

## JV3 Series - S-Head Replacement Procedure

This document details the correct procedure for replacing Print Heads in the JV3 series of solvent printer. Before attempting this procedure ensure that you have read and understood this and all related documents. Ensure also that you have all the required parts and tools on hand.

### Tools and parts required for this procedure:

|                                   |                                       |
|-----------------------------------|---------------------------------------|
| Phillips screwdriver, type 2      | Hex Wrench 2.5mm (Approx L=170mm)     |
| Needle nose pliers or tweezers    | Magnifying scope (approx 50x mag)     |
| Pair of solvent resistant gloves  | Protective goggles                    |
| Paper towels or rags for cleaning | S-Head Replacement Solution (M005026) |
| Syringe/Damper Tool (M005027)     |                                       |

**As head cables are easily damaged when removing and re-installing we recommend having at least one of the following parts on hand:**

|                                 |                                 |
|---------------------------------|---------------------------------|
| 1x Head FPC cable 1 (# E102216) | 1x Head FPC cable 2 (# E102217) |
| 1x Head FPC cable 3 (# E102218) |                                 |

### Related Procedures:

---

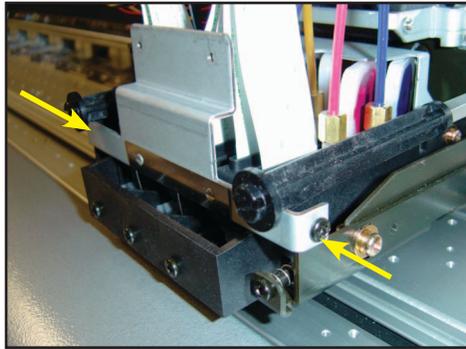
- JV3 Series - Procedure for Print Adjust 2

-  **Ensure that front and rear power switches are turned off before beginning.**
-  **Proper eye protection and gloves must be worn when handling Cleaning or S-Head replacement Solution.**

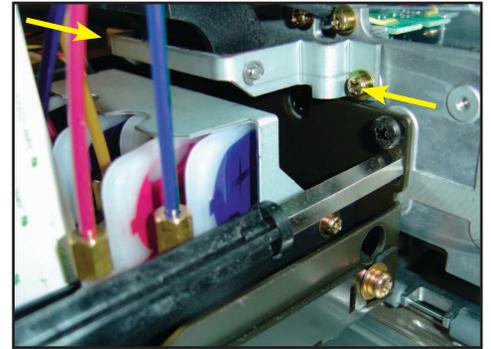
# 1. Removal of Damaged Print Head:



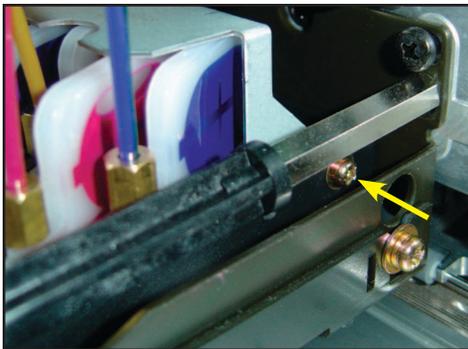
1-1. Ensure both power switches are off. Move Carriage out over Platen by hand. Remove indicated screws and remove Head Cover.



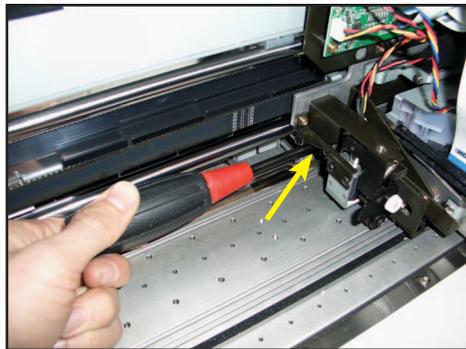
1-2. Remove the two indicated screws and remove the Head Cover Bracket.



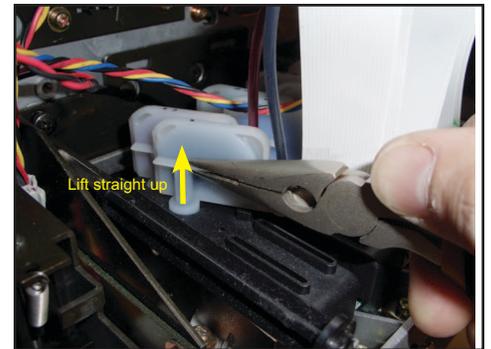
1-3. Use a coin to ensure that Head-Lock Screws are tight then remove screws on left and right ends of Head Lever Bracket. Remove entire Head lever taking care not to damage Head FPC Cables.



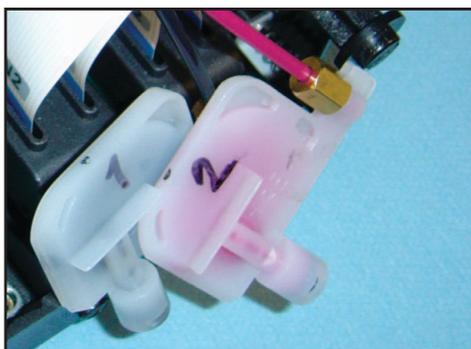
1-4a. Loosen the two screws that secure the Damper Holder Bracket, tilt up and remove.



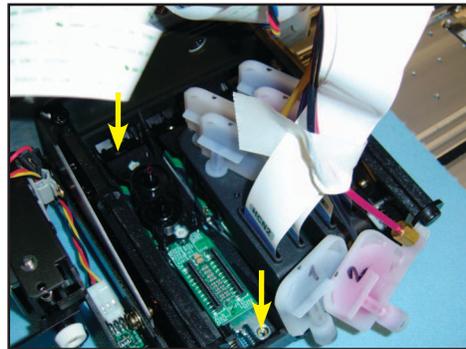
1-4b. Left screw is accessed through this opening in Head Bracket and Cutter Bracket.



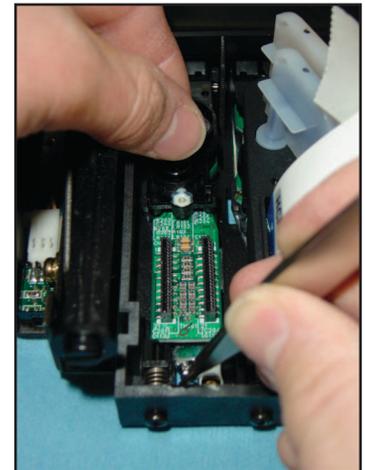
1-5. Unplug the pair of FPC Cables from the head you wish to replace and tuck cables up out of the way. Using long-nose pliers as shown, remove each of the two Dampers. **Be especially careful not to drip ink onto FPC Cables or contacts on Head!**



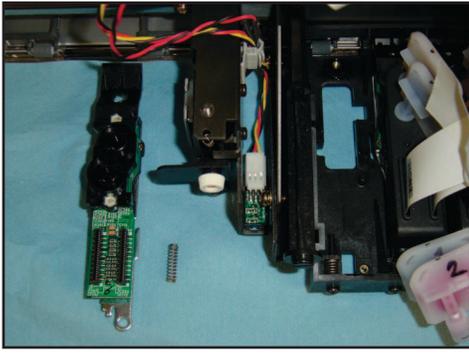
1-6. If replacing multiple Heads it is a good idea to label the position of each Damper. Newer models may already have a small ID tag on each ink line. **Take care not to touch or damage the clear membrane on back of Damper!**



1-7. Tape ink lines and Dampers out of the way. Lift off the plastic Damper Holder that covers the head. Remove the hex screw from front and rear of Head Adjusting Plate.



1-8. Wipe any ink from the damper projections. Grasp damper projection nearest to you. Using tweezers or needle-nose pliers to compress the spring, tip head forward and lift to remove.



1-9. Head and Adjusting Spring removed. If head is covered by warranty, flush, drain, place rubber cap over nozzles and package ready for return to Mimaki USA.

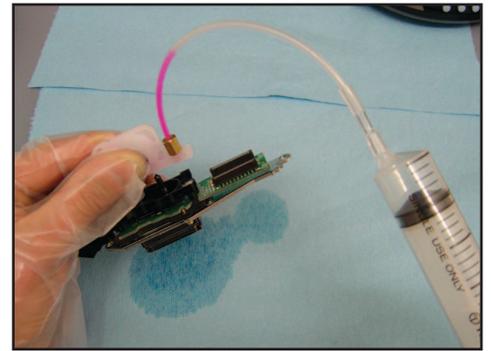
## 2. Installation of New Head:



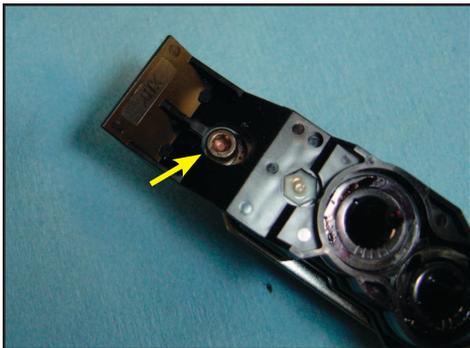
2-1. Unpackage new head. Copy down the new Head ID exactly as it appears on head.

### ! Important:

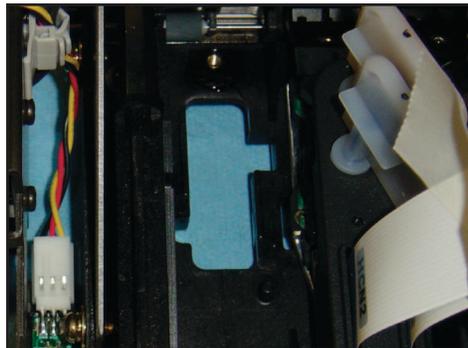
Water-based transportation liquid (S-46), supplied in the head at the time of shipment, reacts to solvent ink and may cause clogging. Therefore, it is necessary to wash the new head before proceeding with installation.



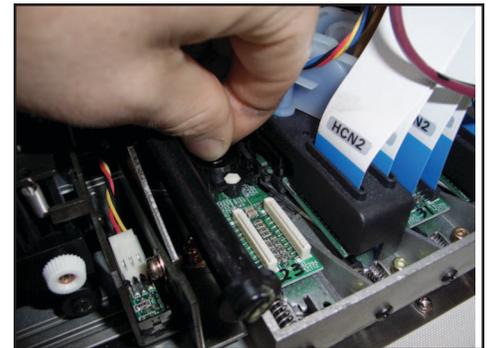
2-2. Fill syringe with 6-8 cc of S-Head Replacement Solution. Inject approx 3-4 cc into each Damper Insertion Projection over a period of about 30 seconds. **Head can be damaged if fluid is injected too fast.**



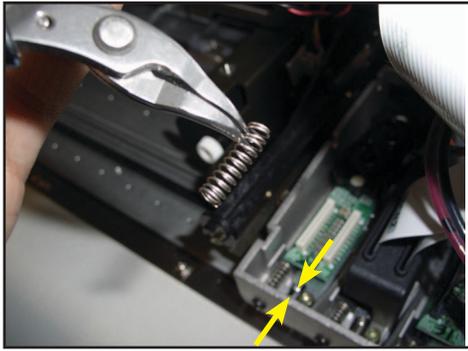
2-3. Insert hex screws in holes at front and rear of Head Adjusting Plate.



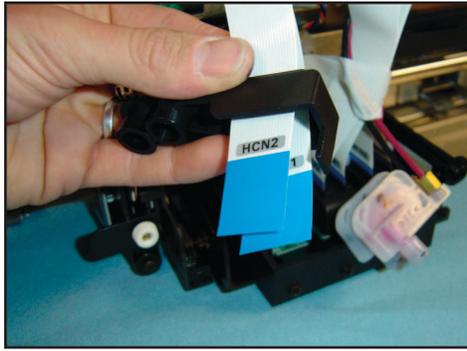
2-4. Before installing new Head inspect the area where Head will sit for any debris such as dried ink. Clean with Solvent (SPC-0336) if necessary.



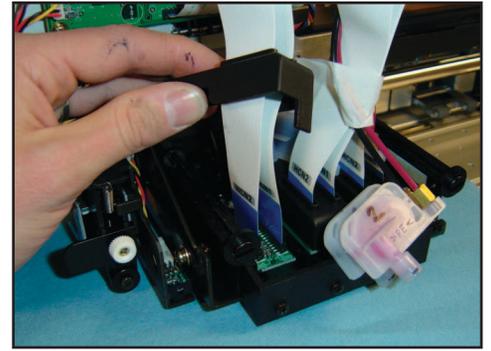
2-5. Grasping damper projection, place Head in position. Install, but do not tighten the front and rear hex screws.



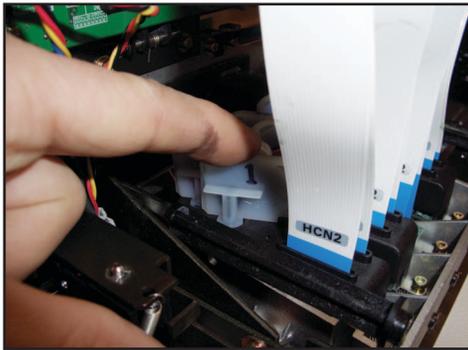
2-6. Grasp spring near onje end with needle-nose pliers. Insert spring one end first then compress to complete installation. Lightly tighten the front and rear hex screws.



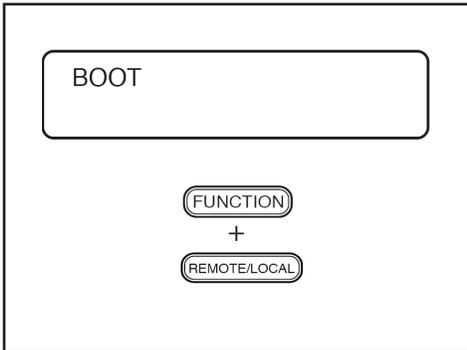
2-7a. Thread Head FPC Cables back through the Damper Holder. Cable HCN2 goes through the left slot and HCN1 through the right. Blue side of cables face to the left.



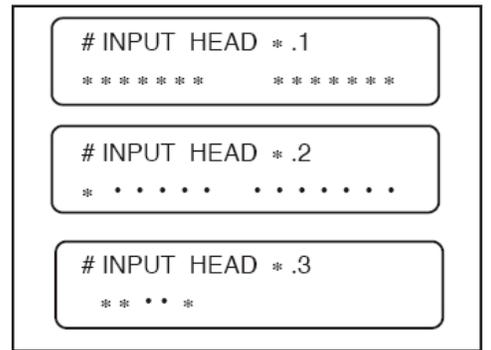
2-7b. Connect the FPC cables, taking care that they are seated correctly. **A cable seated at an angle may short out, damaging cable and head!** Lower Damper Holder into position.



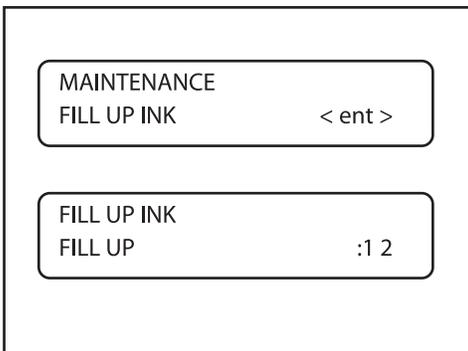
2-8. Re-install the Dampers in their original positions and ensure that they are properly seated. Re-install the Damper Holder Bracket, the Head Cover Bracket and the Height Adjustment Lever.



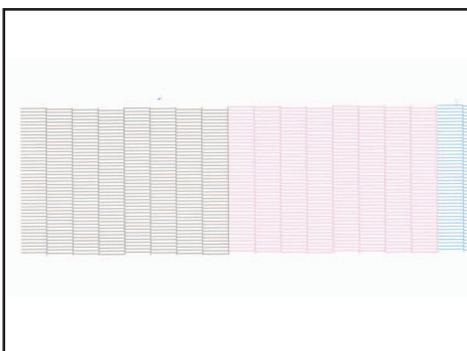
2-10. Restore power to the printer and put into Service Mode. (FUNCTION and REMOTE keys are held as printer boots).



2-11. Use the arrow keys to enter the new Head ID. (#ADJUST ⇌ HEAD ID). Ensure that the correct Head is selected and all ID values are entered correctly. Incorrect entry will result in a error code.

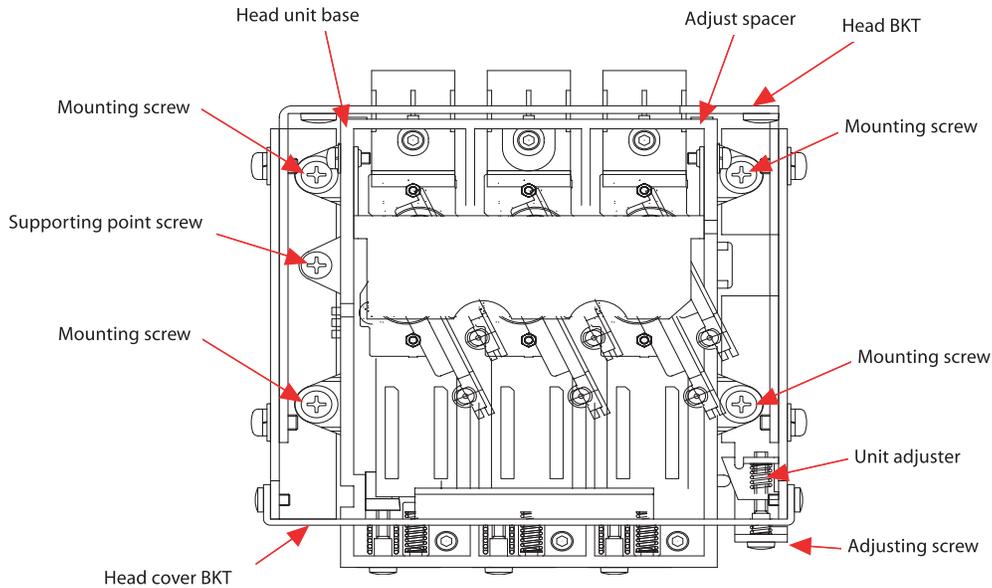


2-12. Perform an Ink Fill Up to fill the new Heads with ink (MAINTENANCE ⇌ FILL UP INK). As the printer is in Service Mode you can choose just Pump 1 or Pump 2 if desired.



2-13. Perform a TEST DRAW to confirm that all nozzles are firing correctly. Perform additional Ink Fill Ups or Cleanings if necessary.

### 3. Mechanical Alignment of Heads - Unit Adjust



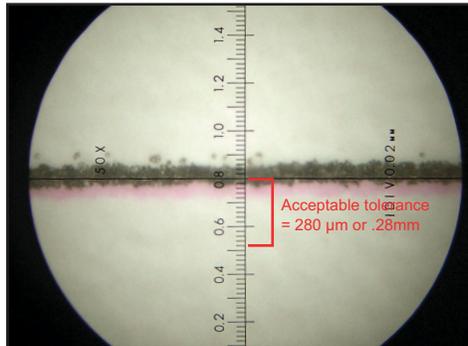
**!** Note that these instructions assume that a magnifying scope which produces an inverted image will be used. Please rotate adjustment screws in the opposite direction than shown here if this is not the case.

```
# ADJUST
HEAD ADJUST < ent >

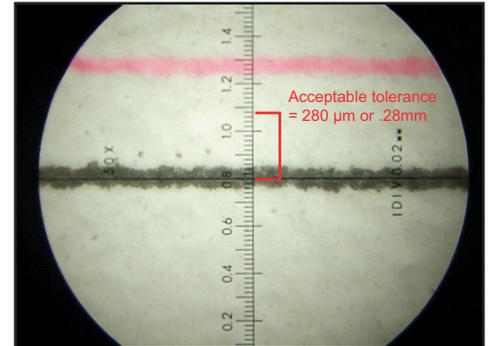
#HEAD ADJUST
UNIT ADJUST < ent >

#ADJUST
PRINT START : ent
```

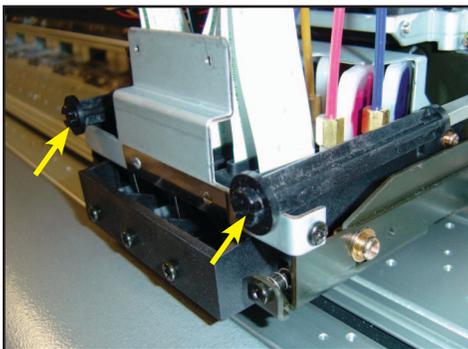
3-1. Ensure that Heads are in the thin position. Proceed to the menu item #ADJUST ⇒ HEAD ADJUST ⇒ UNIT ADJUST. Press ENTER to run the print.



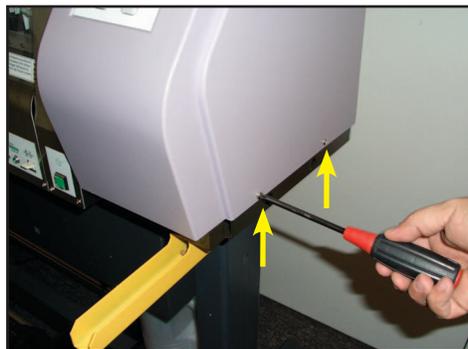
3-1. This example shows how a correctly adjusted print should look. The colored line is well within 280 µm (.28mm) of the black so does not require adjustment. If your print already looks like this then you may proceed to step 4-1.



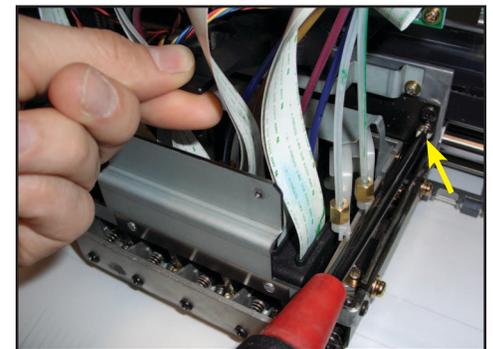
3-2. This example indicates that the unit angle requires considerable adjustment. On a 4-Color JV3 you will be comparing cyan to black, on a 6-color, light magenta to black.



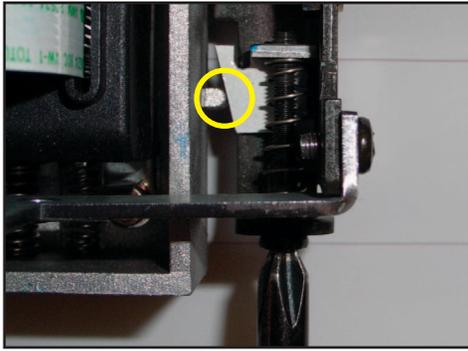
3-3. Bring the Carriage out over the Platen by pressing the left arrow key. Using a coin, completely remove the Head Lock Screws.



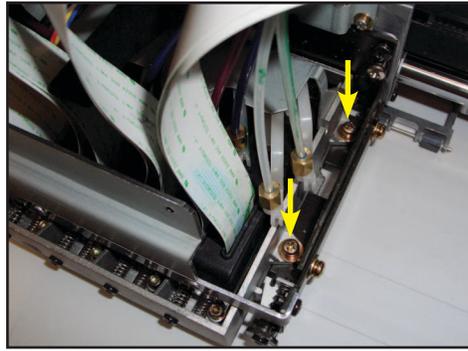
3-3a. Remove the two indicated M4 screws from the Right Cover - We will use these to temporarily replace the removed Head Lock Screws



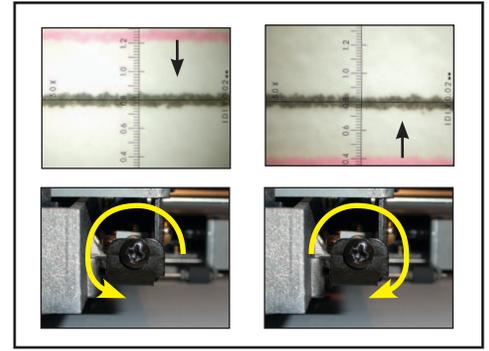
3-3b. While lifting up on the Height Adjust Lever, tighten the M4 screws in the holes from which the Head Lock Screws were removed.



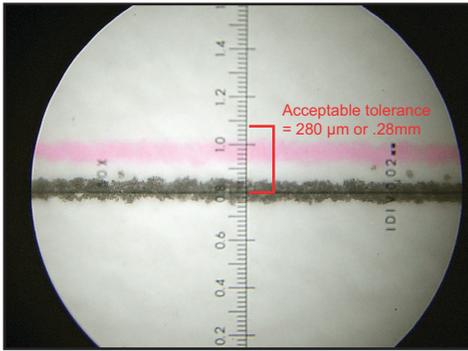
3-4. Turn the Adjusting Screw until the ramp of the Unit Adjuster just touches the protrusion on the Head Base.



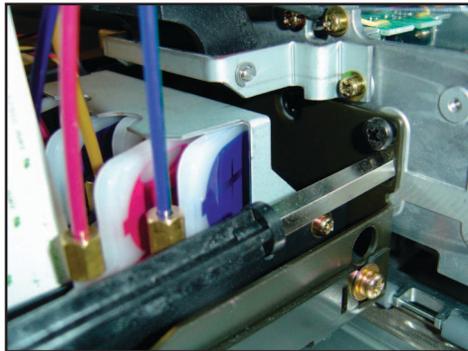
3-5. Now loosen all 4 Mounting Screws that secure the Head Base to the Head Bracket.



3-6. Use the Adjusting Screw to correct the Angle of the Unit. Typically, 1 full turn of the screw will move the colored line approximately 100 μm (0.1mm). Lightly tighten the Mounting Screws and then push ENTER to run the print again.



3-7. Here is the result after turning the screw 3 rotations counter-clockwise. Although the two lines are not perfectly registered this is an acceptable result. Repeat steps 3-5 & 3-6 until your results fall within acceptable tolerance.



3-8. Ensure that Mounting Screws are properly tightened. Re-install the Head Lock Screws and replace the cover screws that you borrowed in step 3-3a.

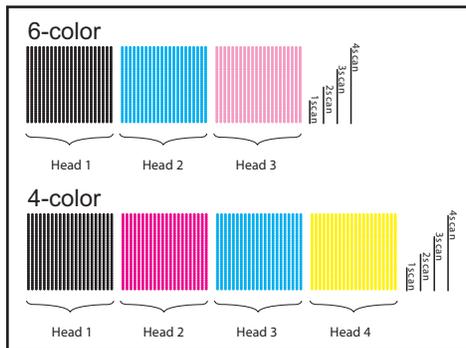
## 4. Mechanical Alignment of Heads - Slant Adjust

```
#ADJUST
SLANT adjust    < ent >
```

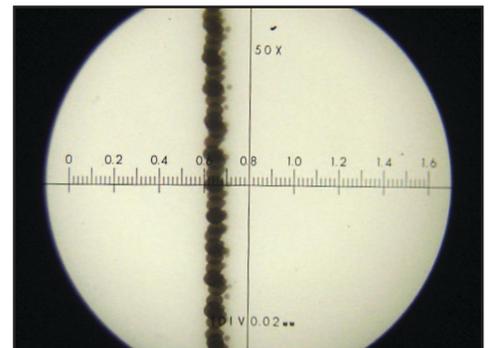
```
#ADJUST
TYPE           : 720 4pass
```

```
#ADJUST
PRINT START    : ent
```

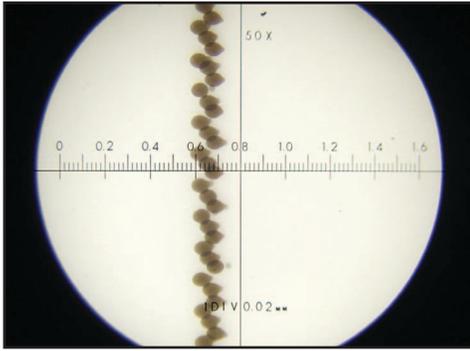
4-1. Ensure that Heads are in the thin position. Still in the HEAD ADJUST menu, proceed to the menu item SLANT ADJUST ⇒ 720 4pass. Press ENTER to run the print.



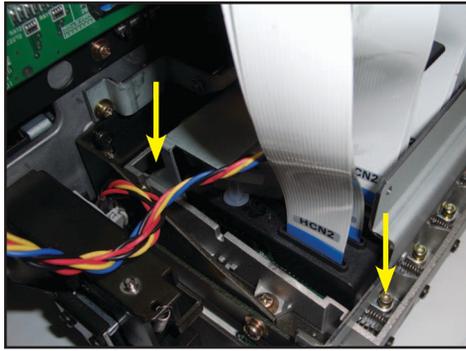
4-2. Find the color pattern that corresponds to the Head that was replaced and use the magnifying scope to examine it. Note that the patterns are slightly different between the 4-color and 6-color model.



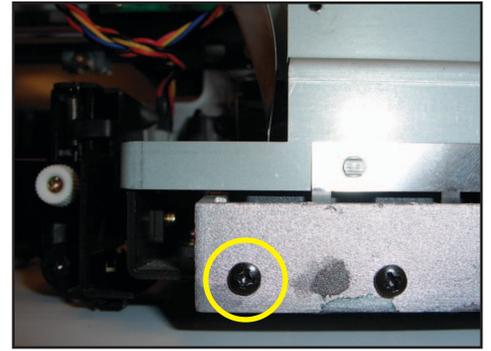
4-3. This example shows how a correctly slanted head should look. Notice how all the dots are vertically aligned. If your print already looks like this then you may proceed to step 4-8.



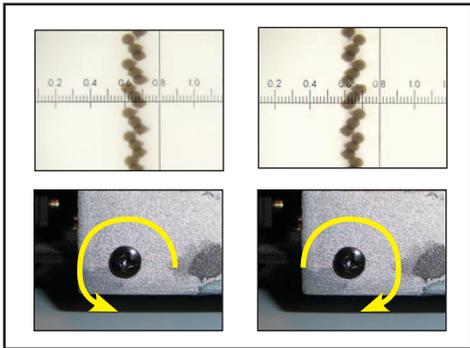
4-4. In this example we can see that the Head is noticeably slanted - Adjustment will be necessary.



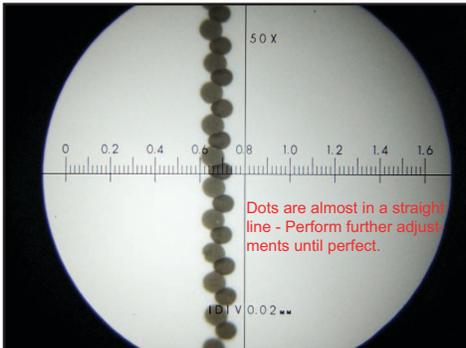
4-5. Press the left arrow key to move the Carriage out over the Platen. Loosen the hex screws securing the front and rear of the Print Head.



4-6a. Use the corresponding Adjustment Screw to correct the Slant of the Print Head. As a rough guide, 1 full rotation will move the dots about 50  $\mu$ m (0.05 mm).



4-6b. If the dots slant to the left when viewed through the scope, the adjustment screw should be rotated counter-clockwise. If slanted to the right, then turn screw clockwise.



4-7. Lightly tighten the screws loosened in step 4-5. Press ENTER to run the print and check the results. If necessary, return to step 4-5 and repeat adjustments until dots form a single vertical line.



4-8. With Carriage out over the Platen, fully tighten the hex screws that secure the Print Head. Replace the Head Cover and press END several times to return to LOCAL mode.

**Replacement and mechanical adjustment of Print Heads is now complete. Please refer to the following document for procedures to perform electronic alignments:**

- JV3 Series - Procedure for Print Adjust 2