Kodak

Magnus VLF Punching System

Troubleshooting Registration Bar Movement

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Revision History

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3	17 Apr 2008	A.Blignaut	Corrections and additions made from Rob.

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1. OVERVIEW

The proper movement of the Magnus VLF punch registration bar is an essential aspect to the proper function of the punch system. The intent of this document is to describe what the proper speed and working of the registration bar should be.

Function: The function of the punch registration bar is to hold the plate securely on the bar while it delivers the plate to the rotary registration pins on the punch beam. The punch heads can then cut the holes in the correct location on the plate.

Speed: The bar should move up slowly and evenly on both sides. If the bar moves up too quickly, then the plate edge can be subjected to denting or damaging. The bar should move back in a quick movement but should not make a very loud slamming sound.

See the video showing an example of the bar moving forward and backward properly:

Forward  Backward 

2. PARTS/TOOLS NEEDED

Upgrade kit - 512-00507A
(includes speed control fittings, shimming washers, and extra tubing).

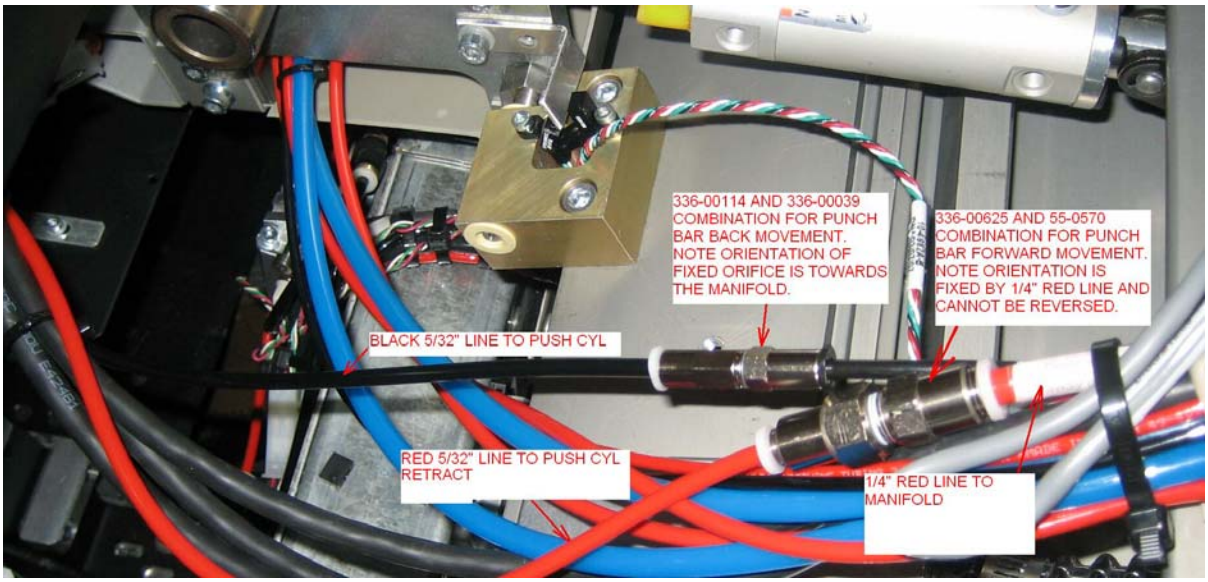
3. CHECKING THE SPEED CONTROL FITTINGS

The speed control is achieved with a set of fixed orifices in both the red and black lines for the home and away push cylinder assemblies. These orifices have check valves that allow the metering to work in one direction only. They are all type **A** orifices (or meter air out type) that are inline with an adaptor fitting attached to them.

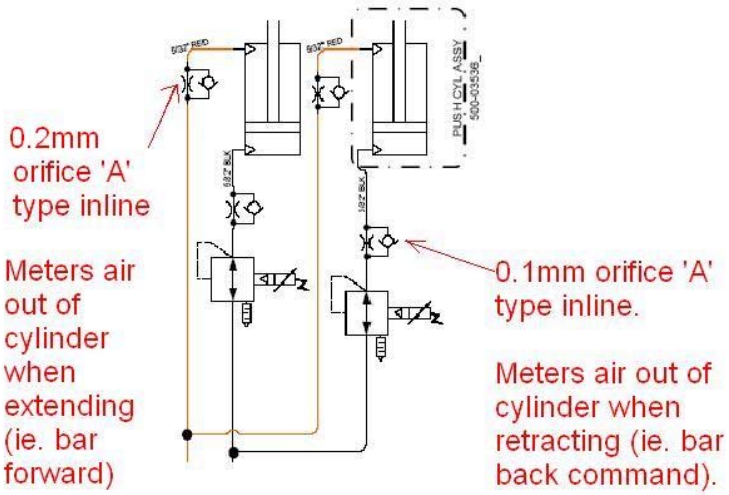
Note: The type and orifice size is stamped on the fitting itself. If **A** is not stamped on it, then the fitting is not a check valve type speed control and should not be used.

The picture below shows the orientation of the speed controls. Replace the old fitting in the black tube coming from the back of the push cylinders with a 0.1 mm orifice **A** type inline fitting (fitting must point to the manifold). The part #'s for these are 336-00039 for the orifice and 336-00114 for the adaptor. The type **A** orifice is added in the black tube to slow the registration bar when it comes back.

Check the fittings in the red line and replace if necessary. There should be a direct connection from the fixed orifice to the ¼ in. red line towards the manifold. The part numbers are 336-00625 (**A** type 0.2 mm orifice) and 55-0570 (adaptor). Remove the inline adaptor that may have been in the tube before the original fixed orifice. If the ¼ in. line is too short, then use a ¼ in. union and extra tubing to get the correct length set.



Below is a schematic view of the cylinders and orifices. You can see that they are all metering air out of the cylinders.



4. CHECKING THE REGISTRATION BAR SPEED

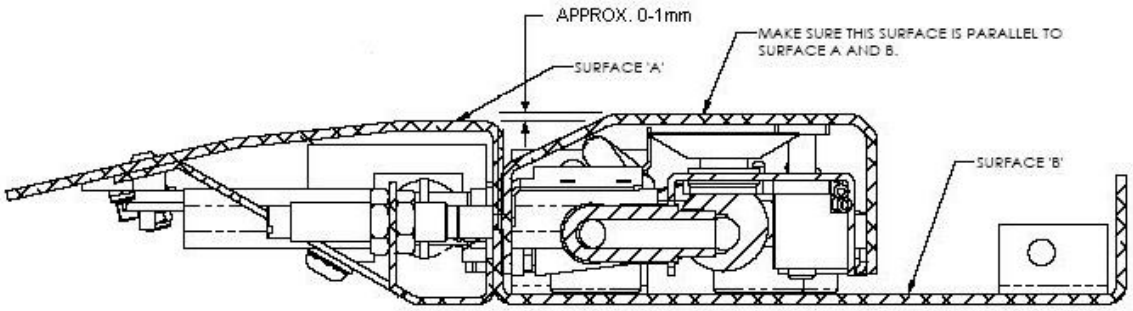
1. Unlock the rear hood. Type `>>door unlock` .
2. Open the rear hood.
3. Turn the safety interlock override (SIO) switch to **Interlock Override**.

CAUTION: Beware of all moving parts on the Magnus VLF with the SIO switch in the Interlock Override position.

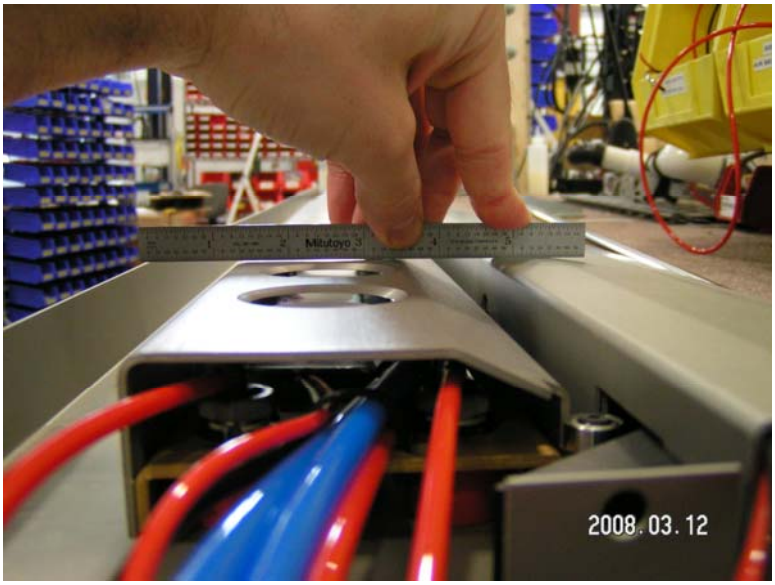
4. Move the punch deflector down. Type `>>punch deflector dn` .
5. Turn on the air bearings. Type `>>punch float on` .
6. Move the registration bar up. Type `>>punch bar forward 800` where the number is related to the pressure in the cylinders. Without a plate you should only need somewhere between 600 and 900 to move the bar up relatively slowly.
7. Wait for the command to timeout (10 to 20 seconds or so), then move the registration bar back to observe the return speed. Type `>>punch bar back` .
8. Repeat this to see the motion properly.
9. Move the punch deflector up and turn the punch float off when done. Type:
   ```
   >>punch deflector up
   >>punch float off
   ```
10. Close the rear hood and turn the SIO key to **Normal Operation**.

5. CHECKING THE REGISTRATION BAR ALIGNMENT

The angle and the height of the registration bar controls how the plate's leading edge enters the punch heads. The registration bar should be close to parallel to the punch deflector pan's top surface (surface **A**) and should be 0 to 1 mm above surface **A**.



Measure the registration bar height in many places along the bar to determine if it is twisted. Make notes on where it is high or low and by how much. This will be needed later on to know where to adjust the height with shims on the air bearings.



5.1 Aligning the Registration Bar

Remove the deflector pan from the punch unit:

1. Disconnect all the air lines going to the punch registration bar.
   They cannot be hooked up backwards so it is not necessary to label them.

2. Disconnect the cable for the up-looking plate sensor in the middle of the punch deflector.

3. Remove the deflector pan by removing three screws on each side-plate mount—two longer screws and one very short one near the pivot. Take care not to drop these two screws as it is difficult to access this area.
   It helps to have two people to support the pan, but if a helper is not available then

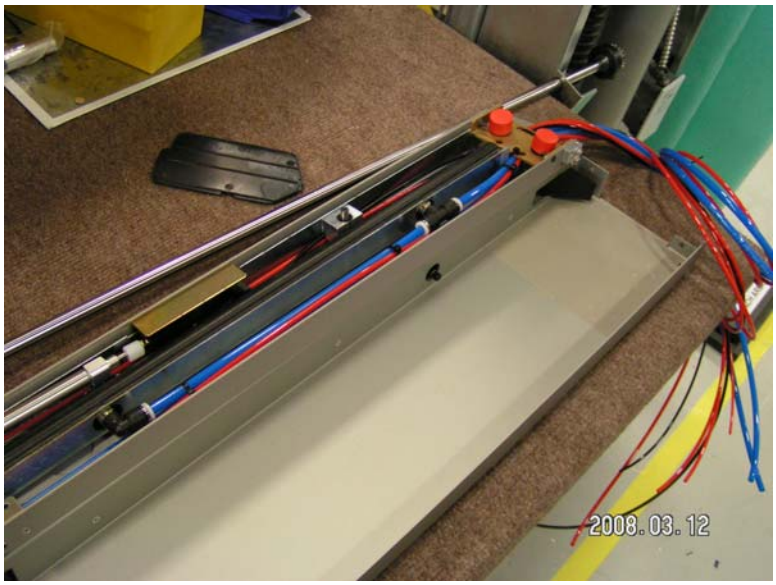
support one side with foam while working on the other side and then switch. The whole assembly can be removed by angling it out and putting it on a table or other flat surface.

Remove the registration bar from the deflector pan:

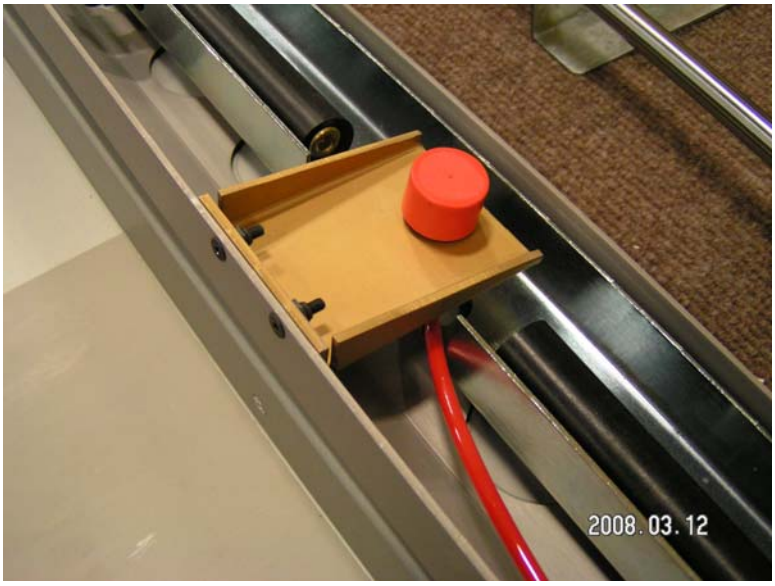
1. Remove the two M4 screws that attach the two push cylinders to the registration bar through the rod ends. There are two access holes to remove the screws (unwind the screw and then pull it vertically out).



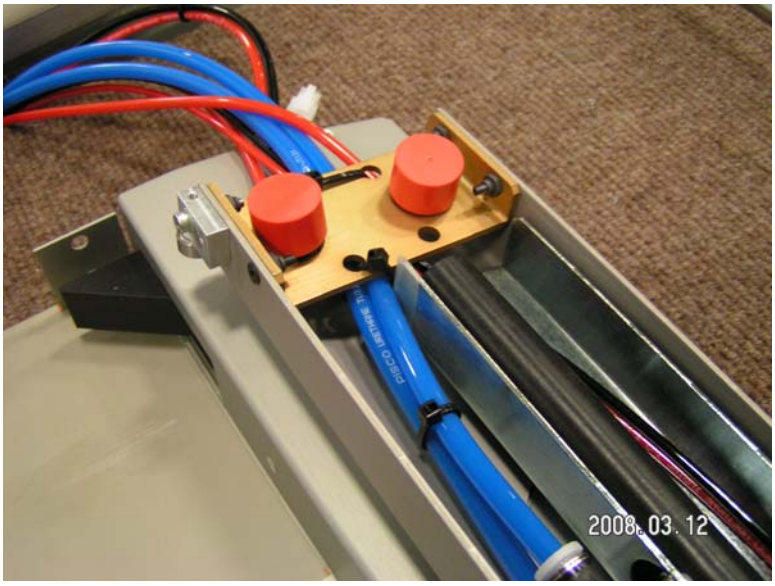
2. Pull the registration bar away from the push cylinders until it hits the backstop and rotate the bar up and out from the cylinders. Place it upside down and look at the five air bearings that the registration bar rides on.



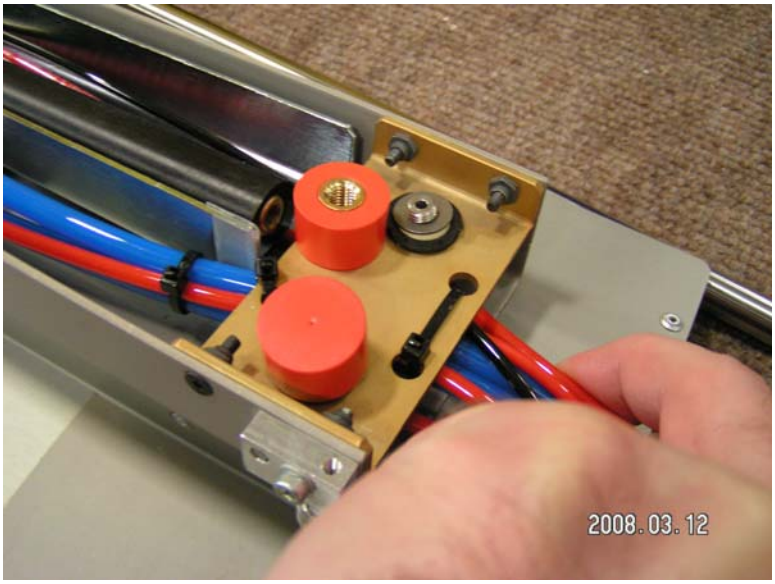
Center air bearing:



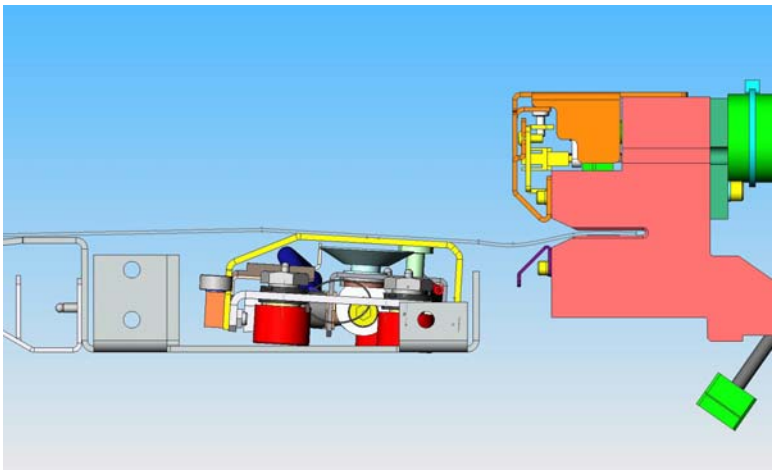
Outer air bearings:



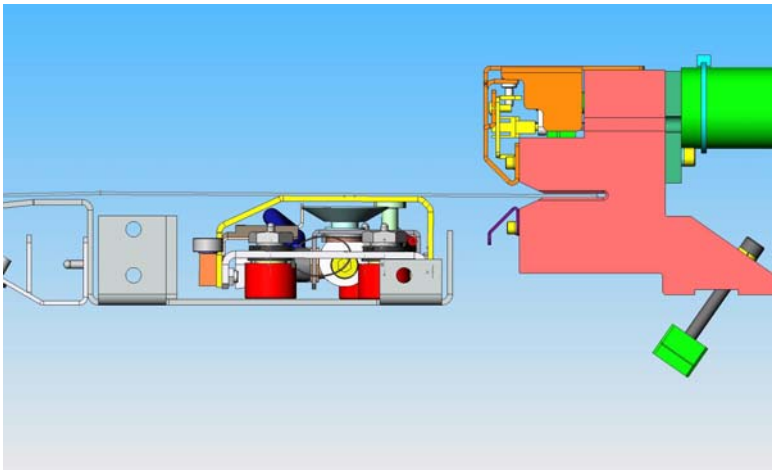
The five air bearings can now be shimmed using washers (52-7244) to compensate for any registration bar twisting. With the air bearing removed, add a washer on the air fitting's thread.



With an incorrectly aligned registration bar, the plate binds and increases the force necessary to achieve proper plate registration.



With a properly aligned registration bar, the plate is free to move into the punches without causing extra friction.



6. CHECKING THE PEEK TAPE

The condition of the PEEK tape under the registration bar's air bearings will affect the way the bar moves. The tape should not have any nicks or scratches in it that will alter the friction characteristics of the bar moving. If the tape is damaged, then replace the damaged pieces with new tape.

Periodically clean the PEEK tape with alcohol to keep the friction to a minimum.