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FlexJet - Flex Cable 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.

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 right 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.

Tools Required:
   Philips screwdriver
   9/64 (3.5mm) Allen wrench
   5/16 (8mm) open end wrench
   Small flat tipped screwdriver

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.
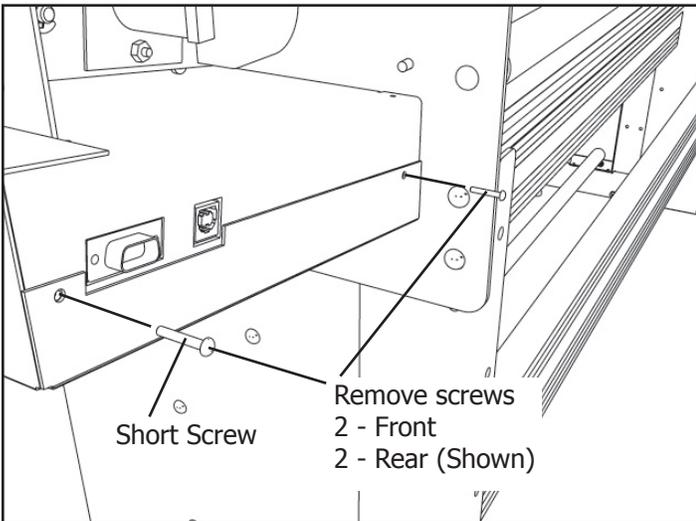

Remove Cover

Loosen this screw
(9/64")
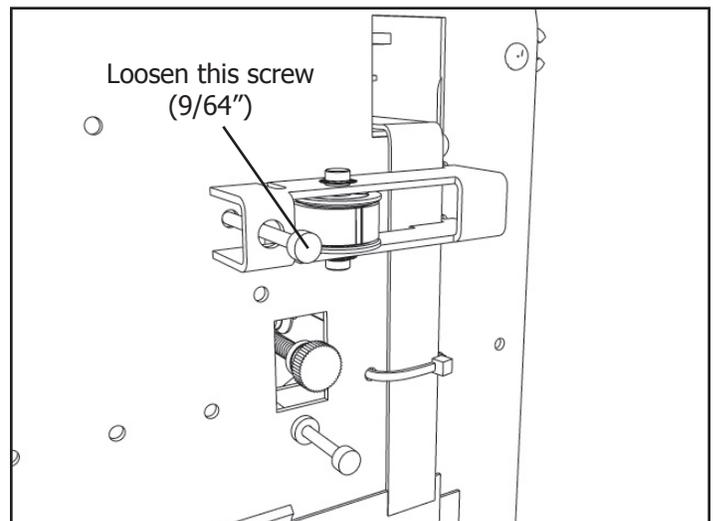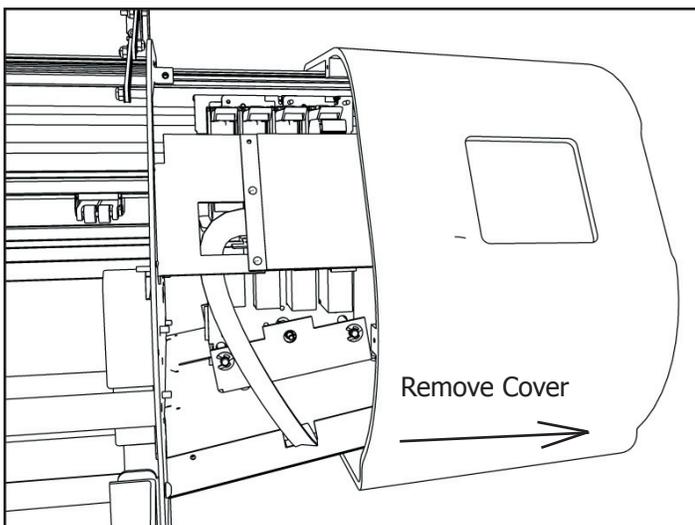
## 4 Remove the Logic Board Cover

Attention! *The carriage and logic board components are sensitive to the discharge of static electricity. Attach one end of the ground strap (included) to your wrist and the other end to a bare metal portion of the printer like the frame that holds the service station. Keep plastic objects away from the carriage and logic board assemblies. Remove the wrist strap only after the new carriage is attached to the traverse, the cover is installed, and the metal cover is secured over the main logic board.*

a) Remove the 4 screws that hold the sheet metal logic board cover plate.

Attention! *The cover will swing down when the last screw is removed. Make sure to support it with one hand and let it slowly rotate.*

Short Screw

Remove screws
2 - Front
2 - Rear (Shown)

b) Unplug the roll feed motor power and encoder cables from the logic board then set the logic board cover aside.

Unplug Take-up wires from the logic board
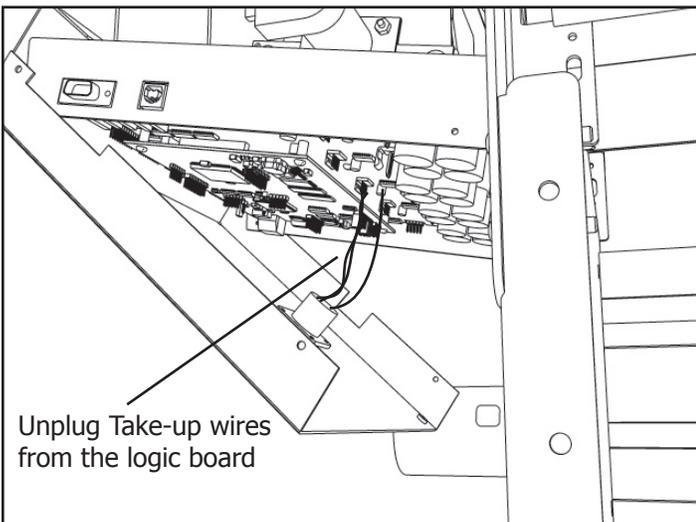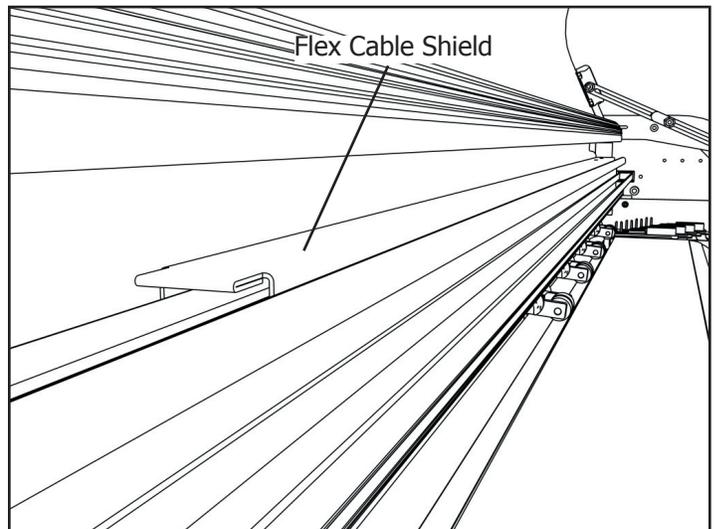
c) Find the flex cable connections and remove all flex cables from the connectors on the main logic board.

Unplug Flex Cables from the logic board
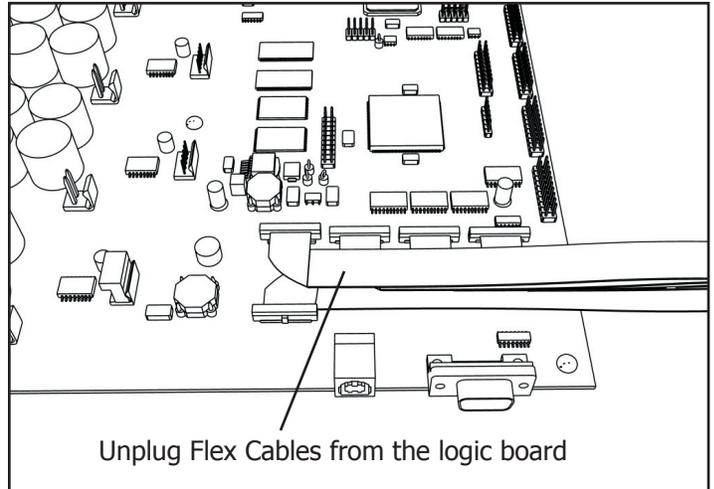
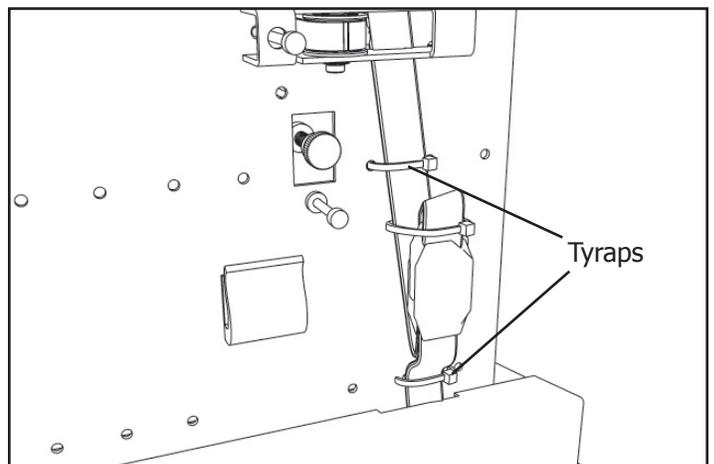## 5 Free the Old Flex Cables

a) Remove the flex cable shield from the top of the traverse (if installed). It is held on with double-stick tape.


Flex Cable Shield

b) Cut the plastic tyraps that hold the flex cables against the right side of the printer.


Tyraps

⑥ Remove the Carriage

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

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

Remove carriage cover screw
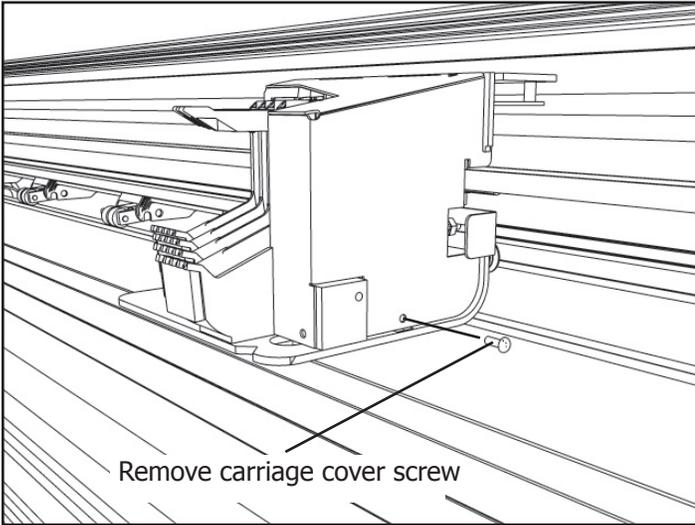
c) Unclip the belt ends on the left and right sides of the carriage base.


Belt Clips

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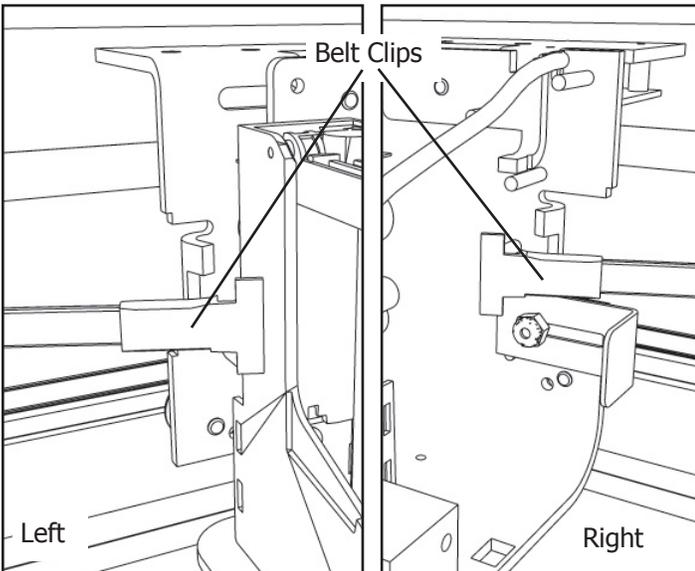
d) Using a 5/16 (8mm) open end wrench loosen the #6-32 hex nut ½ turn under the RIGHT and LEFT swing arms until the washers and round spacers can move freely.

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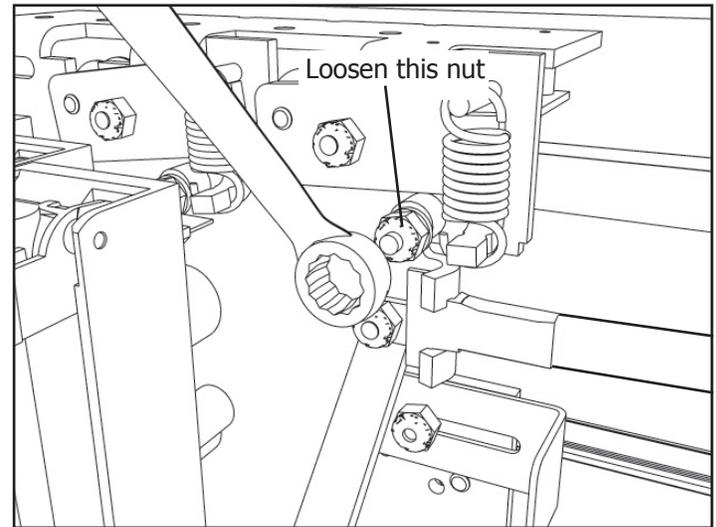
e) Hold the carriage at the right and left side of the metal base with both hands.

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

f) 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.


Press down here and on the other side   Rotate bottom towards you
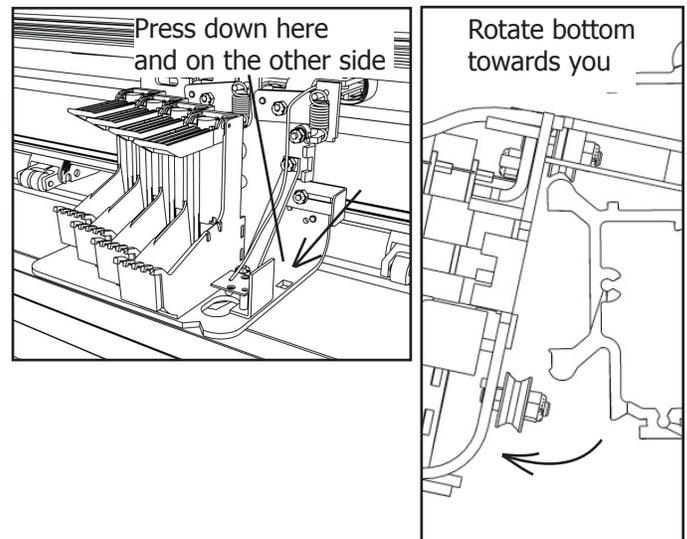
7 — Remove the flex cable from the Carriage

a) Cut the tyraps from the top of the carriage assembly and remove.

b) Carefully unplug the Flex cable connectors from the carriage board. *Make sure you don't bend the pins on the connectors.*

c) Set the carriage aside for now.

Cut Tyraps
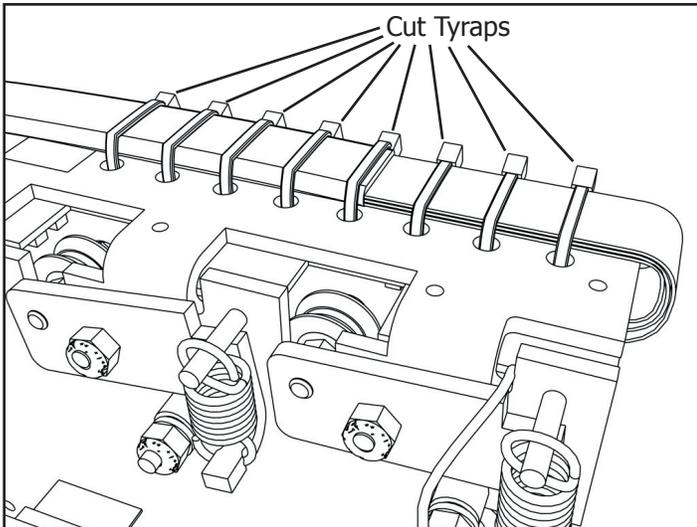
8 — Remove the flex cable from the machine

a) Gently pull the flex cables through the hole on the right side of the FlexJet until the cable is fully removed.

Pull the old flex cable out the right side of the machine
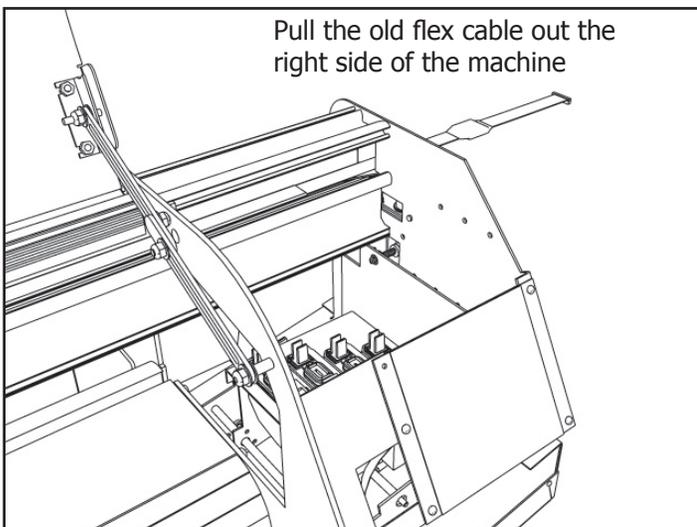
9 — Install the new flex cable in the machine

a) Install the flex cable through the hole on the right side of the machine. Leave it loose for now.
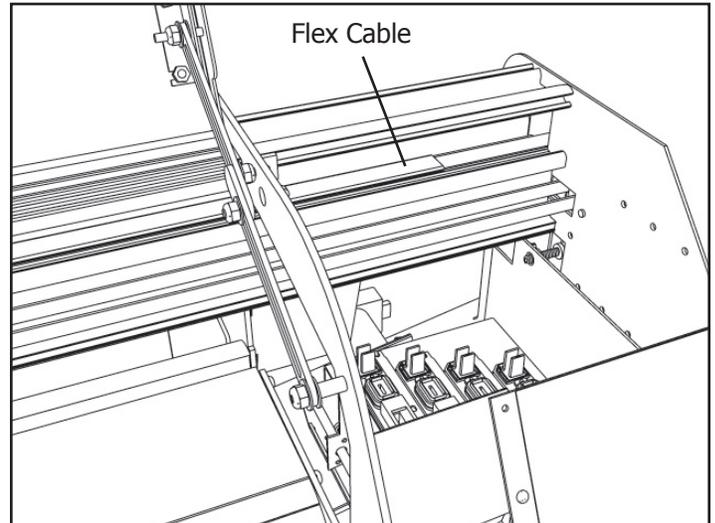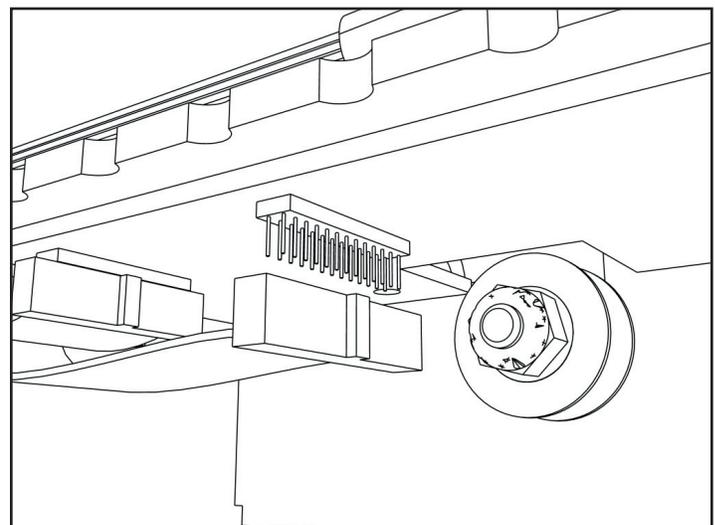
Flex Cable

10 — Connect the flex cable to the Carriage

a) Carefully plug in the Flex cable connectors to the board on the carriage. Each cable is marked as follows;

1 = Head #1
2 = Head #2
3 = Head #3
4 = Head #4
P = Carriage Power/Sensor

The connectors on the carriage board are very sensitive so the flex cables must be plugged in correctly before powering on the FlexJet. Failure to do so will result in damage to either the carriage, main logic board or both.

Connect the flex cable to the Carriage (Cont...)

b) The cable connectors plug into the coresponding connector on the board of the carriage. The board is marked as follows;

PRNT1 = Head #1
PRNT2 = Head #2
PRNT3 = Head #3
PRNT4 = Head #4
POWER = Carriage Power/Sensor (P)

It is VERY important to get the cable connectors plugged in correctly before powering on the machine. A missed pin or row of pins will cause damage to the components on the main board. Look at the pictures below for the correct connection.

Tip: On both sides of the connector, printed on the carriage board are lines in the shape of a box. Make sure the flex cable connector is centered inside this box.

Good Connection

Bad Connections

Missed Pins
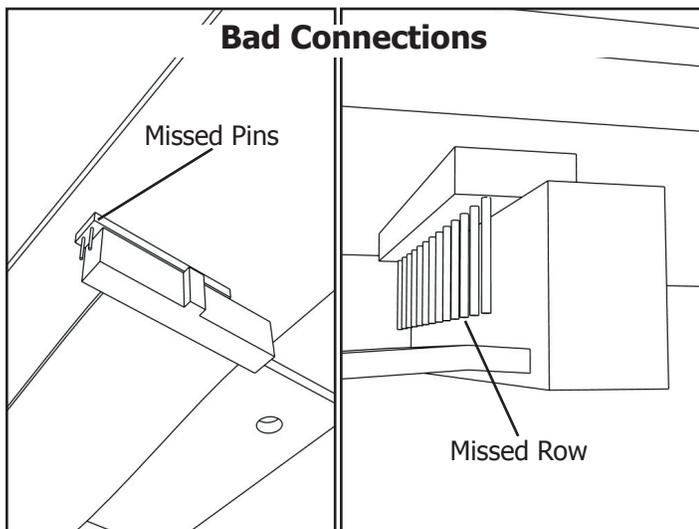
Missed Row

(11) ## Attach the cable to the carriage

a) Wrap the flex cable assembly around the top of the carriage.
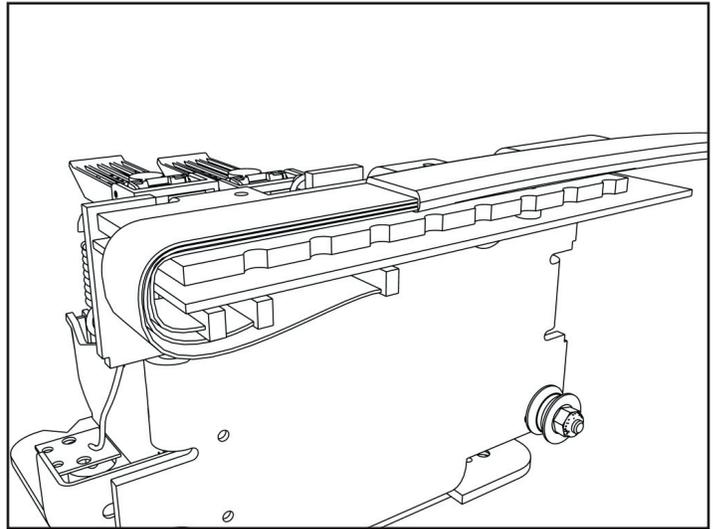
b) Install tyraps to hold the cable down tight. It is important to insert the tyrap shown so the tyrap lock is toward the back as shown. A tyrap is needed for each hole in the top of the carriage.
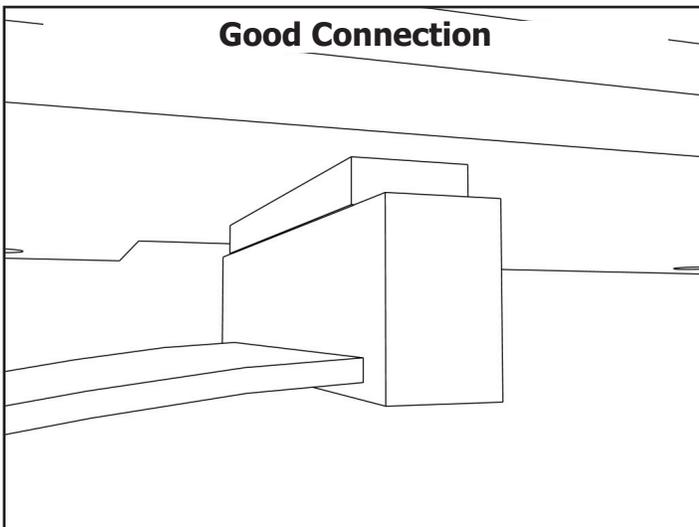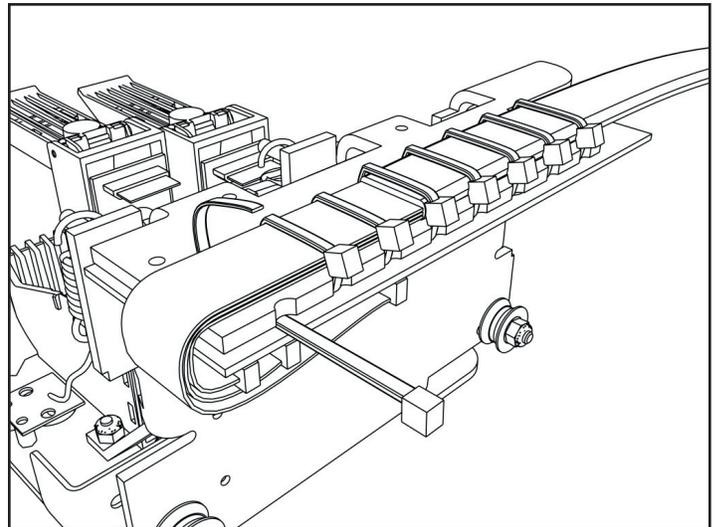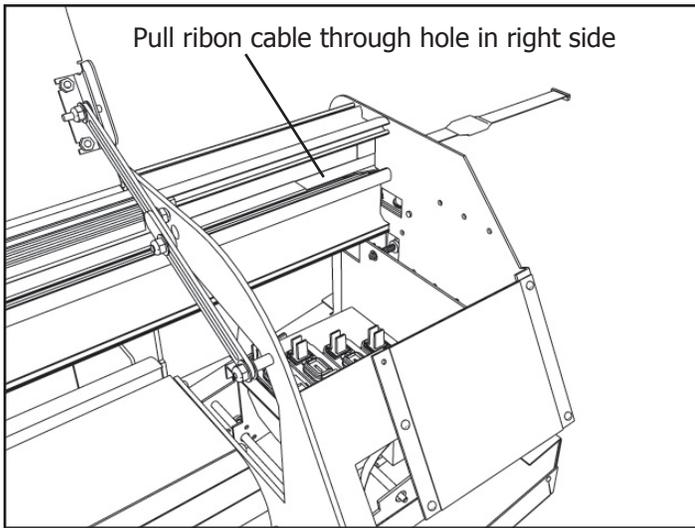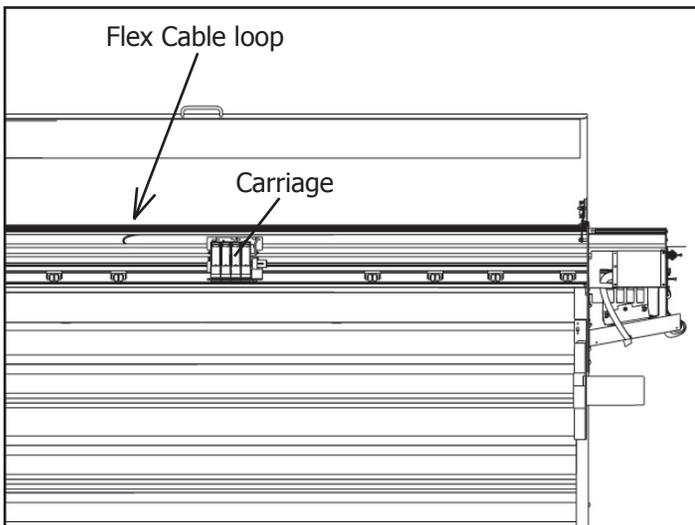
⑫ Attach the Carriage to the Traverse

Important: *Please read the next steps fully before attempting to attach the carriage.*

a) Wipe the traverse rails with an isopropyl alcohol dampened cloth to remove dust. Perform this important maintenance step often, even every week depending on machine use.

b) While holding the carriage and Flex cable bundle, insert the end of the bundle through the hole in the endplate at the right end of the traverse. Continue feeding about 20" of the bundle through the hole.


Pull ribon cable through hole in right side

c) Move to the center of the machine and hold the carriage up near the traverse with the blue lever(s) facing up and away from the machine.

Flex Cable loop

Carriage

Attention! *Do not hold the carriage by the cartridge stalls*

d) Feed the new Flex cable bundle into the channel in the traverse so that there is a loop to the left of the carriage. Lightly press the loop into the groove at the back of the traverse so that it is in the cable channel.

Flex Cable loop
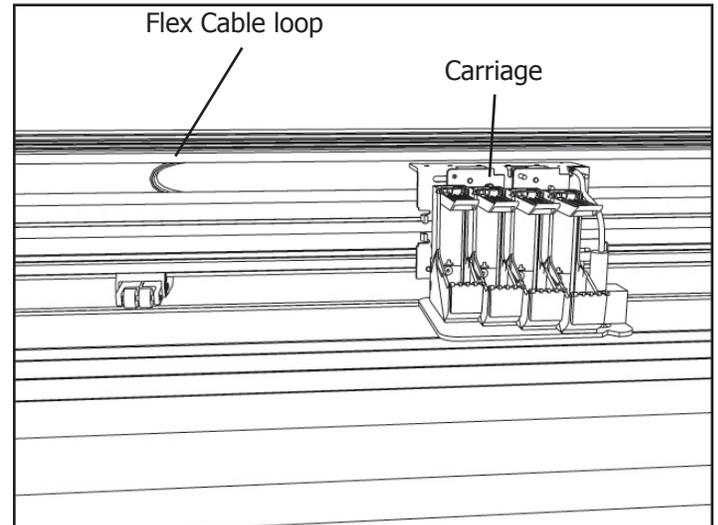
Carriage

e) 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.

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 back of the machine until the lower v-wheels slip onto the lower traverse rail.

g) Gently move the carriage right then left to ensure that the wheels move smoothly.
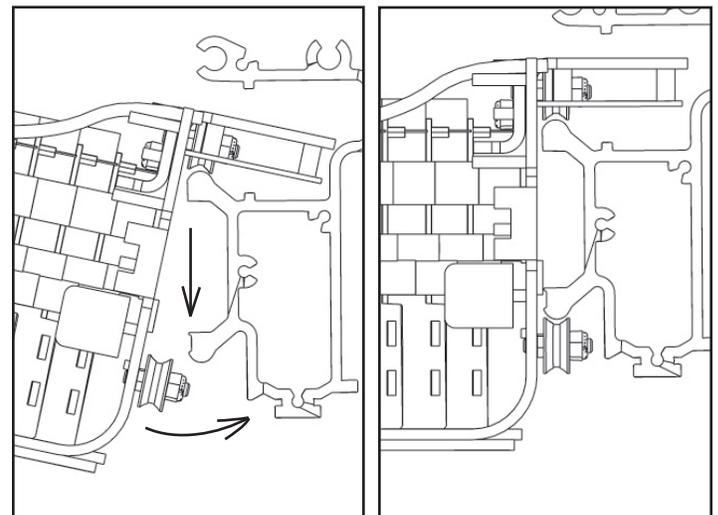
⑬ Tighten the Carriage Swing Arms

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) Box or open end wrench.

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

Tighten this nut

Push up on Cylinder

Flathead Screwdriver

5/16" box wrench
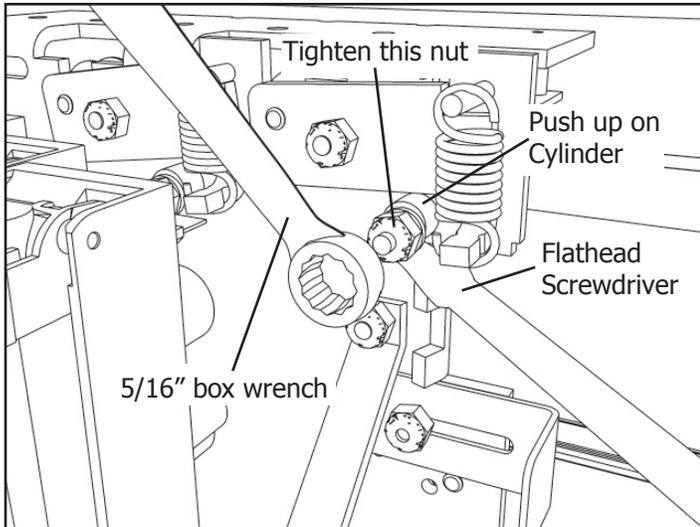
⑭ Replace the tensioner and attach the carriage belt.

a)   Guide the Flex cable bundle under the carriage belt tensioner.

b)   Hold the carriage belt tensioner so the 2 tabs and screw tip rest in the holes and detent in the right endplate.

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.


Make sure tensioner is in holes
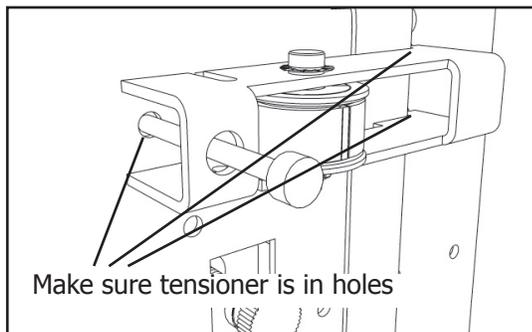
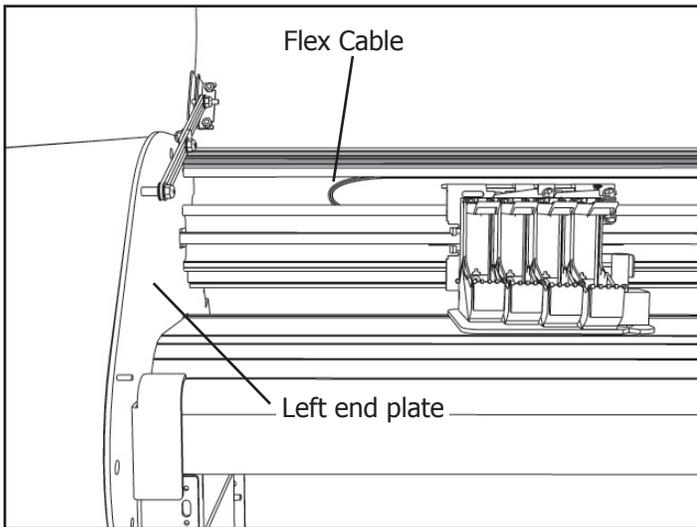## ⑮ Secure and Arrange the Flex Cable Bundle - Part 1

Note: The wrist ground strap can be removed now, but will need to be worn again later in this procedure.

Important: *This process is important for proper operation of the FlexJet. The sleeved Flex cables require a firm connection to the traverse at the middle of the printer and at the right end of the traverse. Leave existing foam tape if the pieces are still sticky and not bunched up. Apply the included foam adhesive tape to the existing foam tape if necessary.*

a)   Hold the Flex cable bundle out of the way and attach a 10 cm piece of the supplied double sided foam tape to the traverse channel to the right of the existing tape (if present) at the middle of the machine. Remove the tape backing so the side facing up is exposed.

b)   Repeat this process near the right end plate but place the tape to the left of the existing tape (if present). Remove the tape backing so the side facing up is exposed.

c)   Slide the carriage over to the left endplate and hold it in place. As the left side of the carriage just touches the left end plate, look at the Flex cable bundle loop. It should leave a small gap between the sleeving and the left endplate (no further than .08" (2mm) away).
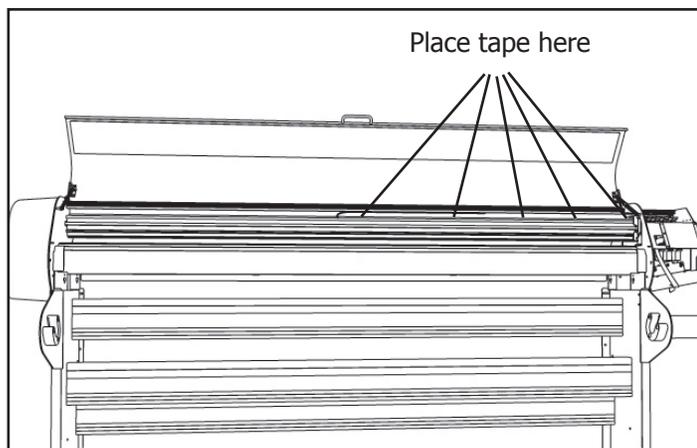

Flex Cable loop

Gap

Left end plate
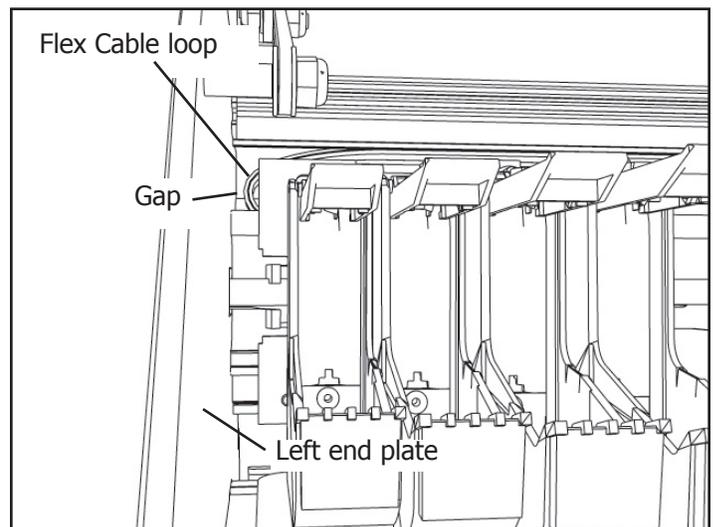
d) To the right of the carriage, hold the Flex cable bundle down firmly in the traverse channel with the left hand.

e) With the right hand, smooth the Flex cable bundle beyond the tape at the middle of the traverse so that the black sleeving is stretched and lays relatively flat and taut.

f) Firmly push the black sleeving into the tape at the middle of the traverse. If it does not stick, apply the supplied non-foam backed tape over the foam tape and repeat the process.

g) Move the carriage to the right 10" then slide it back to the left end plate and ensure that the loop in the cable bundle is still not touching the left endplate.

Flex Cable

Left end plate

16 Secure and Arrange the Flex Cable Bundle-Part 2

a) Continue to smooth the Flex cable bundle toward the right end plate to stretch the black sheathing so it lays relatively flat and taut.

b) Firmly push the sleeving into the tape at the right end of the traverse. If it does not stick, apply the foam backed tape over the foam tape and repeat the process.

Place tape here

17 Attach the Flex Cables to the logic board

Attention! The Flex cable connectors are small. Make sure that the connector is correctly aligned with the header pins before inserting.

a) Pull the Flex cables out straight from the right endplate and pull them toward the bottom edge of the board.

b) The connector numbers can be seen next to the connector by looking up at the logic board (with your head under the machine). The sockets are marked as follows:
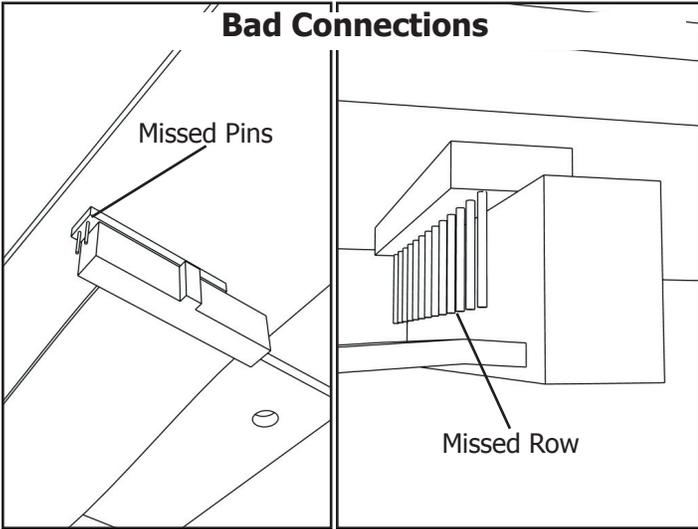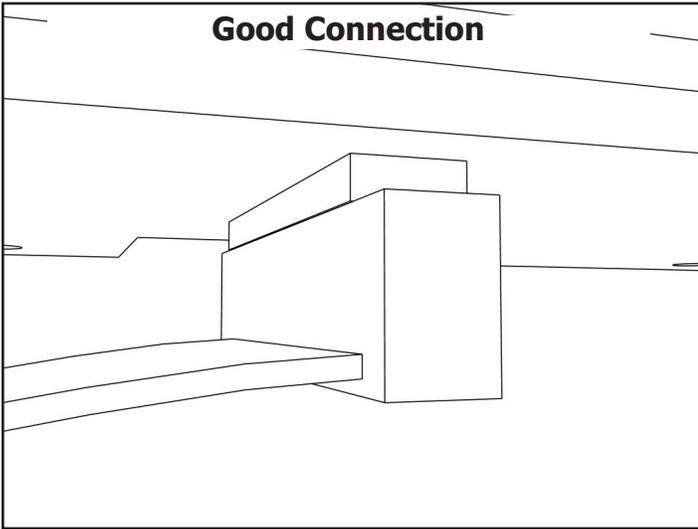
Cable	Board
1	PRNT 1
2	PRNT 2
3	PRNT 3
4	PRNT 4
P	Power/Sensor

Notch

Connect the Flex cable ends with folds
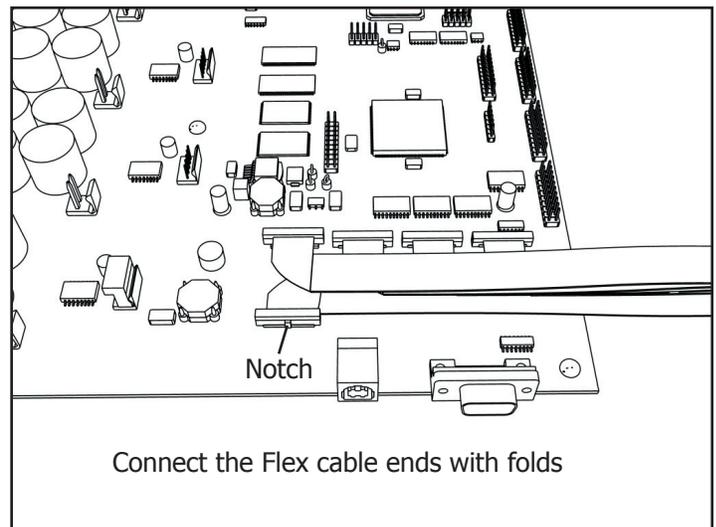
c) Make 90 degree folds in the cable ends as shown then connect them to the logic baord.

d) "P" cable - plug into connector J9 (PWR/SENS) with the notch on the connector facing away from the center of the cable bundle.

Important: *Make sure the cable plugs into the connector correctly and are not shifted by a row or column of pins. Refer to the pictures on the top right side of the page.*

e) "1" Cable - plug into connector J1 (PRNT 1) with the notch on the connector facing away from the center of the cable bundle.

f) Continue attaching cables in the order that they are stacked making sure that the connectors are folded as shown and the notch on the connector is facing away from the center of the cable bundle.

Good Connection

Bad Connections

Missed Pins

Missed Row

g) Attach the Flex cable bundle to the end plate with cable ties as shown. A small fold in the bundle is required to take up slack in the cables. Slide the black ferrite beads along the cable to position them as needed.

h) Check all of the cable connections and hardware to ensure that the machine is ready to test.

Tyraps

(18) **Install the Flex Cable shield (if available)**

a) Install the flex cable shield on the top of the traverse. It is held on with the included double-stick tape to the traverse.
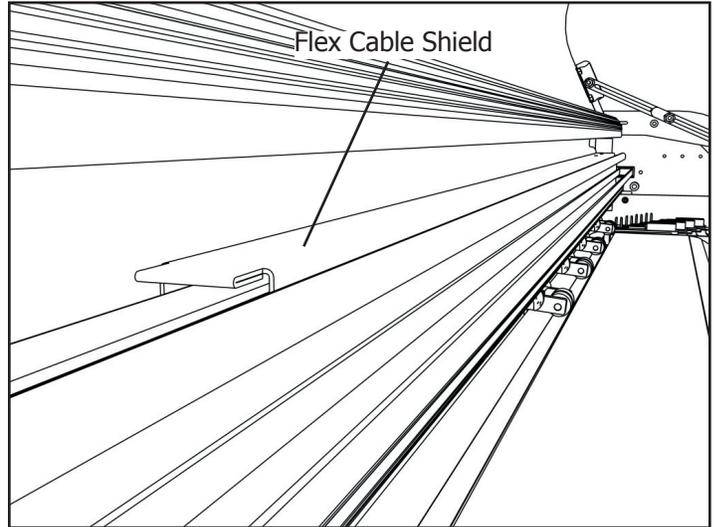
Flex Cable Shield

b) Move the carriage back and forth to make sure the flex cable shield is not inhibitting the movement of the carriage assembly.

(19) **Attach the Logic Board Cover and Tighten the Carriage Belt**

a) Hang the metal logic board cover over the end of the service station frame. NOTE: Make sure the logic board cover edges are OUTSIDE of the service station frame on the front and back.

b) Make sure the Flex cable bundle fits through the slot at the end of the cover. If needed shift the cables to the side to avoid pinching them.

c) Connect the take up motor power and encoder cables as shown.

Plug in Take-up wires