P/N: 111484 R0

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FlexJet Carriage Circuit Board (PCB) Replacement

ATTENTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

Notices:

Warning! *Ensure that all AC power cables are removed from the printer before attempting these procedures.*

Attention! *The discharge of static electricity may damage the carriage and logic board components. Use the included ground strap during all procedures. Keep plastic objects away from the carriage and logic board assemblies.*

Warning! *The FlexJet is heavy and could cause serious injury or death if it falls or rolls over. Make sure that a minimum of two people move it, especially when detached from the stand.*

Tools Required:

- Phillips screwdriver
- 9/64 (3.5mm) Allen wrench
- 5/16 (8mm) open end wrench
- Small flat tipped screwdriver
- Wire Cutters

Included with the upgrade kit

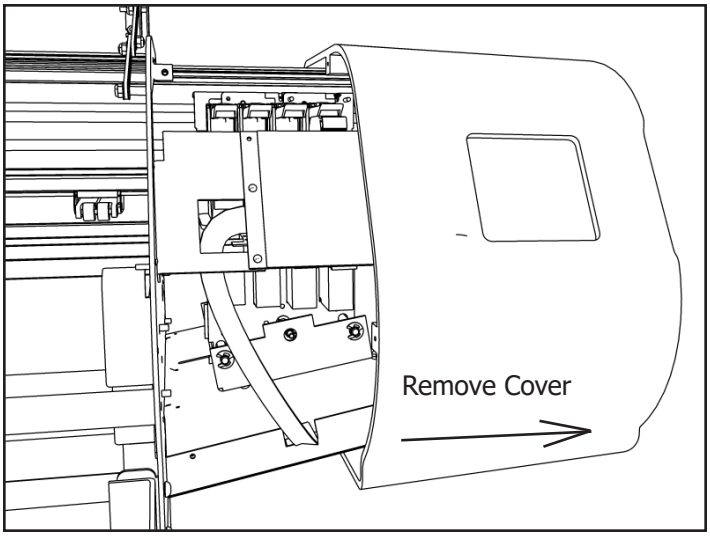
1) Carriage Circuit Board
2) Tyraps (5)
3) Grounding wrist strap
4) This procedure

1 Prepare the printer

a) Turn the FlexJet power off.
b) Clear paper from around the carriage.
c) Remove inkjet cartridges. Do NOT cover the cartridge heads with anything.
d) Remove the AC power cable and any other cables connected to the rear of the printer.

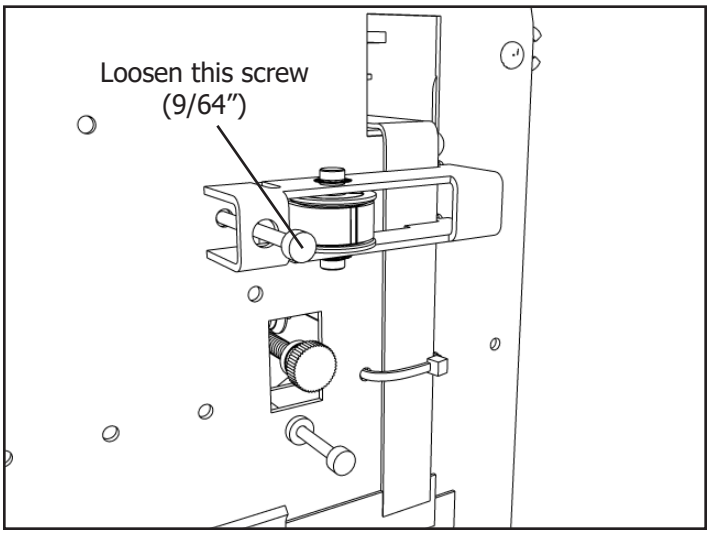
2 Remove the end cover

a) Unplug the roll feed motor under the right end cover.
b) Remove the 5 screws that hold the plastic end cover on to the right end of the printer. There are two on the flat surface of the endplate, one screw in the back, and 2 screws on the bottom.
c) Pull the cover to the right and off the machine then set it aside.



3 Loosen the Carriage Belt

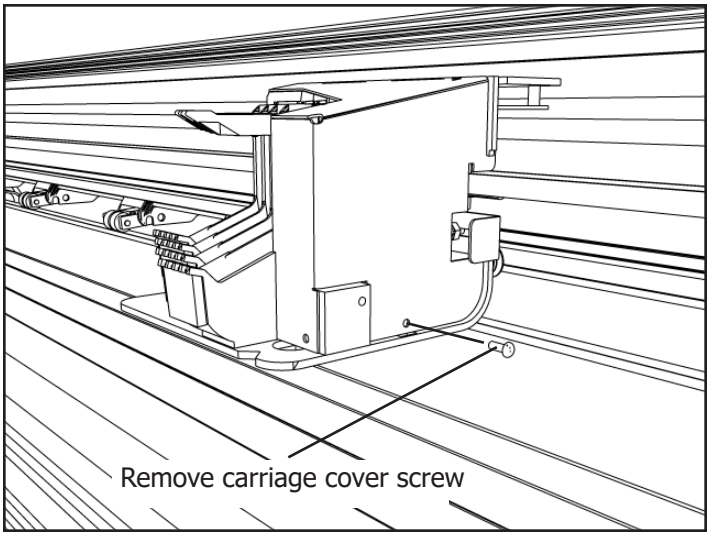
a) Find the belt tensioner on the right side above the white cables.
b) Loosen the carriage belt tensioner by rotating the 9/64” HEX screw 4 full counterclockwise turns.



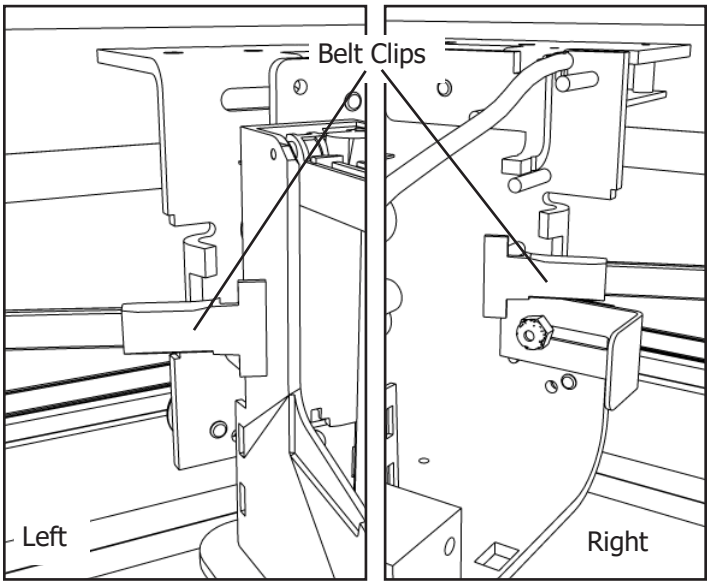
4 Remove the Carriage

a) Remove the Phillips head screw at the right side of the carriage cover. This screw holds the carriage cover on.

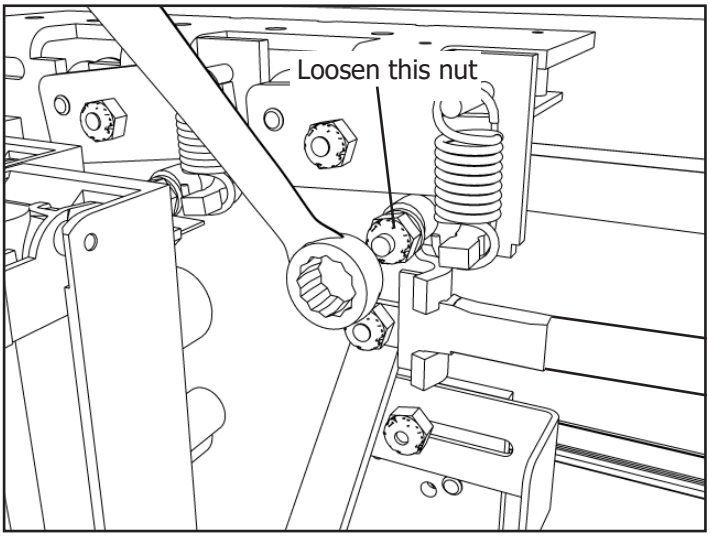
b) With one hand to each side of the carriage, gently pull the carriage cover tabs out that are located near where the carriage belts attach to the carriage and remove the cover.



c) Unclip the carriage belt ends at the left and right sides of the carriage base.



d) Using a 5/16 (8mm) open end wrench loosen the #6-32 hex nut ½ turn under the RIGHT and LEFT swing arms until the washers and round spacers can move freely.

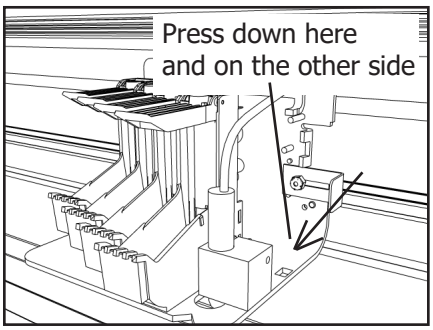


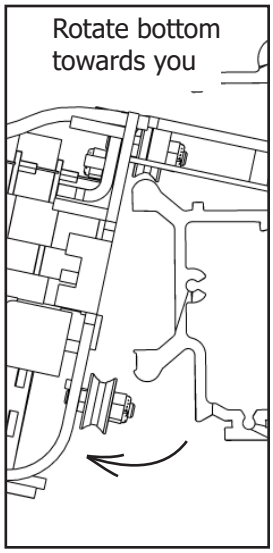
e) Hold the carriage at the right and left side of the metal base with both hands.

Important: *Do not hold the carriage by the inkjet head stalls or the sensor.*

f) Keeping the top two carriage v-wheels on the traverse, gently push the carriage down and rotate the bottom of the carriage towards the front of the machine until the lower v-wheels slip off of the lower traverse rail.

g) Lift the carriage up and away from the machine. The long flex cable bundle should follow the carriage as you pull it off.



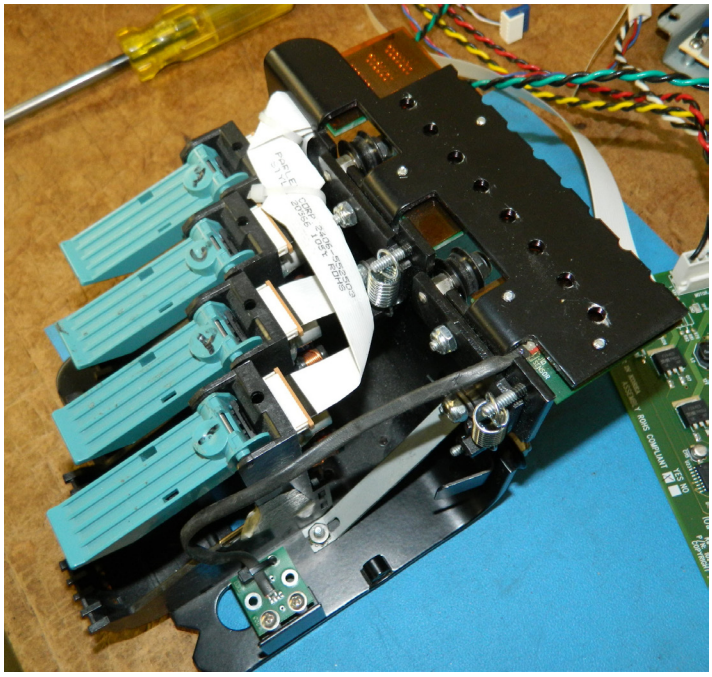


h) Cut the cable ties holding the ribbon cable bundle to the top of the carriage then disconnect the ribbon cable ends from the carriage circuit board. The cables are staggered so there is only one way they can be installed on the new carriage assembly.

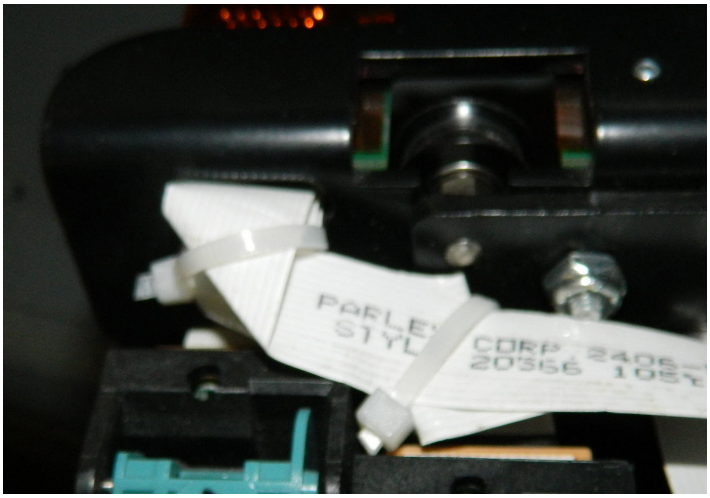
5 Remove the Old Carriage Board

a) Make sure to keep the static bracelet attached to your body and an earth ground so that the carriage circuit board is not damaged during replacement.

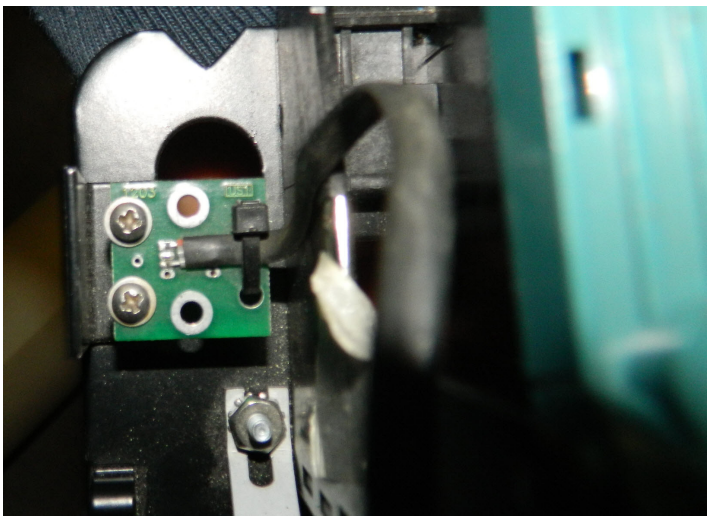
b) Place the carriage on a flat surface with some cardboard or other padding underneath. It should look like the image below.



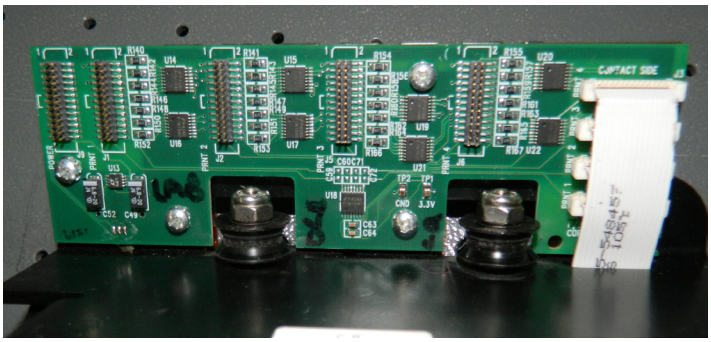
c) Check that the bundle of white flat cables that connect each print head to the carriage circuit board is tied together with a cable tie. If it is not, place a piece of masking tape around the bundle. See the four head carriage example below. Other models may have less cables.



d) Remove the two screws holding the LED board to the metal carriage base so that it is loose. Save the screws for re-use later.

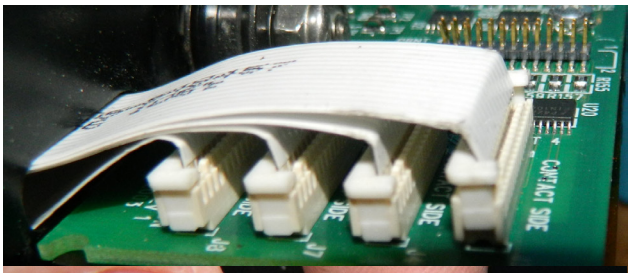


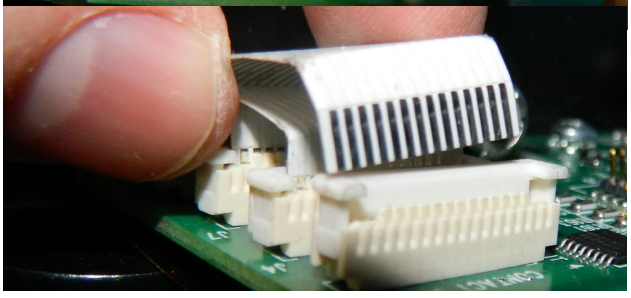
e) Turn the carriage upside down so that the circuit board is facing out as shown below.



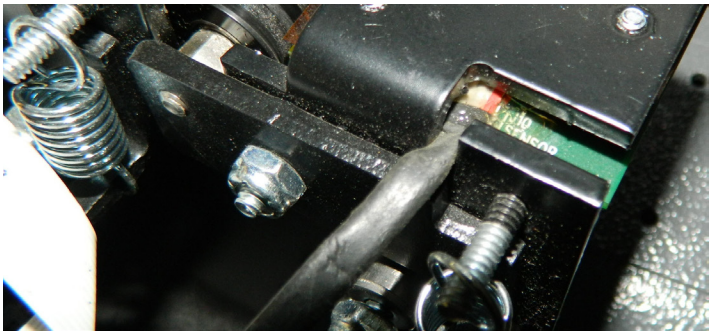
f) Remove the four screws that hold the old circuit board on the metal carriage base. Save the screws for re-use later. Keep the transparent spacer sheet under the board in place.

g) Disconnect all the white cables from the carriage circuit board by pulling up on both sides of the locking clip on each socket with a finger nail then lift the cable from the socket. The white cables should stay in order since they are bundled together with a cable tie or tape.





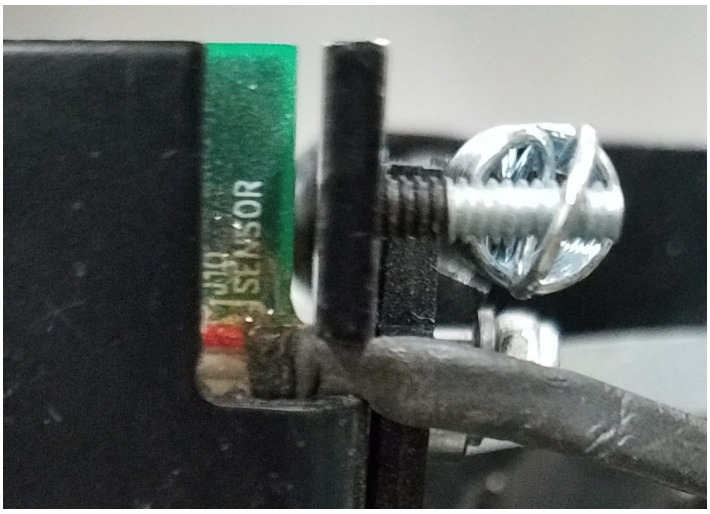
h) Remove the old circuit board by slowly pulling it away from the carriage base while guiding the LED circuit board cable through the notch in the top of the metal carriage base. Recycle the old carriage PCB in a safe manner. Visit https://ioline.com/about-ioline/recycle/ for help with disposing of electronics responsibly.



6 Install the New Carriage Board

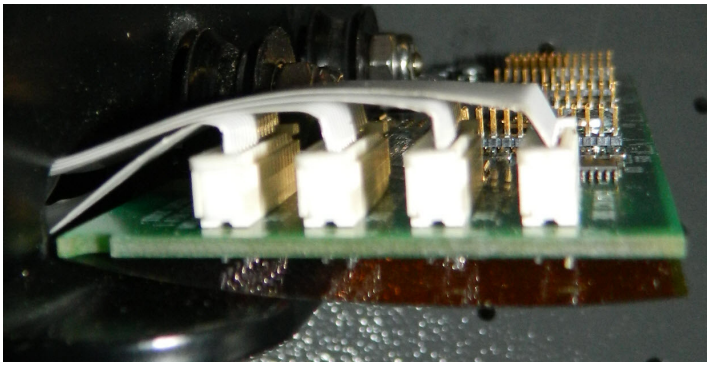
a) Carefully remove the new carriage circuit board from the static bag.

b) With the carriage on its side with the LED slot facing up, feed the LED circuit board and cable through the notch in the metal carriage base as shown below.

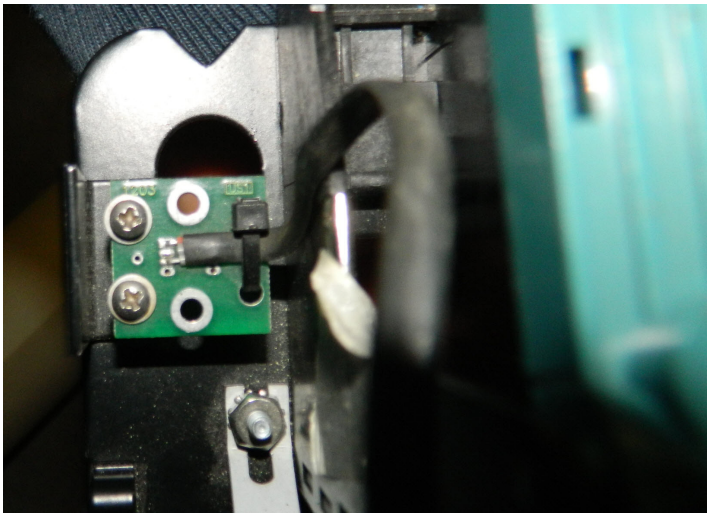


c) Ensure that the transparent orange spacer sheet remains on the carriage base then slip the carriage circuit board underneath the white flat cables and attach the carriage circuit board to the metal carriage base using the four screws saved during removal as shown.

d) Starting with the cable closest to the print heads, insert the white flat cables into the sockets in the new circuit board then push the locking clip down. Make sure that each cable is firmly and completely seated in the socket before closing the clip. Repeat for each cable.



e) Flip the carriage over so that the print heads are facing up then route the LED cable so that it does not interfere with the print heads and attach the LED circuit board to the metal standoffs using the two screws saved during removal as shown.

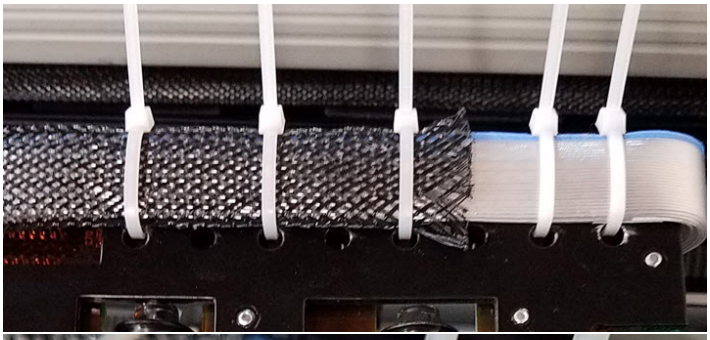


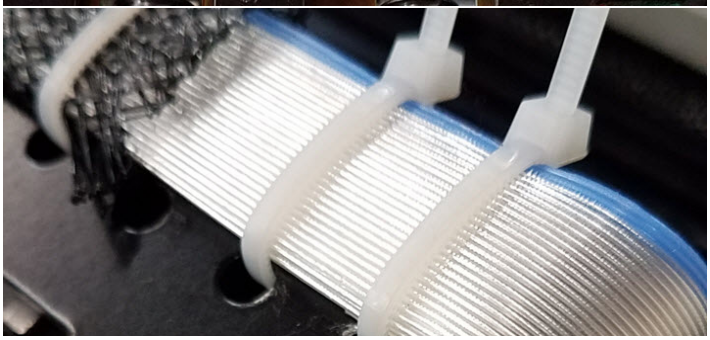
f) Move the carriage to the printer and proceed to the next step to install it.

7 Reinstall the Carriage

a) Connect the ribbon cable ends to the new carriage. Check to make sure each connector is plugged into all the pins.

b) Wrap the cable bundle around the top of the carriage base and cable tie in place as shown below. It is important that the black webbing is secured with some of the cable ties.

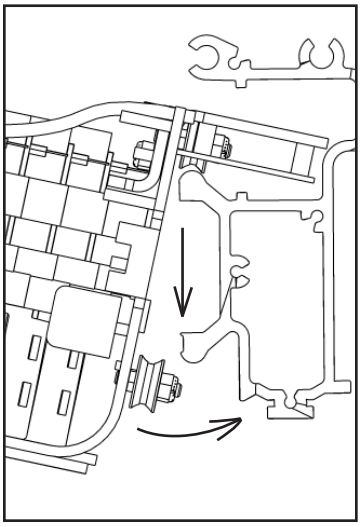


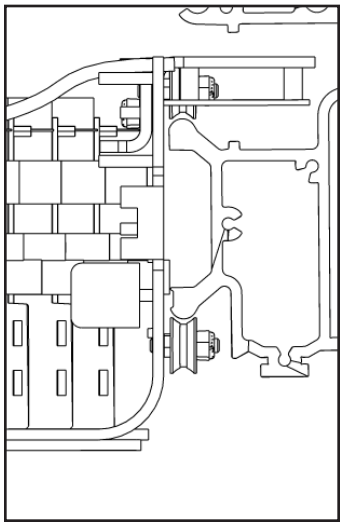


c) Ensure that the black drive belt is between the traverse rails and behind the carriage base. Hold the carriage at the right and left side of the metal base with both hands and slip the top two carriage v-wheels over the top rail of the traverse.

d) Keeping the top two carriage v-wheels on the traverse, gently push the carriage down and rotate the bottom of the carriage towards the back of the machine until the lower v-wheels slip onto the lower traverse rail.

e) Gently move the carriage right then left to ensure that the wheels move smoothly.



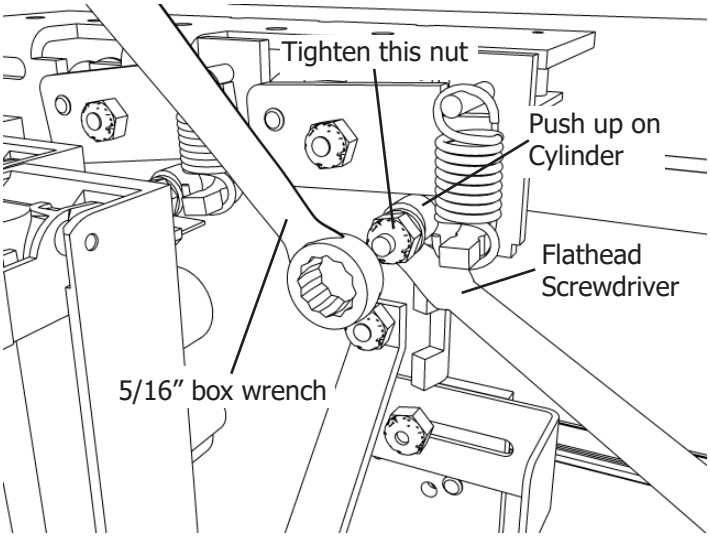


8 Tighten the Carriage Swing Arms

a) Gently hold the spacer up against the bottom of one of the upper v-wheel swing-arms. The spacer can be held up with a finger or a small screwdriver inserted from the right side of the carriage.

b) While keeping gentle upward pressure on the spacer, securely tighten the nylock nut using a 5/16 (or 8mm) open end wrench.

c) Repeat this process for the other swing arm on the carriage.



9 Replace tensioner and Attach the carriage belt.

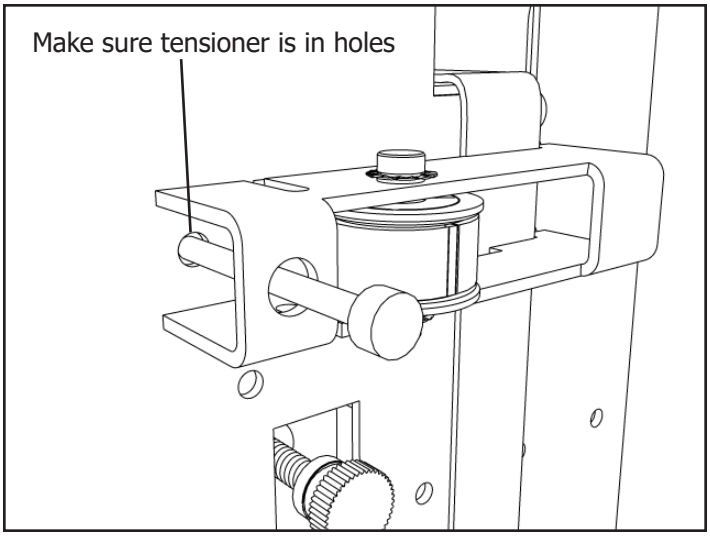
a) Attach the belt ends to the right and left side of the carriage.

b) Hold the carriage belt tensioner so that the 2 tabs and screw tip rest in the holes and detent in the right endplate. To the left of the Service Station area, hold both webs of the carriage belt to maintain slight belt tension so that the carriage belt tensioner doesn’t move out of place.

c) While maintaining tension on the carriage belt. Attach the carriage belt clips to each side of the carriage base.

Important: Make sure the belt is not twisted before attaching the clips.

d) Tighten the carriage belt tensioner by rotating the 9/64” (3.5mm) screw 4 full clockwise turns.

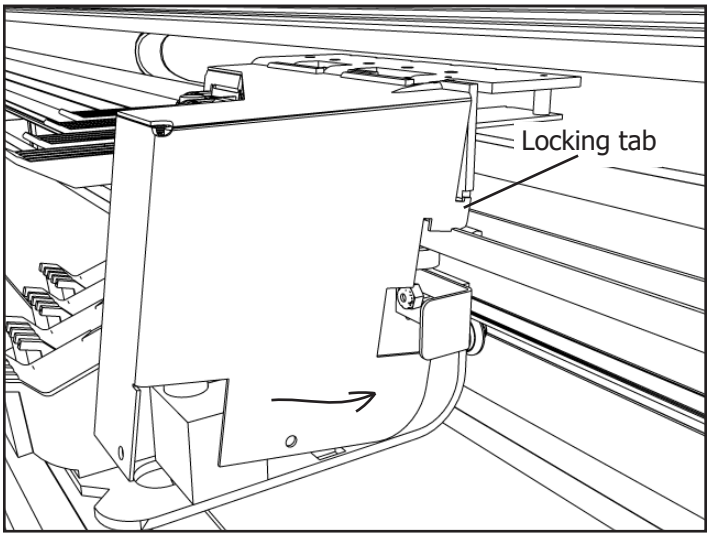


10 Install the Carriage Cover

a) Install the carriage cover by aligning it with the base and pushing back until the tabs by the belt ends grab onto the carriage base.

b) Press against the cover tabs to ensure that they 'snap' into the slots in the carriage base.

c) Install the #6-32 screw at the right side of the carriage to attach the cover.



Procedure: Firmware update for the Ioline FlexJet

1 Updating the firmware

Prepare the FlexJet to Update the Firmware

Determine what version of firmware you have

1. Power on the PC and FlexJet.
2. Ensure that the serial cable connects the PC to the FlexJet.
3. Make sure there is a green light on the keypad of the FlexJet and open the FlexJet Control Center.
4. The main screen shows the current firmware version in the upper right corner.
5. If the firmware version is not shown, please check connections to the printer. Call Ioline Customer Service for help resolving communication issues.
6. If firmware is a lower number than version 253.2, use the "Manual firmware update" procedure

Set the initial Y Fine Adjustment number

1) Turn on the FlexJet and let it initialize.
2) Open the "FlexJet Control Center" software.
3) When the window opens press Ctrl-Alt-B. You should see the "Service Station" window.
4) Click the "Move carriage out from SS" button. The carriage will move out of the Service Station.
5) Change the "Y fine adjust" number to -1000 and click the "Set fine adjust" button.
6) Click on the "Return carriage to SS" button. The carriage will move back into the Service Station.

2a Auto Updating the Firmware

Note: Follow this procedure if your current firmware version is 253.2 or higher.

1. Make sure the firmware file has been saved in the Ioline folder. Choose File>Download Firmware from the menu.
2. Press the Select Firmware button.
3. Follow the on screen directions that explain how to restart the printer so that it will accept new firmware. Press OK when the printer is ready (four yellow lights on the keypad.)
4. Use the window to browse to the location where the firmware file is stored (usually xxxxx.mot, where xxxxx is the version number).
5. A window will appear that shows the transfer progress.
6. The printer will go through the initialization process when the firmware is finished. When finished, the OK light will turn red and the Square light will turn green.
7. Press the Done button when the process is complete.
8. Follow steps for the next procedure "Y fine adjustment for the service station".

Procedure: Y fine adjustment for the Service Station.

****Note:** This procedure is only required if your firmware is older than version 264.0

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Notices:

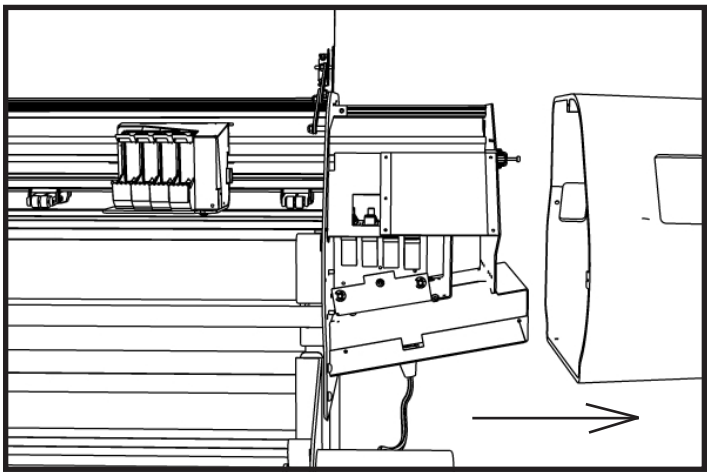
Attention! *The discharge of static electricity may damage the keypad and components. Use the included ground strap during all procedures. Keep plastic objects away from the keypad and logic board assemblies.*

Tools Required:

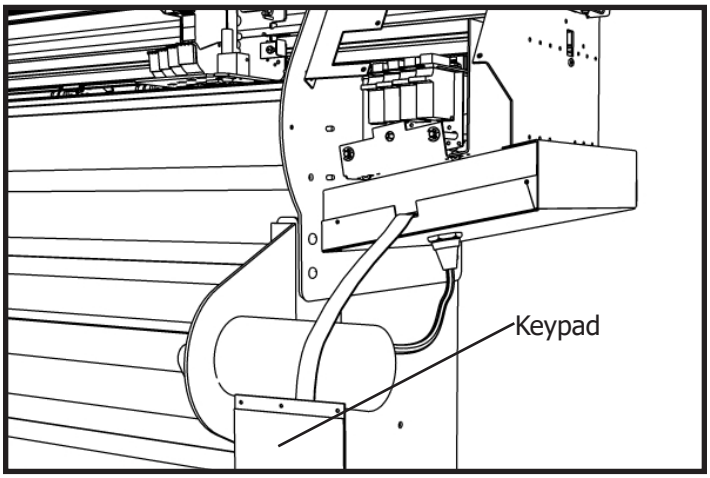
Scotch Tape

1 Service Station centering

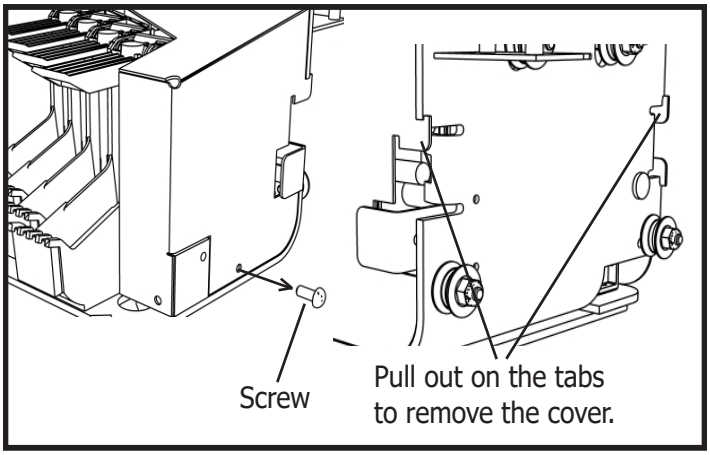
1) Remove the right side cover of the machine.



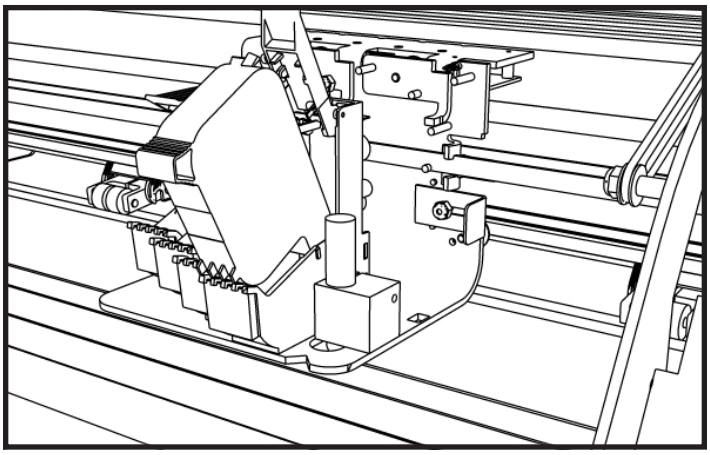
2) Remove the (four) Phillips screws that hold the keypad on. Let the keypad hang. Make sure both ends are still plugged in.



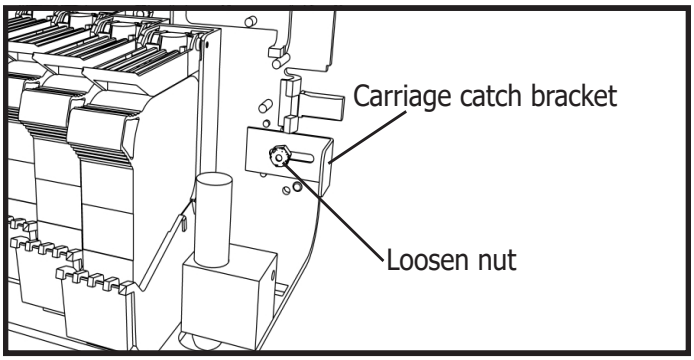
3) Remove the carriage cover. (One screw on the right side, un-clip the back right and left sides).



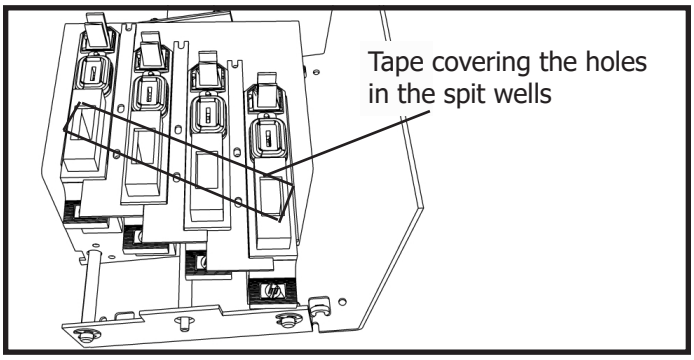
4) Make sure the ink cartridges are installed and power the machine on.



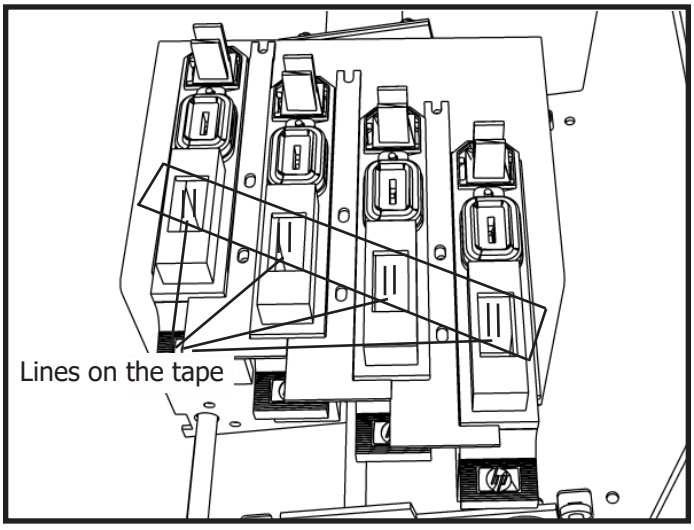
5) Loosen (do not remove) the carriage "catch bracket".



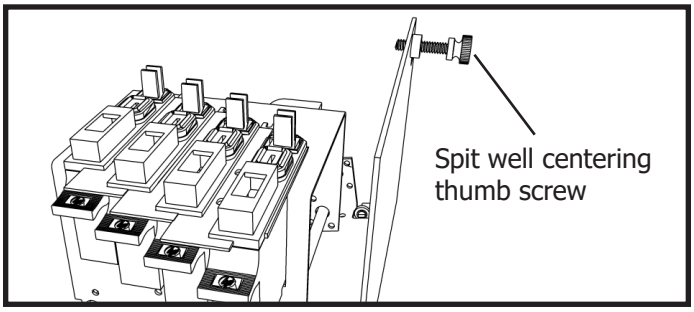
6) Place a piece of scotch tape on the service station spit wells.



7) Press the "Clean" button on the keypad. You should see two lines in the middle of the spit well holes.



8) If the lines don't appear in the middle of the holes, turn the plastic thumbscrew on the side of the service station (clock-wise if the lines are to the right. Counter-Clockwise if the lines are to the left.)

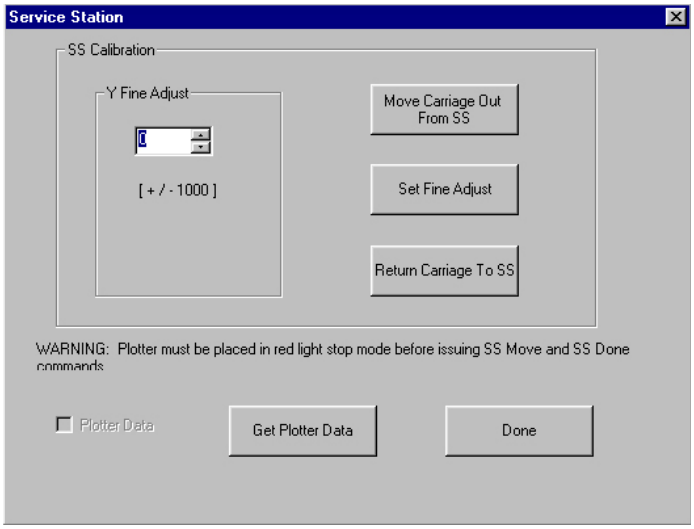


9) Turn the power off and remove the ink cartridges.
WARNING: After removing the ink cartridges lower the blue ink doors before continuing.

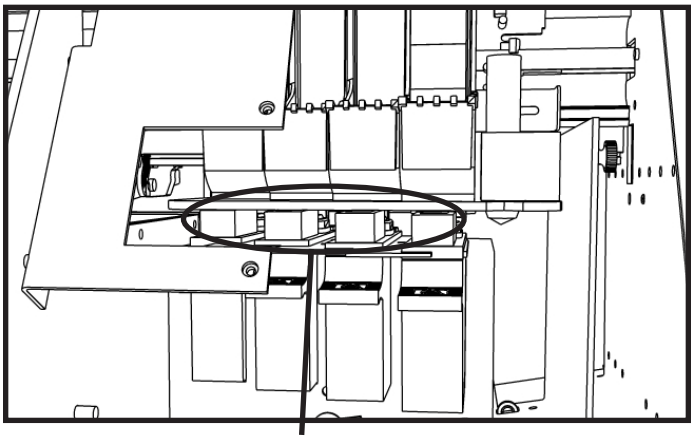
2 Y Fine Adjustment

The purpose of the Y fine axis adjustment is to get the bottom of the carriage as close as possible to the ink wells without leaving a gap or pressing too hard. Also, proper adjustment assures the inkjet heads will be capped so the heads do not dry out.

1) Turn on the FlexJet and let it initialize.
2) Open the "FlexJet Control Center" software.
3) When the window opens press Ctrl-Alt-B. You should see the following window.



4) Look at the gap between the bottom of the carriage and the service station. With the Y fine adjust set there will be a large gap between the top of the grey ink wells and the bottom of the carriage.



Look at the gap between the carriage and service station.

5) Click the "Move carriage out from SS" button. The carriage will move out of the Service Station.
6) Change the "Y fine adjust" number to -800 and click the "Set fine adjust" button.
7) Click on the "Return carriage to SS" button. The carriage will move back into the Service Station.
8) Follow steps 4 through 6 again adding 100 to the "Y fine adjust" number each time until the bottom of the carriage is just close to touching the grey ink wells.

WARNING: Do not let the bottom of the carriage "Press" against the ink wells. This can cause failure of the machine to initialize.

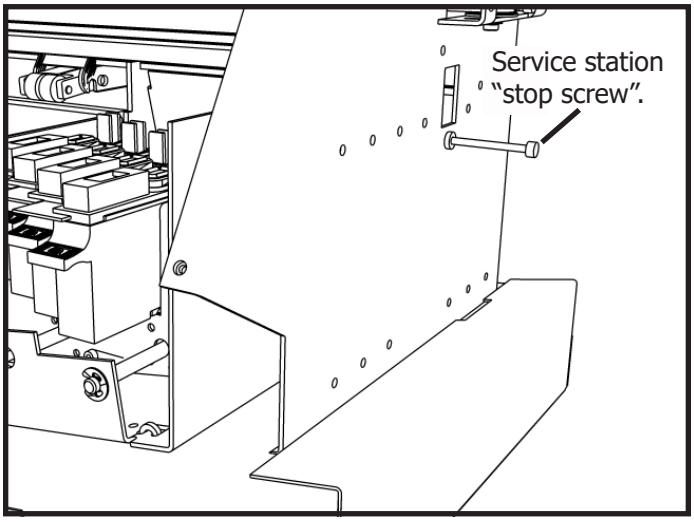
9) Reduce the gap further by adding smaller numbers.

Note: A Y fine adjust change of 25 mils results in a gap change that is equivalent to the thickness of a piece of paper.

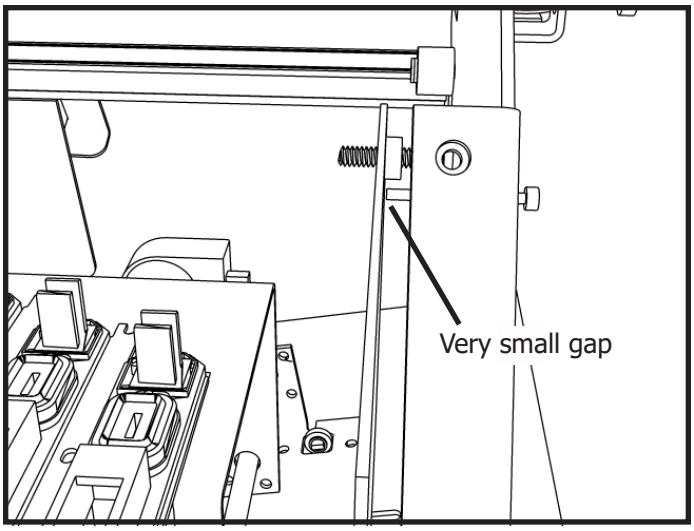
10) Press and hold the "UP" arrow on the keypad of the plotter. While holding the button turn the machine back on. When the carriage starts to move let go of the button.
11) Once the carriage is back in the service station check the gap one more time to make sure they are touching.

3 Final screw adjustment

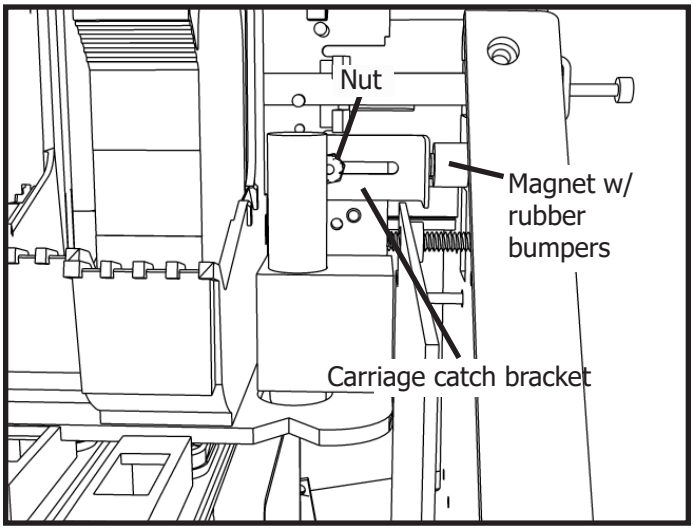
1) If you are happy with the spacing between the carriage and the service station turn the service station stop screw on the side of the machine until it just touches the service station.



2) Back the screw off one half turn until you can see a little bit of light between the screw and the service station. Apply Lock-Tite or Super-Glue to the screw so it won't back out while the machine is running.



3) Move the carriage catch bracket until it hits the magnet. Tighten the nut to hold the stop bracket. Note: It's best to use a nut driver that can reach the nut while the carriage is in the service station. Otherwise tighten the nut enough to hold the bracket and move the carriage out of the service station to tighten the nut.



4) If you are happy with all the adjustments, turn the power off on the machine.
5) Let the FlexJet sit for 10 seconds, then turn the power back on while holding the "Up" arrow on the keypad. When the carriage starts to move let go of the button.
6) When the carriage initializes into the service station check all the gaps and stop brackets to make sure the adjustments are still right.
7) Re-install the keypad. Run a test plot to the machine before putting the covers back on.
8) If problems arise contact Ioline Tech Support.