



## **Print Head Installation Guide**

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**Tools / Warnings /**

**Osprey**

**Introduction**

## Tools

Tools needed to install the MCS Osprey Print Head

- Screwdrivers
- Allen Wrench
- Measuring Tape
- Level
- Gloves

This manual details how to install the MCS Osprey Print head on either a 530 or 430 base. The 530 base includes space for a dryer and the 430 base only has room for the print head.

## Warnings

- ▶ Do not touch the print head with your fingers.
- ▶ Use gloves when handling ink.
- ▶ Use only Think Ink approved gloves and wipes.

## Introduction

This manual details how to install the MCS Osprey Print System on either a 530 or 430 base. The 530 base includes space for a dryer and the 430 base only has room for the print head.



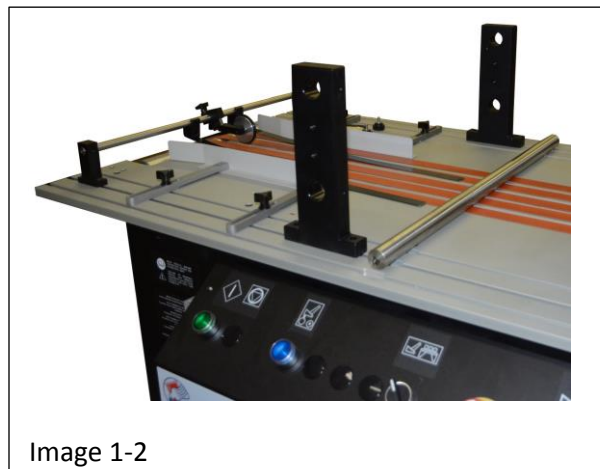
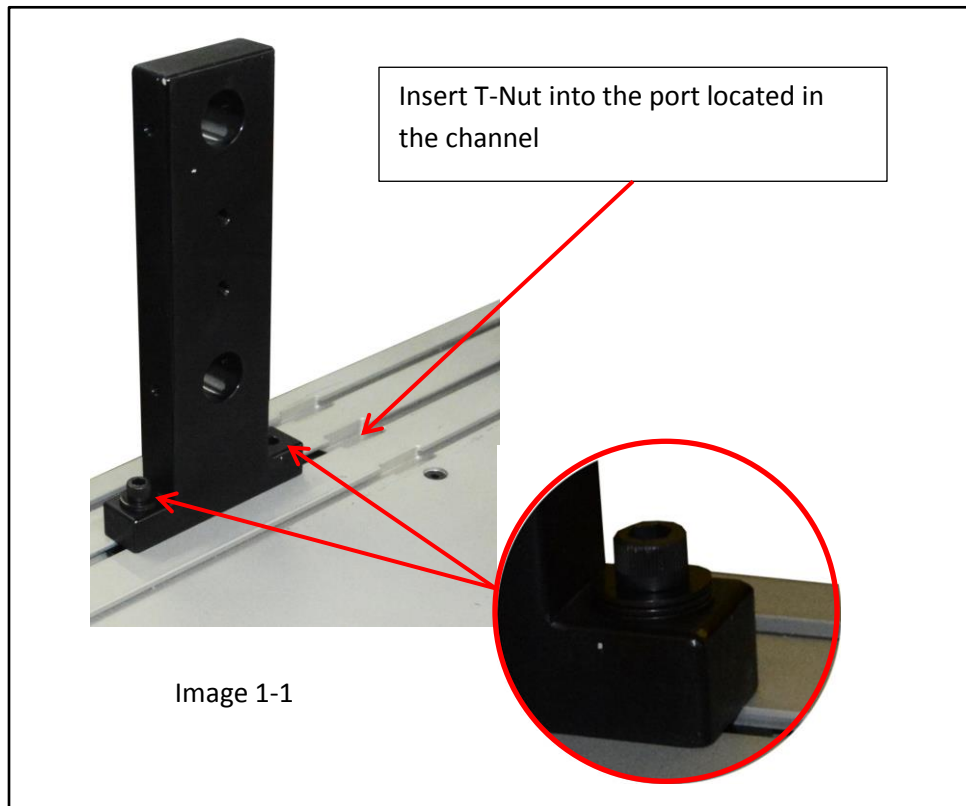
**Section One**  
Osprey  
**Pillar Installation**

## Section One Pillar Installation

### Step 1

Install the pillars to the base in the following manner:

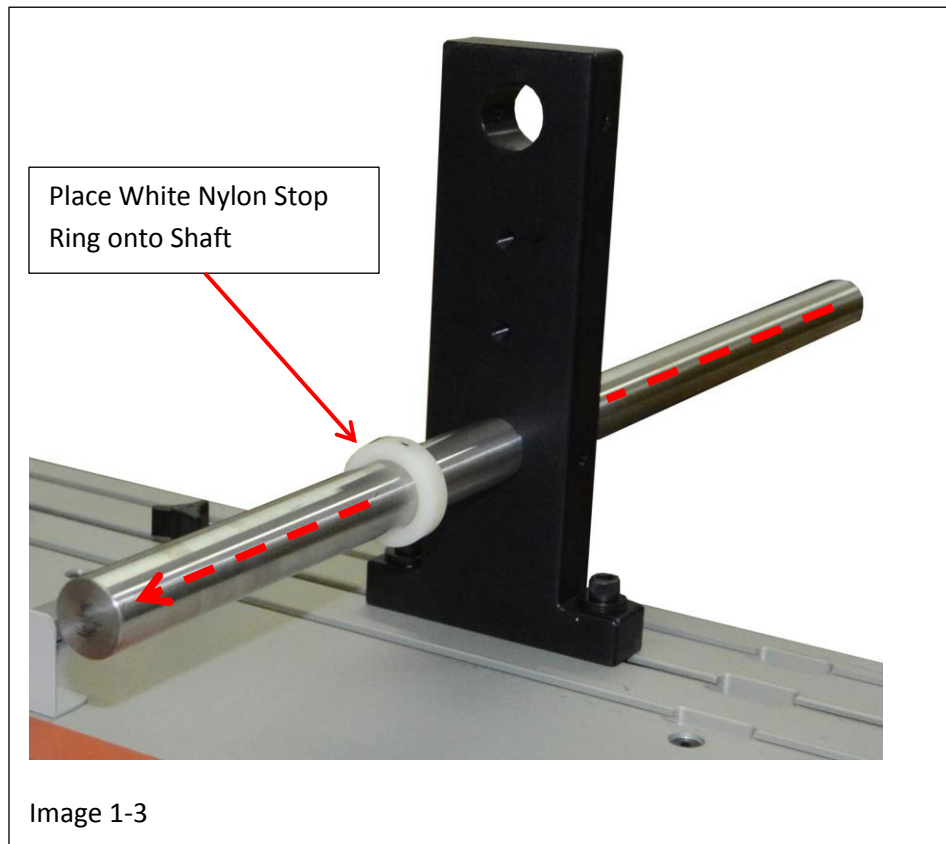
- A. Slide one of two T-Nuts into the middle back channel
- B. Insert one of two supplied hex head Allen screws into the through hole in the base of the pillar and start the threading it into the t-nut. (Note: Do not tighten at this time)
- C. Slide the pillar towards the front of the base to allow for the second of two t-nuts to be placed into the channel.
- D. Align the back through hole in the pillar with the t-nut and begin threading the second of two hex head Allen screws into the t-nut. (Note: Do not tighten at this time) refer to image 1-1
- E. To install the Front Pillar, perform steps "A" through "D" at the front middle channel position, see image 1-2



## Step 2

Before the pillars have been tightened in their permanent position, install the shafts in the pillars by performing the following:

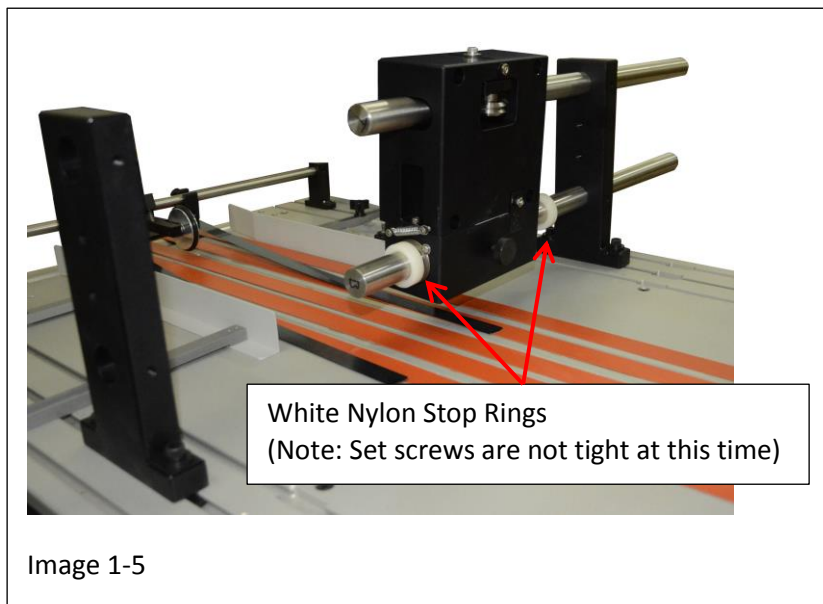
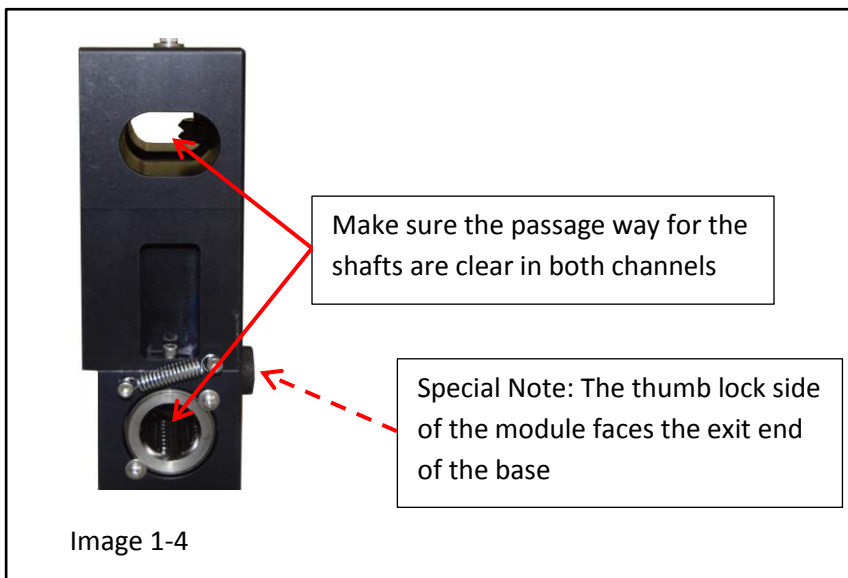
- A. Align one of two shafts with the bottom hole in one of the two pillars. (Note: it does not matter which of the two pillars you begin with)
- B. Slide the shaft through the hole starting from the back of the pillar
- C. Once the bottom shaft is approximately half way through the pillar, place the white nylon stop ring on the shaft. (Note: The white nylon stop ring has a set screw in it, make no attempt to tighten this set screw at this time)
- D. Align the second of two shafts with the top hole of the same pillar and slide it approximately half way through the hole.



### Step 3

Once both shafts have been set approximately half way into one of the pillars, install the Print Head Mount Module in the following manner:

- A. Make sure the all top guide wheels backed out enough to allow for the top shaft to pass through unobstructed in the top shaft channel, see image 1-4.
- B. Make sure the lower shaft channel is free of all other packing material and debris, see image 1-4
- C. Support the bottom of the module while sliding the bottom shaft through the Mount Module, see image 1-5
- D. Once the Mount Module is on the bottom shaft slide the top shaft through the module.
- E. Slide the second of two White Nylon Stop Rings onto the lower shaft, see image 1-5  
(Note: Do not tighten the set screw at this time)





- F. Align the opposing pillar with the shafts coming through the Mount Module and slide both shafts through the pillar.
- G. Position the shafts in the Pillars so that both shafts are flush to the Pillar on the “Operator’s” side of the base leaving any excess length to protrude from the back Pillar.
- H. Lock the shafts into place using the supplied set screws. (Note: Place the set screws in the opposite side that the ink bottle upright will mount to)

#### Step 4

Install the Print Head Mount Plate to the Mount Module in the following manner:

- A. Position the Print Head Mount Plate on the side of the Mount Module facing the input end of the base, see image 1-6
- B. Insert the four (4) supplied hex head Allen screws (one at a time) into the through holes in the back of the Mount Module and start threading the screws into the Print Head Mount Plate, see image 1-7
- C. Once all the screws have been started tighten each one using firm to moderate force. ( ⚠ Caution: Do not over tighten these screws. Over tightening the screws may result in damage to the mount plate)

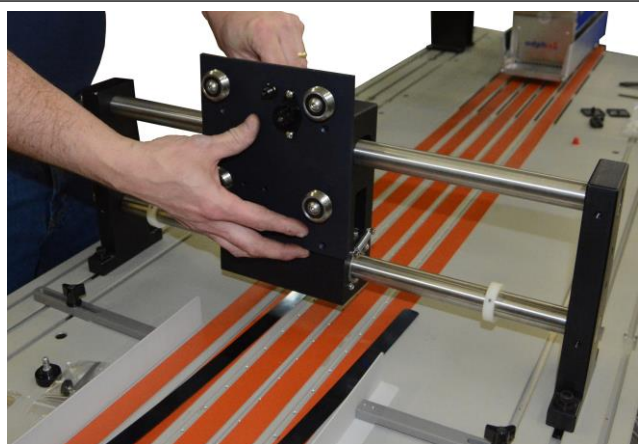


Image 1-6

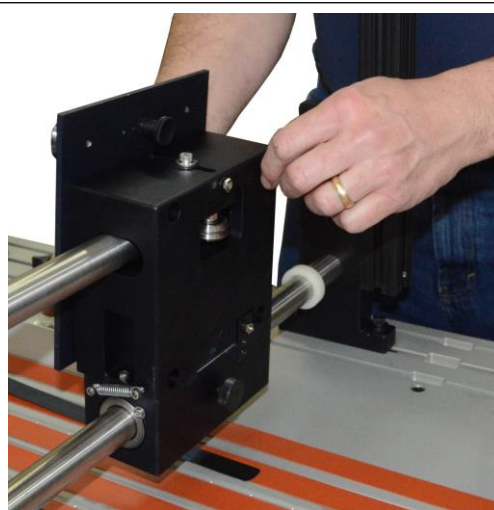
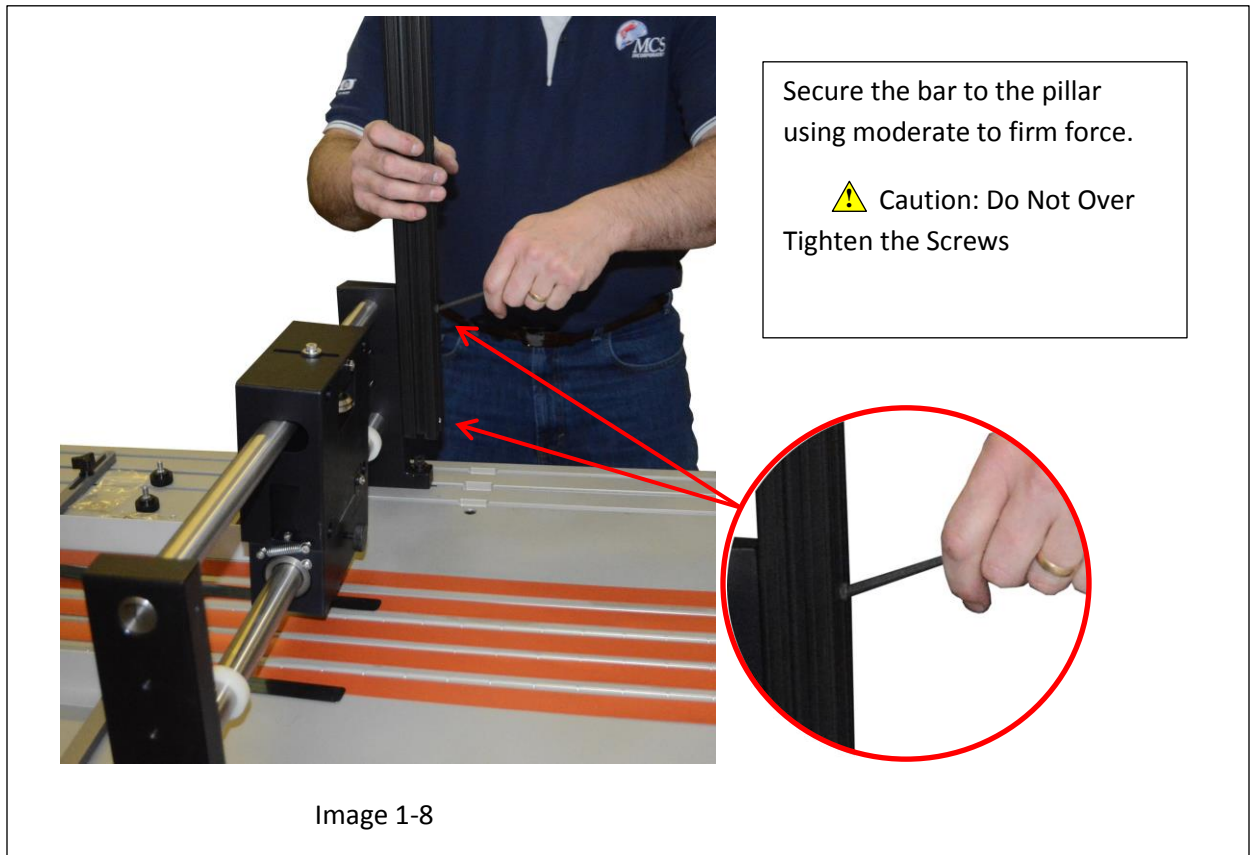


Image 1-7

## Step 5

Install the Ink Bottle Mount Bar by performing the following:

- A. Place bar next to the back Mount Pillar to the opposite side from the shaft set screws installed in Step 3-H
- B. Align the through holes in the bar with the mount holes in the side of the back pillar, see image 1-8
- C. Using the supplied hex head Allen screws secure the bar to the pillar using moderate to firm force.  
( ⚠ Caution: Do not over tighten these screws. Over tightening the screws may result in damage to the mount pillar)





**Section Two**  
Print Head Installation

## Section Two

### Print Head Installation

#### Step 1

Install the Print Head to the plate in the following manner:

- Using your right hand hold the Print head firmly at the top of the unit and support the bottom of the print head with your left hand, see image 2-1 and 2-2. (Note: Make sure the height adjustment strip aligns properly with the height adjustment gear)
- Gently align the Head Rails, located on the back surface of the print head with the track wheels on the mount plate, see image 2-2
- Slowly lower the Print Head onto the mount plate, once the top wheels have captured the rails, use your right hand to pull the position lock knob back, see image 2-3

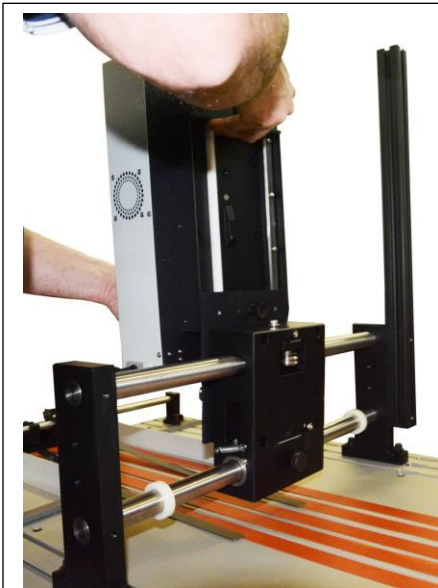


Image 2-1

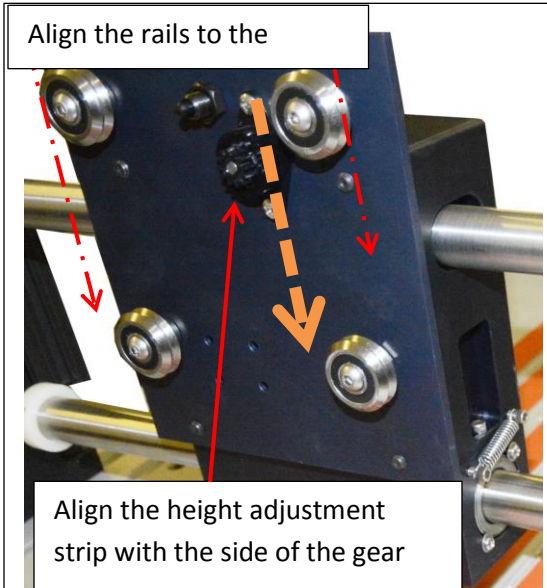


Image 2-2

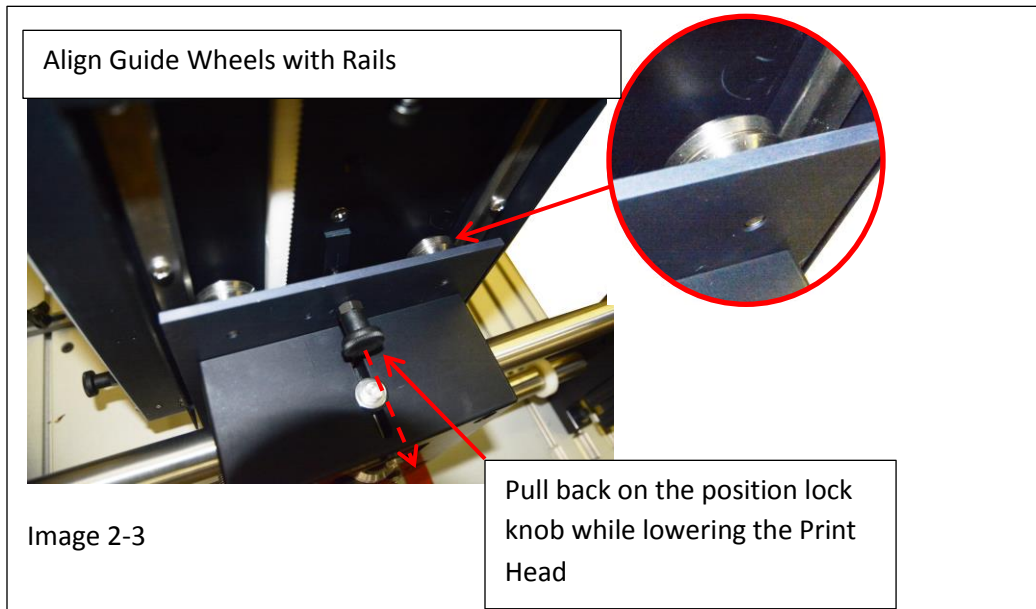
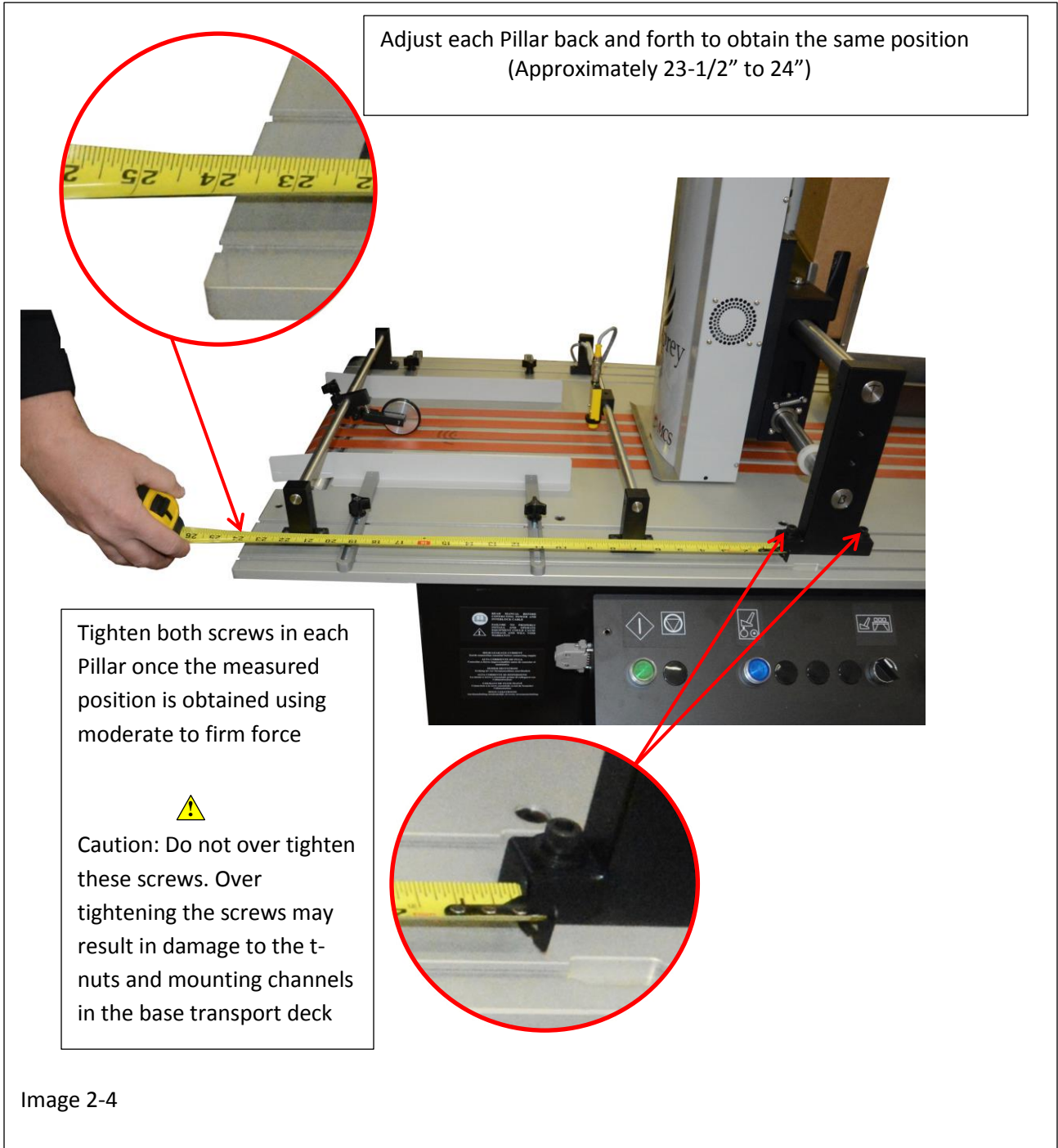


Image 2-3

#### Step 2

Set the position of the Print Head Mount Module Assembly to the base by performing the following:

- A. Using a tape measure place both Pillars at approximately 23-1/2" to 24" from the input side of the base, see image 2-4
- B. Lock the pillars into position by tightening the hex head screws inserted into the pillars in step 1-B and 1-D using moderate to firm force. (⚠ Caution: Do not over tighten these screws. Over tightening the screws may result in damage to the t-nuts and mounting channels in the base transport deck)





**Section Three**  
Ink Supply Controller  
Installation

## Section Three

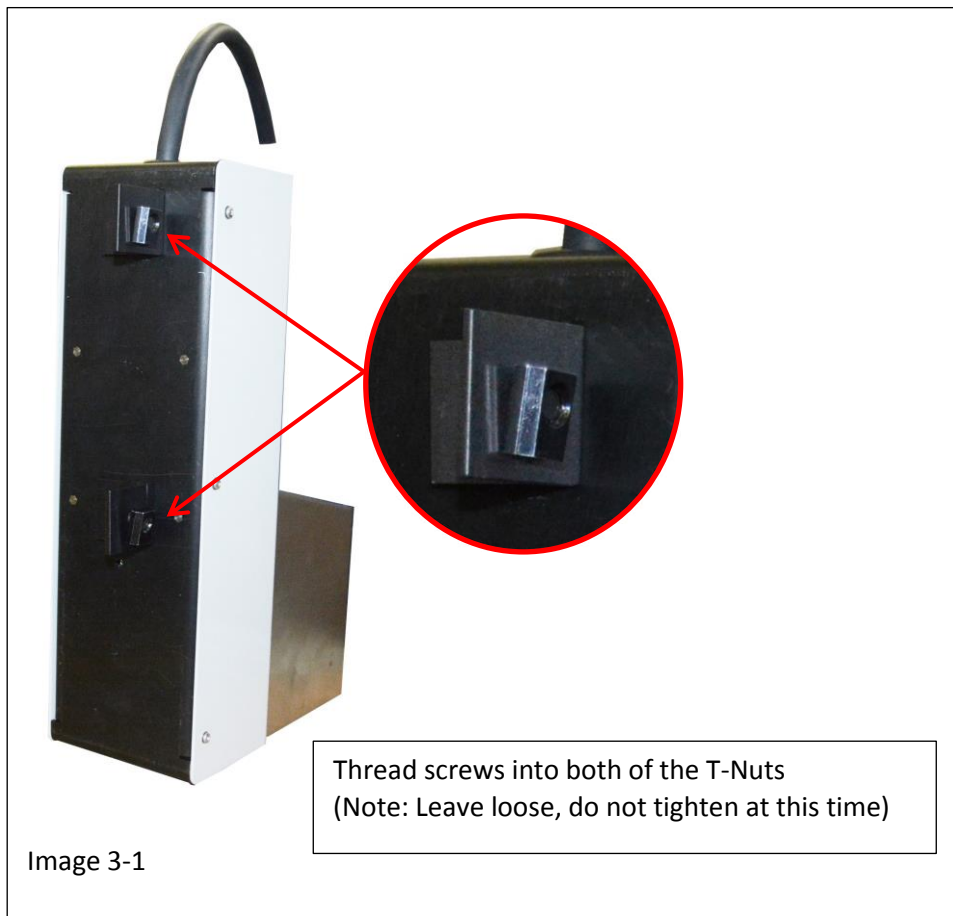
### Ink Supply Controller Installation

#### Step 1

Install the Ink Supply Controller by performing the following:

Prepare the Ink Supply Controller for installation::

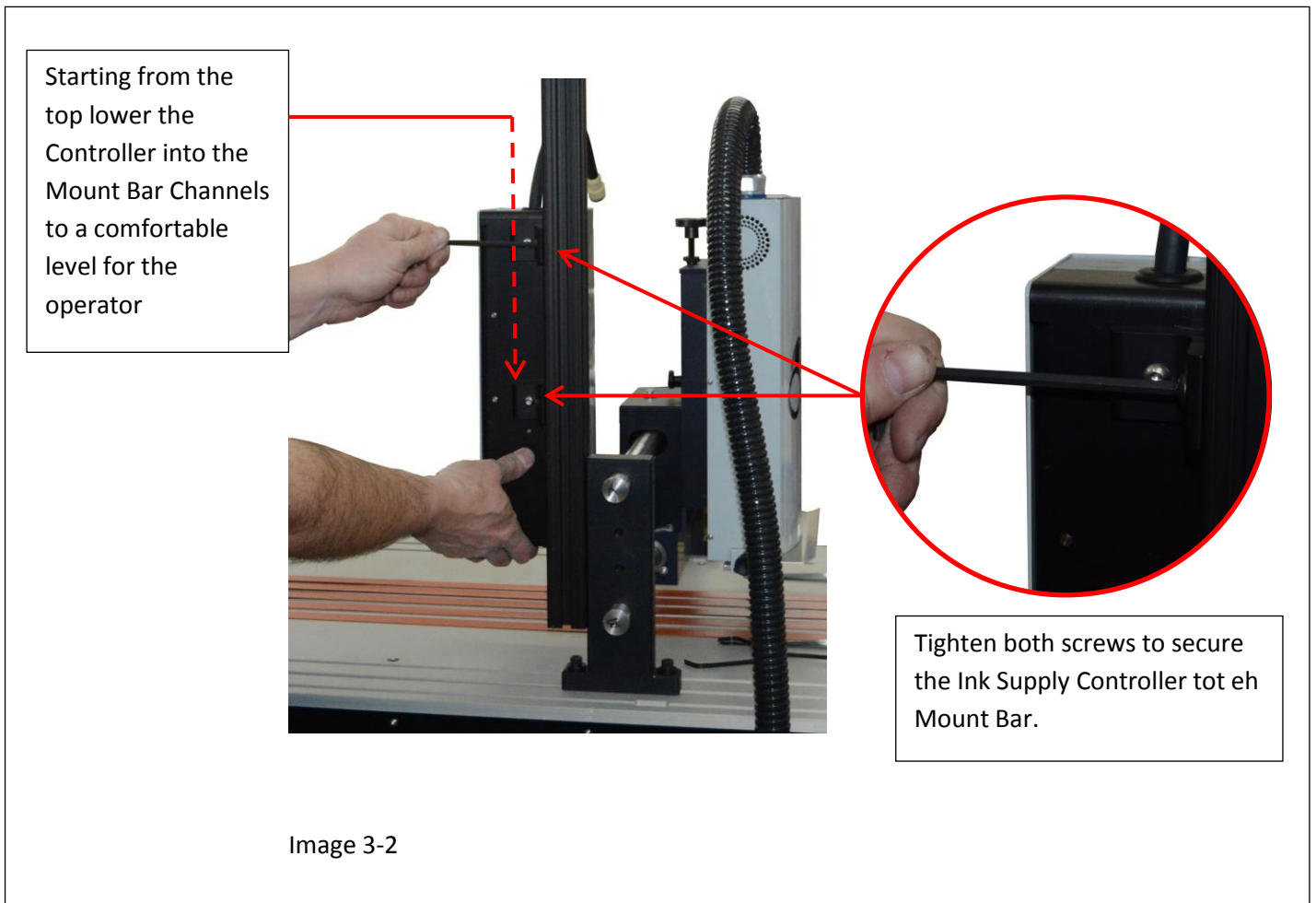
- A. Insert the supplied screws into the mount brackets located on the back on the Ink Supply Controller.
- B. Turn 3 to 4 of the screw thread the into the T-Nuts , see image 3-1. (Note: Leave the screws loose)



## Step Two

### Installing the Ink Supply Controller:

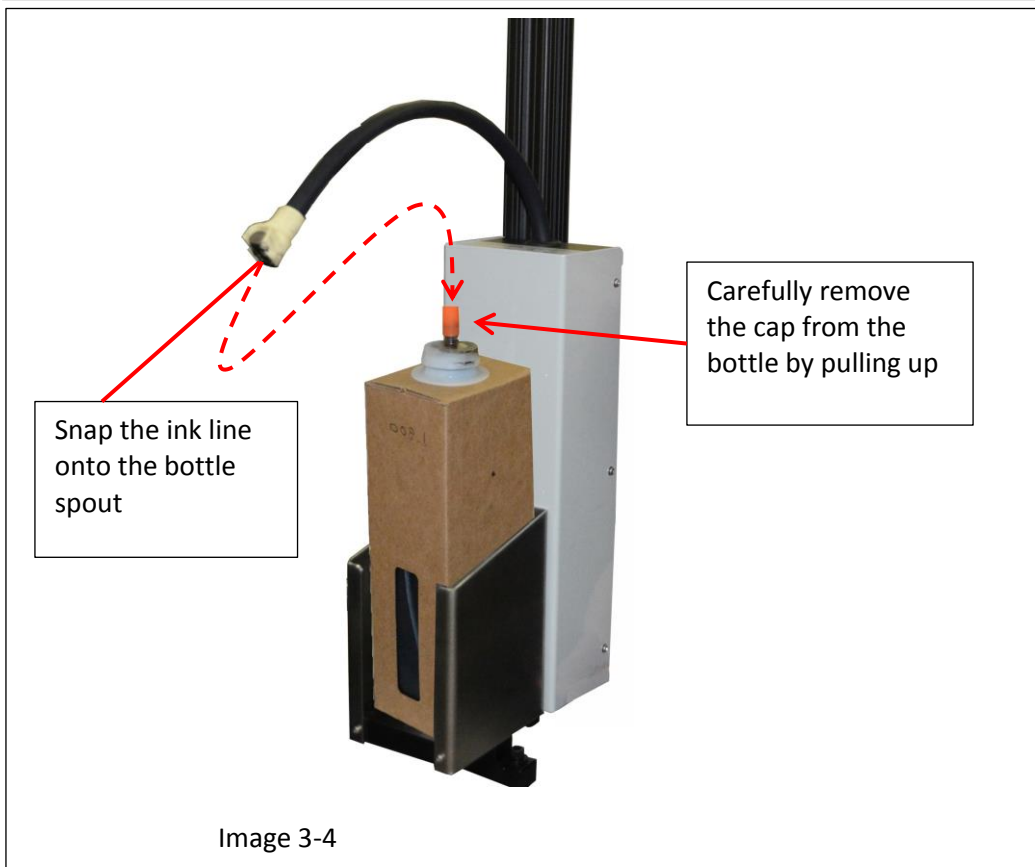
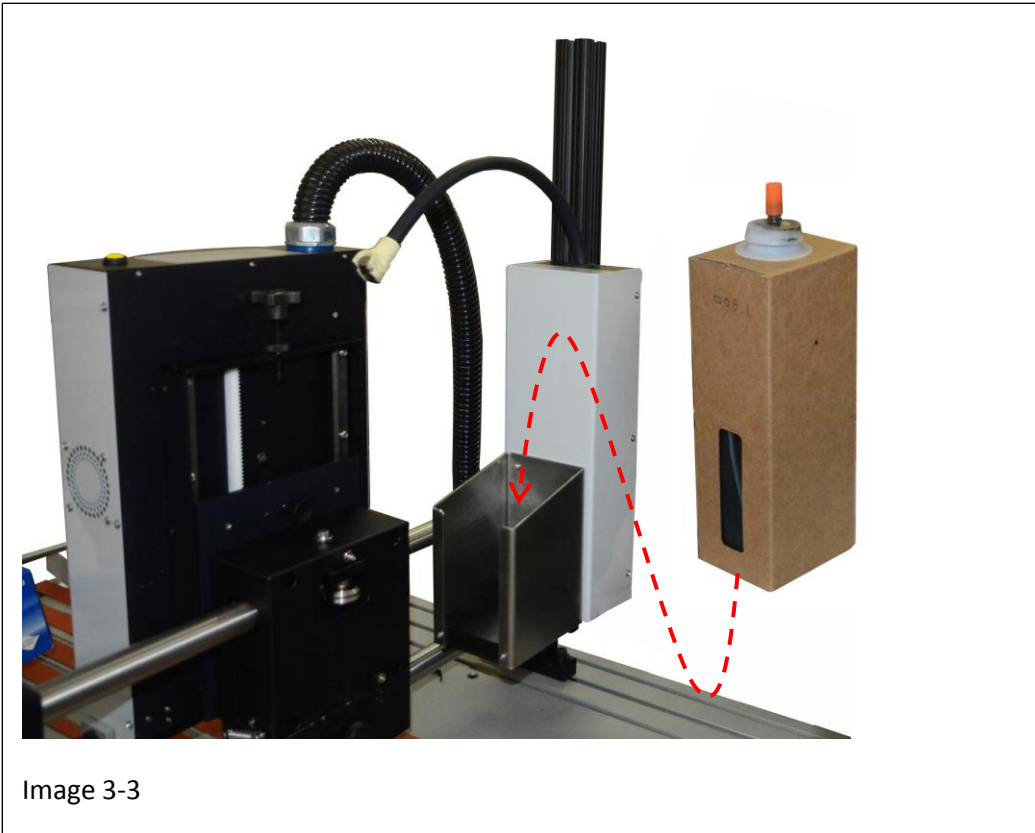
- A. Working from the back of the base, guide the T-Nuts into the Ink Supply Mount Bar channel from the top and lower to a comfortable level for operator access, see image 3-2  
( ⚠ Caution: Do not let the Ink Supply Controller drop or strike the transport deck. This could result in damage to the Controller)
- B. Tighten both screws using moderate to firm force to secure the Ink Supply Controller to the Mount Bar.  
( ⚠ Caution: Do not over tighten these screws. Over tightening the screws may result in damage to the t-nuts and mounting channels in the mount bar)





### Step 3

- A. Place the Ink Bottle into the Supply Controller with the box window visible through the front of the holder as shown in image 3-3
- B. Remove the cap from the bottle and snap the ink line to the bottle spout, see image 3-4.





**Section Four**  
Pump Control Box  
Installation

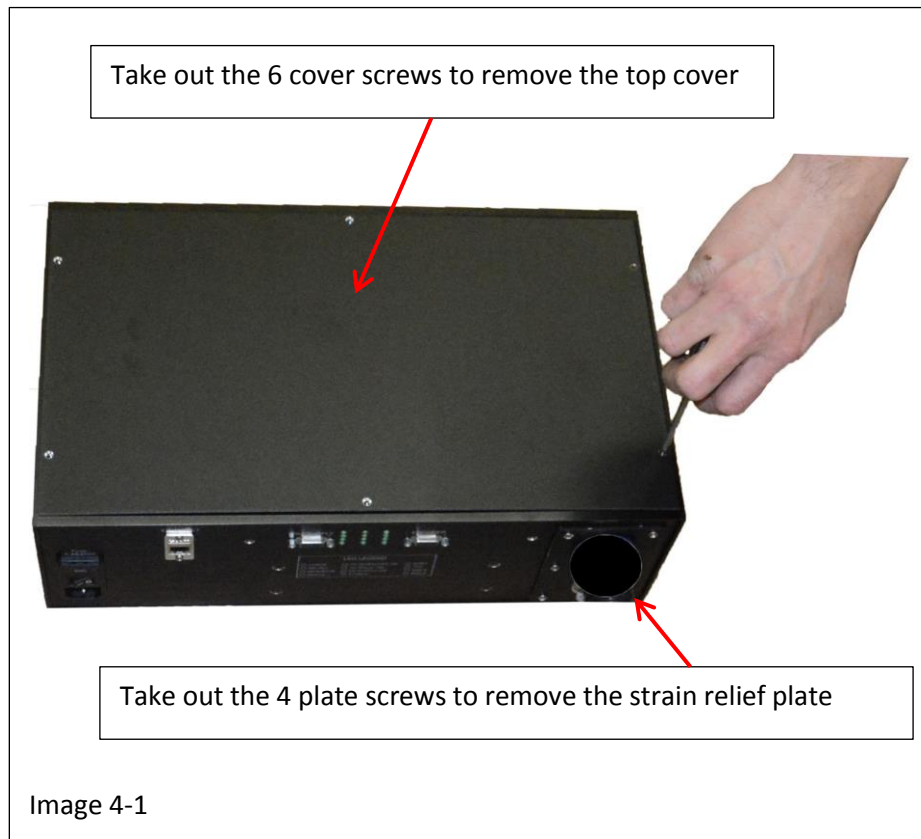
## Section Four

### Pump Control Box Installation

#### Step 1

Prepare the Pump Control box for installation by performing the following:

- A. Remove the top cover to expose the board connections, see image 4-1
- B. Remove the Umbilical strain relief cover plate from the side of the box, see image 4-1.

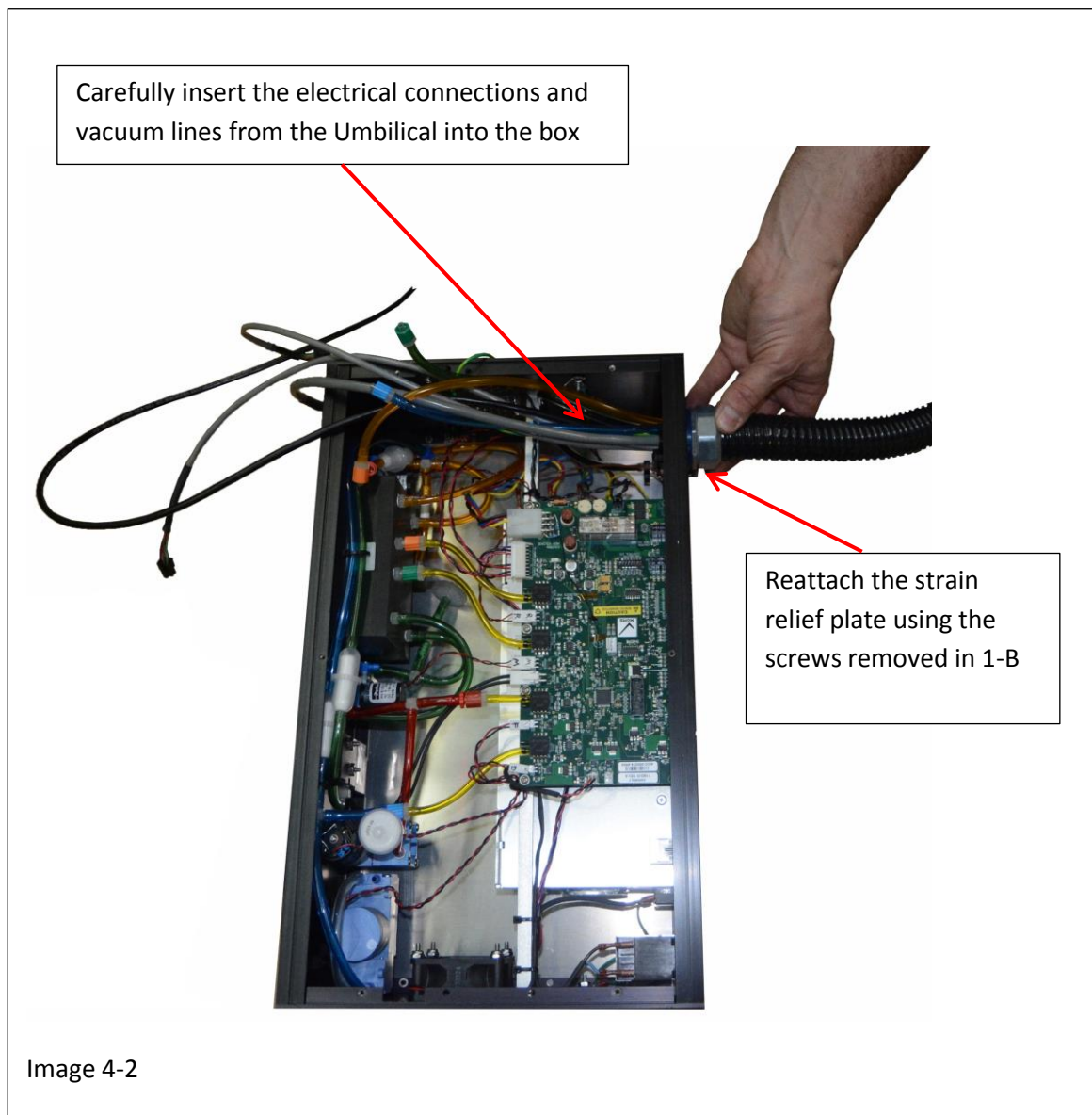


## Step 2

Attach the Umbilical to the strain relief then attach the strain relief to the Pump Control Box by performing the following:

(Note: It may be necessary to route the umbilical into the base through the bottom or through the back cover depending on the model base you are installing the Osprey Print System on before connecting the Umbilical to the Pump Control Box)

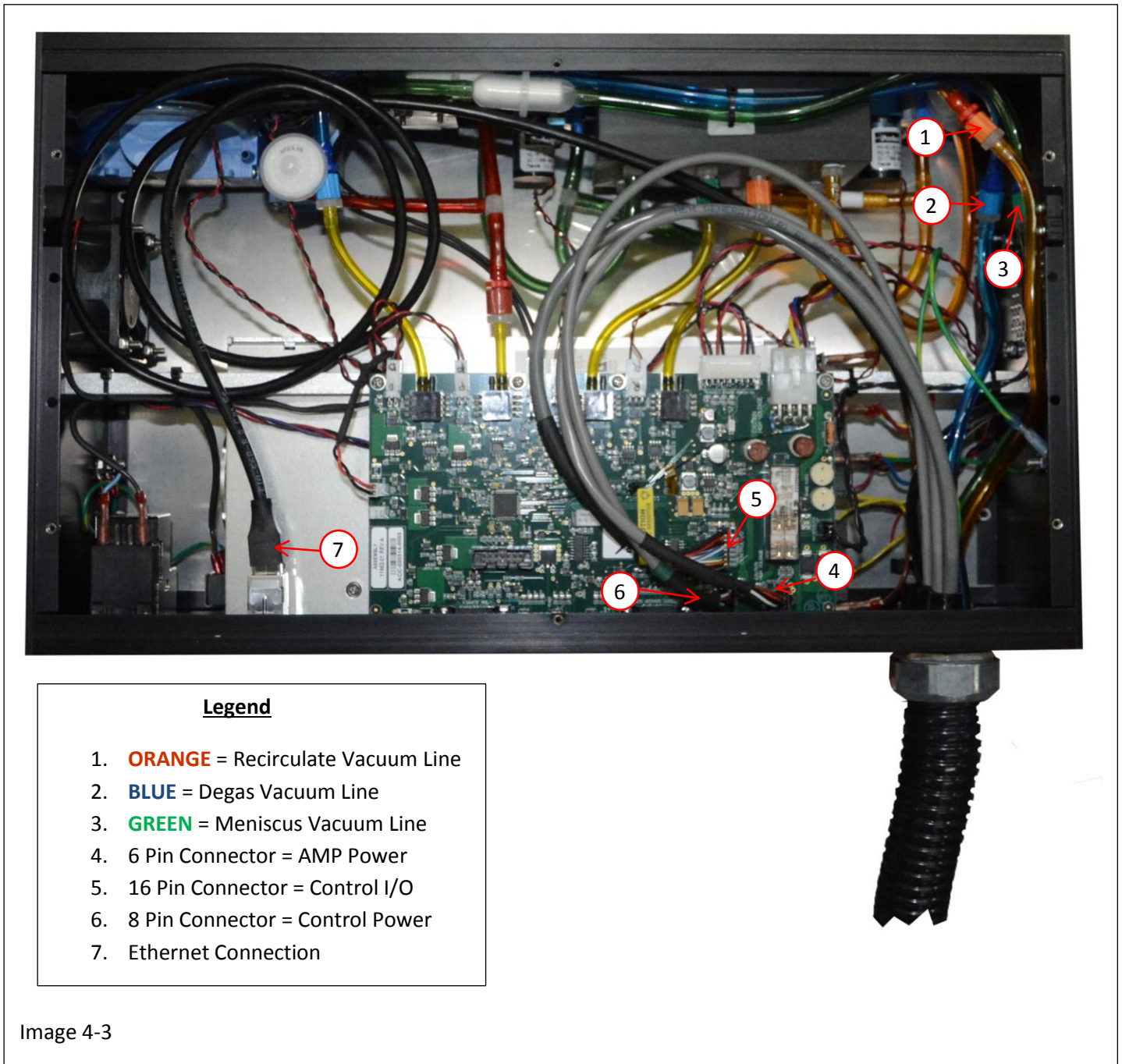
- A. Remove the retaining ring from the end of the umbilical.
- B. Slid the cover plate, removed from the Controller Box in Step 1-B, onto the end of the umbilical and secure it to the plate with the retaining ring removed in Step 2-A.
- C. Carefully insert the electrical connections and vacuum lines from the Umbilical into the box and affix the strain relief plate as shown in image 4-2. ( ⚠ Caution: Use care when performing this step to insure the electrical connections and vacuum lines are not damaged)



### Step 3

Umbilical Connection inside the Pump Box by performing the following:

- A. Connect all the electrical connections and vacuum lines as shown in image 4-3. (Note: Electrical connections are pin sensitive and will only connect one way. The Vacuum Lines are color coded)

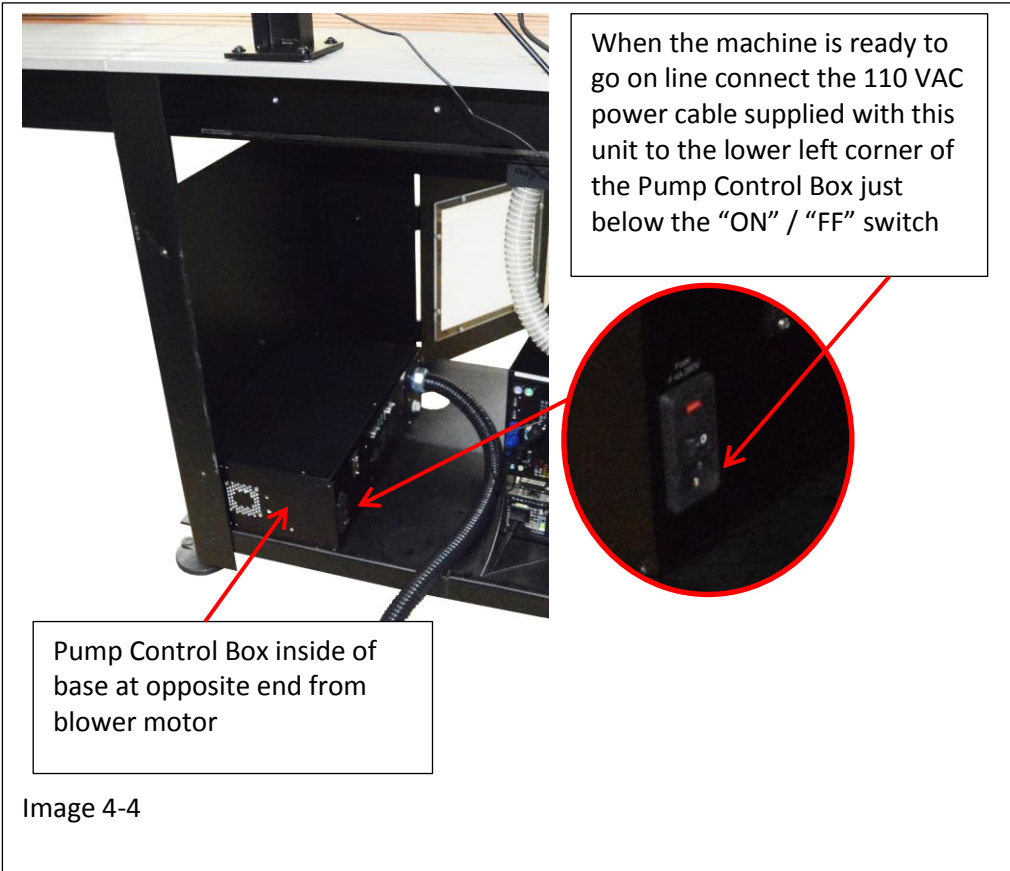


- B. Hands tighten the strain relief to secure the umbilical. (Note: Keep a careful watch over the electrical connections and vacuum lines made in Step 2-D to insure they are not disrupted during this step)
- C. Affix the top cover using the 6 screws that were removed in Step 1-A

## Step 4

Install the Pump Control Box inside the Ink Jet Base in the following manner:

- A. Place the Pump Control Box in the base away from the blower motor, see image 4-4
- B. When you are ready to power up the system and go on line, connect the 110 VAC power supply cable that came with the unit to the receptacle located at the lower left corner of the Pump Control Box just below the "ON" / "FF" switch.



## Summary of Electrical Connections

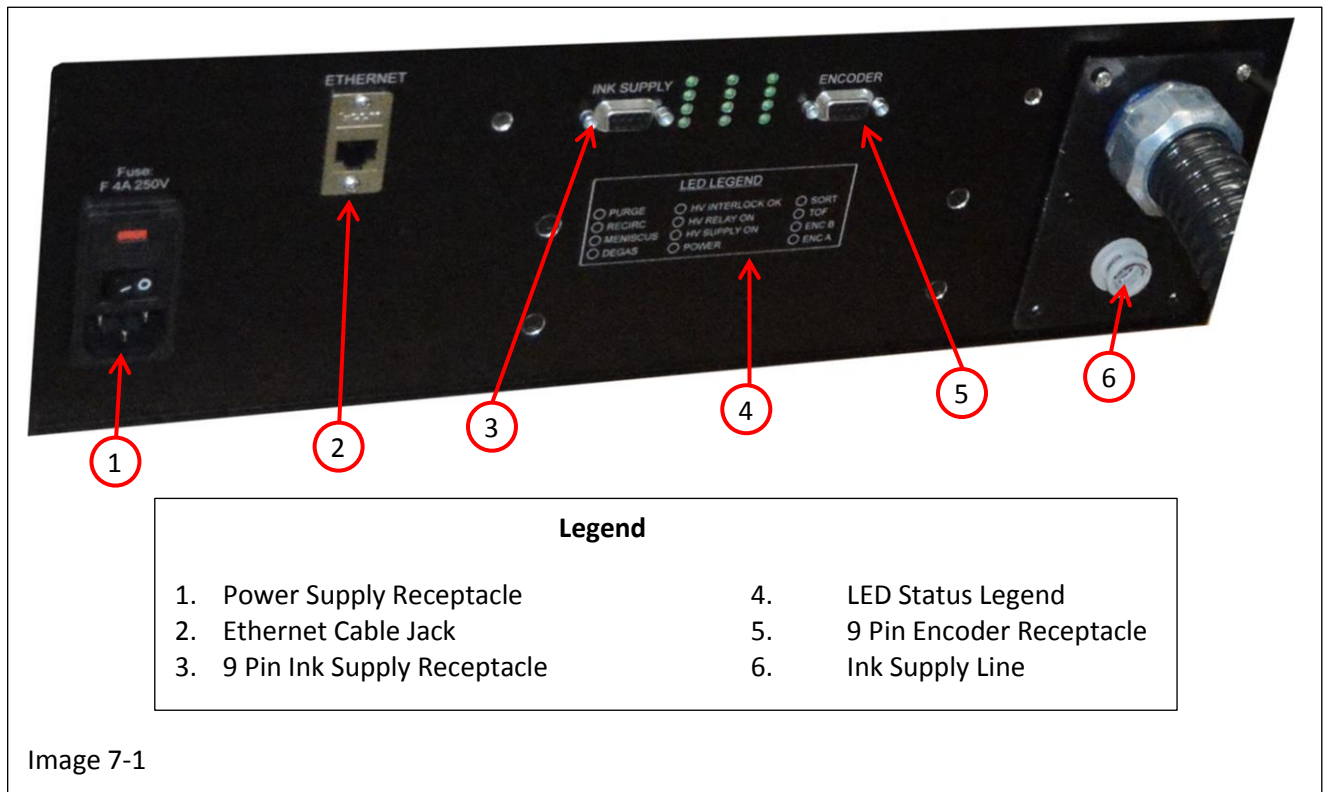


Image 7-1



# **Section Five**

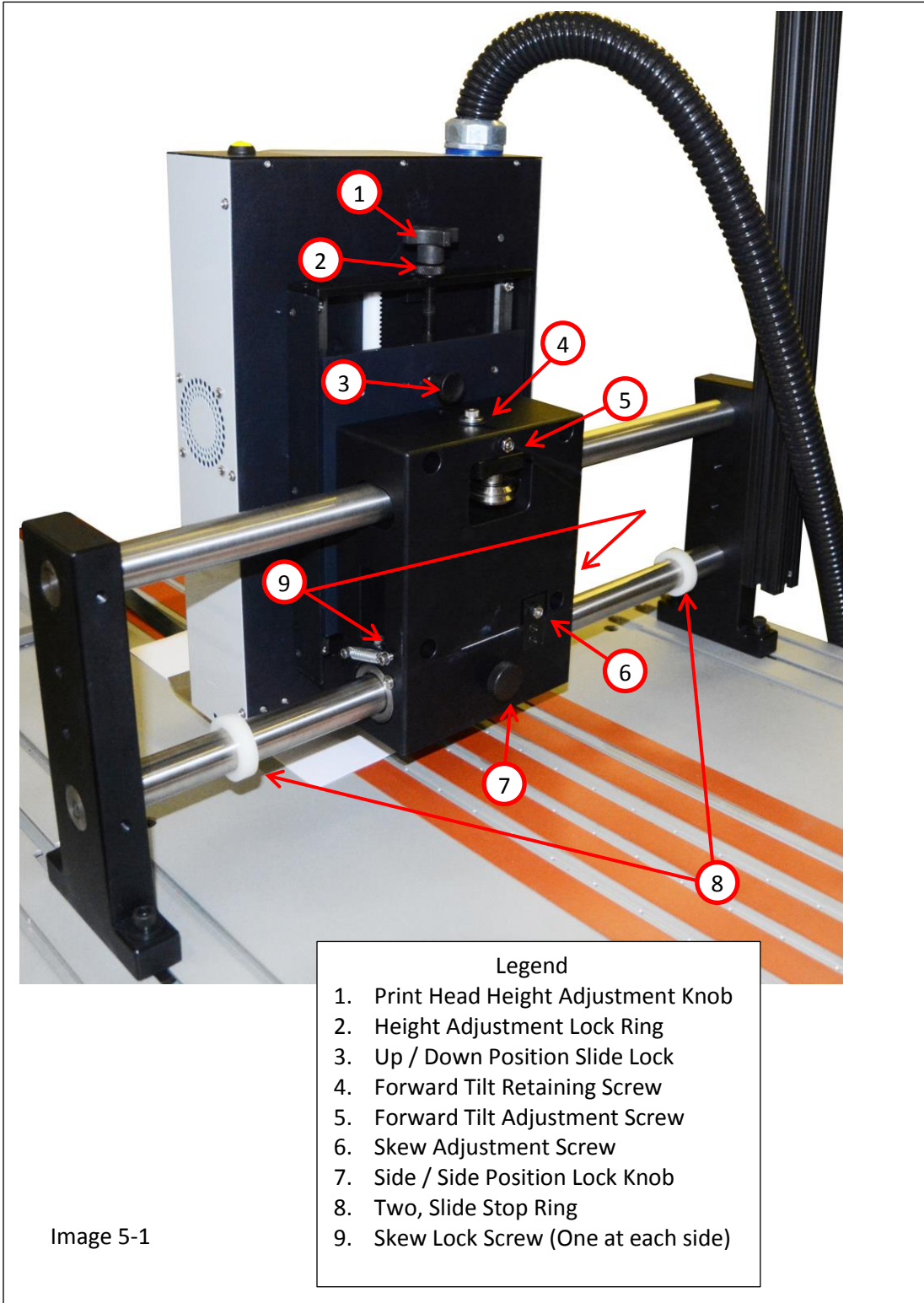
**Print Head Height Setting  
& Alignment Installation**



## Section Five

### Print Head Height Setting & Alignment

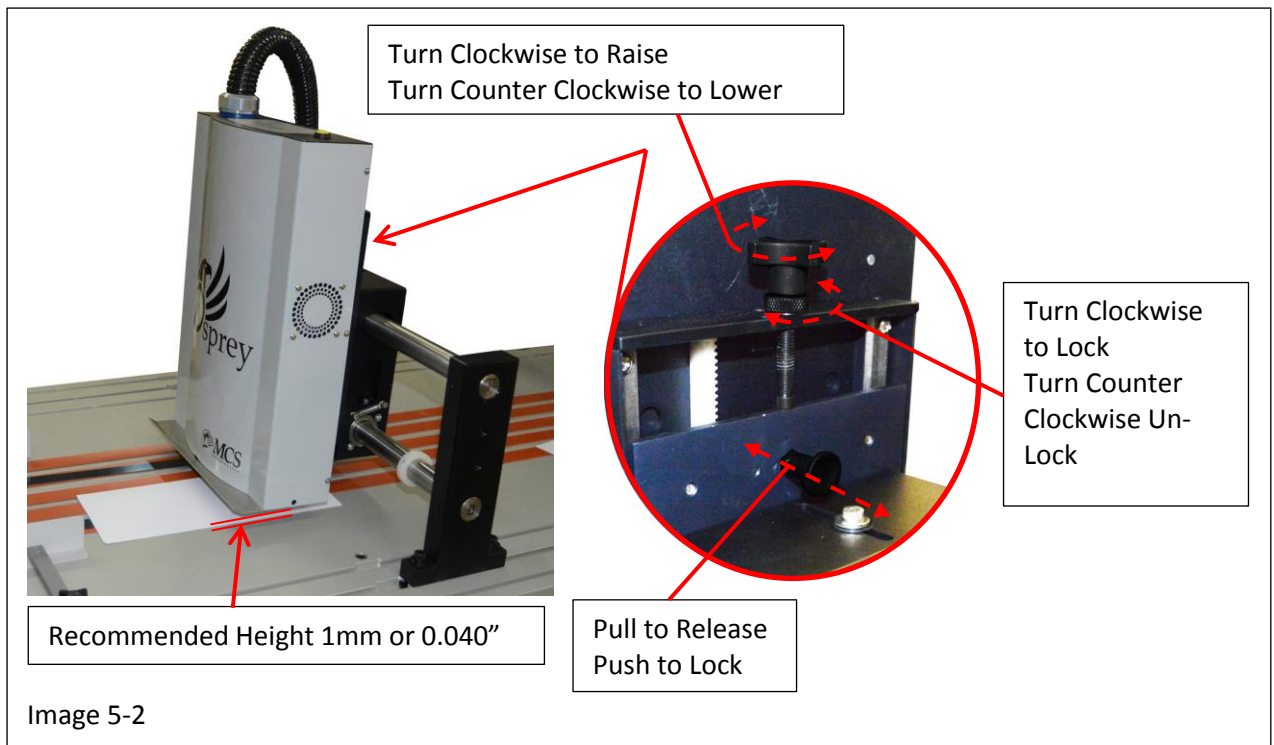
Before setting the height of the Osprey Print Head and adjusting the alignment, review the adjustment locations and their function by reviewing image 5-1



## Step 1

Adjust the height of the Osprey Print Head in the following manner:

- A. Place a sample of material you wish to print on under the Osprey Print Head.
- B. Pull and hold the Up / Down Position Slide Lock and lower the Print Head to the Down Position. Release the Lock once the head is down.
- C. Turn the Height Adjustment Lock Ring counter clockwise to loosen.
- D. Turn the Adjustment to raise or lower the print head until the skid plate of the head is theoretically 1 millimeter or 0.040 inches from the surface of the sample, see image 5-2. (Note: Just high enough for the paper to pass under the Print Head Ski without causing the paper to drag on the transport belts)
- E. Turn the Height Adjustment Lock Ring clockwise to tighten.

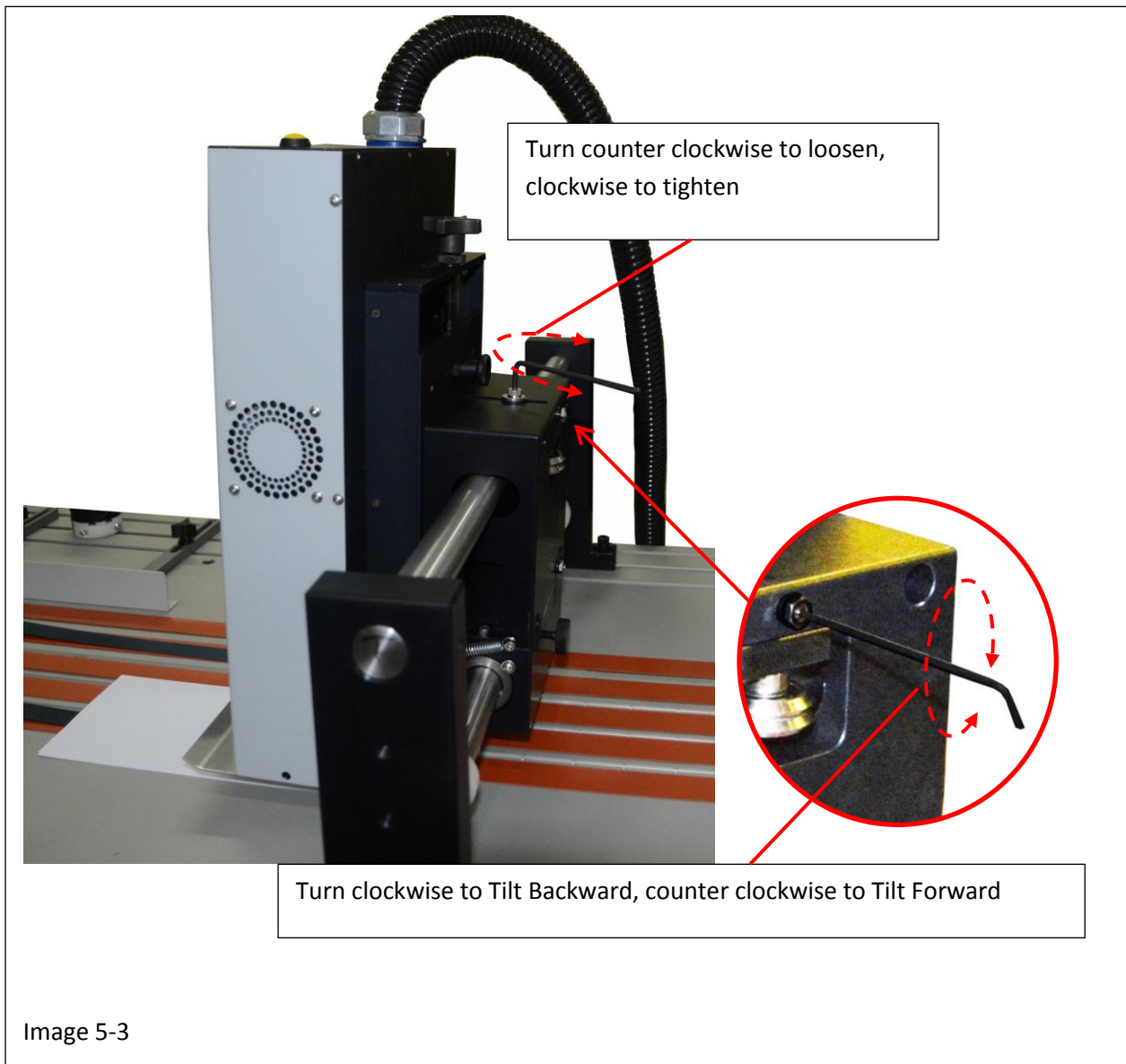


## Step 2

It is important that the Osprey Print Head stay level to the deck. This can be accomplished by adjusting the forward / backward tilt of the Osprey Print Head in the following manner:

- A. Using an Allen wrench, loosen the lock screw located on the top of the Mount Module, see image 5-3
- B. Using an Allen wrench, adjust the forward or back tilt of the Osprey Print Head by turning the adjustment screw clockwise to tilt backwards, counter clockwise to tilt forward. (Note: it may be necessary to loosen and tighten the hex head nut associated with this screw)
- C. Tighten the lock screw by turning it clockwise with an Allen wrench.

(Special Note: If the ink jet base is level, then a level can be used to make this adjustment. If for some reason the base can't be leveled then make the Print Head level to the base by measuring front to back along the ski plate to level the head with the deck.)



### Step 3

Set the Slide Travel Stop Rings to limit the travel distance on the Osprey Print Head by performing the following:

- A. Manually position the Osprey Print Head in the center of the base, see image 5-4
- B. Measure out 5 to 6 inches from the “Back” side of the Print Head and lock the Stop Ring in place by tightening the set screw in the Stop Ring. ( ⚠ Caution: Do not over tighten these screws. Over tightening the screws may result in damage to the Stop Ring )
- C. Measure out 5 to 6 inches from the “Front” side of the Print Head and lock the Stop Ring in place by tightening the set screw in the Stop Ring. ( ⚠ Caution: Do not over tighten these screws. Over tightening the screws may result in damage to the Stop Ring )

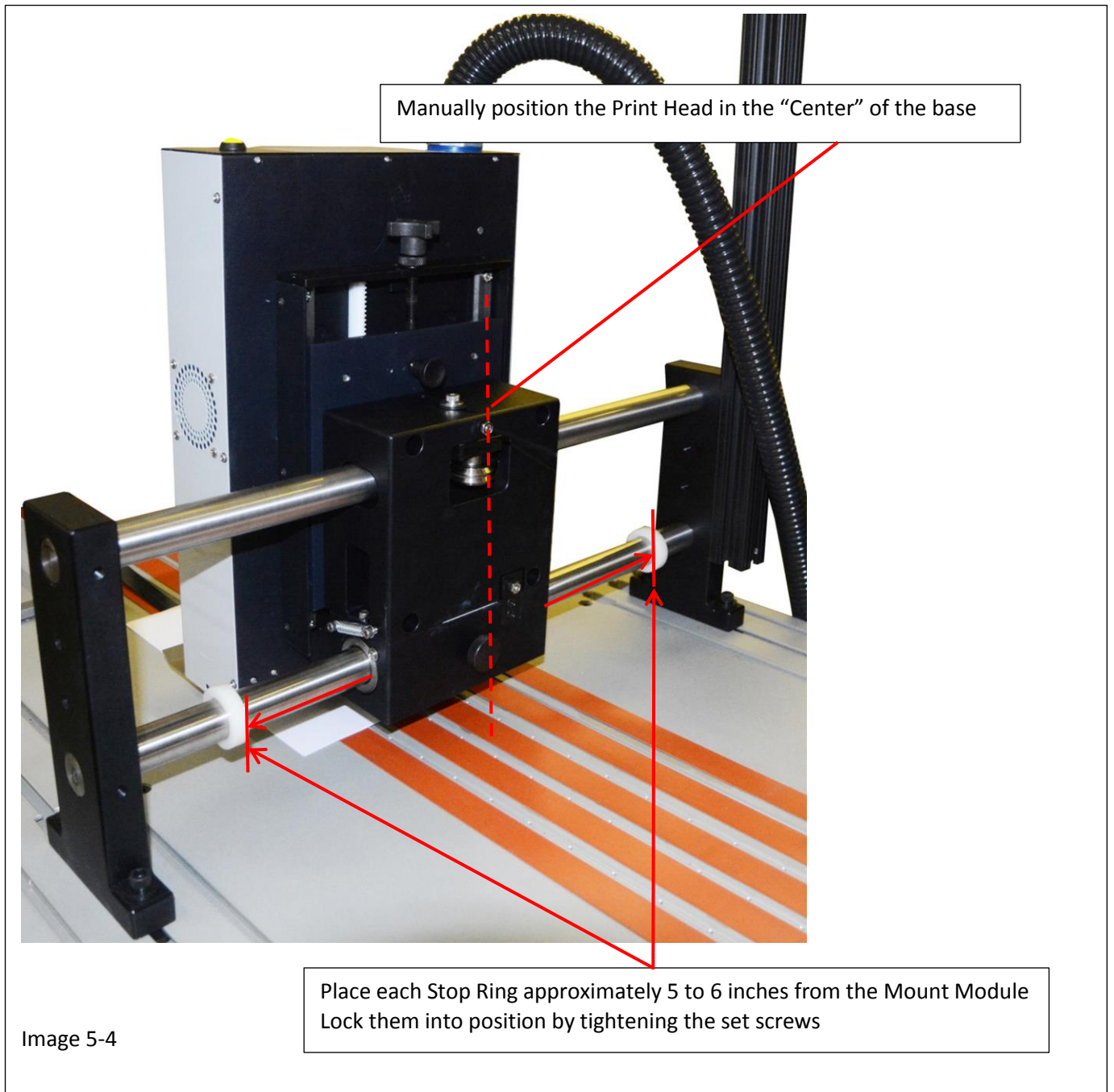


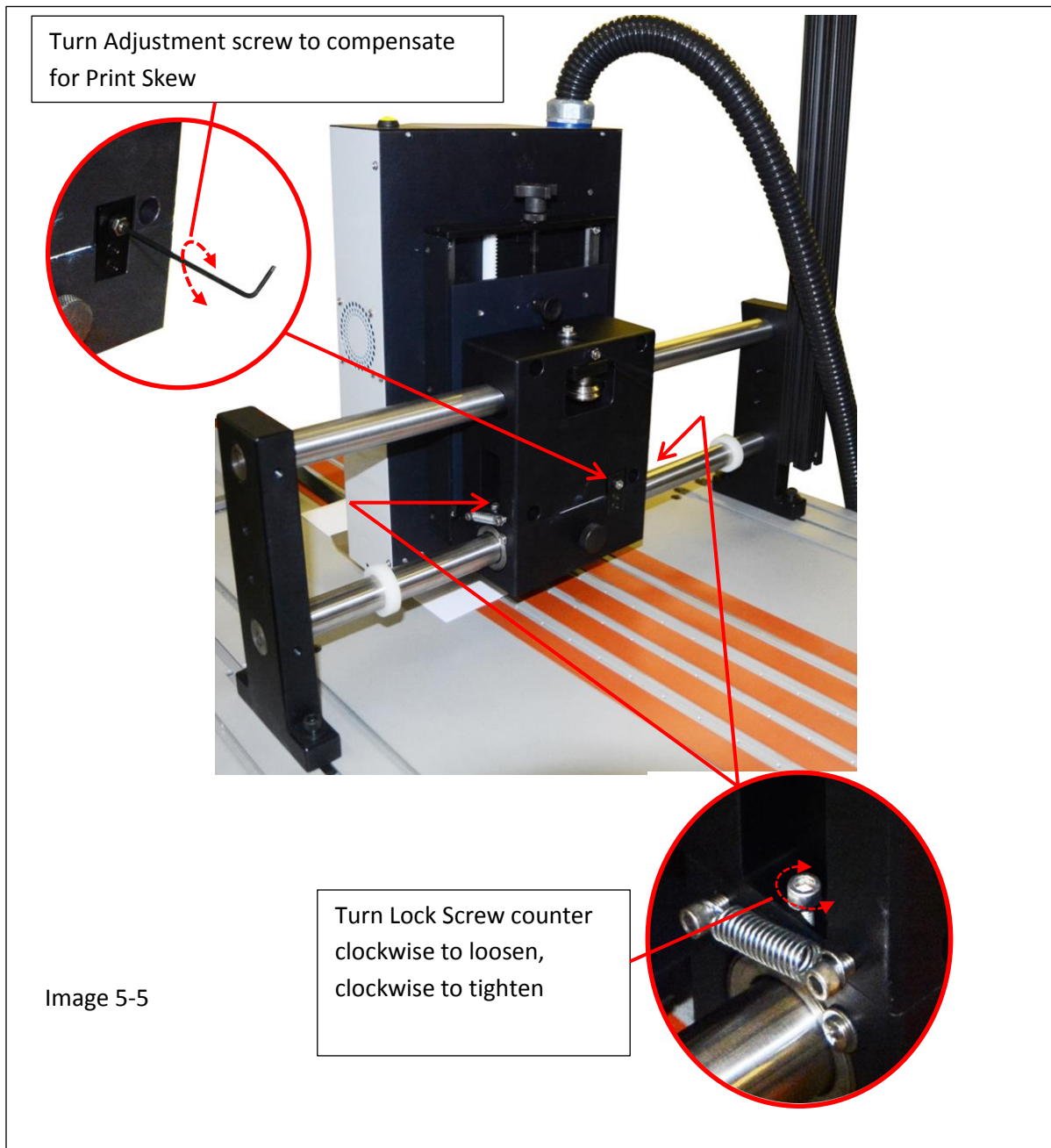
Image 5-4

## Step 4

Compensating for Print Image appearing skewed on the paper can be accomplished by performing the following:

- A. Loosen the Lock Screw at each side of the Mount Module
- B. Turn the Adjustment Screw clockwise to “Draw” the back side of the Print Head towards the Mount Shafts while pushing the front side away from the shafts. Turning the adjustment screw counter clockwise will have the opposite effect, see image 5-5.

(Special Note: Before making this adjustment make sure the skew problem is not feeder alignment with eth base or worn belts tracking erratically on the base)





**Section Six**  
Osprey  
**Sensor Installation**

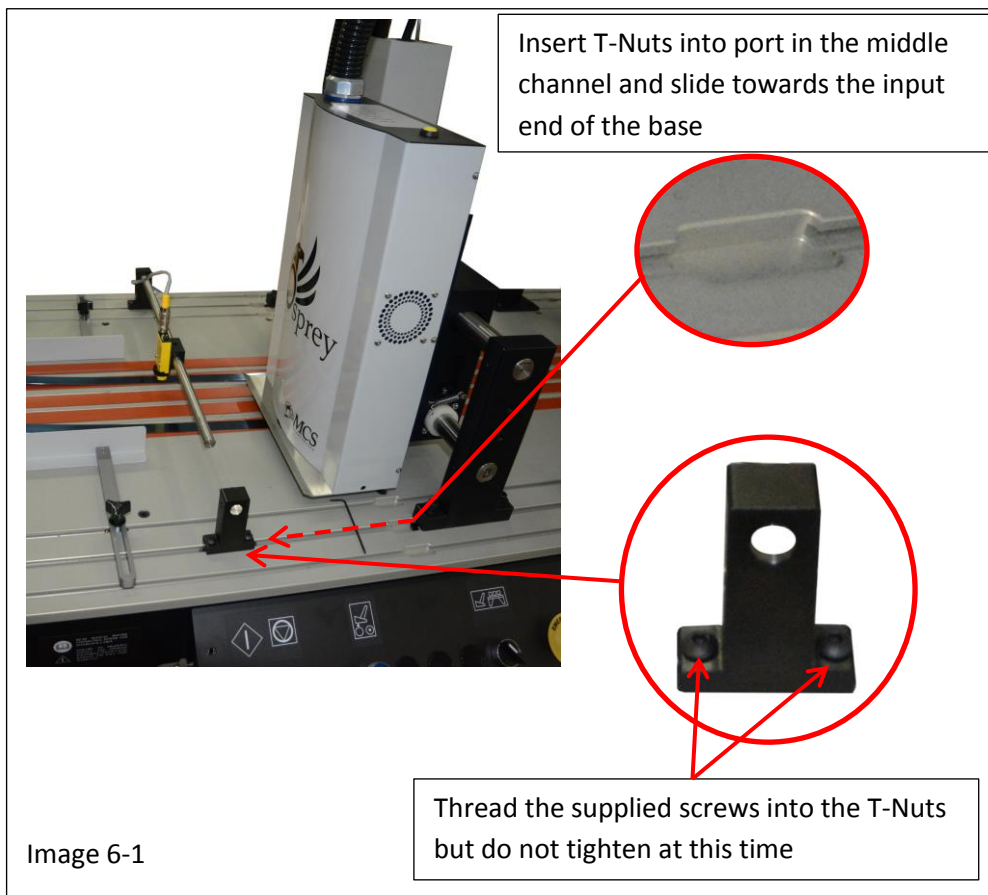
## Section 6

### Sensor Installation

#### Step 1

Install the sensor pillars to the base in the following manner:

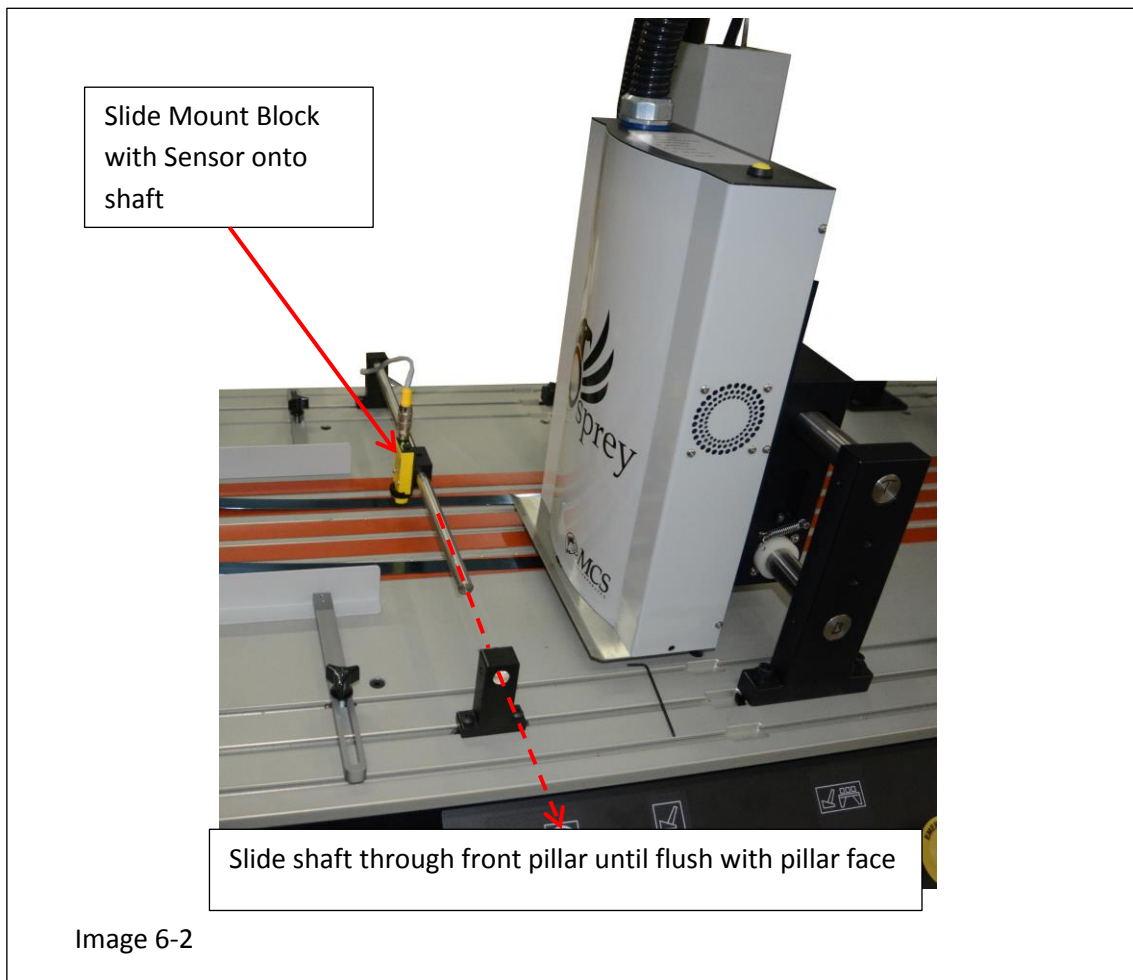
- A. Slide one of two T-Nuts into the middle front channel, move it towards the input end of the base well ahead of the Print Head, see image 6-1.
- B. Insert one of two supplied hex head Allen screws into the through hole in the base of the pillar and start the threading it into the t-nut. (Note: Do not tighten at this time)
- C. Slide the pillar towards the input end of the base to allow for the second of two t-nuts to be placed into the channel.
- D. Align the back through hole in the pillar with the t-nut and begin threading the second of two hex head Allen screws into the t-nut. (Note: Do not tighten at this time) refer to image 6-1
- E. To install the back Pillar, perform steps “A” through “D” at the back middle channel position, see image 6-1



## Step Two

Install the Sensor Shaft by:

- A. Slide the shaft through the back pillar until the shaft is approximately half way through the pillar, see image 6-2
- B. Affix Sensor to Mount Block and slide Sensor and Mount Block onto shaft, see image 6-2
- C. Align the front pillar with the shaft and slide shaft through the front pillar until the shaft end is flush with the front face of the pillar.
- D. Tighten set screws in top of pillar to secure sensor shaft.

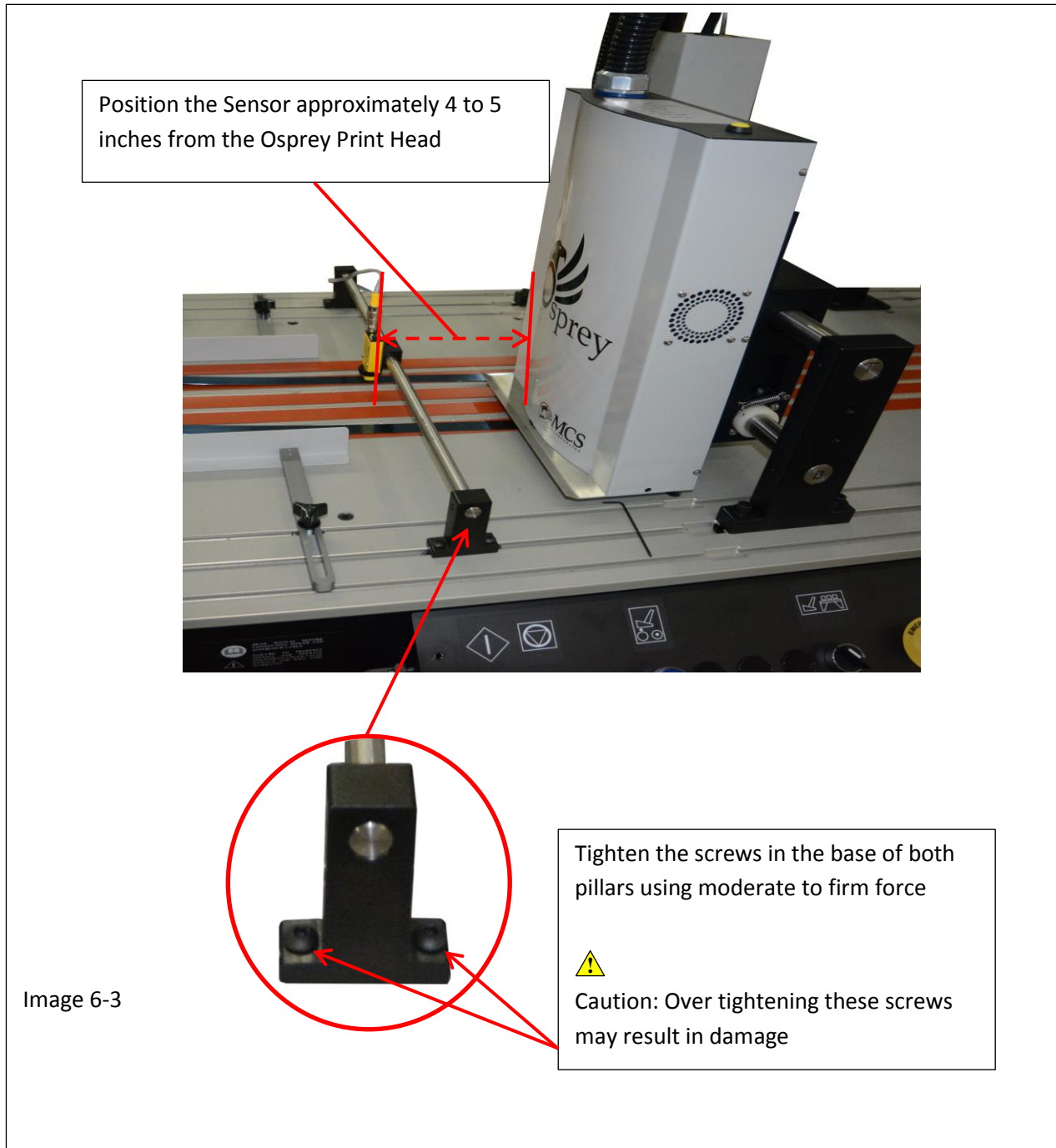




E. Set the sensor position approximately 4 to 5 inches in front of the Print Head, see image 6-3

F. Tighten the Pillar screws using moderate to firm force.

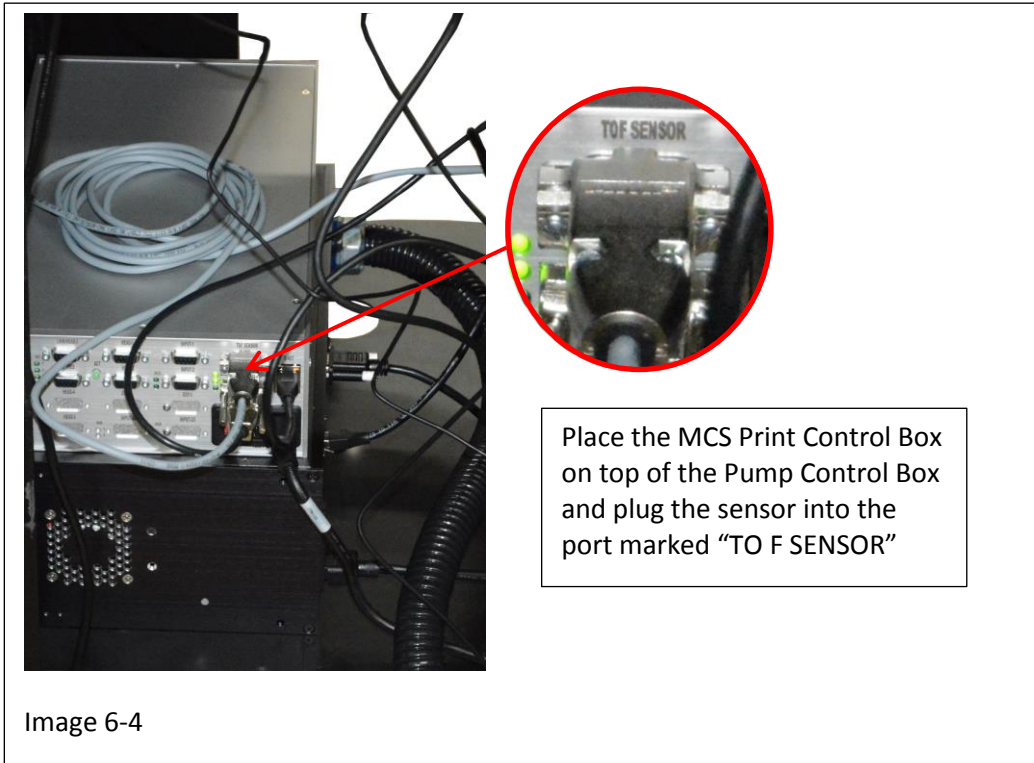
( ⚠ Caution: Do not over tighten these screws. Over tightening the screws may result in damage to the t-nuts and mounting channels in the base transport deck)



### Step 3

Install the MCS Print Control Box:

- A. Place the MCS Print Control Box inside the base on top of the Pump Control Box, see image 6-4
- B. Plug the sensor cable into the MCS Print Control Box as shown below in image 6-4





# **Section Seven**

Osprey

## **Purging the Print Head**

## Section Seven

### Purging the Osprey Print Head

Once the system is powered up, it will be necessary to purge the Osprey Print Head. To accomplish this task perform the following:

#### Step 1

Run the Raptor 6 Software and set the purge time by performing the following:

- Bring the MCS Raptor 6 Software on line. (Purge time duration can be set for best performance in the “Osprey Pin Maintenance Menu”)
- In the Main Menu press File > System >> Setup, to open the System Setup Menu see image 7-1
- In the “Maintenance” section of the System Setup Menu, Select “Osprey” see image 7-1
- Press “Pen Maintenance” to open the menu shown in image 7-2

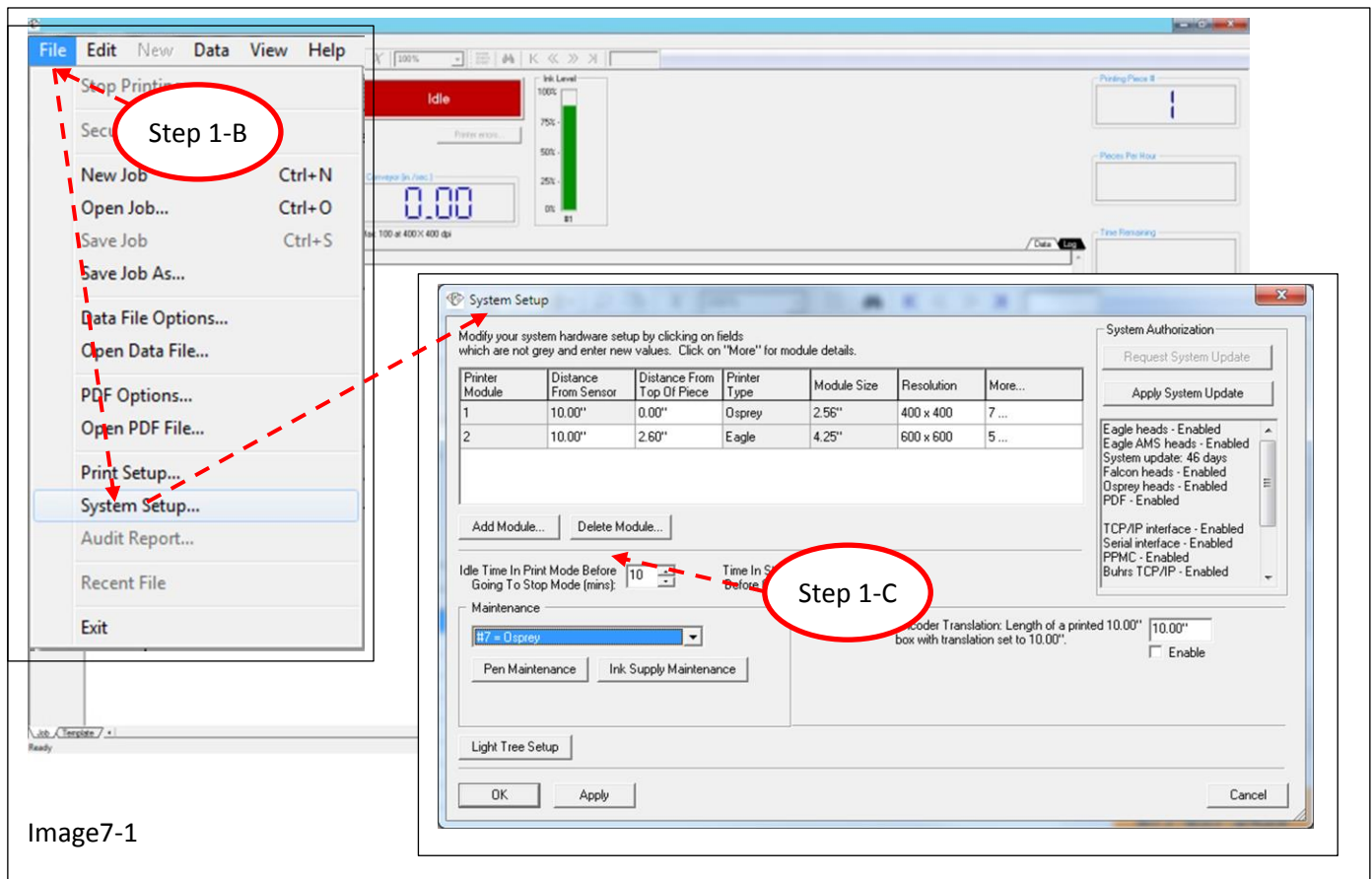


Image7-1

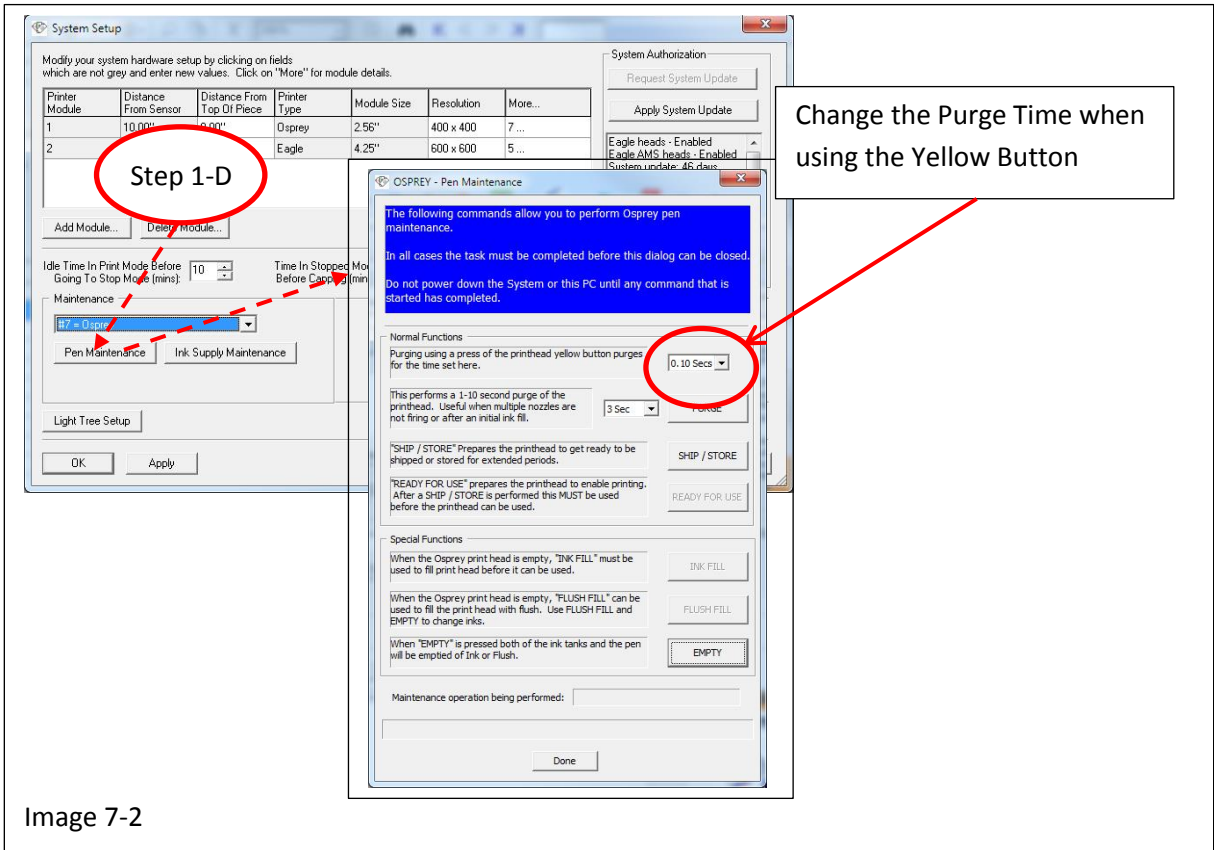


Image 7-2

- E. In the event there are multiple nozzles that did not fire, a separate Purge Command can be set up to initiate the purge from the menu for a longer duration, see image 7-3

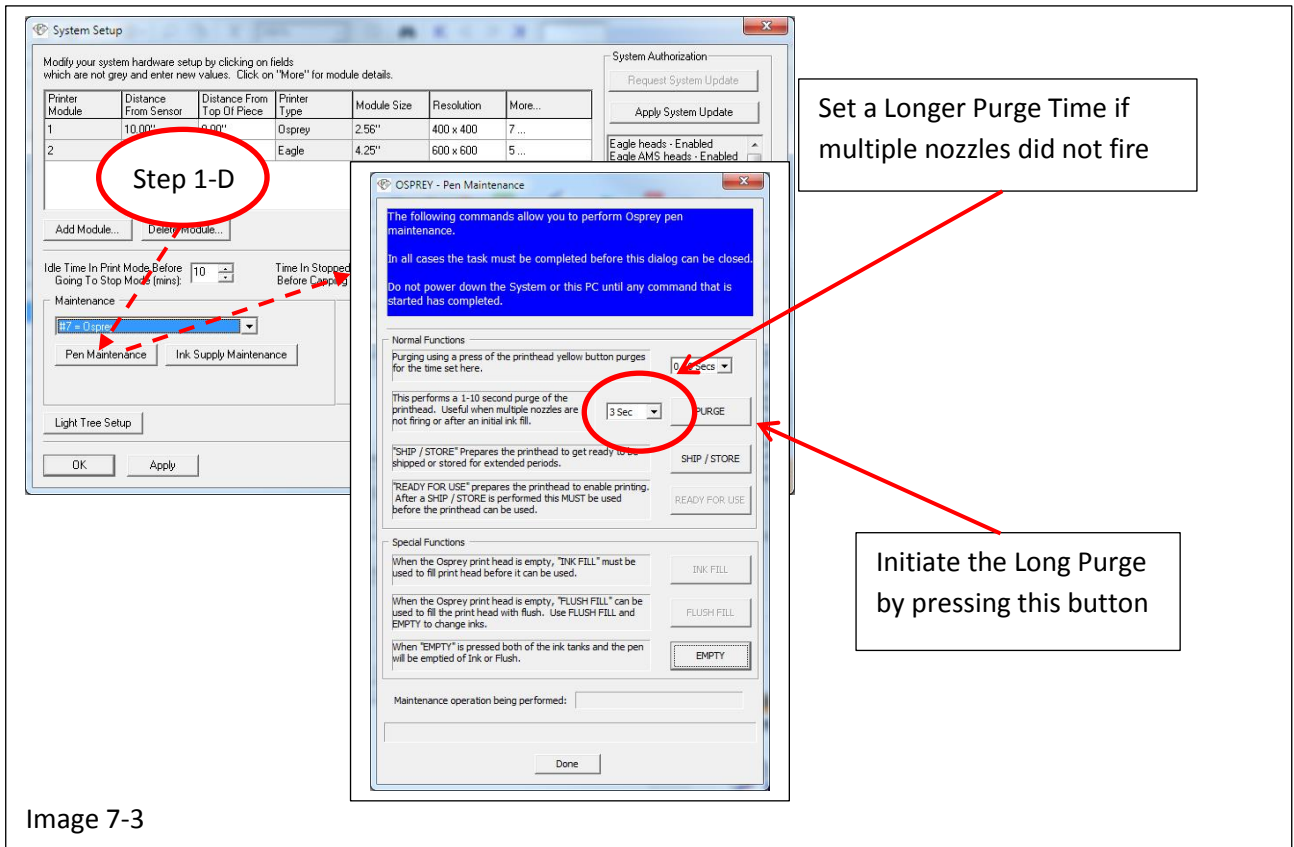
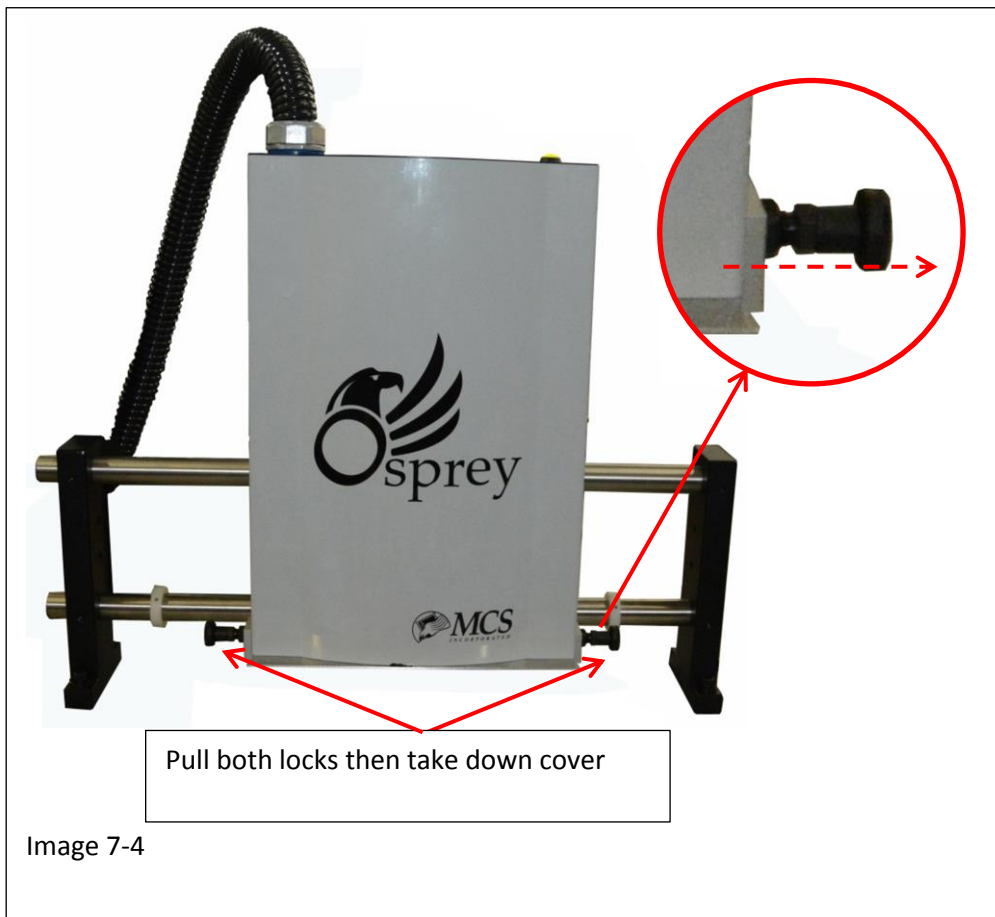


Image 7-3

## Step 2

Raise the Print Head and remove the cover in the following manner:

- A. Raise the MCS Eagle Print head to its highest setting by pulling out the lock knob, manually lifting the Osprey Print Head and pushing the lock knob to its original position.
- B. Remove the cover on the bottom in the following manner:
  - B-a. Pull both retaining lock knobs out from the head at the same time
  - B-b. Once the locks are out of the head pull the cover down and away from the head and set the cover aside see image 7-4.



### Step 3

Purge the Print head by performing the following:

- A. Put an ink tray beneath the Osprey Print head.
- B. Press and hold the Yellow Purge Button down, for approximately one second, on the Osprey Print Head, a blue Dialog box will open on the monitor, see image 8-5. (Note: This will only appear on the screen for a brief moment while the system is actively purging)

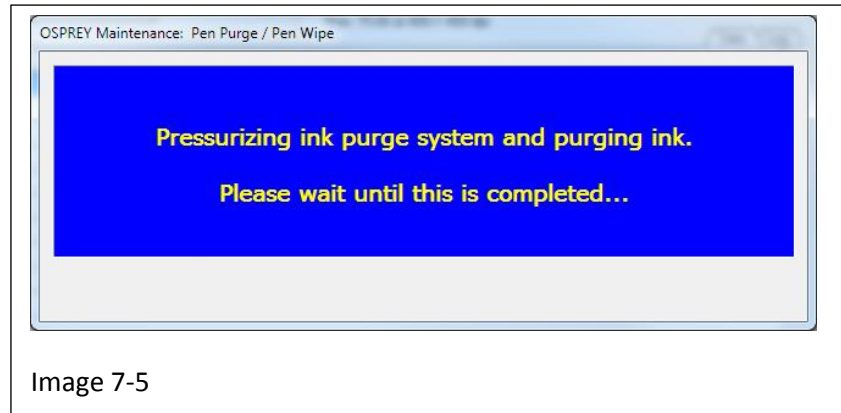


Image 7-5

- C. Once the system has completed the purge a second dialog box will appear indicating to “gently wipe the pen’s nozzles using a new, clean Kimwipe”, see image 7-6. To close this dialog box you can either press the “Done” button located at the bottom of the box or simply start printing and the box will close automatically.

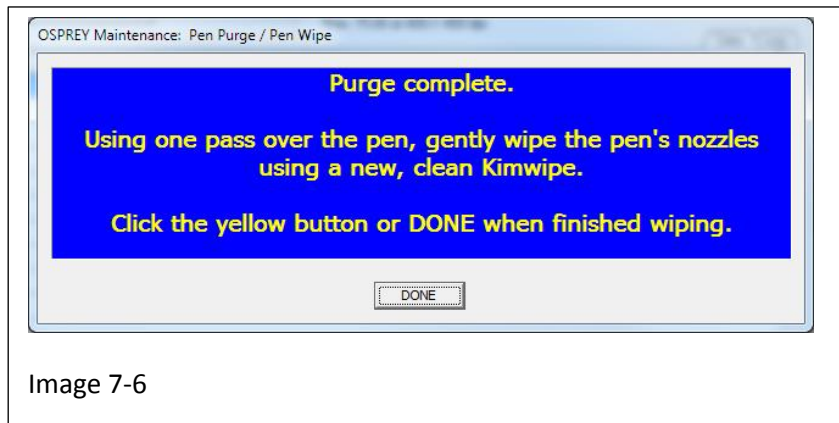


Image 7-6

It should be noted that the Osprey Print system has a Recirculate feature that consistently moves ink through a recirculate tank. This provides for recirculation of ink through the print head and the degasser. This recirculation provides a constant supply of degassed and filtered ink to the print head. So once the system is initially purged and running, an operator can leave the system, stopped but under power and resume printing later without having to purge the print head again.

After Purging the Print Head perform run the test Pattern to check head alignment and the Rectangle check the encoder reference.

