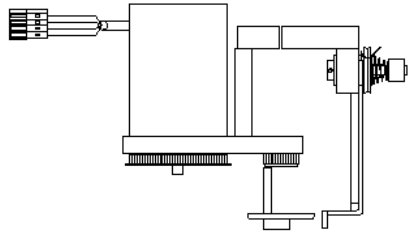


**ABM International, Inc.**

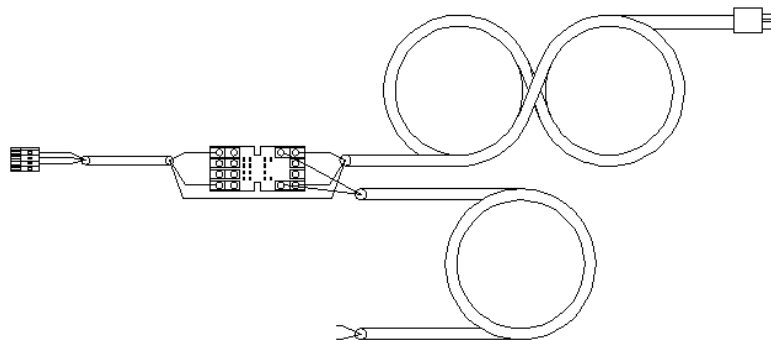
E-cording

### 1.0: Parts List

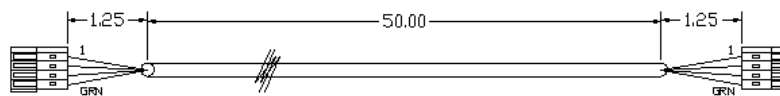
E-cording head and motor assembly (Qty. 1)



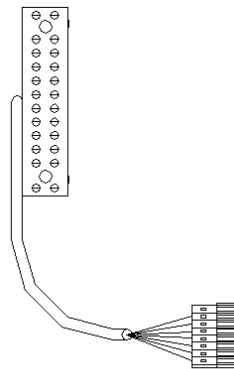
Relay module with power cord (Qty. 1)



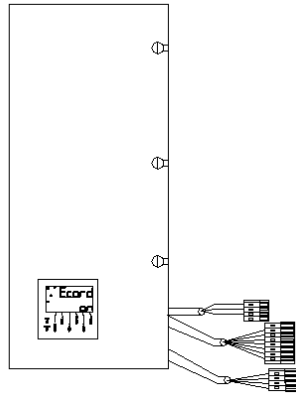
Motor cable (Qty. 1)



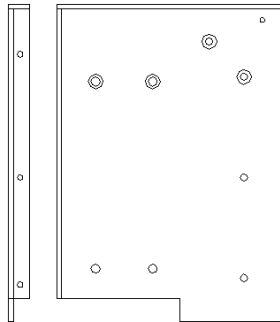
Terminal block with connector (Qty. 1)



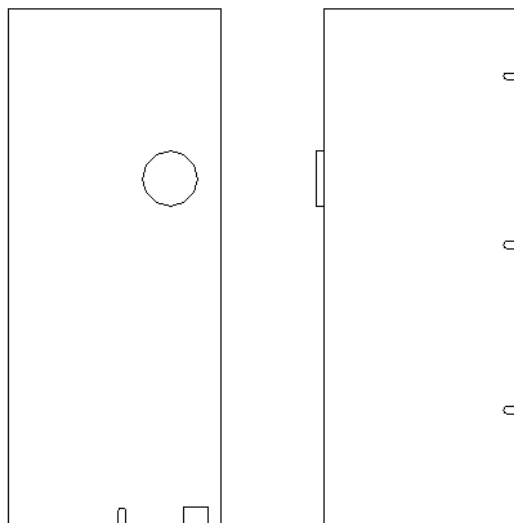
Control box (Qty. 1)



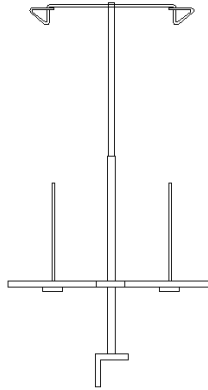
Control box mounting base (Qty. 1)



Rear cover (Qty.1)



Thread stand (Qty. 1)



Front cord guide (Qty. 1)



Angle nut (Qty. 2)



**Bolt kit –**

**Socket head cap screw:**



(Qty. 2) ¼ x 1

**Set Screw:**



(Qty. 1) Needle bar set screw

**Flat head cap screw:**



(Qty. 4) #10 x ½"

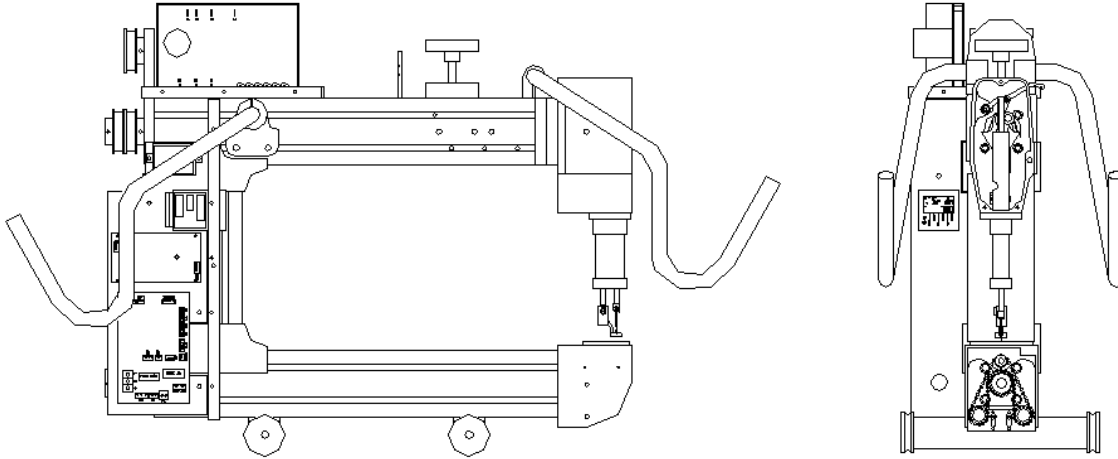
**Hex Nut:**

(Qty. 4) #10

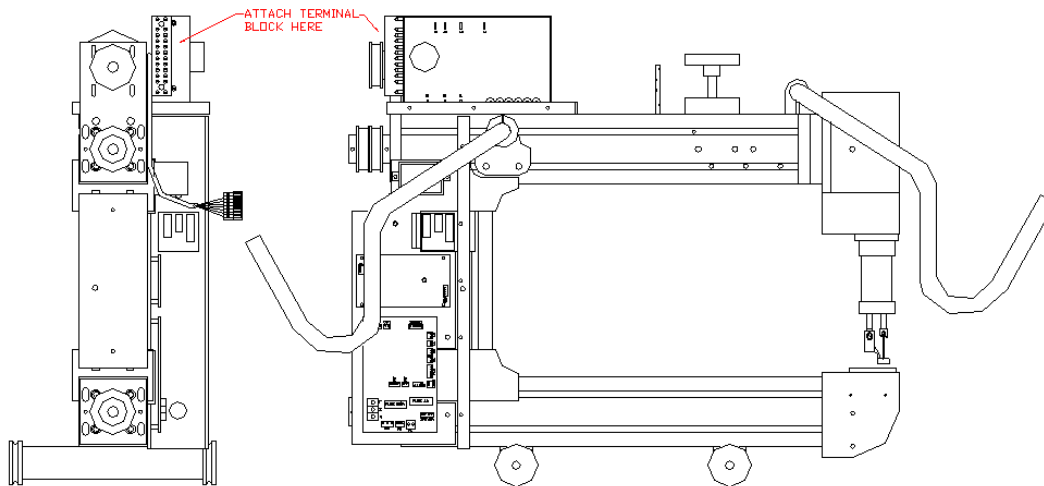
## 2.0 E-cording assembly

Step 1: Unplug the machine from the electrical outlet.

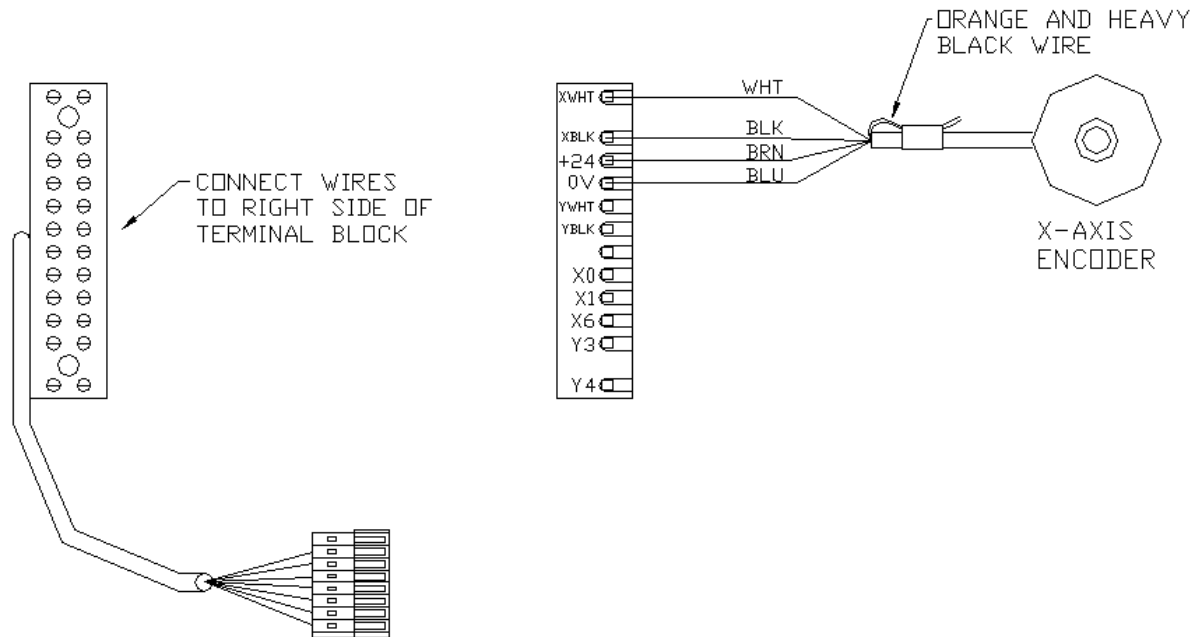
Step2: Remove the top and rear covers of the Innova.



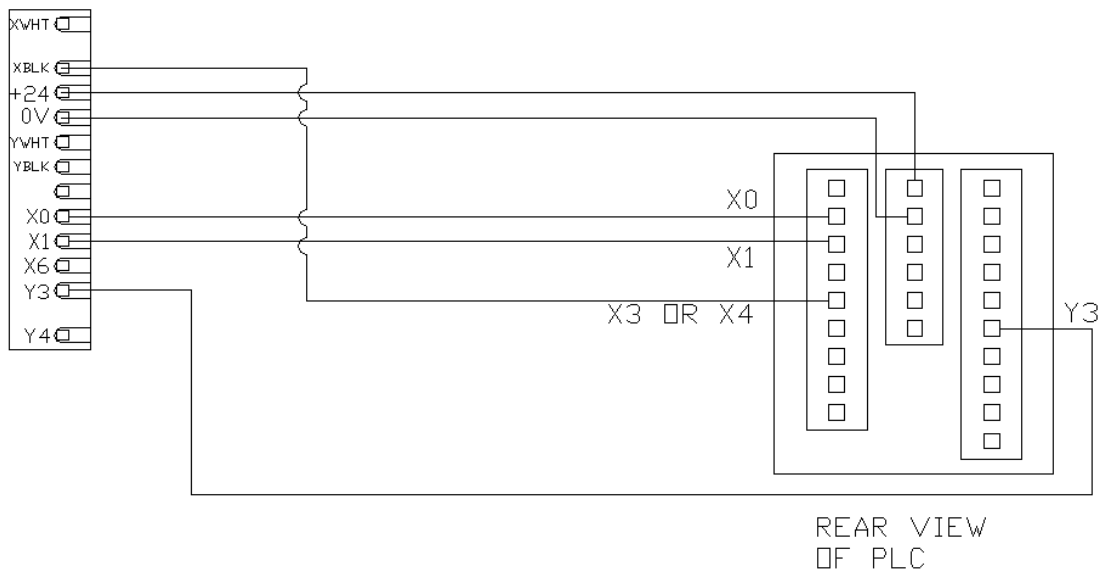
Step 3: Use 5-minute epoxy to attach the terminal block with connector to the rear of the motor controller. Be sure to install the terminal block so that the connector and wires are on the left side of the terminal block when viewed from the rear of the machine.



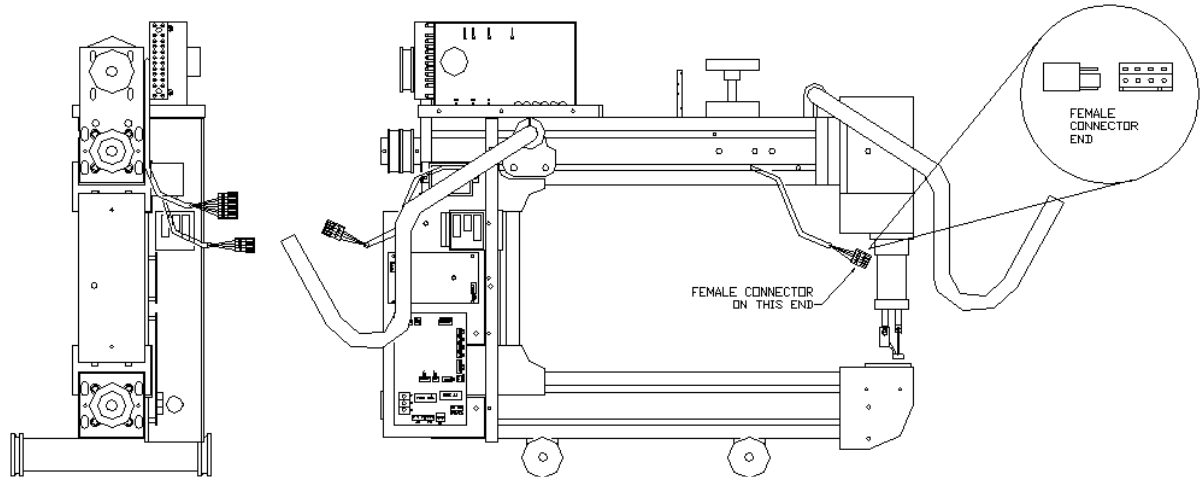
Step 4: Disconnect the X-axis encoder wires (black, blue and brown) from the back of the Innova PLC. Remove the electrical tape and free the tied back white wire from the end of the encoder cable. Tie back the orange and heavy black wire with electrical tape. Wire the encoder directly to the terminal blocks marked XWHT, XBLK, +24, and 0V. Refer to the end of the manual for a more detailed wiring schematic if necessary.



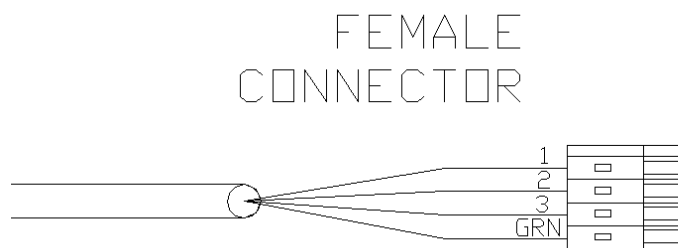
Step 5: Wire the XBLK, +24, 0V, X0, X1, and Y3 terminals of the block to the corresponding PLC terminals. In the case of the XBLK terminal, connect the wire to which ever of the two terminals (X3 or X4) does not have a wire in place. Refer to the end of the manual for a more detailed wiring schematic if necessary.



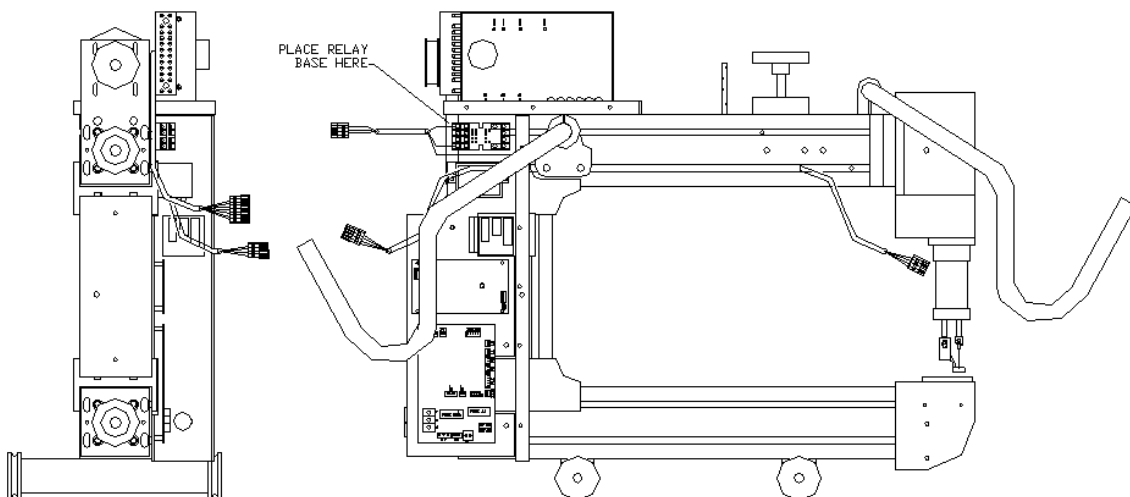
Step 6: Remove the plastic strip cover from the bottom slot of the left side of the top beam. Remove the plug from the female end of the cable and fish the cable from the back of the machine through the slot to the front of the machine. Cut 2 inches from the plastic strip and re-install the strip in the slot to hold the cable in place.



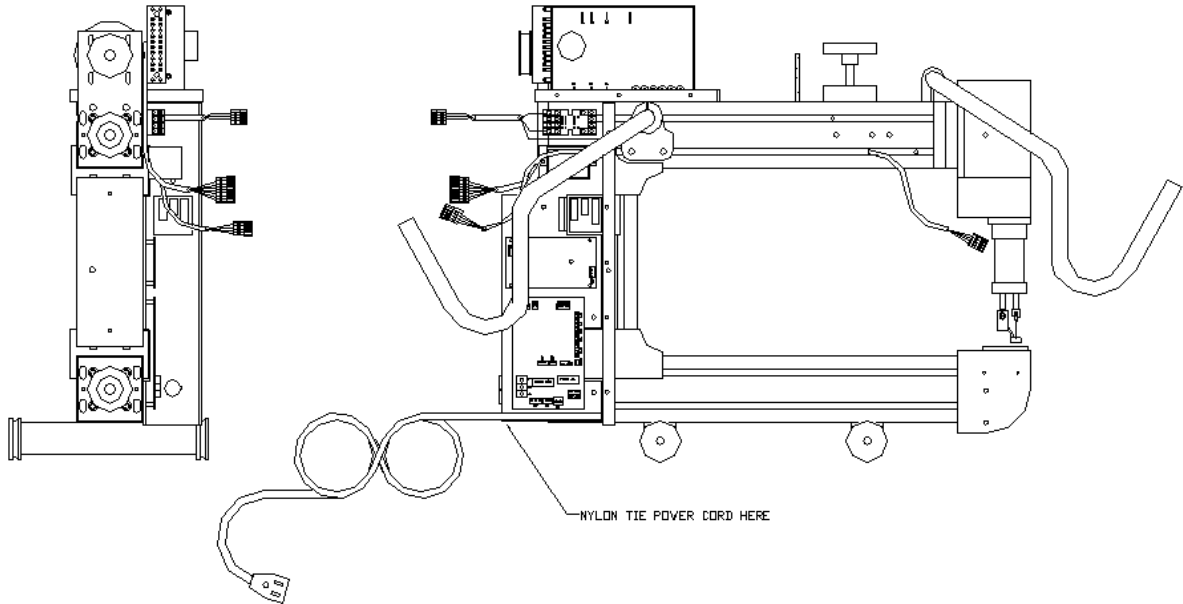
Step 7: Re-install the plug onto the cable end. Be sure to follow the drawing exactly as illustrated below.



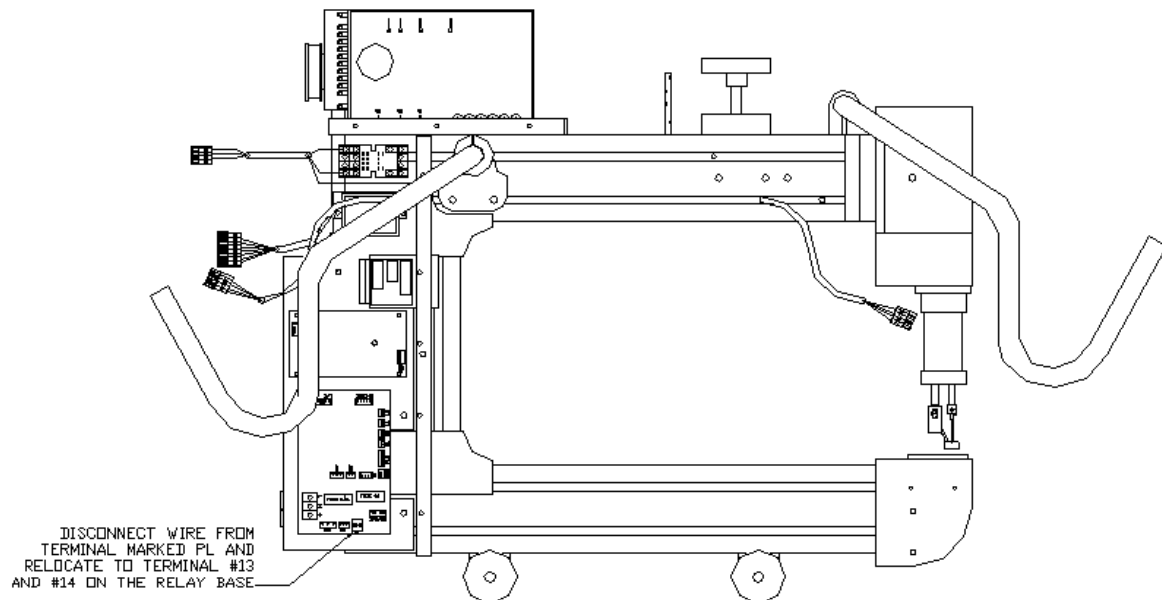
Step 8: Install the relay module directly above the fluorescent light power supply. Orient the module so that the small plug faces directly out of the back of the machine and the 110 power cord faces into the corner of the electronics cabinet.



Step 9: Route the 110 power cord down the inside of the electronics cabinet and wire tie the cord to the lower left rear corner of the Innova.

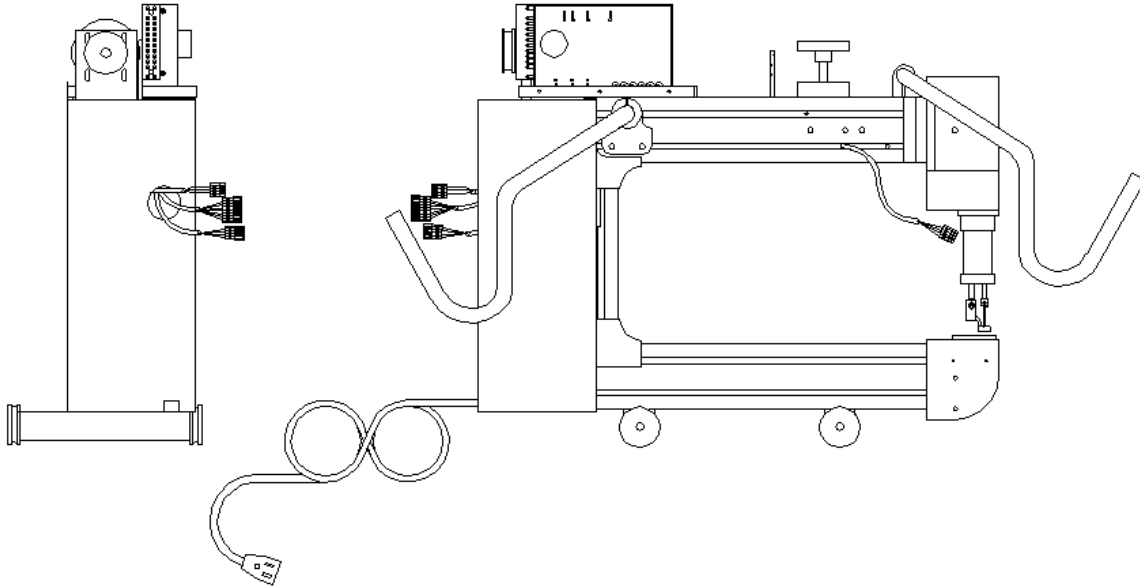


Step 10: Disconnect the cable with the brown and blue wire from the screw terminal block labeled PL at the bottom of the Innova. Relocate the brown and blue wires to the #13 and #14 terminals on the relay base module. Connect the 2-conductor cable (the wires are labeled 1 and 2) from the relay module to the screw terminal marked PL.

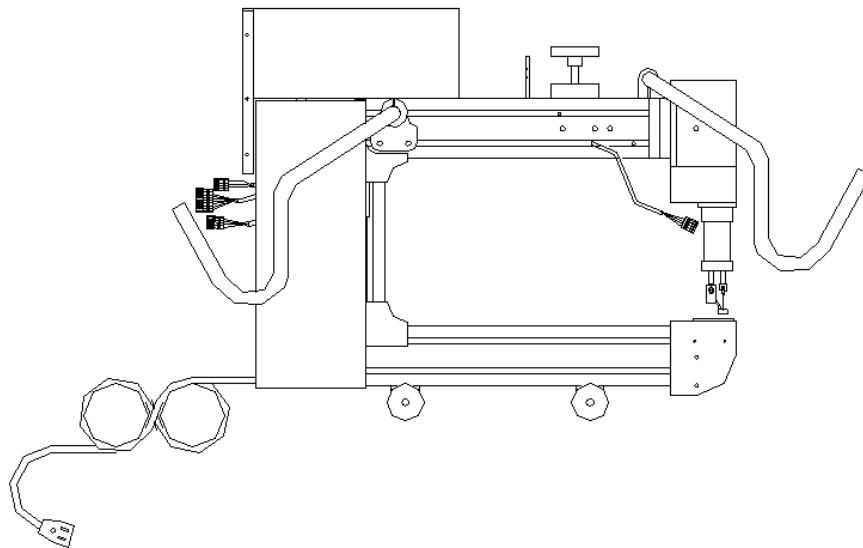




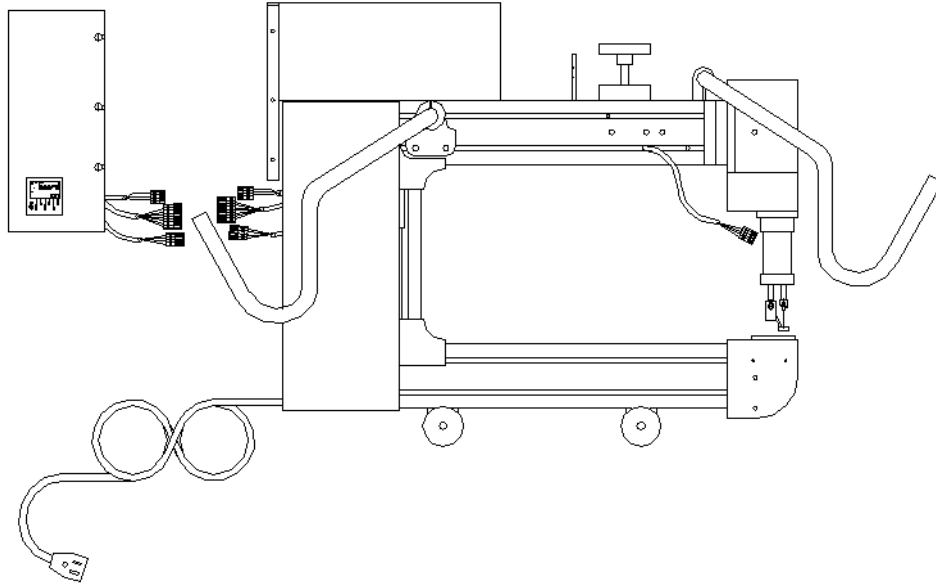
Step 11: Pull the three cables with connectors through the hole in the new rear cover. Install the cover on the Innova.



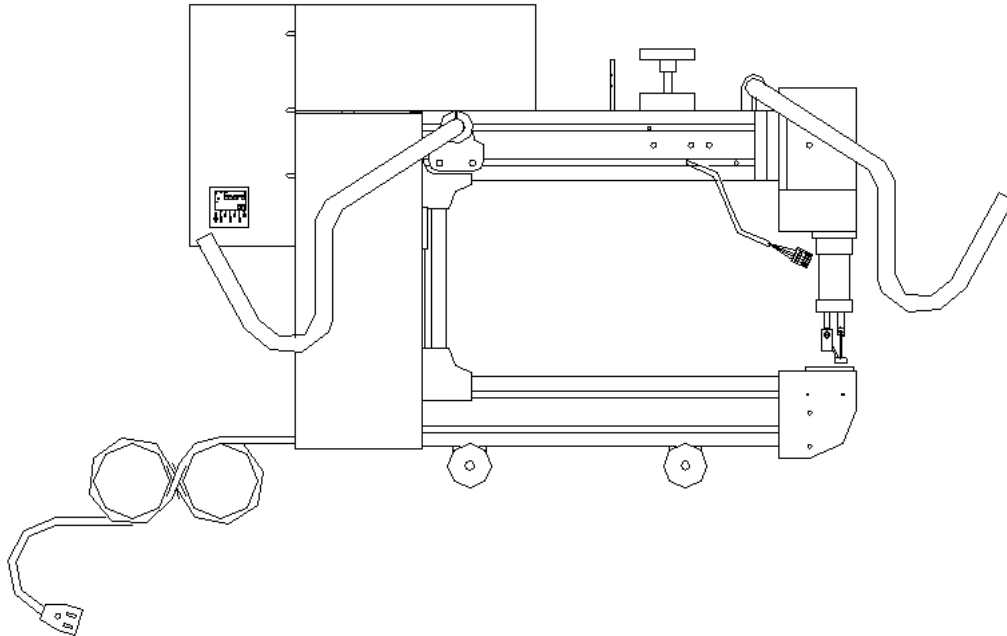
Step 12: Using the supplied layout drawing at the end of this manual. Drill (4) holes in the rear of the top cover and bolt the control box mounting base to the top cover using (4) #10 Flat head cap screws and (4) #10 hex nuts. Install the new top cover onto the Innova.



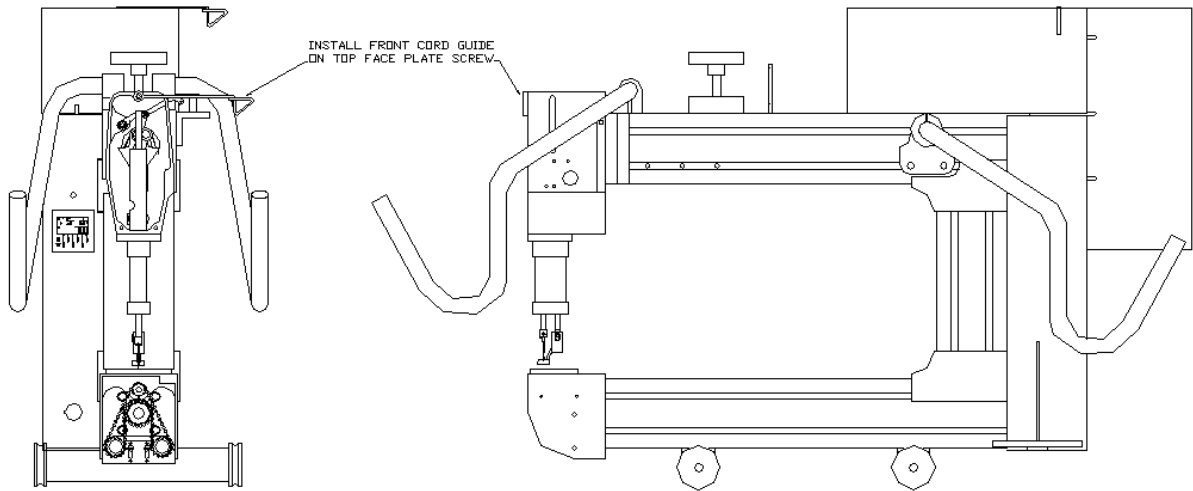
Step 13: Connect the control box to the three connectors on the rear of the Innova. Carefully tuck the cables into the control box while installing the box onto the mount on the rear of the machine.



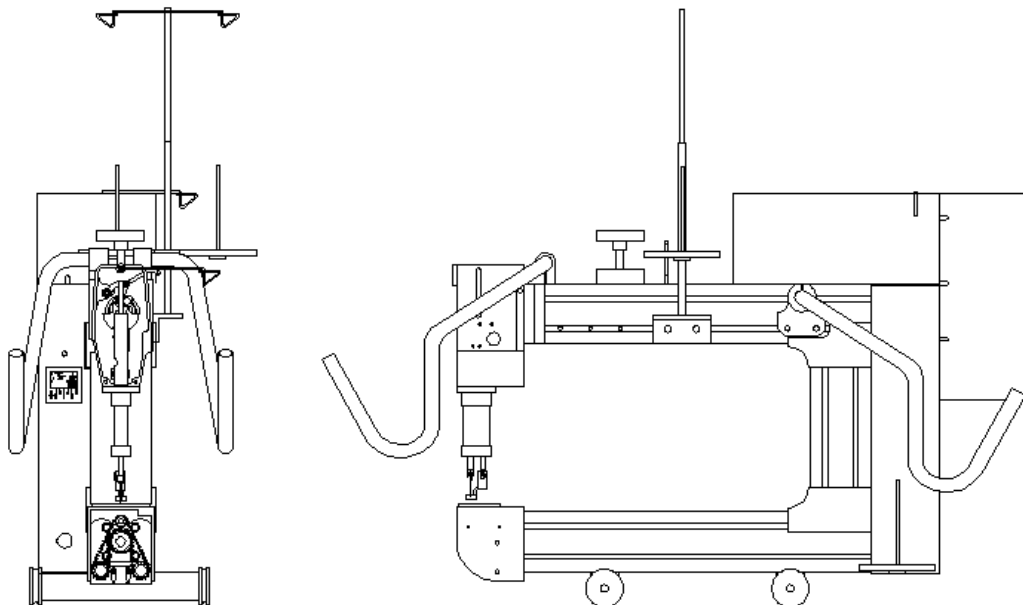
Step 14: Make sure all of the screws on the rear and upper covers and the control box are tight.



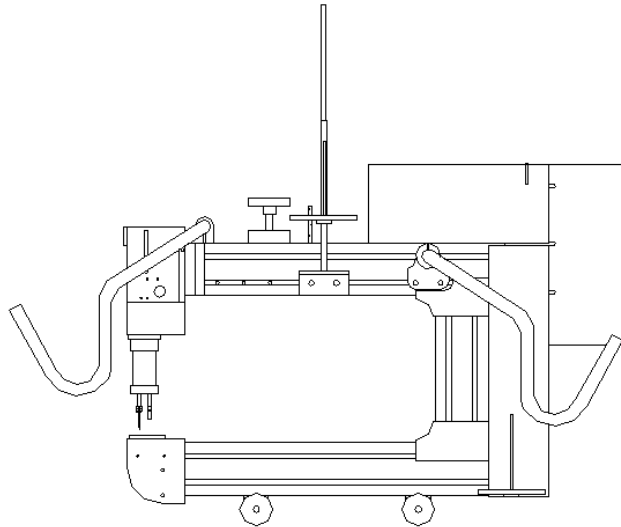
Step 15: Install the front cord guide onto the top face plate screw of the Innova.



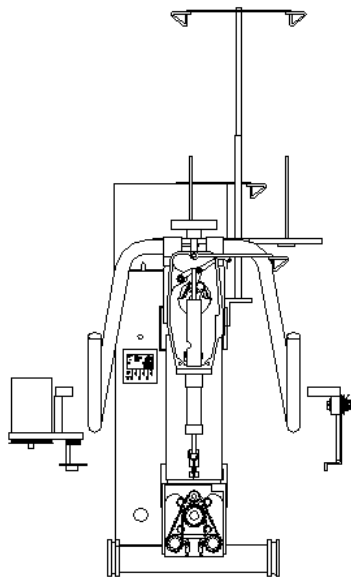
Step 16: Remove the plastic slot cover from the lower slot on the right hand side of the upper beam. Install the thread stand using the (2) angle nuts and (2) 1/4 x 1 socket head cap screws.



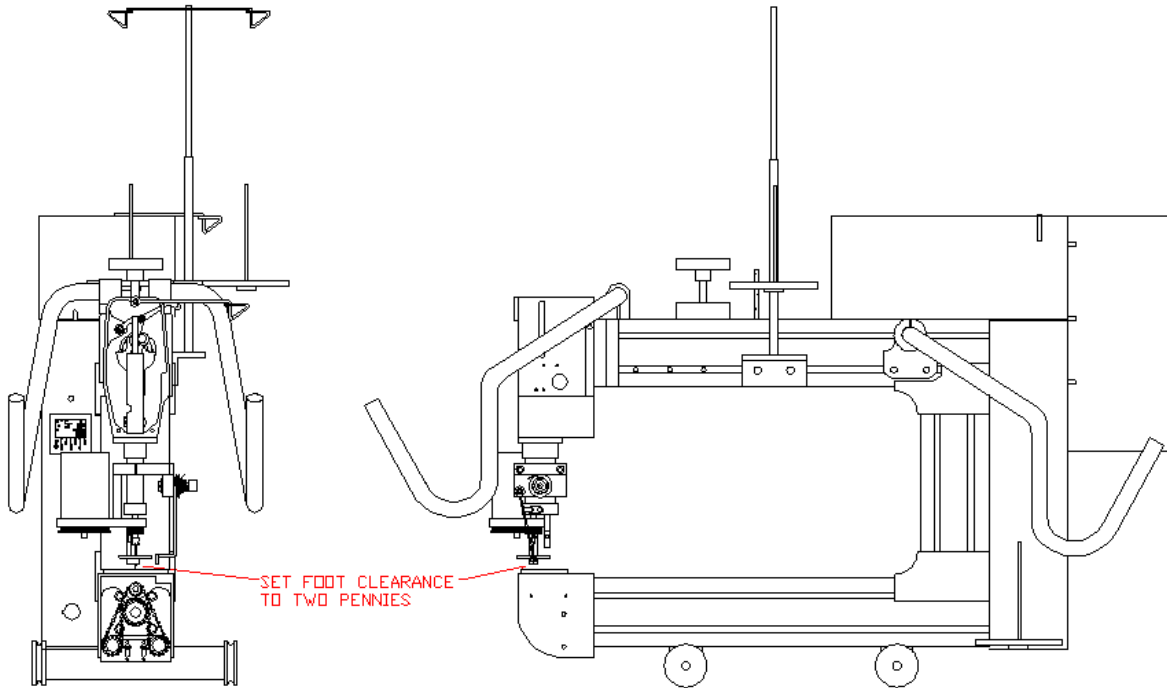
Step 17: Remove the presser foot and spring from the presser bar. Remove the original needle screw from the needle bar and install the needle set screw that came with the e-cording kit. Remove the needle from the needle bar.



Step 18: Remove the (2) #10 x 2" socket head cap screws from the e-cording head, this will allow the head to separate into two pieces. Install the two halves of the e-cording head onto the needle bar bushing. Connect the motor to the motor cable on the left side of the upper beam.



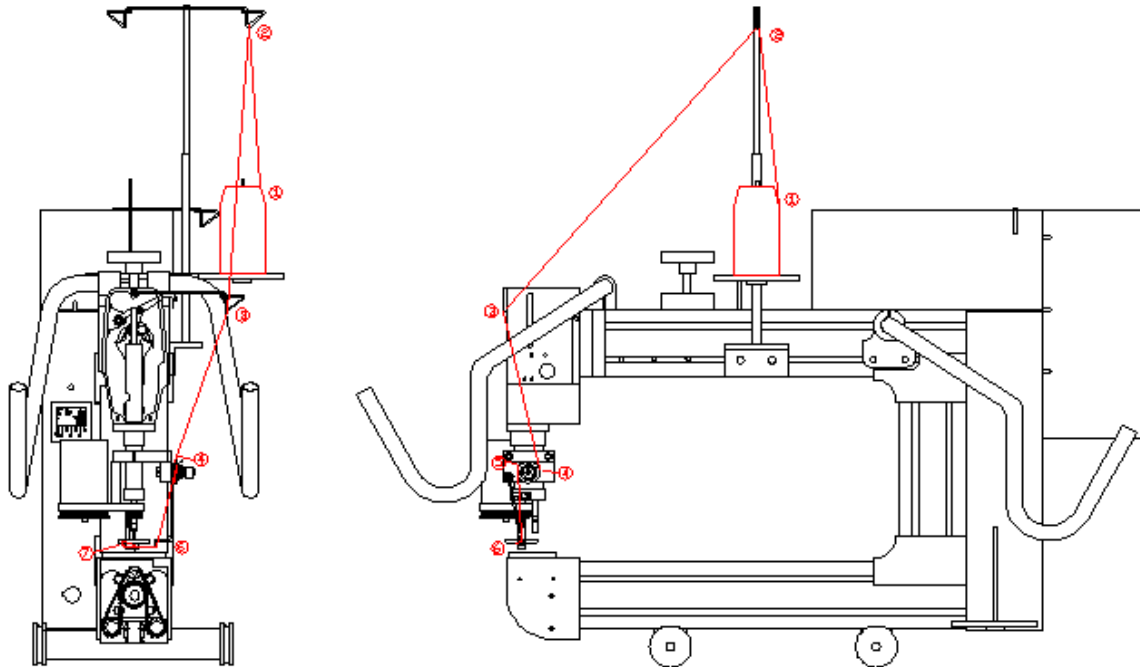
Step 19: Set the gap between the e-cording foot and the needle plate with two pennies. Install the needle in the needle bar.



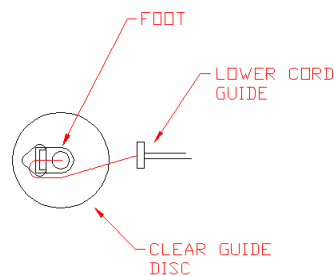
### 3.0 E-cording operation

The e-cording system was designed to give owners the ability to create aesthetically pleasing sewn products. E-cording allows the operator to sew cording, yarn, ribbon and many other goods available on a cone or roll. The cording process, often called “couching”, weaves a cord under the stitches of the Innova quilting machine as it sews. The stitches lock the cord to the fabric creating a three dimensional effect.

### 3.1 Threading the E-cording system

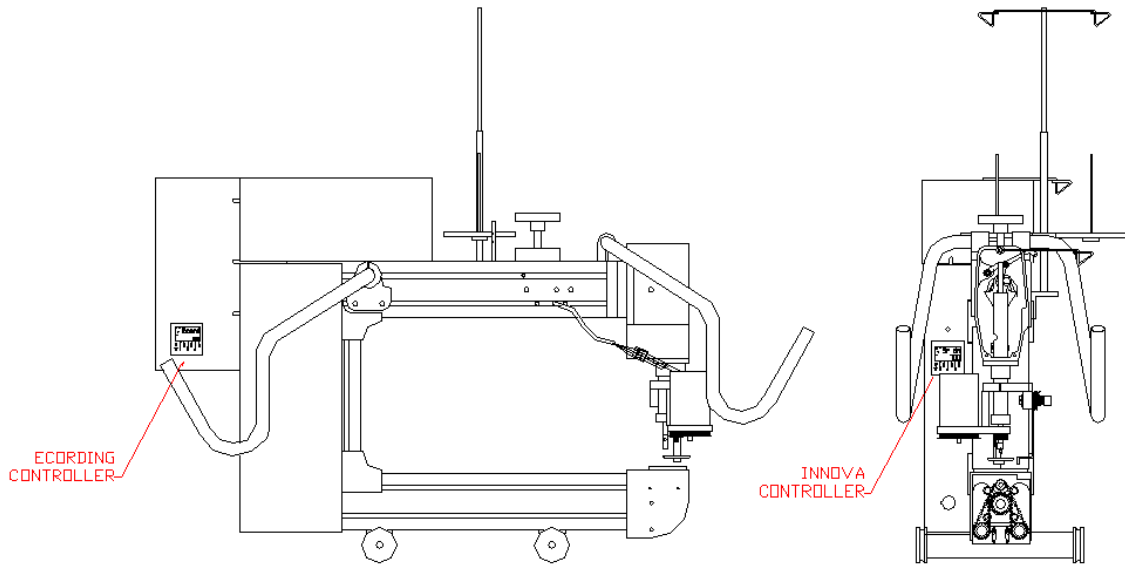


- 1) Pull the cord from the cone on the thread stand.
- 2) Run the cord through the upper thread guide of the thread stand.
- 3) Pull the cord through the front cord guide on the front face plate of the Innova.
- 4) Place the cord between the tension discs on the cording head and wrap around the discs clockwise. NOTE: DO NOT WRAP THE CORD COMPLETELY AROUND THE TENSION ASSEMBLY.
- 5) Run the cord over the check spring on the tension assembly.
- 6) Feed the cord through the eye in the lower cord guide.
- 7) With the e-cording foot post positioned on the left, run the thread on the front side of the foot under the clear guide disc and into the hole on the back of the foot. The cord must be run so that it passes clockwise around the foot and into the hole. With tweezers, pull a small amount of cord from the center hole of the foot, underneath the foot to the outside leaving a small tail.

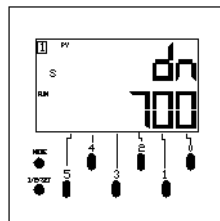


### 3.2 Controlling the E-cording system

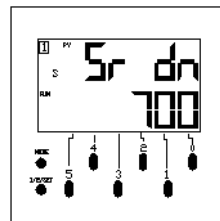
The E-cording system consists of a control box, thread stand and e-cording head. The control box houses the E-cording controller responsible for all of the operations of the system. The Innova and E-cording controllers are in constant communication with one another.



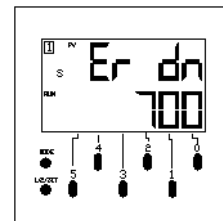
The Innova controller is responsible for turning the e-cording system ON and OFF as needed. Pressing the button marked "5" on the Innova controller will toggle the machine through the three modes of operation – manual, stitch regulated (Sr) and E-cording (Er).



MANUAL MODE

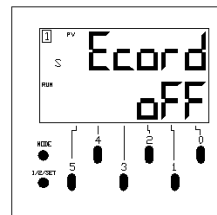
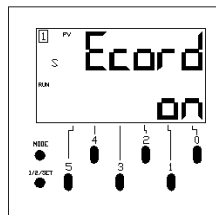


STITCH  
 REGULATED  
 MODE



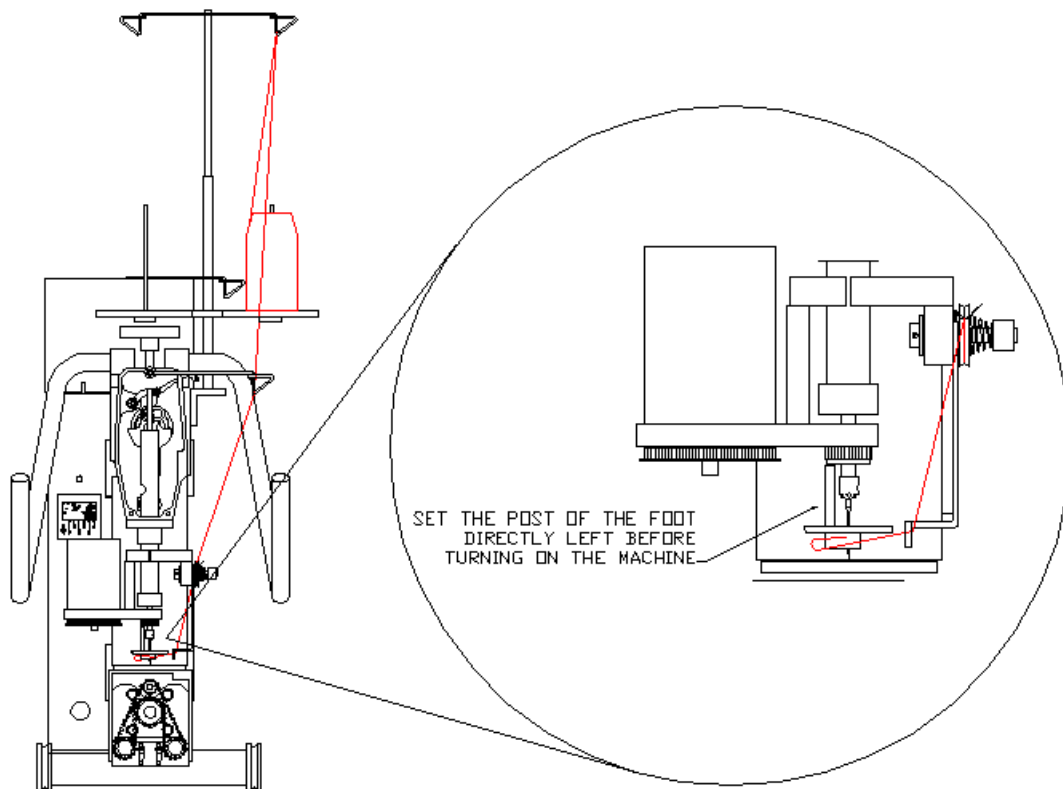
ECORDING  
 MODE

The E-cording controller will display the state of the system, either ON or OFF.



### 3.3 Preparing to sew with the E-cording attachment

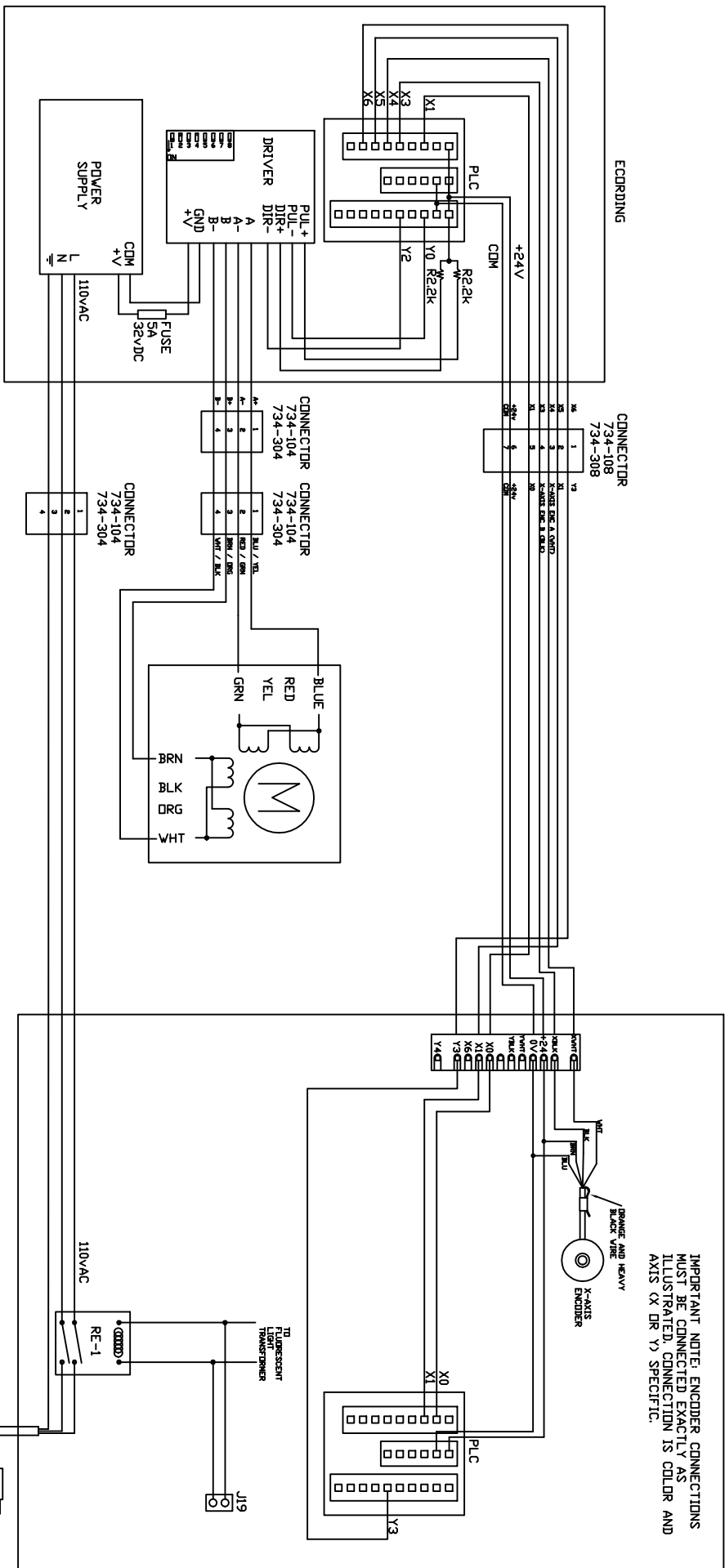
Before the Innova is turned ON, the foot of the E-cording attachment must be set to the home position. The home position of the foot is achieved when the post of the foot faces directly left. Once the Innova is turned ON, the E-cording motor will hold the position of the foot precisely. The cording should be threaded through the guides as outlined in the threading section and the cord must be set so that it comes from the lower cord guide around the front of the foot and into the hole on the back of the foot post. Pull a small amount of cord from the center hole of the foot, underneath the foot leaving a tail of cord on the outside. To begin cording, make sure the Innova controller is set to “Er” on the front display and press the green button to start the Innova.



### 3.4 Adjusting the Innova E-cording attachment

The E-cording system will need to be adjusted to provide optimum performance with different types of cord. The tension disc pressure and check spring pressure and stroke will allow the user to create tight consistent cording effects. The tension should be set so that the check spring moves as the cord is pulled. Not enough tension may cause the cord to bunch up when sewing straight lines. Additionally, not enough check spring stroke or pressure may cause excessive slack in the cord during directional changes. The most common problem experienced is the cord pulling on the top thread towards the center of a curve or circle often exposing the stitching holes. In this case, the main tension on the Innova should be increased or the tension disc pressure on the cording attachment should be reduced until the pulling is eliminated.

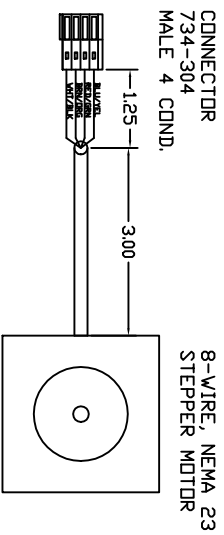
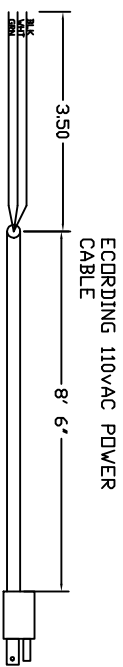
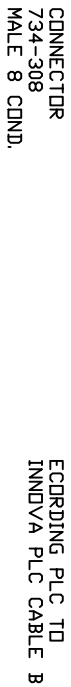
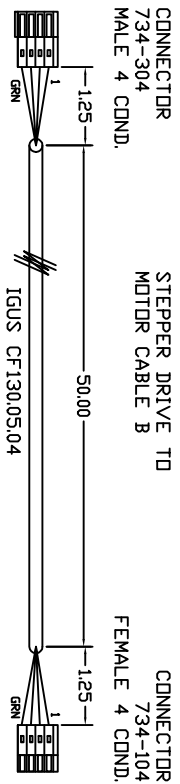
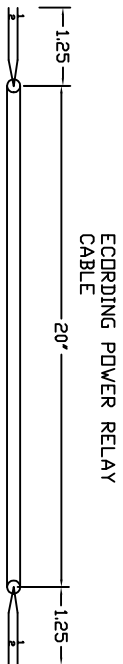
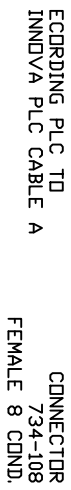
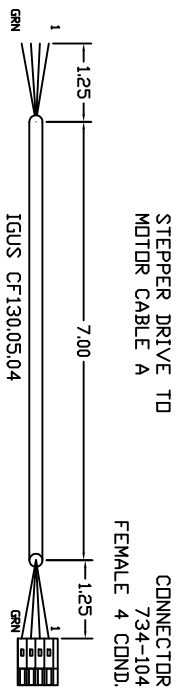




INNOVA

IMPORTANT NOTE: ENCODER CONNECTIONS MUST BE CONNECTED EXACTLY AS ILLUSTRATED. CONNECTION IS COLDER AND AXIS (X OR Y) SPECIFIC.

<p><b>INCHES</b></p> <p>UNLESS OTHERWISE SPECIFIED</p>	
<p>ABM INTERNATIONAL</p> <p>ABM INTERNATIONAL, Inc.</p> <p>ELK GROVE VILLAGE, IL 60007</p> <p>ECCORDING ELECTRICAL</p>	
<p>DESIGNED BY: JOE PODOLSKI</p> <p>DATE: 9/10/09</p>	<p>INNOVA</p>
<p>DRAWN BY: PNO</p> <p>DATE: 9/10/09</p>	<p>REVISION NO. 1</p>
<p>REVISION NO. 2</p>	<p>DATE: 9/10/09</p>
<p>PROJECT NO. E-PNO-002A</p>	<p>REVISION NO.</p>



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ABM INTERNATIONAL  
 1000 W. 10TH AVENUE  
 DENVER, CO 80202  
 TEL: 303.733.1100  
 FAX: 303.733.1101  
 WWW: WWW.ABM-INTL.COM

DATE	1/20/08
DESIGNED BY	JOE PODOLSKI
DRAWN BY	JOE PODOLSKI
CHECKED BY	JOE PODOLSKI
APPROVED BY	JOE PODOLSKI
REVISION	
NO.	2
DESCRIPTION	E-PNG-002

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ECORDING TOP COVER  
HOLE LAYOUT

