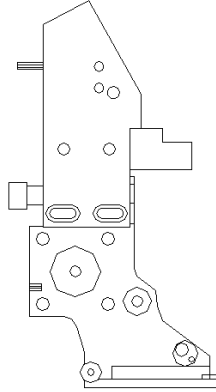


ABM International, Inc.

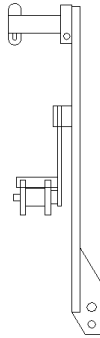
Sequin – Lightning Stitch required

1.0: Parts List

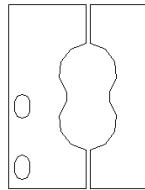
Sequin head and motor assembly (Qty. 1)



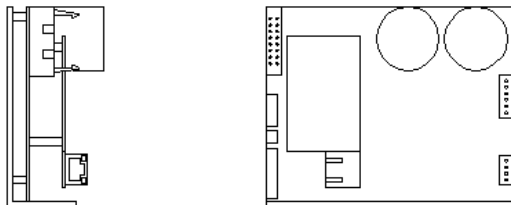
Reel stand (Qty. 1)



Needle bar frame clamp (Qty. 1)



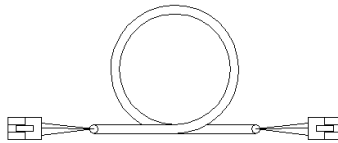
Motor drive (Qty. 1)



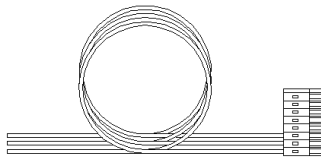
Cable harness with bracket (Qty. 1)



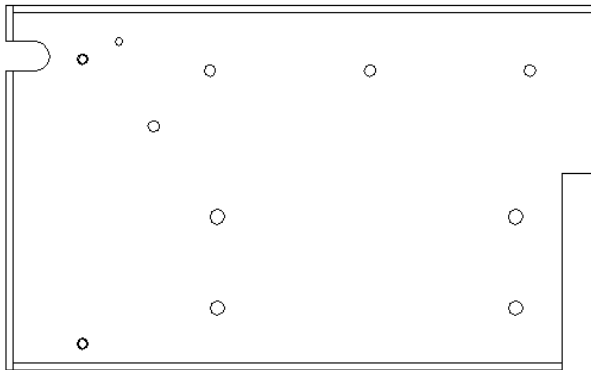
Communication cable (Qty. 1)



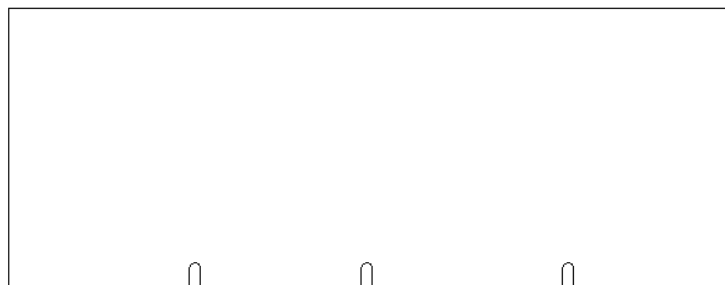
Drive AC power cable (Qty. 1)



Motor cover base plate (Qty. 1)



Top cover (Qty.1)



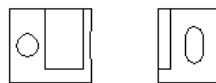
Angle nut (Qty. 2)



Twist lock cable tie holder (Qty. 2)



Needle bar end clamp (Qty. 1)



Bolt Kit

Cheese head bolt

- (1) M2 x 12mm
- (1) M2 x 20mm
- (1) M2 x 25mm

Socket head cap screws

- (2) 8-32 x 5/8
- (2) 8-32 x 1
- (1) 10-32 x 1/4
- (1) 10-32 x 1/2
- (2) 10-32 x 3/4
- (2) 10-32 x 2
- (2) 1/4 x 5/8
- (4) M3 x 16mm

Flat washers

- (2) #8
- (4) #10
- (2) 1/4

Hex Nuts

- (3) M2

Nylon insert lock nuts

- (1) 8-32
- (1) 10-32
- (4) M3

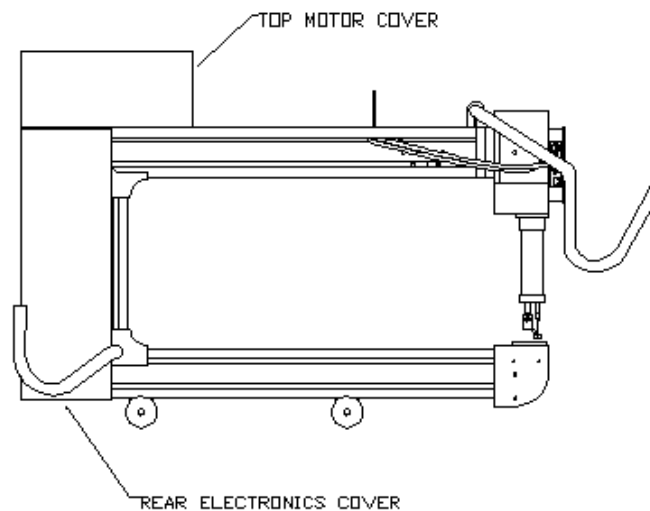
2.0 Sequin assembly

NOTE: THE LATEST VERSION OF SEQUIN WILL ONLY WORK ON MACHINES EQUIPPED WITH LIGHTNING STITCH REGULATION.

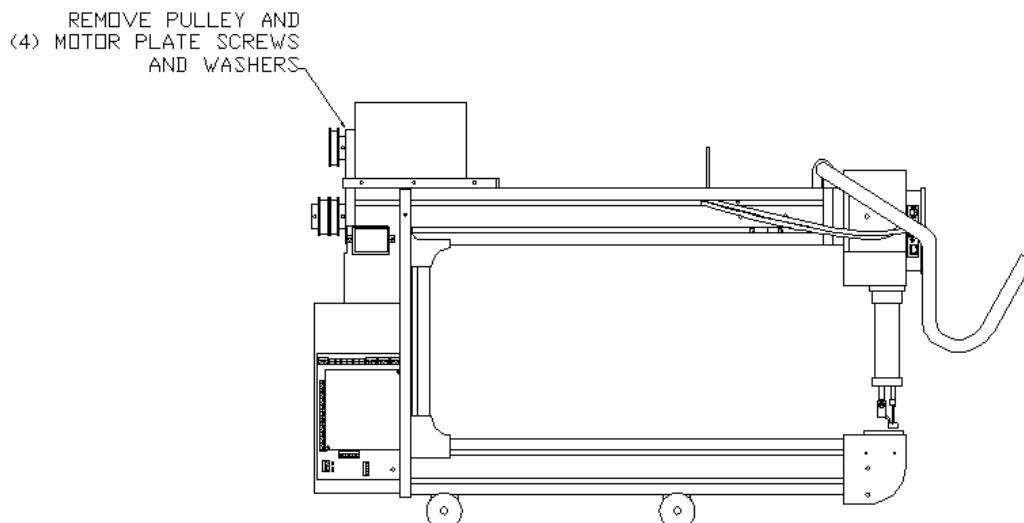
The Sequin instruction manual was written to install a Sequin module onto a machine with Lightning Stitch regulation already installed.

Step 1: Turn the machine OFF at the main power switch and unplug the machine from the electrical outlet.

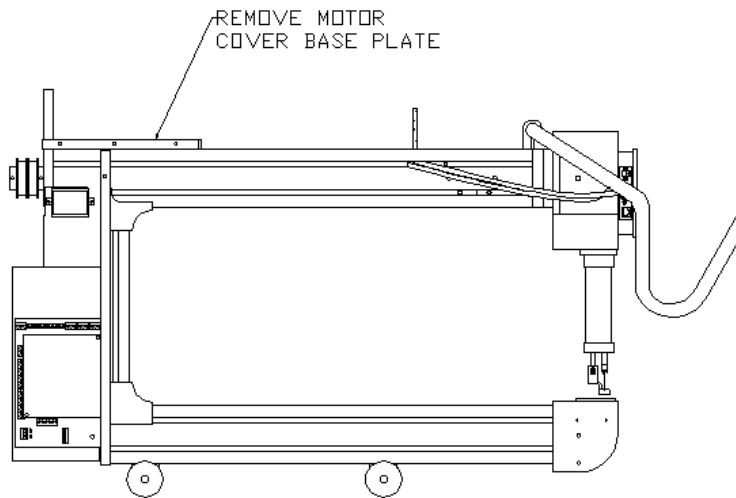
Step 2: Remove the top and rear covers of the Innova.



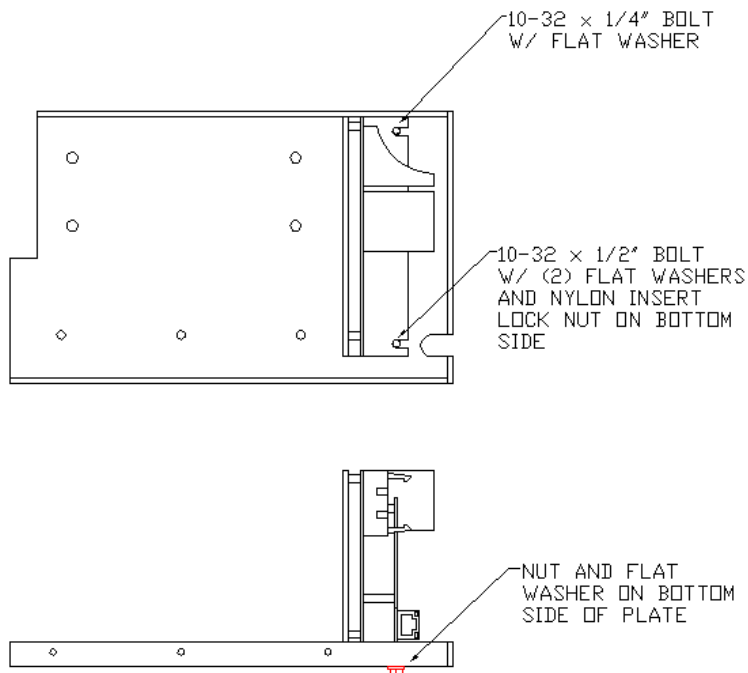
Step 3: Remove the motor pulley and (4) M5 motor plate screws from Lightning stitch motor. Unplug the communication and power cables from the drive unit and carefully set the assembly to the side.



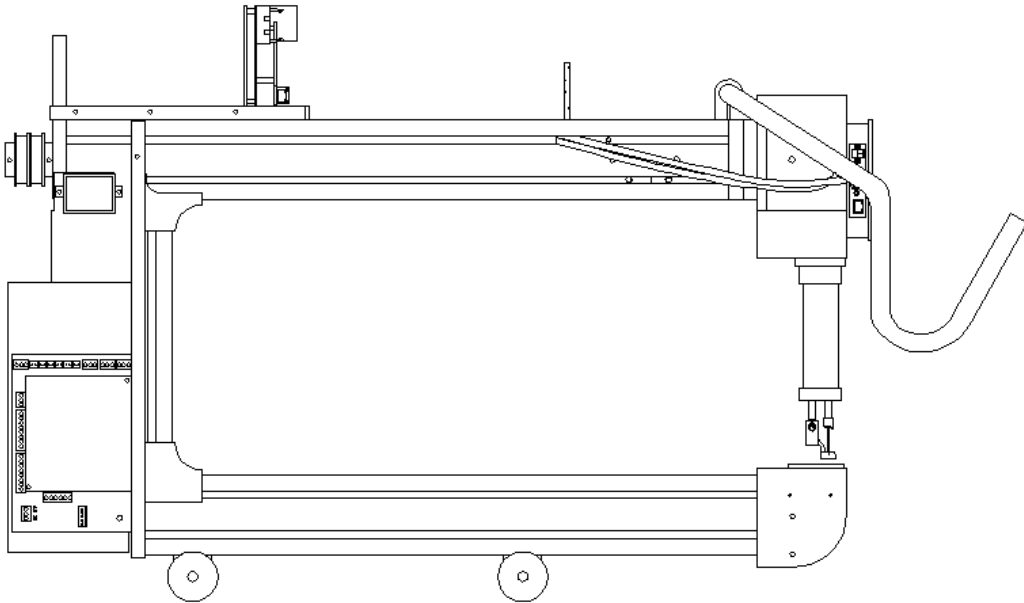
Step 4: Remove the (4) button head screws that hold the motor cover base plate to the Innova. Remove the plate.



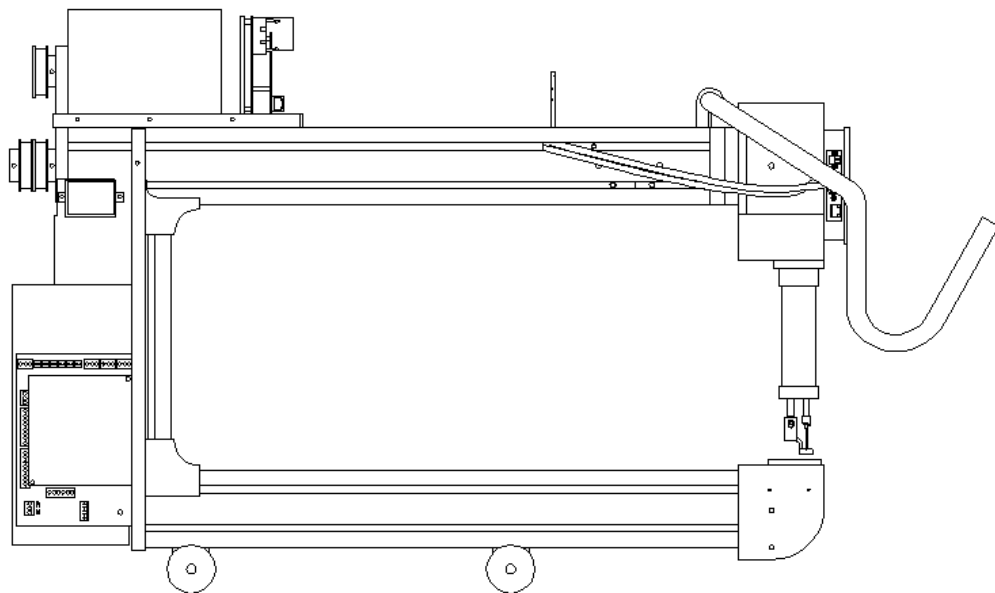
Step 5: Install the Sequin motor drive onto the new motor cover base plate using (1) #10 x 1/4" bolt and washer and (1) #10 x 1/2 bolt, (2) flat washers and (1) nylon insert lock nut. See picture below for proper board orientation. Make sure to put correct length screws in noted locations on the picture below.



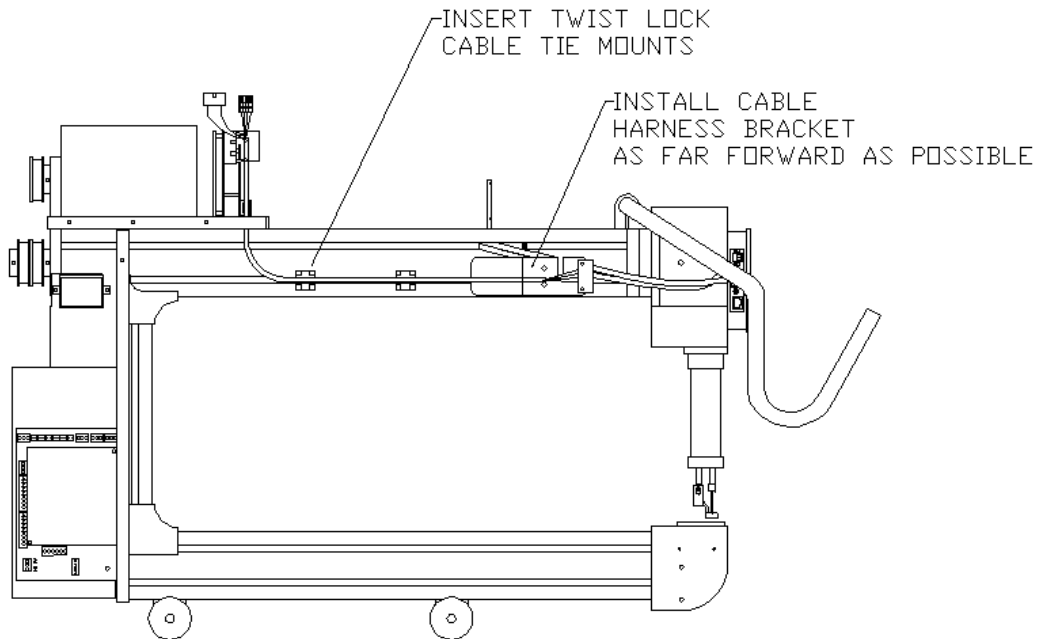
Step 6: Install new base plate and drive onto the Innova using the original (4) button head screws.



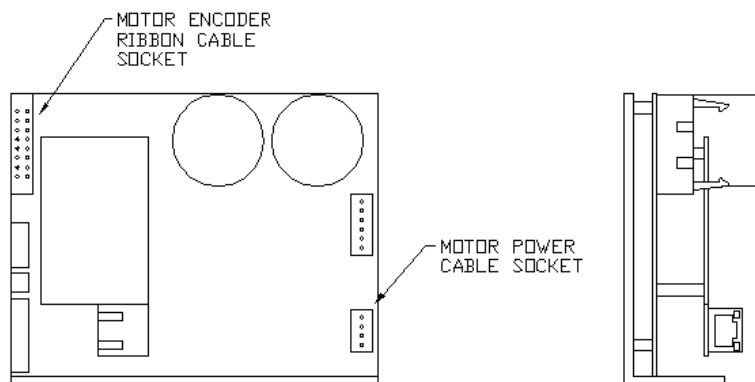
Step 7: Re-install Lightning Stitch motor and drive assembly using the (4) M5 bolts. Make sure to have (2) flat washers and (1) lock washer on each M5 bolt. Re-install the timing pulley with one of the set screws on the motor flat. Make sure to leave a small gap between the pulley and aluminum plate directly behind it. Lightly tension the drive belt and reconnect the communication and power cable to the Lightning Stitch drive.



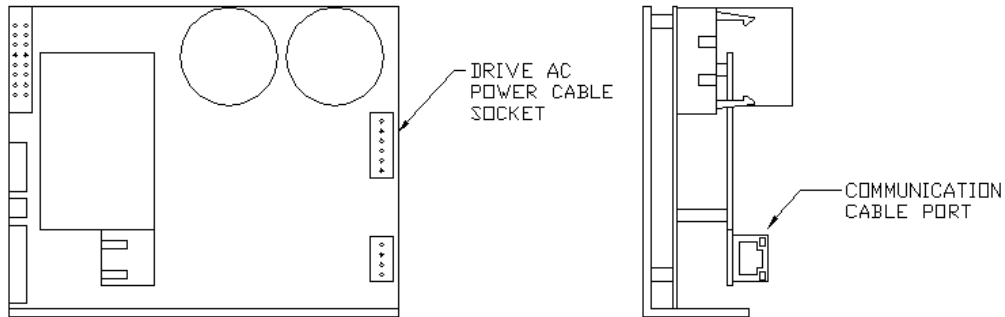
Step 8: Remove the lower slot cover on the top Innova beam. Install (2) twist-lock cable ties into the slot. Install the cable harness bracket into the slot using (2) ¼ x 5/8 bolts, flat washers and angle nuts. Make sure to install the bracket as far forward as possible without interfering with the head pivot release handle. The bracket will cover the release handle when viewed from the side. Route the cable harness up through the notch in the base plate and secure the harness with wire ties on the wire tie mounts.



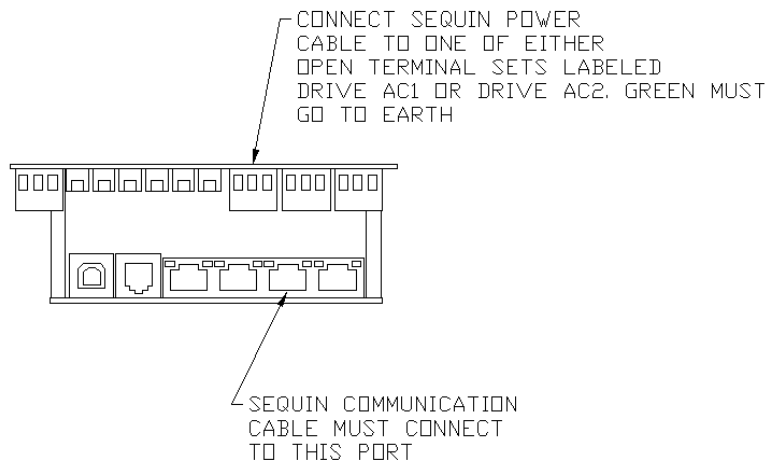
Step 9: Connect the (2) plugs of the harness to the Sequin drive. The plugs are keyed and can only be inserted one way. DO NOT FORCE THE PLUGS INTO THE SOCKETS.



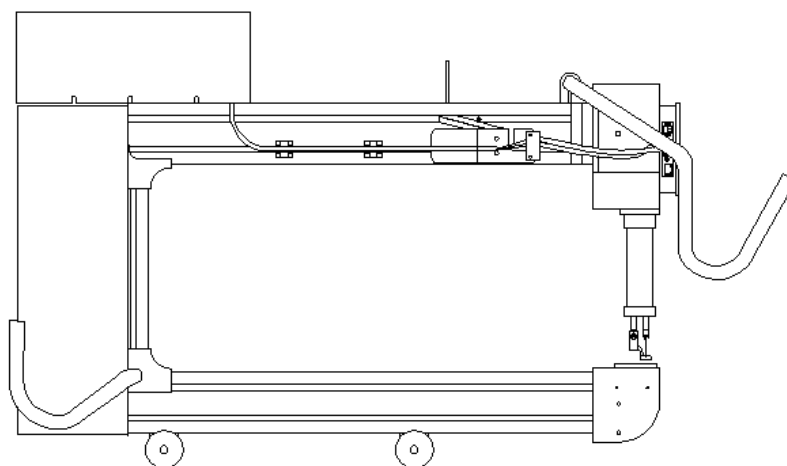
Step 10: Connect the communication cable and drive AC power cable to the Sequin drive. **DO NOT FORCE THE PLUGS INTO THE SOCKETS.**



Step 11: Route the communication and power cable of the Sequin drive down to the Lightning Stitch main control board. Connect the wires of the power cable to the unused screw terminals labeled DRIVE AC1 or DRIVE AC2 – **DO NOT USE AUX AC.** Connect the communication cable to the socket identified in the drawing below. Be sure to nylon tie the cabling so that it cannot get caught or rubbed on any moving machine components.



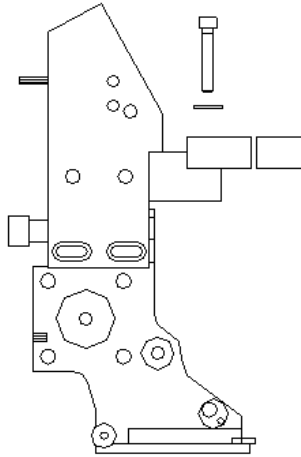
Step 12: Install the new top cover and original rear cover. Be sure to carefully tuck all loose wires under the covers so they do not get pinched.



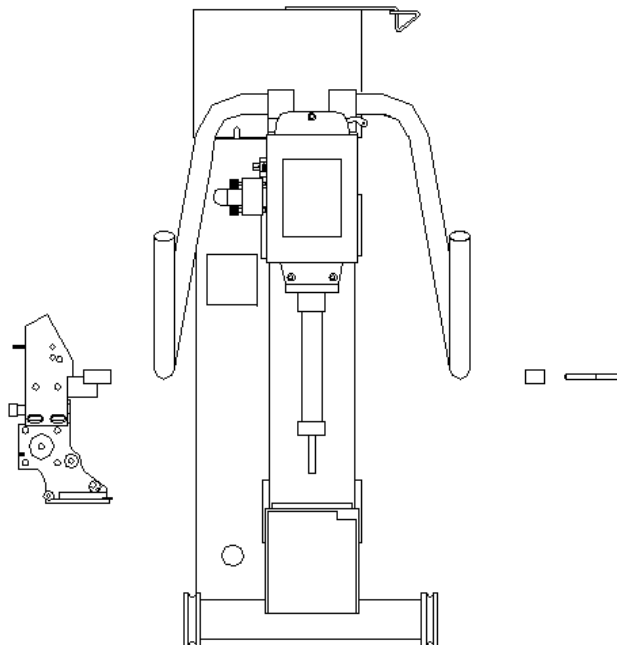
Step 13: Remove the presser foot and spring from the presser bar.

Step 14: Remove the needle, the needle bar set screw and the needle bar thread guide from the needle bar.

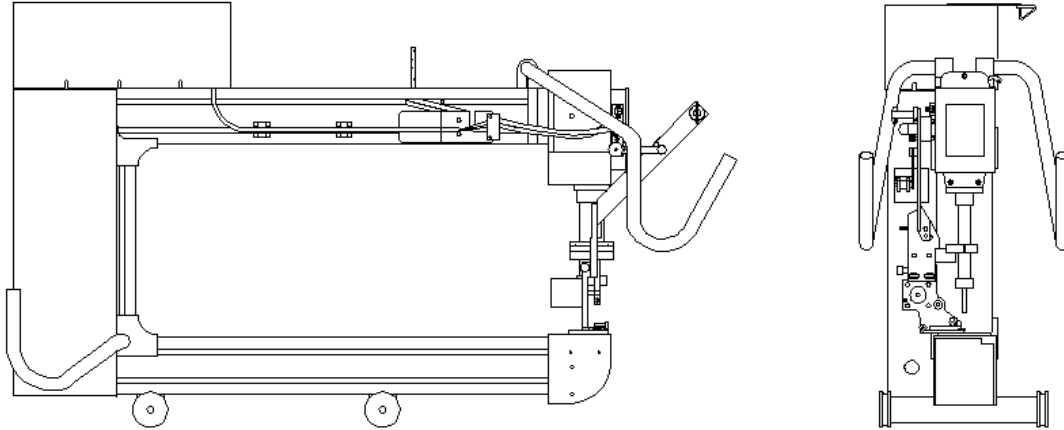
Step 15: Install the needle bar frame clamp onto the sequin head and motor assembly using (2) 8-32 x 1 socket head cap screws and (2) #8 flat washers.



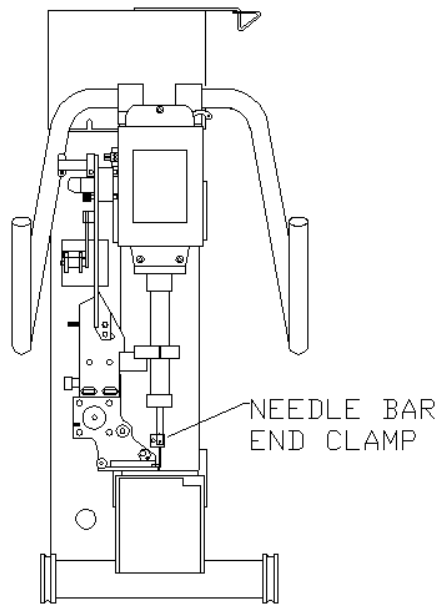
Step 16: Remove the (2) 10-32 x 2" socket head cap screws from the needle bar frame clamp, this will allow the clamp to separate into two pieces. Install the two halves of the Sequin head onto the needle bar bushing. Connect the two motor cables to the cable harness with bracket mounted on the left side of the upper beam.



Step 17: Install the reel stand onto the sequin head and motor assembly using (2) 8-32 x 5/8 socket head cap screws and (1) nylon insert lock nut.



Step 18: Install the Sequin needle bar end clamp onto the needle bar. Align the slot on the side of the needle bar end clamp with the threaded hole on the needle bar and install the needle set screw.

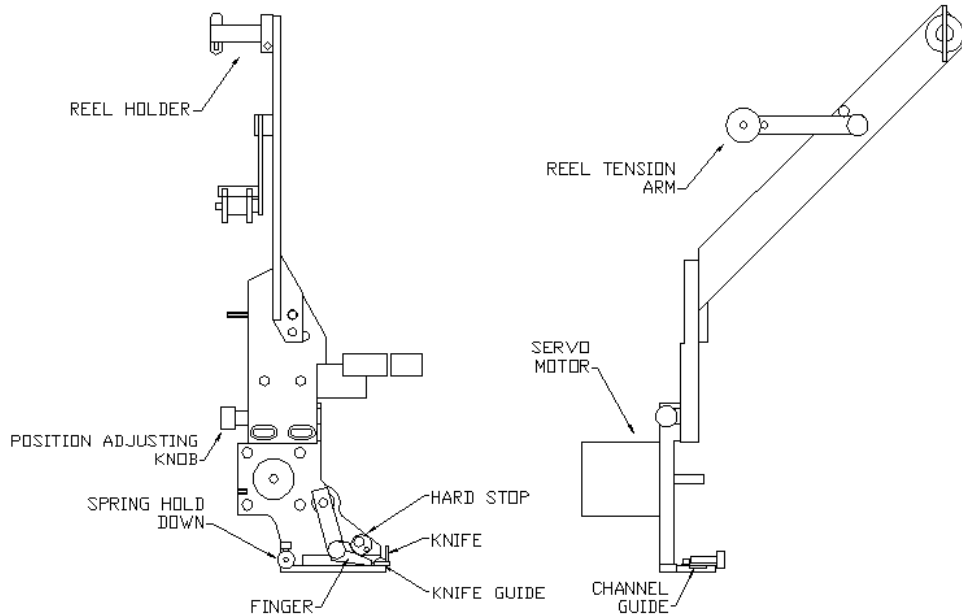


Step 19: Adjust the needle bar end up or down on the needle bar so that the end makes contact with the knife mechanism on the Sequin attachment and cuts a sequin but does not completely bottom out the spring loaded knife.

The Sequin attachment is now installed. Please see the following sections on adjusting the attachment and operation of the sequin attachment before attempting to operate the machine.

3.0 Anatomy of the Sequin Attachment

There are numerous components to the sequin attachment that must work together to produce a finished product. Many of the parts have to be adjusted to feed and cut sequins properly. Brief descriptions of each item are provided, followed by step-by-step instructions on how to adjust them.



- Reel Holder – Holds the reel of sequins to be sewn onto the finished product. The reel holder provides a minimum tension on the reel to keep it from unwinding as the sequins are dispensed.
- Reel Tension Arm - Provides a constant tension to the string of sequins as they are dispensed.
- Servo Motor - Feeds the individual sequins based on speed of the machine and mode selected.
- Position Adj. Knob - Provides for small adjustments of the entire mechanism closer to or farther from the needle for different size sequins.
- Spring Hold Down - Keeps the string of sequins from over-feeding or from back feeding as they are dispensed.
- Finger - Engages the sequin in the center hole and feeds the sequin out to be cut.
- Hard Stop - Provides a mechanical stop for the finger as it feeds out sequins. It sets the position of the fed sequin so the knife can cut it.
- Knife - Cuts the individual sequin from the string of sequins. The knife is actuated by the needle bar end clamp.
- Knife Guide - Provides mechanical support for the knife and acts as a hold down for the front edge of the channel guide.
- Channel Guide - The channel guide keeps the string of sequins flat, straight and in-line with the needle as the sequins are dispensed.

3.1 Changing the Sequin Channel Guide

The sequin channel guide (SEE FIGURE 1.0) is responsible for keeping the sequin straight and flat as the attachment feeds and cuts sequins onto the finished product. The guides come in various sequin channel widths and thicknesses to accommodate different size sequins. The correct guide must be selected for each sequin or jamming and mis-feeding will occur. Follow these steps to change the channel guide.

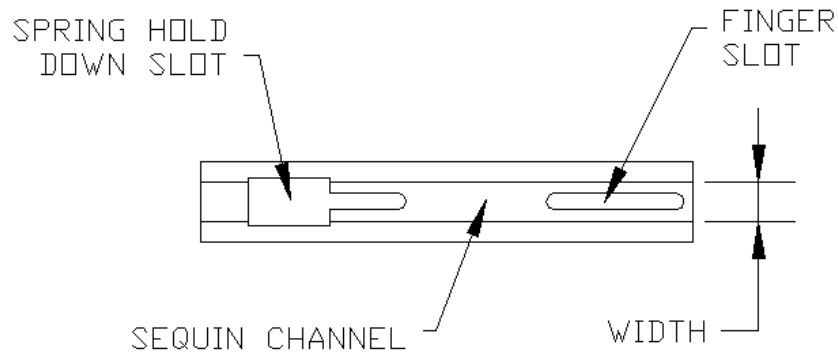
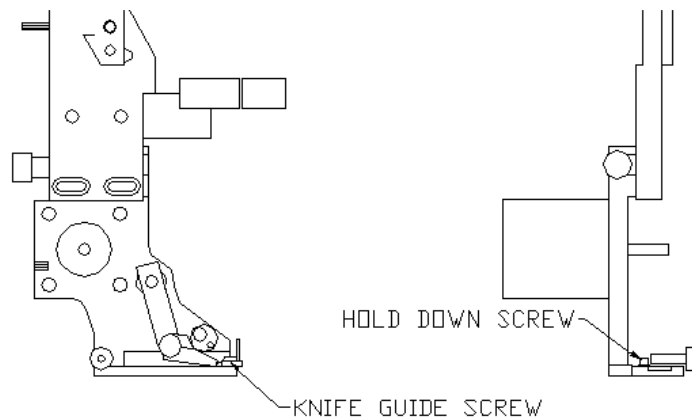
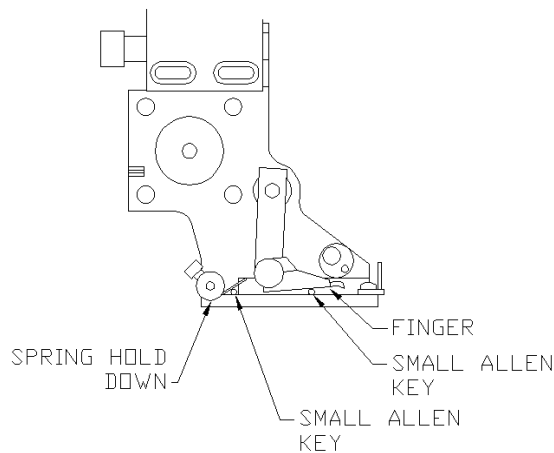


Figure 1.0 – Sequin Channel Guide

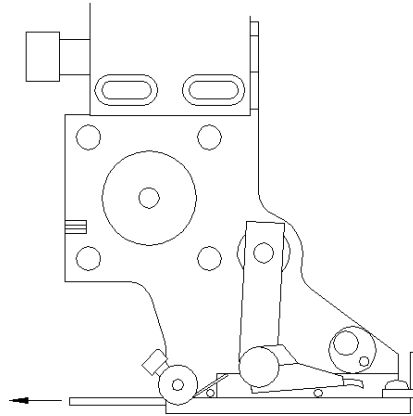
Step 1: Loosen but do not remove the hold down screw and the knife guide screw.



Step 2: Using two small allen keys or screw drivers, carefully prop up the finger and the spring hold down. **DO NOT OVER-EXTEND THE SPRING HOLD DOWN OR IT WILL BREAK – USE A SMALL ALLEN KEY (1/16”) OR SCREWDRIVER.**



Step 3: Push the channel guide from the right side of the mechanism out the left side with another small tool.



Step 4: Select the correct channel guide and re-insert it into the mechanism with the correct channel facing down and the finger slot facing towards the knife guide. Make sure the channel guide is pushed completely up against the knife. Tighten the hold down screw and the knife guide screw.

Step 5: Remove the tools from the spring hold down and the finger.

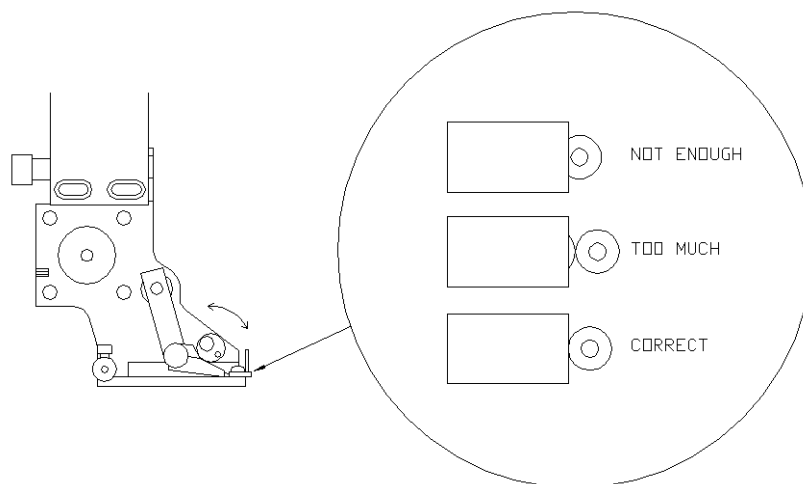
3.2 Adjusting the Hard Stop

After the appropriate sequin channel guide has been installed in the mechanism, the hard stop must be adjusted to set the correct cut point of the sequin.

Step 1: Install a string of the desired sequin into the channel guide from the left end, under the spring hold down and finger and out past the knife.

Step 2: Make sure the finger is engaged in the center hole of a sequin and pushed tight against the hard stop.

Step 3: Visually inspect the location of the sequin that is exposed to the knife. If the sequin is not completely visible or if more than one (but not two) are visible, the hard stop must be adjusted.



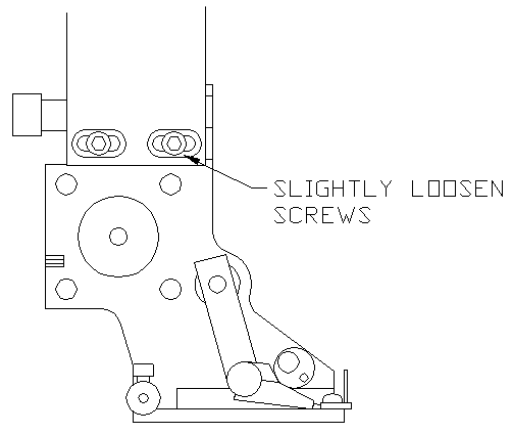
Step 4: Loosen the socket head cap screw in the center of the hard stop and rotate the hard stop clockwise or counter-clockwise so that when the finger is firmly against it and in the center hole of a sequin, the visible sequin nearest to the knife will be cut exactly in the middle of the connecting tab between two sequins.

Step 5: Tighten the hard stop socket head cap screw and confirm the sequin is positioning and cutting correctly by manually cycling the finger and knife.

3.3 Centering the Sequin on the Needle

Once the hard stop has been set and the sequin is cutting correctly, the sequin must be centered on the needle.

Step 1: Loosen slightly, but do not remove, the two socket head cap screws near the position adjusting knob.



Step 2: Turn the position adjusting knob to move the sequin closer to or farther from the needle and center the hole in the sequin, left to right.

Step 3: Tighten the two screws that were loosened slightly in step 1.

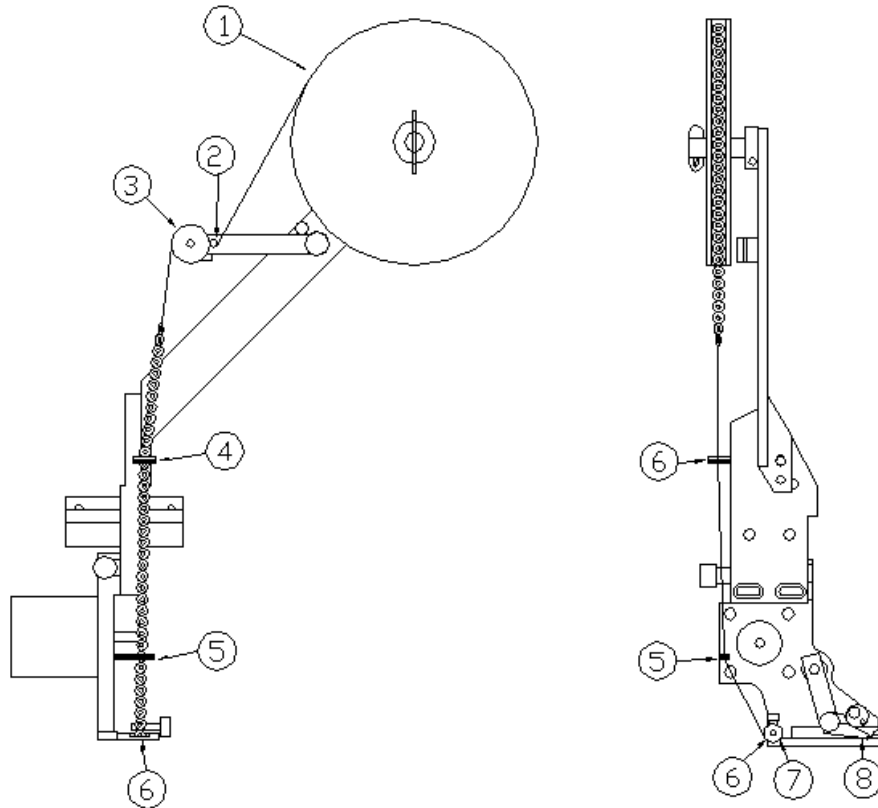
Step 4: If the sequin center hole is off front to back, slightly loosen the two socket head cap screws on the top left side of the needle bar frame clamp and lightly tap the assembly forward or back to center the hole on the needle.

Step 5: Tighten the two screws that were loosened slightly in step 4.

Step 6: Manually feed a few sequins to confirm that the center hole of the sequin is aligned to the needle.

3.3 Threading the Sequins through the attachment

Follow the steps below to thread the sequins into the sequin attachment.



- 1) Install the reel onto the reel stand.
- 2) Run the sequins under the pin on the tension arm and then up towards the tension arm pulley.
- 3) Run the sequins over the top of the tension arm pulley.
- 4) Run the sequins through the upper wire guide.
- 5) Run the sequins through the lower wire guide.
- 6) Insert the sequins into the lower sequin guide channel.
- 7) Gently lift up on the hold down spring and pass the sequins under the spring through the channel
- 8) Gently lift up on the finger and pass the sequins under the finger and out past the knife.
- 9) Manually cut off any excess sequins with the knife.

4.0 Sequin Operation

The Sequin system was designed to give owners the ability to create aesthetically pleasing sewn products. The system allows the operator to sew sequins on to the product in three different modes – single, continuous and overlapping.

When the Sequin system is connected and activated on the touchscreen, the machine will apply sequins to the product whenever the machine is sewing and the white button of the Innova is pressed. The quantity of sequins applied is based upon the mode selected and the size of the sequin entered.

4.1 Getting the Innova ready to apply Sequins

Once the Sequin attachment has been mechanically connected to the machine, the lightning stitch control system must be configured to operate it.

Step 1: Check to make sure the Sequin attachment is securely attached to the Innova and that the sequins are centered on the needle.

Step 2: Make sure the two Sequin motor cables are connected to the Innova.

Step 3: Plug the Innova into an electrical outlet and turn ON the main switch.

Step 4: Allow the lightning stitch to boot up completely.

Step 5: At the MAIN screen, touch the SETUP button.



Step 6: If the Sequin attachment is properly connected, a button labeled SEQUIN will appear on the SETUP screen.



Step 7: Touch the SEQUIN button.

Step 8: Set the sequin diameter value by touching the number on the screen and entering the correct value for the sequin being used.



Step 9: Choose the mode of operation by touching the toggle switch on the screen.

The sequin attachment has three available modes:

NOTE: MODES CAN ONLY BE CHANGED WHEN THE MACHINE IS STOPPED AND NOT SEWING.

Single – When the machine is sewing, the attachment will dispense one sequin every time the white button is pressed and released. The white button must be pressed and released to dispense the sequin – holding the white button will not dispense a sequin.

Continuous – When the machine is sewing, the attachment will dispense a sequin on every other stitch when the white button is pressed and held. Releasing the white button stops the dispensing of sequins.

Overlapping – When the machine is sewing, the attachment will dispense a sequin on every stitch when the white button is pressed and held. Releasing the white button stops the dispensing of sequins.

Step 10: Return to the MAIN screen by touching the MAIN button.

Step 11: Enable the sequin attachment by touching the toggle switch on the screen so that it points to SEQUIN.



Step 12: Press the green button on the Innova handle bar to start sewing. Either press and release or press and hold the white button on the handle bar to dispense sequins as desired.

4.2 Disconnecting the Sequin attachment from the Innova

Step 1: Turn the machine OFF and unplug it from the wall.

Step 2: Unplug the two sequin servo motor cables from the Innova at the cable harness with bracket connection.

Step 3: Loosen and remove the needle bar frame clamp from the machine

Step 4: Carefully set aside the Sequin attachment.

Step 5: Remove the needle bar end clamp from the needle bar.

Step 6: Re-install the original needle bar thread guide and needle set screw.

Step 7: Install the desired presser foot and spring.

Step 8: Plug the Innova into an available outlet.

Step 9: Turn the machine ON.

Step 10: After the computer boots, select the desired regulation mode – MANUAL or REGULATED.