure the cables and tubes tightly to the plenum so that the SSR does not pinch them or so that they prevent the SSR from installing correctly.

15. Install the new MCU cable (220-01008A):

    a. Remove the terminating connector from J13 on the LIONEL 1 board in the MCU power box.

    b. Connect the one end of the cable to the LIONEL 1 board (J13).

    c. Route the cable along the existing cable path inside the MCU and through the picker mounting panel. Ensure that the cable will not interfere with any moving parts inside the MCU and secure it in place with cable ties.

    d. Feed the cable through the SSR bracket and allow enough slack so that it reaches half way across the picker mounting panel. This connector will later be connected to the LIONEL 2 board on the new picker assembly.

3.5 Installing the DM Picker Assembly

1. Install the DM picker assembly (500-02873A):

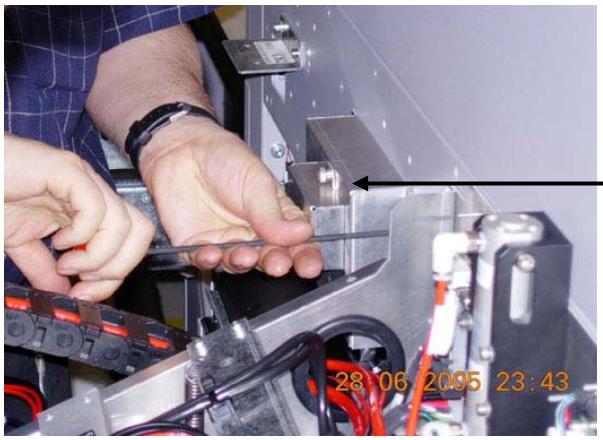
    a. Screw in the top four picker mounting screws into the picker mounting panel so that they protrude approximately 10 mm from the panel.

    b. Hang the picker on the four screws.

    c. Remove the screws one at a time and add a M5 bevel washer to each screw before reinstalling it.

    d. Tighten the screws and then back them off two turns to allow the picker to move. Do not level the picker yet as it will be done after the SSR bin is installed.

2. For a right eject configuration, install the DM picker roller test assembly (500-02888A) on the picker mounting panel on the left side of the picker. For left eject configurations, you must disconnect the test assembly and reroute the cables to the other side of the picker. The test assembly must always be mounted towards the front of the device relative to the picker.



3. Connect the picker tubes and connectors to the picker manifold. Four of the solenoid connectors will be reused from the old cable assembly:

    - The **picker slider** connector now attaches to the extend (top) of the **picker slider extend plate pick on/lock/off** solenoid. Label the reused connector with the **picker slider plate pick** label provided in the upgrade kit.
    - Two picker **pcup on** connectors.
    - The **picker down** connector.

    The rest of the connectors will come from the new picker assembly cable 220-01015A (the **Spare 1** connector is not connected).



4. Connect the plate width sensor cable to the picker.
5. Connect cable 220-01008A to the LIONEL 2 board on the picker.

3.6 Installing the SSR

1. Install the SSR top cover (500-03055A) and supporting cylinders. Although this panel can be installed later on in the procedure, it is easier to install this panel now before the SSR is installed. For a left eject configuration, you will have to swap the Omron key and bracket and the gas strut to the opposite side.
2. Install the SSR wing brackets (500-02929A and 500-02930A):

    a. Remove the arborite SSR cover and loosen the backbone screw mounting the wings. Remove the wings.

b. Loosely install the new wings and put a slip sheet between the wing rollers and the SSR rollers.

c. To ensure that there is enough pinching force between the rollers when the SSR rollers are closed, push down hard on the wings while you tighten them onto the backbone.

d. Pull on the slip sheet—the slip sheet must be tight to pull out from between the rollers.

3. Install the SSR bin:

a. Roll in the SSR bin with the SSR.

b. Use the jacks to raise the bin to the level where the SSR will be installed.

c. Remove the four SSR locking pins and lift the SSR off the bin frame and onto the SSR brackets. Ensure that the SSR is over the bracket against the MCU.

d. Lower the bin jacks and roll the bin out from under the SSR.

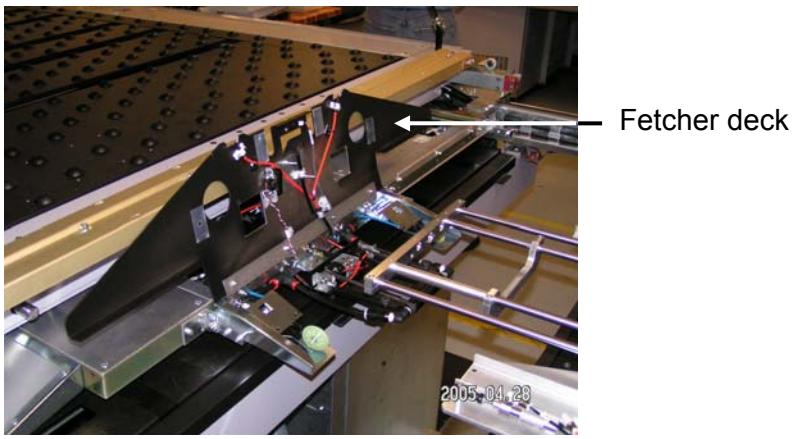
e. Remove the bin jacks and insert the bin locking pins to lock the top frame in place.

f. Fasten the SSR to the SSR brackets with the two screws removed earlier.

4. Install the SSR top cover panel Omron switch bracket on the SSR bracket (C11).
5. Install the Omron switch.
6. Install the SSR rear door Omron switch on the rear door Omron bracket (C12).
7. Install SSR service access panel and locking bracket.
8. Connect the SSR umbilical cable from the MCU to the SSR.

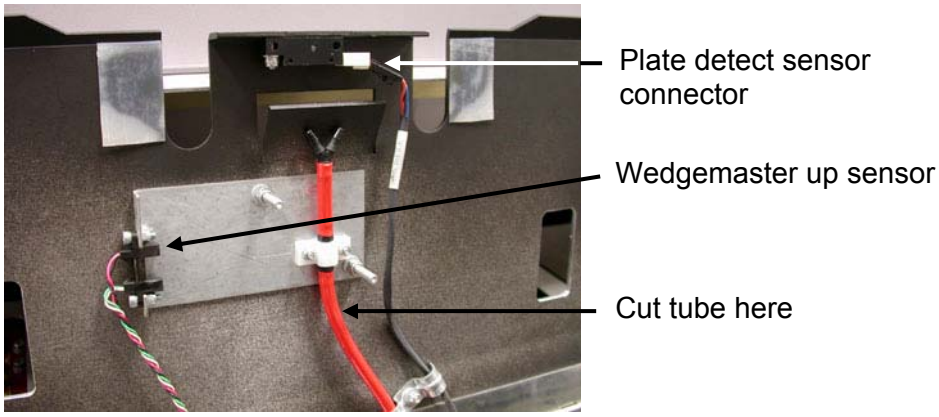
3.7 Replacing the Fetcher Deck

1. Remove the two countersunk screws that secure the fetcher deck and raise the deck.

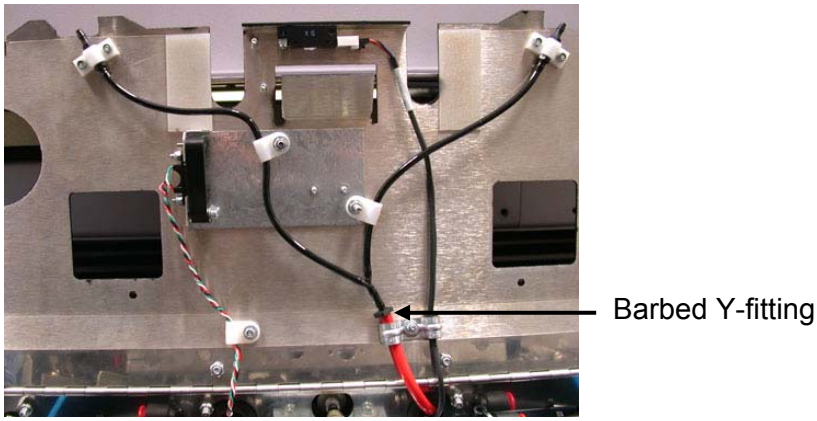


2. Disconnect the wedgemaster up detection sensor from the fetcher deck.

3. Disconnect the plate detect sensor connector from the fetcher deck.

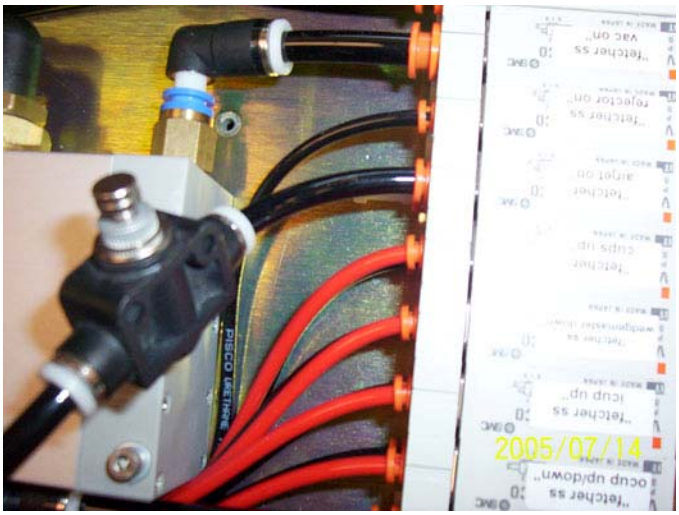


4. Cut the fetcher air jet tube just below the barb fitting.
5. Remove the four nuts that secure the fetcher deck to the hinge and remove the fetcher deck.
6. Mount the new fetcher deck (252-08995A) onto the existing fetcher hinge with four nuts.
7. Trim the fetcher air jet tube and connect it to the barbed Y-fitting on the new fetcher deck.



8. Connect the plate detect sensor connector on the new fetcher deck.
9. Install the wedgemaster down lock bracket on the two screws that mount the wedgemaster to the fetcher.
10. Fasten the fetcher deck in place using the two countersunk screws.
11. Install the ¼ in. speed control throttle:
    a. At the fetcher manifold, locate where on the air jet line there will be place to install a speed control throttle—it should be as close as possible to the manifold.

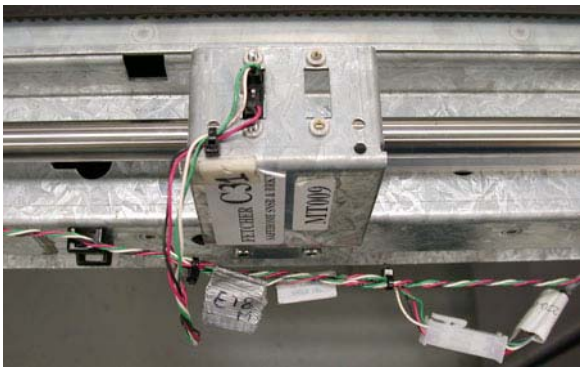
b. Cut the fetcher air jet line and install the ¼ in. speed control inline with the air jet line with the arrow pointing away from the manifold. To ensure that there is enough airflow to separate the end of a plate and slip sheet during a pick after the plate is loaded onto the fetcher deck, the throttle should be opened 2.5 turns from the fully closed position. This can be fine-tuned during operation.



3.8 Relocating the Fetcher Home Park Sensor

The home park sensor must be moved to 378 mm away from the home sensor.

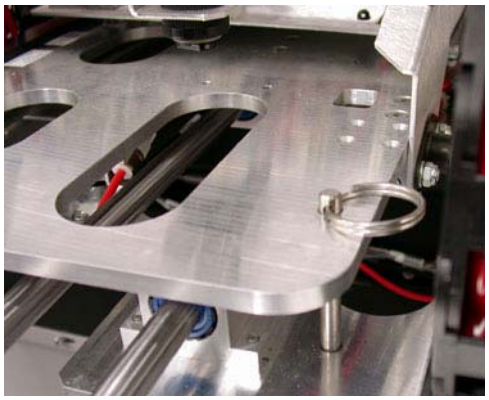
1. Remove the home park sensor bracket from the fetcher track.
2. Drill and tap two M5 holes at 487 mm and 515 mm from the end of the track. The two holes must be the same distance from the top of the track as the existing mounting holes.
3. Move the sensor to the bracket position (hole) closest to the MCU when it is mounted.



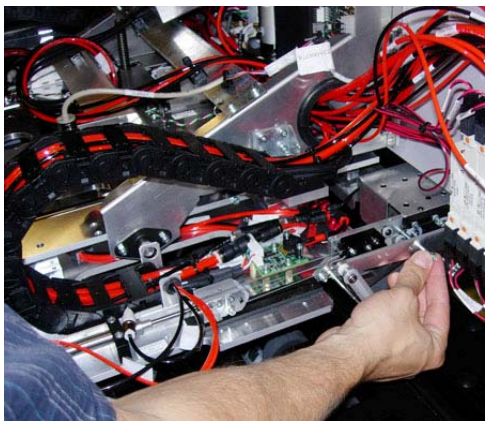
4. Install the sensor bracket on the track using the new holes and adjust the bracket so that the home park sensor is exactly 378 mm from the home sensor.

3.9 Leveling the DM Picker

1. Remove the shipping locking pin on the top of the picker. The pin should be marked with a shipping label.

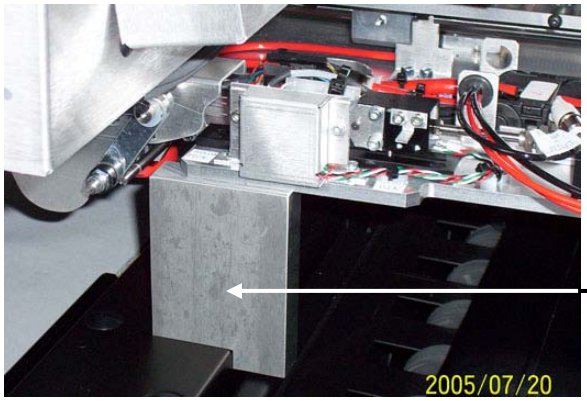


2. Turn the air supply to the device on.
3. Remove the two shipping screws located on the side of the picker.



4. To level the picker in the correct position, move the picker to the SS pick position by manually actuating the following solenoids:
   Picker Slider SS Pick on
   Slider extend plate pick off
   Picker slider bin off

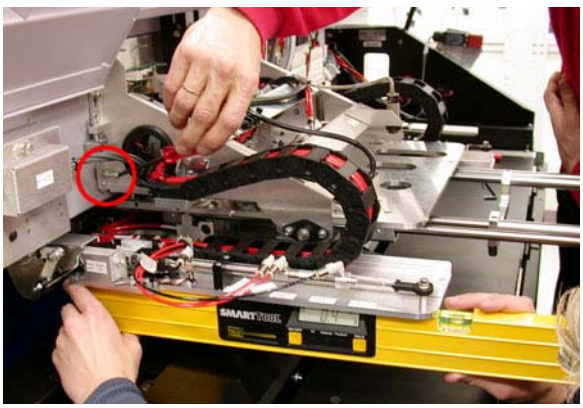
5. Using the jig (252-09379A), adjust the picker's height adjustment screw so that the picker is just above the jig on both sides of the picker.





6. Level the picker along the axis of the drum:

   a. Put the top of a digital level on the surface of the picker's bottom plate along the axis of the drum and adjust the leveling screws so that the picker is level (± 0.1°) on both the left and right side of the bottom plate. To ensure that you get a good reading, do not push on the picker.



   b. Using the jig, check the height of the picker to the plenum again on either side of the picker.

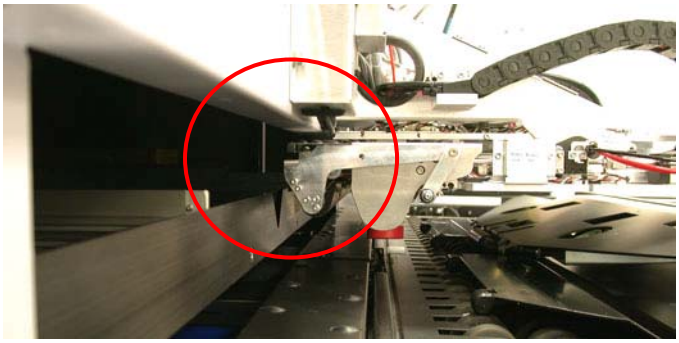
c. Put the top of a digital level on the surface of the picker's bottom plate and level the picker across the axis of the drum (90° to the drum) to within 0.1°—raise the lower side to adjust the picker to level.

d. Re-check the picker level along the axis of the drum on both the left and right side to confirm it is still level.

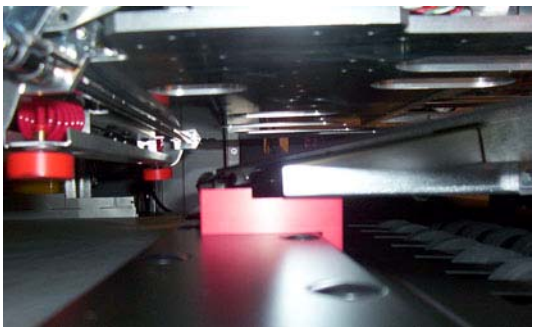
7. When the height and the level of the picker is correct, tighten the top four screws of the picker assembly and also tighten the jam nuts on the leveling screws.

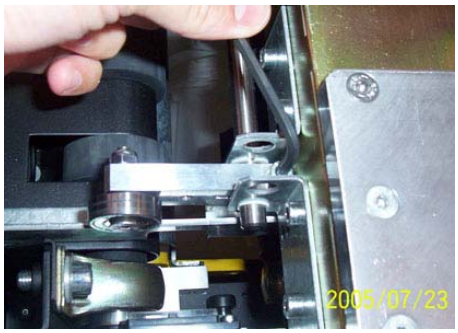
8. Check the picker movement by manually actuating the following solenoids:
Picker Slider SS Pick on
Slider plate pick on
Picker down on
Picker Slider SS Pick off
Slider plate pick off
Slider bin on
Slider bin off

9. When the picker is at the home position, check that it is not inside the MCU bay and will not interfere with cassette movement—the front of the picker should be 3-5 mm behind the inside edge of the picker mounting panel.

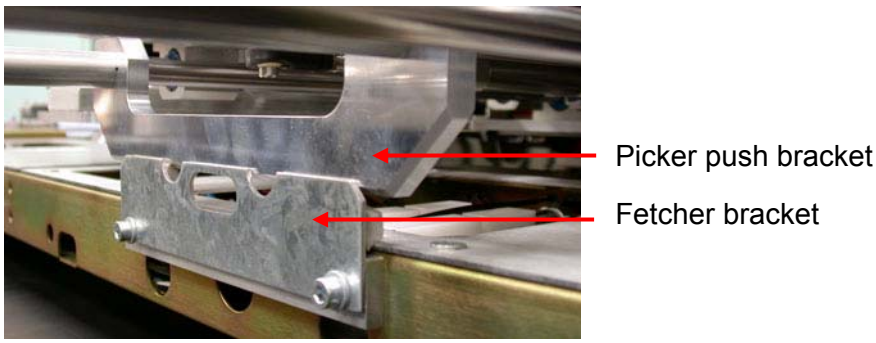


10. Check the fetcher deck height using the jig (690-00418A). The deck cam follower must be adjusted so that the deck height is lower than the top step of the jig and higher than the lower step—adjust the deck via the fetcher cam follower arm.





11. Check that the fetcher bracket engages the picker push bracket by at least 2-3 mm. Adjust the fetcher bracket if necessary (you may need to file the mounting holes in the fetcher bracket to adjust it).

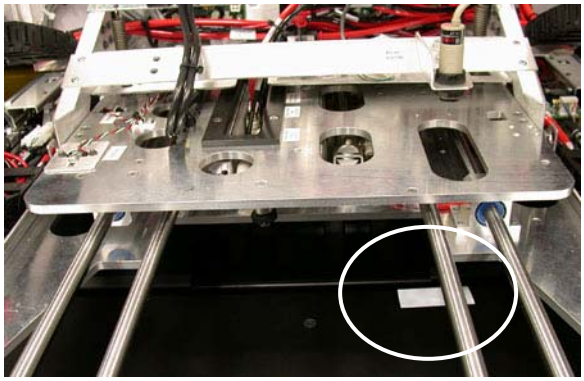


3.10 Installing the SSR Panels and Doors

1. Install the picker cover panel (252-09062A).



2. Install the SSR front cover panel and the SSR bin door.
3. Install the rear SSR service access door.
4. Install a 1.5 in. to 2 in. long piece of reflective tape underneath the plate width sensor at the edge of the slip sheet bin. Ensure the sensor is triggered when the picker is in the home position.



3.11 Upgrading the Software and Firmware

Controlled Release 3.0 (CR 3.0) and later supports operation of the DM Picker. If necessary, install CR3.0 or later.

1. Install the latest firmware on the device.
2. Install the Feature License Software on the workstation and install the USB customer dongle (see TechPlanet for more information).
3. Load the new version of Print Console on the workstation. The new version has a door lock and unlock feature that you must introduce to the customer. It is required to run with this firmware.

3.12 Installing the New Cassette Rails

1. Remove the old cassette rails from the MCU.
2. Install the new cassette rails (500-02984A and 500-02991A). The rails must be placed so that the tab at the end of the locator is located against the side of the cassette furthest away from the DM picker. Ensure that the customer is aware of the tab placement.



Note: If the rails are not placed correctly, the side locator will be damaged and can also damage the MCU panels. Instruct the operators to push the rail forward until the tab hits the side off the cassette.



3.13 Setting the Delicate Media Option

Type:

```
>>option dmpicker enable

>>reset
```

3.14 Setting NVS Parameters

Type `>>set mhmedia #` - to see the following parameters:

- **SeparatorPulseInterval** is the interval time between the start of each pulse measured in mSec.
- **SeparatorPulseDutyCycle** is the length of time the separator is on measured in mSec
  (should be less than the interval time).
- **PickerMotionCountSeparatorOn** – this parameter controls when the pulsing begins (should never be less than 1).
- **PickerMotionCountSeparatorOff** – this parameter controls when the pulsing ends.
- **Ssdropdelay** is the delay after the picker reaches the up position to wait for the slip sheet to fall.

The default separator settings should be:

- SeparatorPulseInterval = 0
- SeparatorPulseDutyCycle = 0
- PickerMotionCountSeparatorOn = 1
- PickerMotionCountSeparatorOff = 8
- Ssdropdelay = 0

If there are problems picking the last plate in a bay due to it falling off the pcups, then change the separator settings to:

- SeparatorPulseInterval = 1200
- SeparatorPulseDutyCycle = 1000
- PickerMotionCountSeparatorOn = 1
- PickerMotionCountSeparatorOff = 8
- Ssdropdelay = 0

If the problems persists, decrease the **SeparatorPulseDutyCycle** and/or increase the **SeparatorPulseInterval**.

If there are problems with the slip sheet sticking to the underside of the plate:

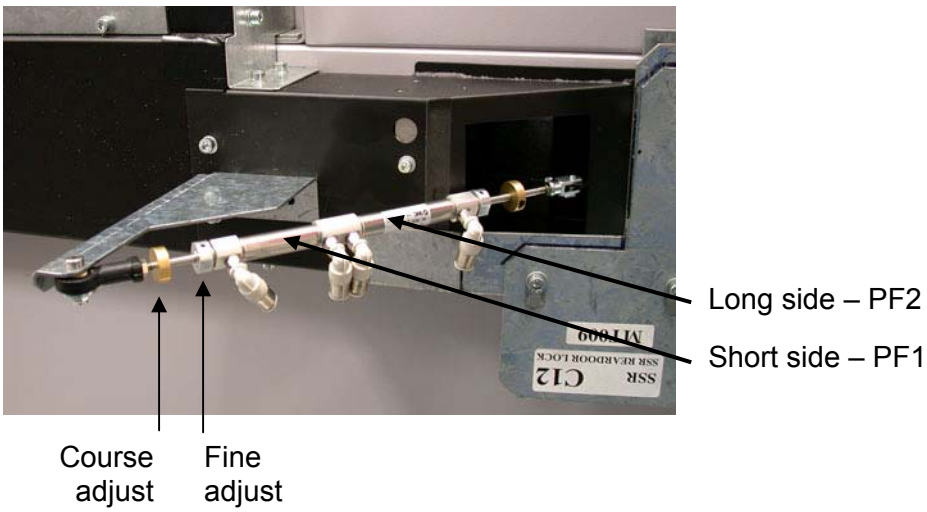
- SeparatorPulseInterval = 1200
- SeparatorPulseDutyCycle = 1000
- PickerMotionCountSeparatorOn = 1
- PickerMotionCountSeparatorOff = 8
- Ssdropdelay = 5

If the problem persists, increase the **ssdropdelay**. You can also increase the number of separator pulses by decreasing the **SeparatorPulseDutyCycle** and **SeparatorPulseInterval**.

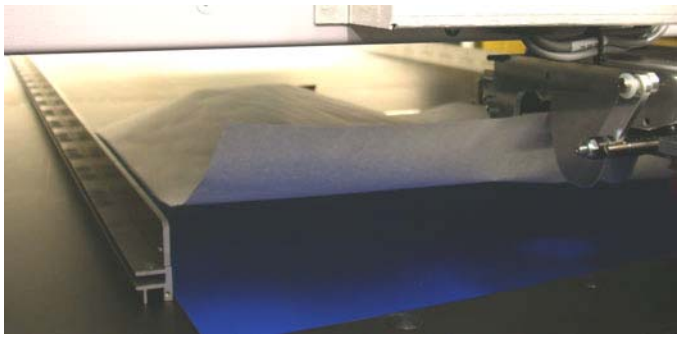
3.15 Adjusting the Plenum Float

The plenum float for each plate size may need to be adjusted. The float has three positions High, Mid, and Low. The Float settings are based on the plate length:

- Low - used for plates L<670 mm (PF1=off; PF2=on)
- Mid - used for plates 670<=L<1650 mm (PF1=on; PF2=off)
- High - used for plates L>=1650 mm (PF1=off; PF2=off)



1. Load the customer plates in each bay.
2. When two or more plate sizes are run on the same float setting, you will need to adjust the baffle position for the longest plate in that particular range. For example, if the plate lengths are 750, 1030, and 1400, set the cylinder stop for the 1400 size plate.
3. For each different plate size run the following from Service Shell:
   `>>Cassette position #`
   `>>Picker slider sspick`
   `>>Picker roller downpick`
   `>>Picker roller away`
   `>>Picker roller vac on` .The vacuum level should be ≥700
   `>>Picker roller home`
   `>>Plenum float on`
   `>>Plenum float high/mid/low` (check the plate length and choose the appropriate setting as labeled above)
   `>>Picker roller up`
   `>>Check the slipsheet float` . The slip sheet should be floating gently and have clearance with the whole plate. Adjust the course and fine adjustments to increase or reduce the setting.



4. When the adjustment is complete, type the following:
```
>>picker roller vac off
>>picker slider home
>>plenum float off
```

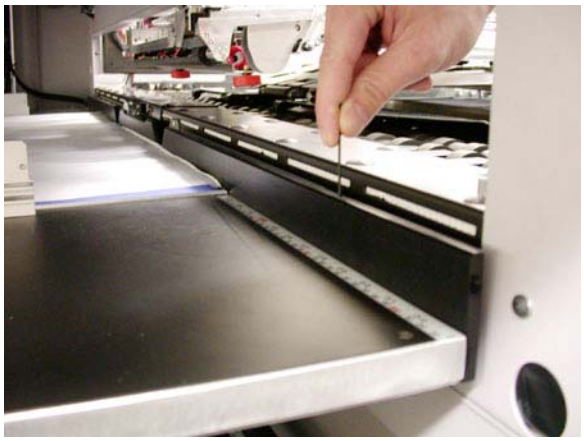
3.16 Checking the Cassette Location

If the cassette is not located properly against the plenum rollers, the DM picker may have difficulty in picking the slip sheet because the cassette is too far from the plenum. The following procedures must be performed on all cassettes in the MCU.

1. Move a cassette to the pick position.
2. Open the MCU service access door to inspect the cassette position. The MCU spring should be in contact with the side of the cassette. A clearance of 1-2 mm is acceptable because when the access door is closed it will push the spring towards the cassette.



3. Open the SSR top cover to inspect the other side of the cassette. The cassette side rail should be in contact with rollers located on the plenum. Check both the front and back rollers. Use a 1.5 mm hex key or a steel ruler of similar thickness to measure the gap between the rollers and the cassette rail—a gap of 1.5 mm is acceptable.





3.16.1 Adjusting the cassette position

If the cassette side rail is more than 1.5 mm from the plenum rollers:

4. From the service access door, manually push the cassette towards the plenum rollers. Check the gap again. If the gap is acceptable, shim the MCU springs by spacing them out with washers until they are in contact with the side of the cassette.



MCU springs as seen from the inside of the MCU to show the location of the screws

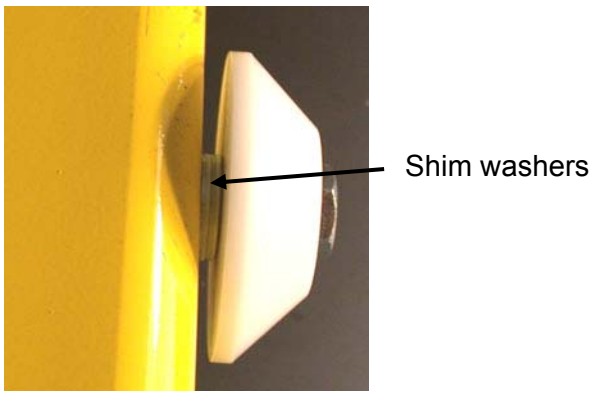
If the cassette side rail is still more than 1.5 mm from the plenum rollers, the MCU fork wheels must be adjusted:

5. Using hex keys as gauges, measure the distance from the plenum rollers to the cassette side rail and note the gaps down.
6. Close the MCU service access door and the SSR top cover.
7. Unload the cassette being checked from the MCU. Open the access door again after unloading the cassette.



MCU fork rollers to be adjusted

8. Remove the appropriate number of shim washers from the MCU fork wheels located on the fork closest to the access door (and furthest from the plenum).
   For example, if the gap was 4 mm, remove one shim washer (each shim is 2.5 mm) from behind the MCU fork wheels. The remaining gap should then be ≤1.5 mm.



9. Close the access door and reload the cassette into the MCU.
10. Open the access door and SSR top cover.
11. Repeat steps 4 to 10 until the gap on both sides of the cassette rail is correct.
12. Reload the cassette in to the MCU and push the cassette towards the plenum. The cassette side rail should now be in contact with the plenum rollers.
13. Shim the MCU cassette springs towards the cassette so that they are in contact with the side of the cassette.