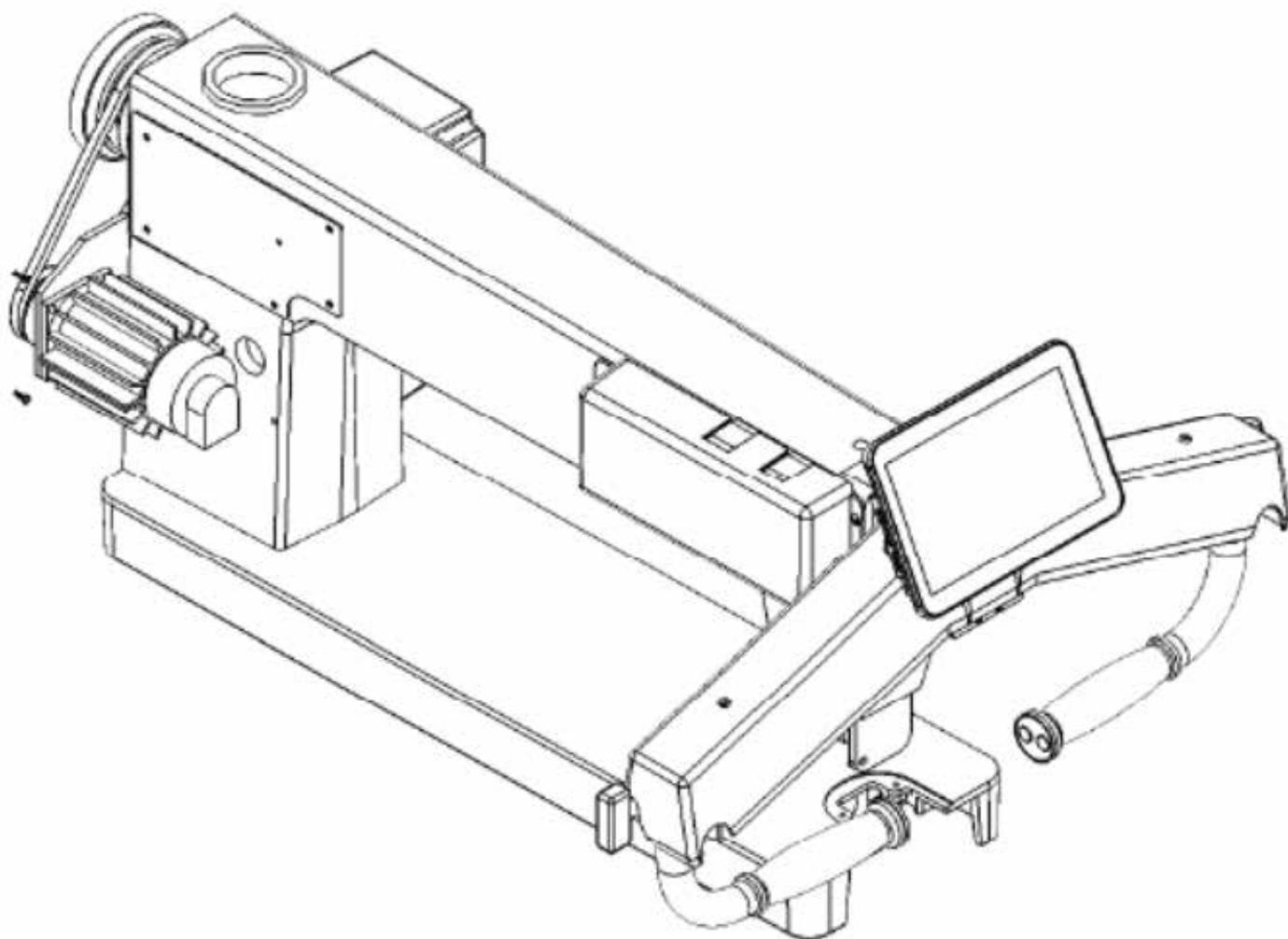


# Quilt EZ *Perfect Stitch* Machine Upgrade

## Tin Lizzie 18 Assembly Instructions



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# Before You Begin

## Test the Machine

Before installing the upgrade, make sure that the machine is fully operational. Do not remove any electronics until the machine has been tested.

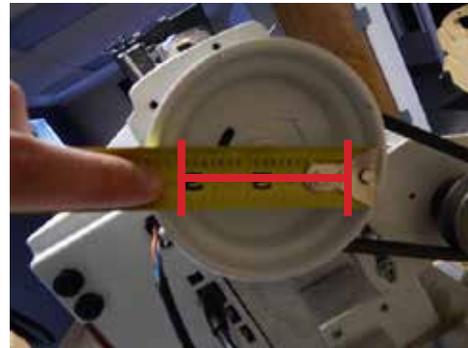
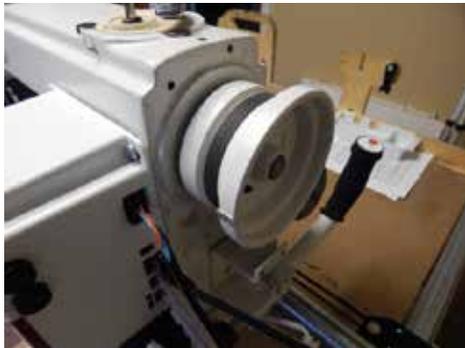
### While upgrading keep in mind

- All cables ran properly and out of the way of any moving parts.
- All cables plugged in securely so they will not come loose from the vibrations of the machine.
- All screws are tight and will not come loose from the vibrations of the machine
- Proper belt tension with approximately 1/4" of play in between

## Determine Pulley Size

To get the correct ratio you will need to make sure that you install the correct size motor pulley.

Measure the machine pulley from end to end. Remember you are measuring the Pulley and not the handwheel. For example this pulley has a larger handwheel, but the pulley is only 3" in diameter.



Divide that measurement by 1.5  
(e.g  $3'' / 1.5'' = 2''$ )

The divided number translates to the ratio and corresponding size of pulley to be used in the upgrade. This number is likely to be a fraction, round up or down to the nearest whole number.

Use this rounded number to choose the correct pulley size. The pulley diameter should equal the rounded number.

### **Pulley Sizes**

1”

1 1/2”

2”

3”

# AIDES

## Tools

---

- Power drill
- Saftey glasses
- Hex key set
- Hammer
- Punch
- Electrical tape
- Hack saw
- Wrench or Socket set
- Clear or masking tape
- #1 Phillips screwdriver
- #2 Phillips screwdriver
- Flat head screwdriver
- #30 drill bit
- #29 drill bit
- #25 drill bit
- #7 drill bit
- 3/4" drill bit
- Tap wrench
- #1 4/20 tap
- #8-32 tap
- #10-24 tap
- Tapping oil

# Perfect Stitch Parts

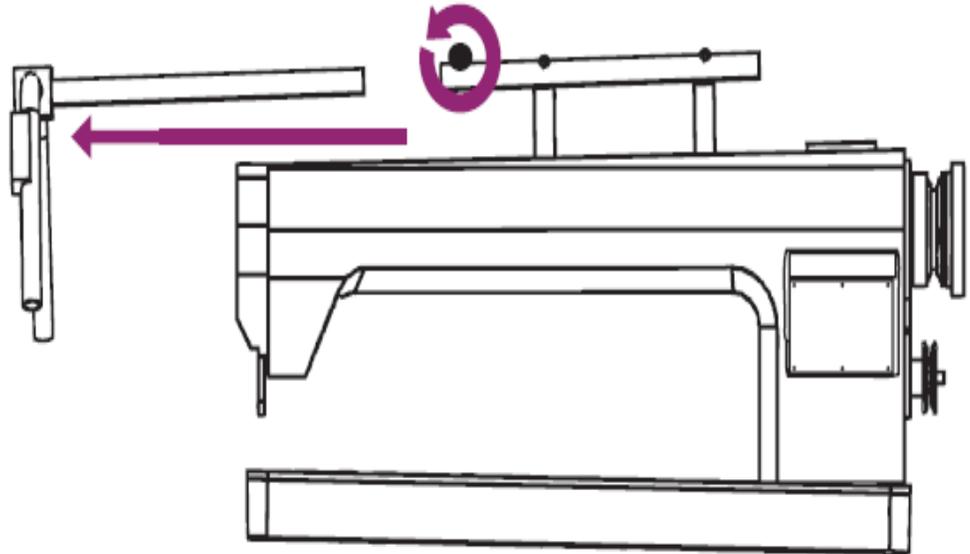
---

- (1) Touch screen display either:  
Android 10" [106AA009]  
Android 7" [106AA015A-7]  
Linux 7" [110EA164A-PS]
- (1) Handlebar assembly  
[106MA002A-Tan]
- (1) PerfectStitch PCB control box  
[112EW001A-Black]
- (1) 180W Motor [105EW57400-AMP]
- (2) Rear handlebar assemblies  
[105AW001A-Upgrade White]
- (1) Motor pulley V belt [AB172]
- (1) V belt 2L140 [P-UNI-BLT-3]
- (1) Rear display [105AW010A-  
Generic]
- (1) PerfectStitch motor  
[105EW57400-AMP]
- (1) Encoder assembly set  
[130AA007A]
- (1) Continuous handlebar cable  
[105AW005B]
- (1) 9 pin extension [114EW008A]
- (1) 10 pin extension [114EW007A]
- 110v power cable [AB178]
- (2) Motor heat sink [AB173]
- (1) Magnetic index assembly [Q-E-UNI-  
PER-MAG-1]
- (1) Magnetic index collar [Q-E-UNI-  
MAG-1]
- (10) 8-32 x 1/2" pan head screws [SCR PH  
#8-32 X 0500 ZN]
- (2) 1/4-20 x 1/2" pan head screws [SCR PH  
.25-20 X 0500 ZN]
- (7) 10-24 x 1/2" pan head screws [SCR PH  
#10-20 X 0500 ZN]
- (6) 10-24 K-lock nuts [LOCKNUT TOOTH  
#10-24 ZN]
- (4) #10 flat washer [#10 SAE Washer]

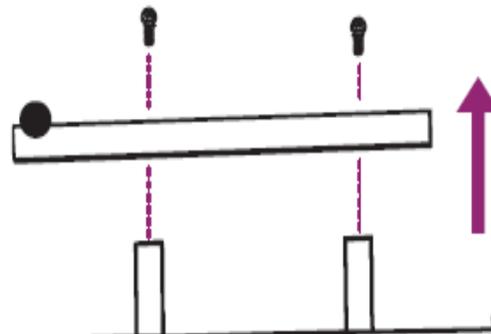
# 1 - DISASSEMBLE THE MACHINE

## Remove the Handlebars, Mount, and PCB box

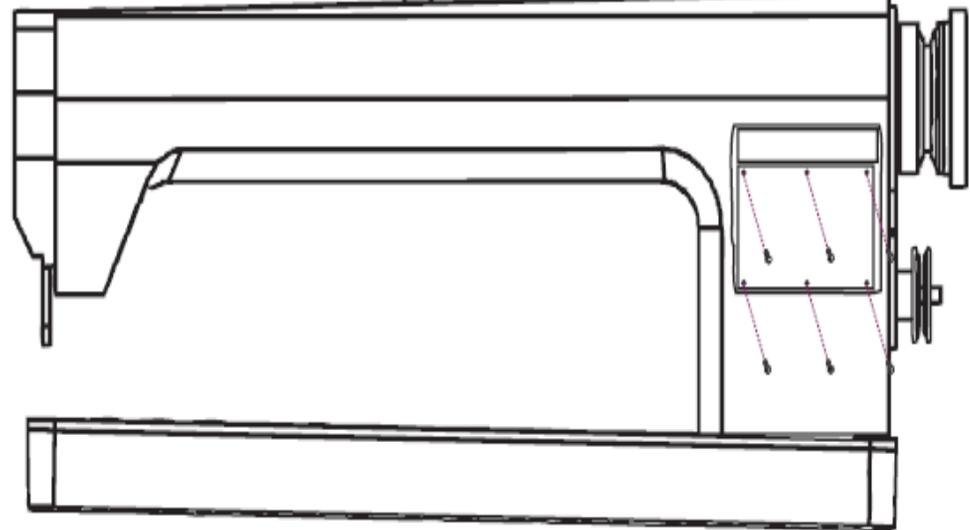
1. Loosen the knob and remove the handlebars.



2. Unscrew the top two screws and remove the mount.

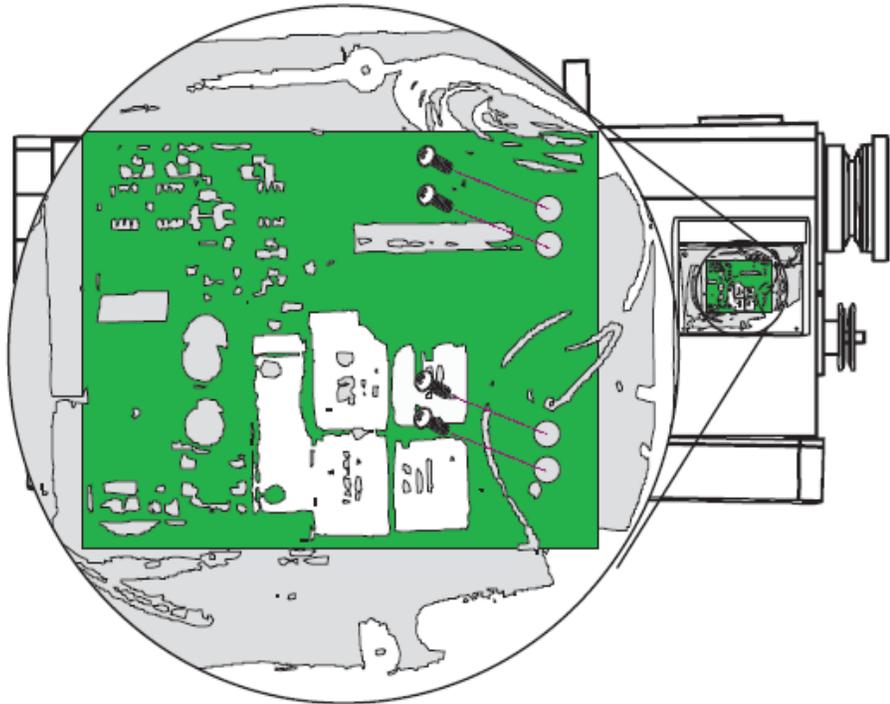


3. Unscrew the six screws attaching the PCB box face. Remove the face and set it aside.



4. Remove the four screws on the right edge of the PCB

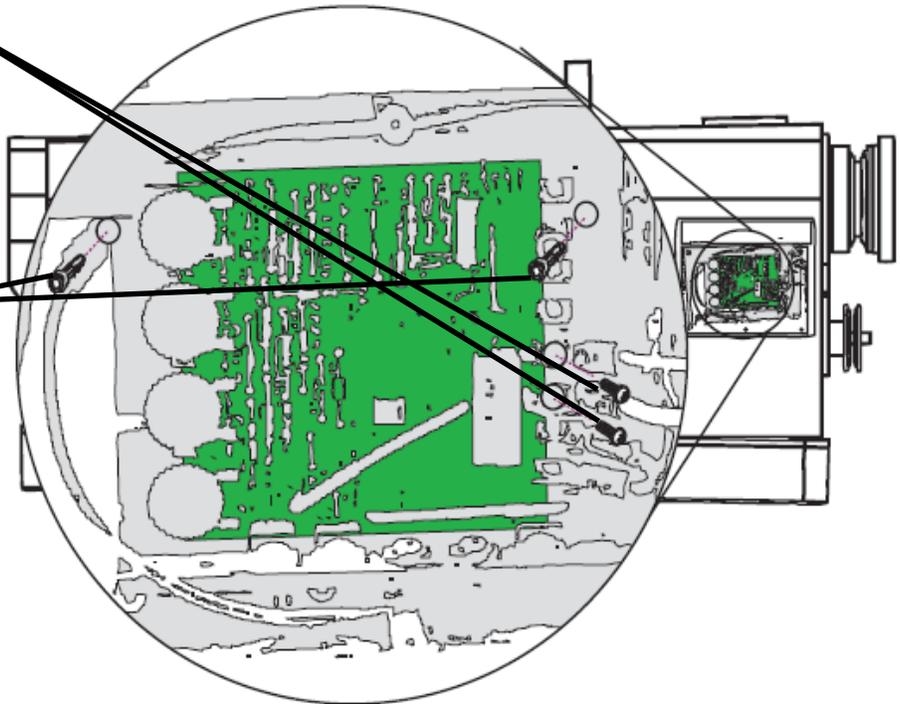
5. Pull the first board back to reveal the second board



6. Loosen the two screws on the right of the second board and remove the ground wires underneath.

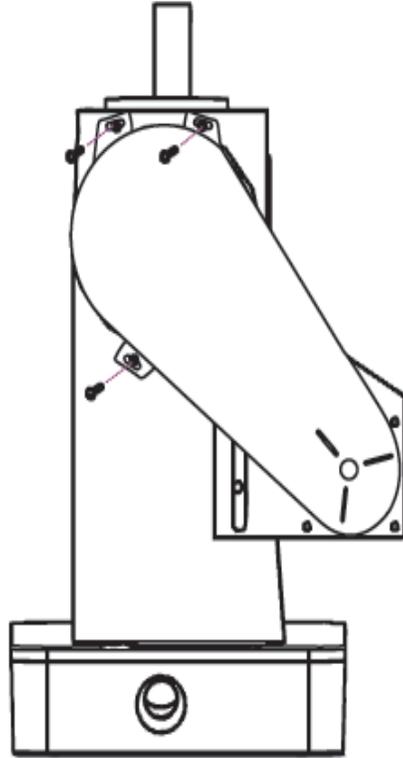
7. Using a hex key remove the two screws that attach to the aluminum frame.

8. Set the screws aside and remove the PCB from the frame.



## Remove the Handwheel Cover

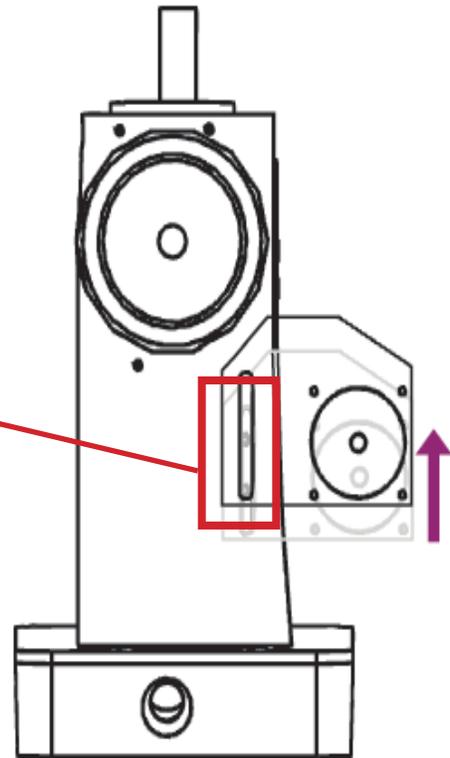
1. Unscrew the three screws from the belt cover. Remove the cover and set aside with the screws for later use.



## Remove the Motor Belt

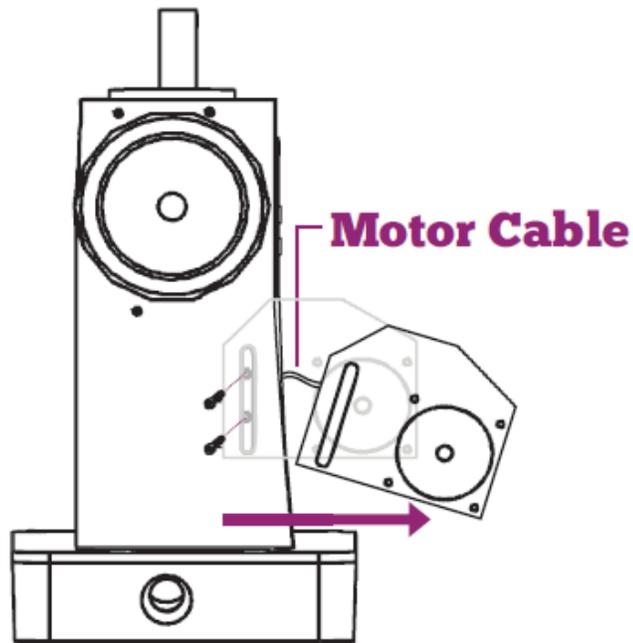
1. Use a hex key to loosen (Do not remove) the motor adjustment bolts.
2. Raise the motor bracket, remove the belt, and then lower the motor back in place.

loosen motor adjustment bolts



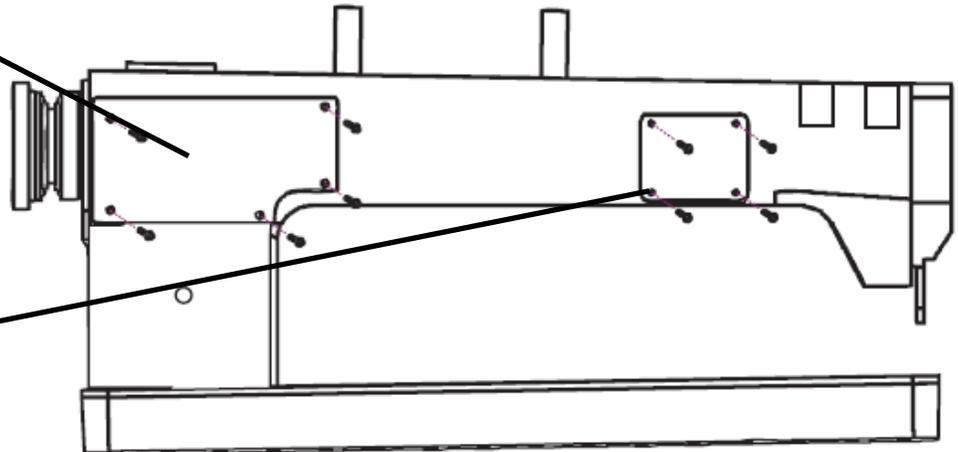
## Remove the Motor

1. Hold on to the motor with one hand, and remove the motor adjustment bolts.
2. Remove the motor and motor cable from the machine. Set aside for later use.



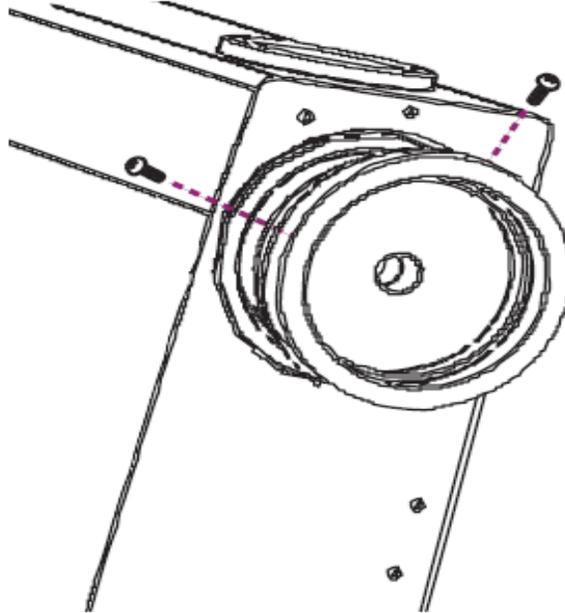
## Remove the Rocker Arm Covers

1. Remove the five screws from the rear access cover and remove the cover. Set aside for later use.
2. Remove the four screws from the rocker arm access cover and remove the cover. Set aside for later use.

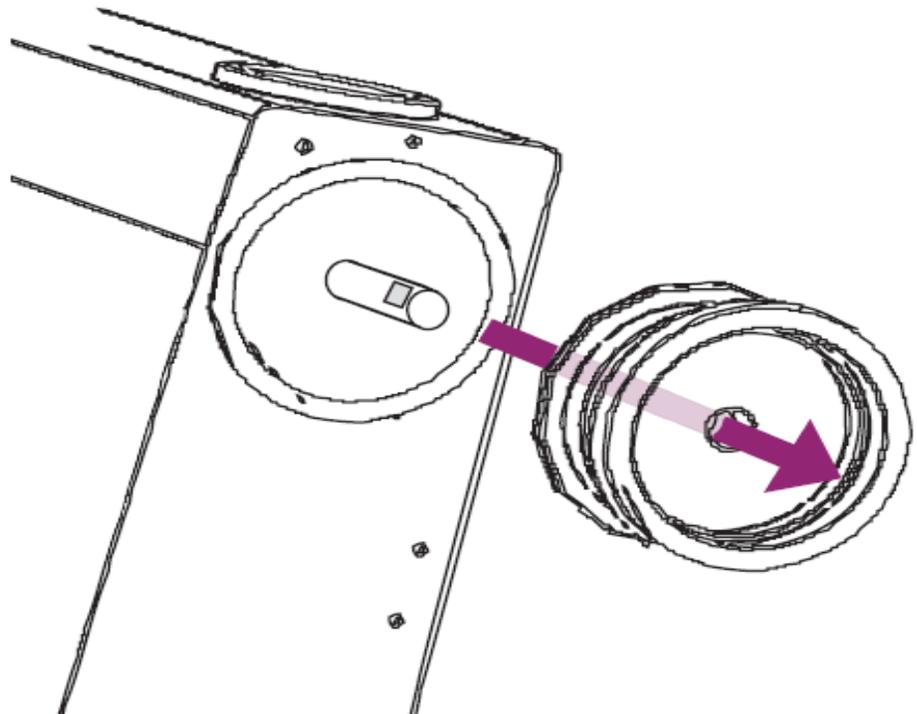


## Remove the Handwheel

1. Use a Phillips head screwdriver to remove the two screws securing the handwheel to the shaft



2. Slide the handwheel off the shaft and set aside with the screws for later use.



# 2 - MODIFY THE MACHINE

## Prepare Templates

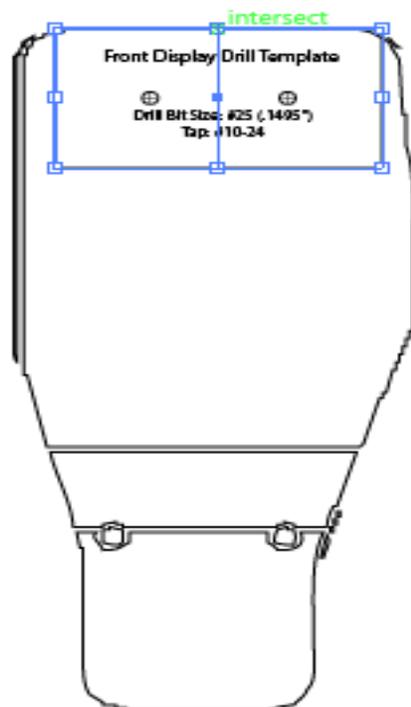
1. Cut out the templates included at the back of this manual. Cut each template along the dotted line.

Read the instructions listed on the template before drilling.



## Front Display

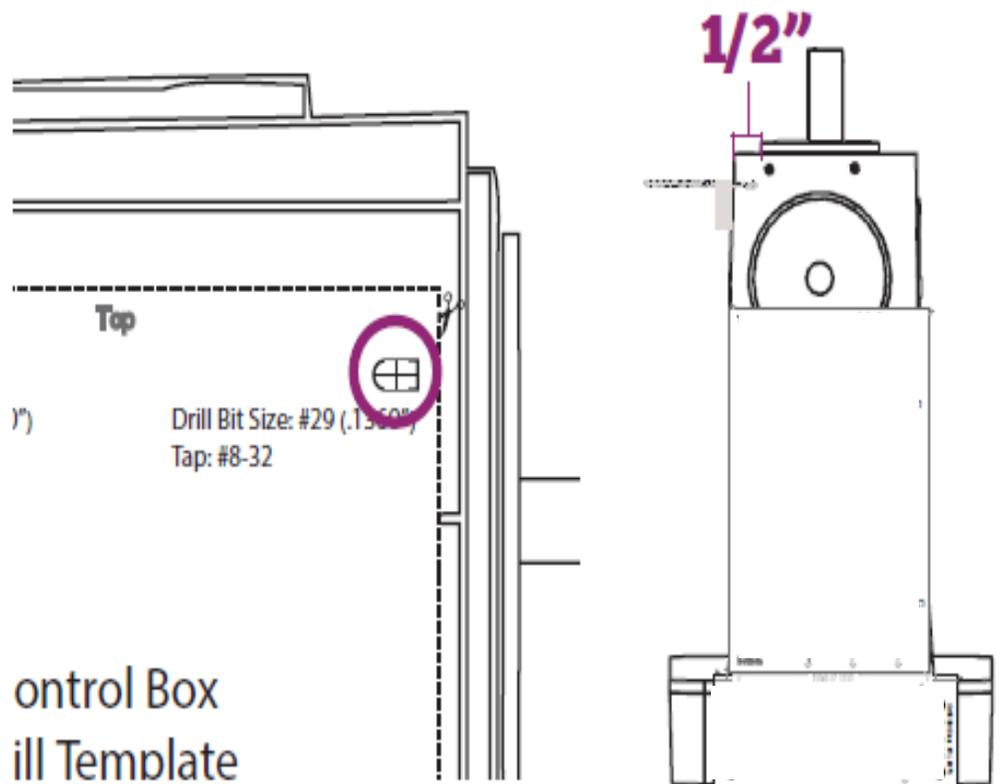
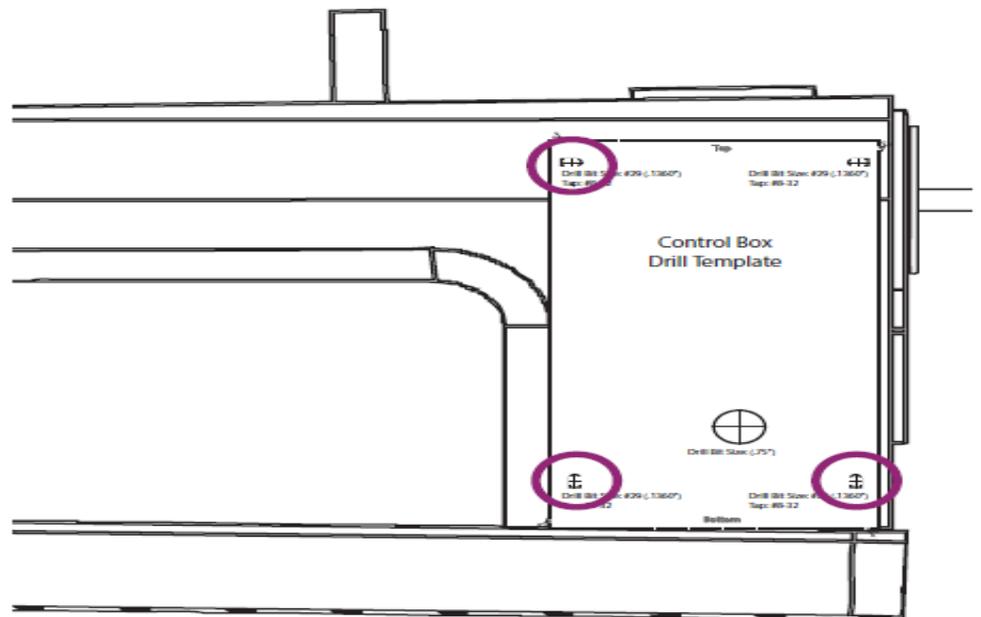
1. Tape the front display template to the face plate of the machine.
2. Use a hammer and punch to mark the drill points.
3. Use the power drill and a #25 bit to drill the points.
4. Use a #10-24 tap on the drilled holes.



## Control Box

1. Tape the control box template to the side of the machine. (Right from front.)
2. Use a hammer and punch to mark the drill points.
3. Use the power drill and a #29 bit to drill the points.
4. Use a #8-32 tap on the drilled holes.
5. The frame is thicker at the top right, and needs to be drilled 1/2"

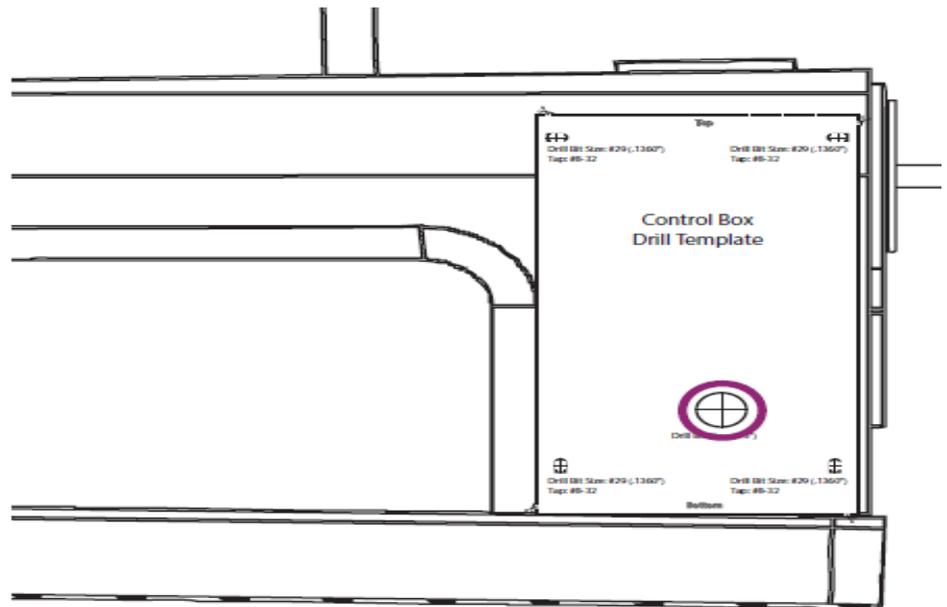
Mark with tape 1/2" from the tip on the bit, and drill into the frame until the tape reaches



the frame.

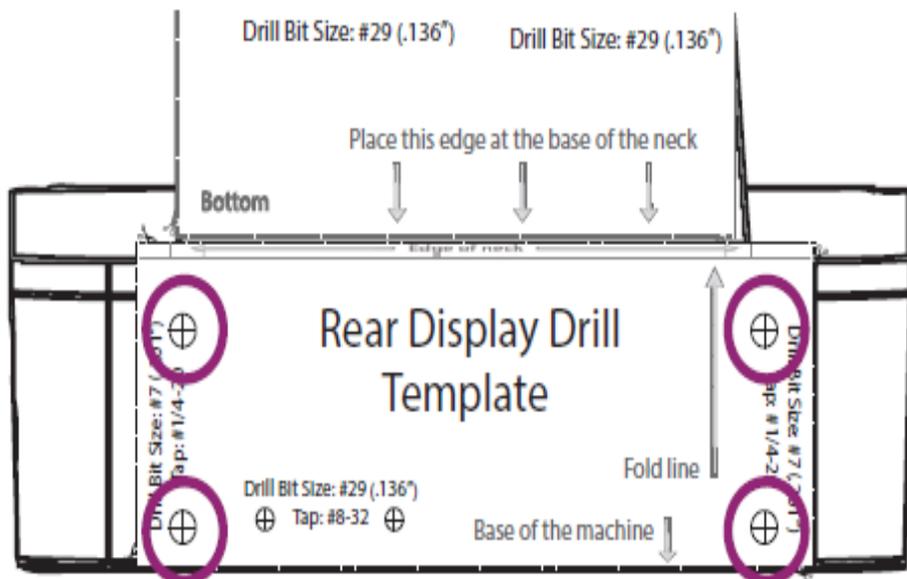
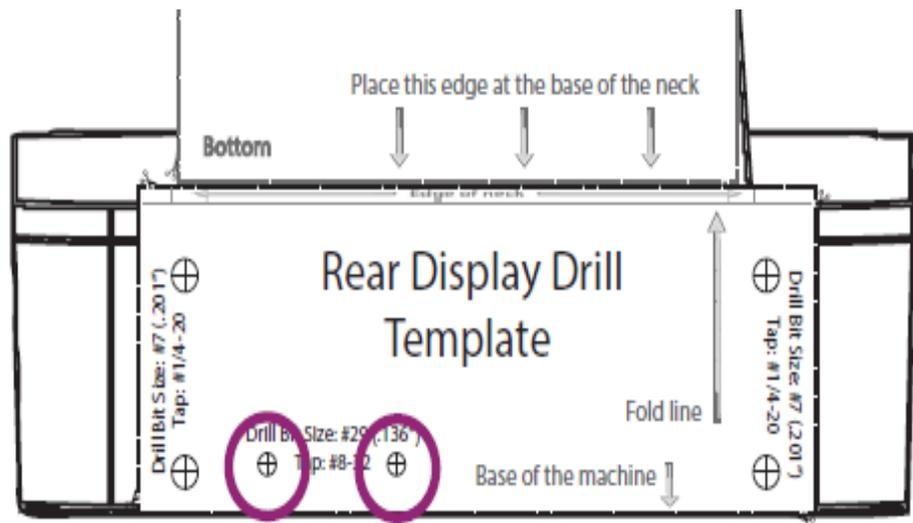
6. Use the #29 drill to drill a pilot hole in the larger drill point

Then drill the point with a 3/4" bit.



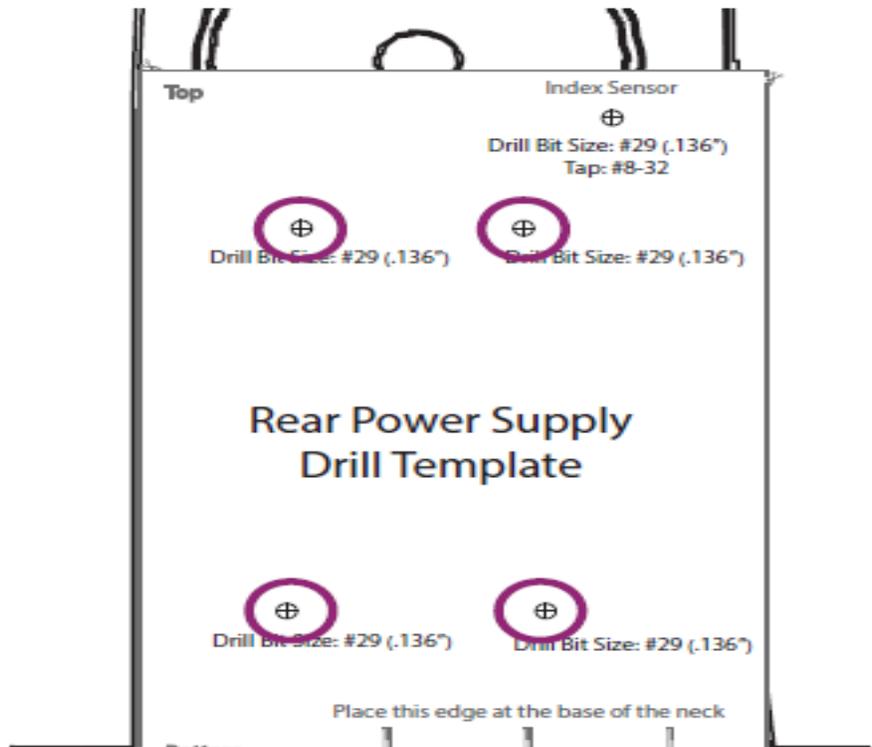
### Rear Display

1. Tape the rear display template to the back base of the machine.
2. Use a hammer and punch to mark the drill points.
3. Use the power drill and a #29 bit to drill the two smaller points.
4. Use a #8-32 tap on the drilled holes.
5. Use a #7 bit to drill four larger points.
6. Tap drilled holes with a #1/4-20 tap

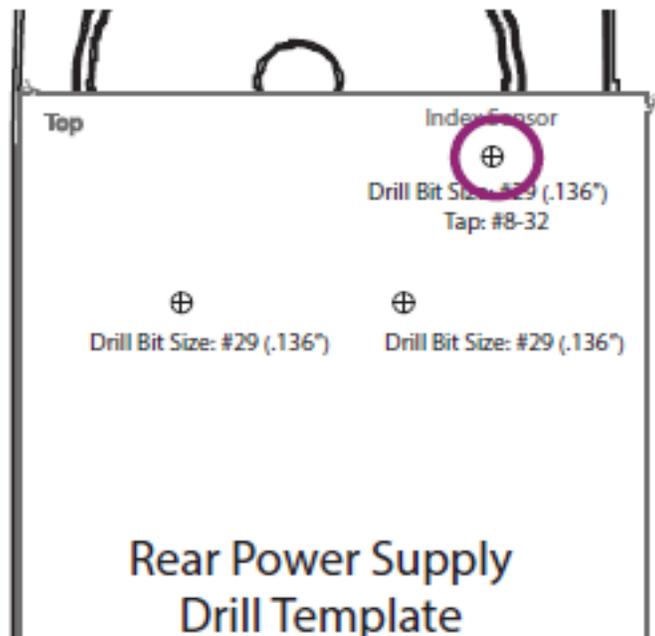


## Rear Power Supply

1. Tape the rear power supply template to the back of the machine.
2. Use a hammer and punch to mark the drill points.
3. Use the power drill and a #29 bit to drill the four center points.

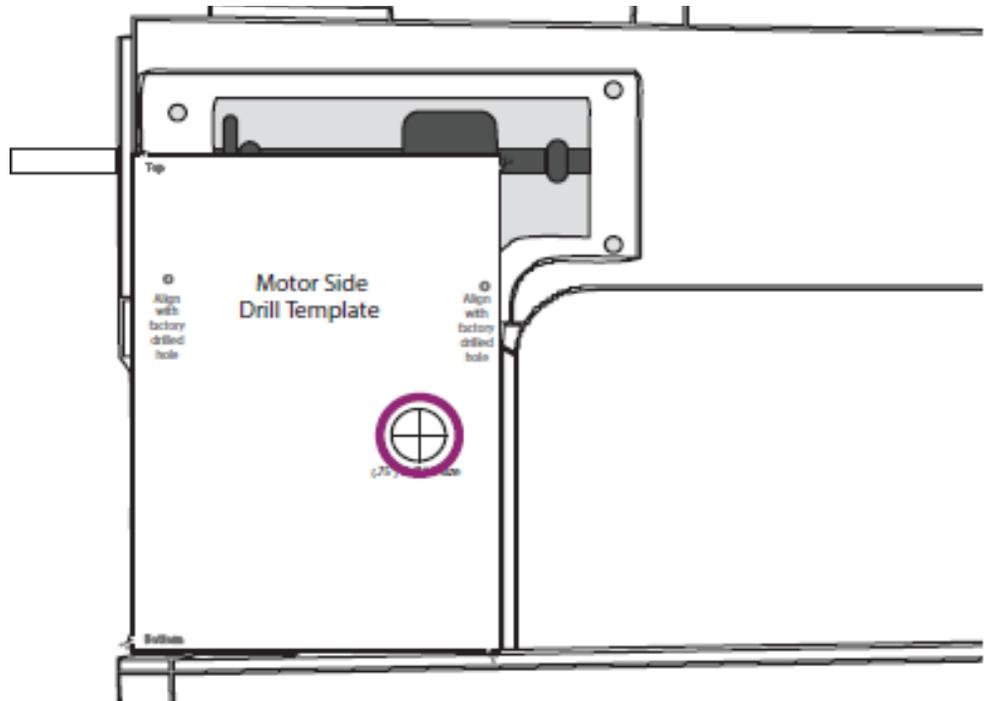


4. If there is not already a hole for the sensor, use a #29 bit to drill this point.
5. Tap the index sensor point with a #8-32 tap.



## Motor

1. Tape the motor side template to the side of the machine. (Left from front.)
2. Use a #29 bit to drill a pilot hole through the frame.
3. Use a 3/4" bit and drill the point.



# 3 - REASSEMBLE THE MACHINE

## **Attach Handlebars**

1. Align the holes on the handlebar bracket with the two screws facing out on the faceplate.
2. Secure the handlebars with the provided nuts.



## Attach Android Display

1. Remove the two screws from the top of the handlebars.
2. Attach the remote base brackets to the handle bar with the two provided screws and the two removed in step 1.
3. Mount the remote bracket to the remote bases with the white poly disc in between.
4. For further instruction on installing the 10" display, please refer to the *Installing/Troubleshooting your Android Tablet* guide.

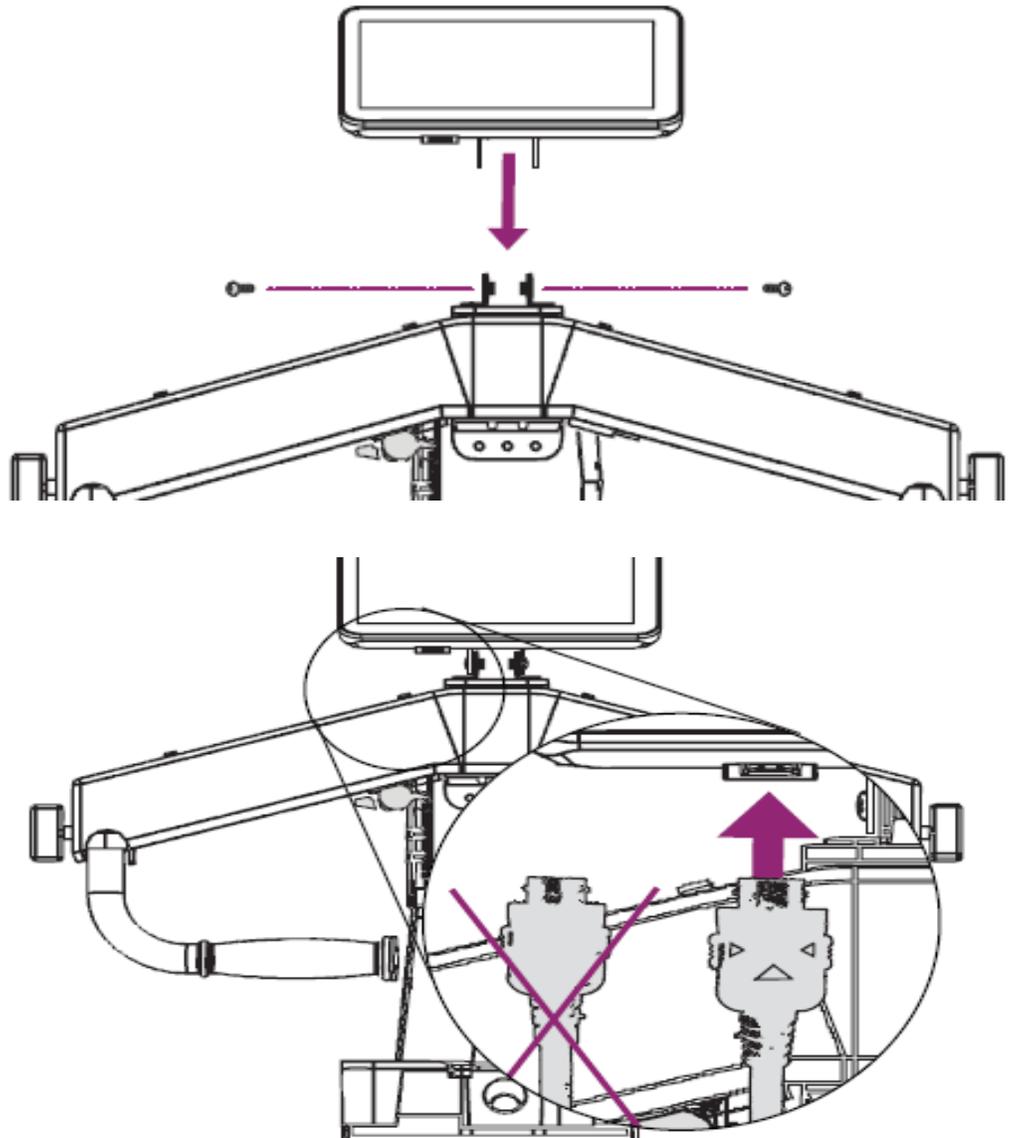


## Attach Linux Display

1. Remove the two screws from the top of the handlebars.
2. Attach the remote base brackets to the handle bar with the two provided screws and the two removed in step 1.
3. Mount the remote bracket to the remote bases with the white poly disc in between.

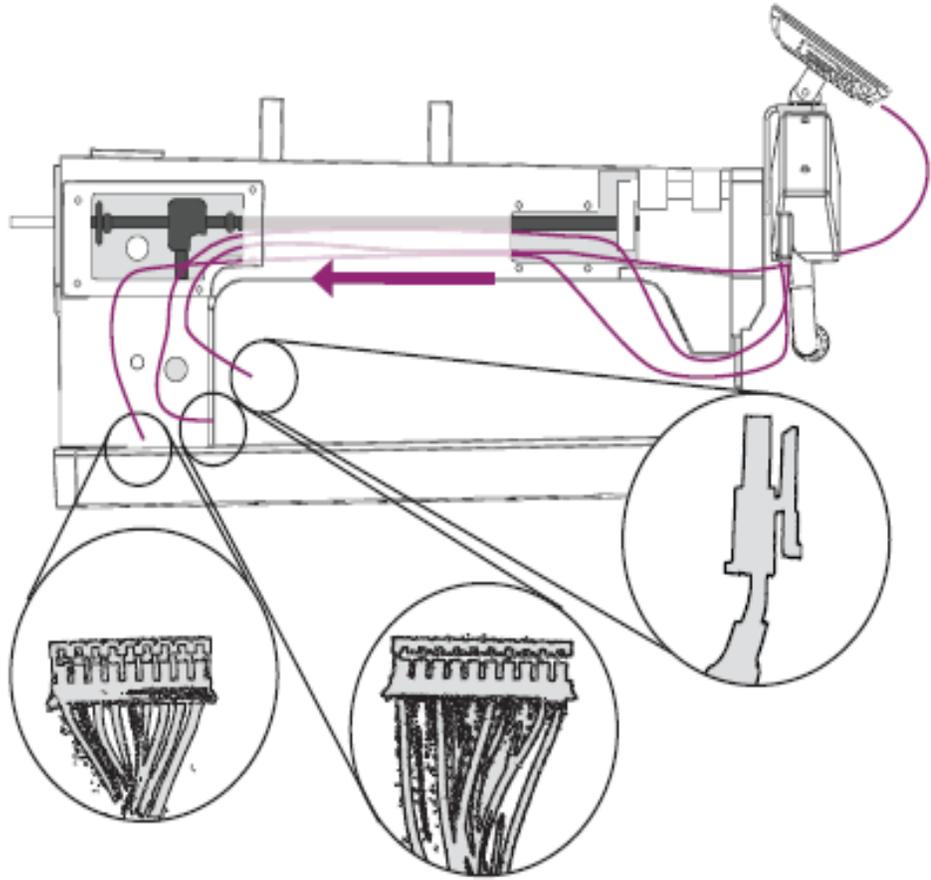


4. Connect the display cable to the display with the triangles facing forward.



## Feed Handlebar Wires

1. Feed the three wires coming from the handlebars through the machine to the rear.



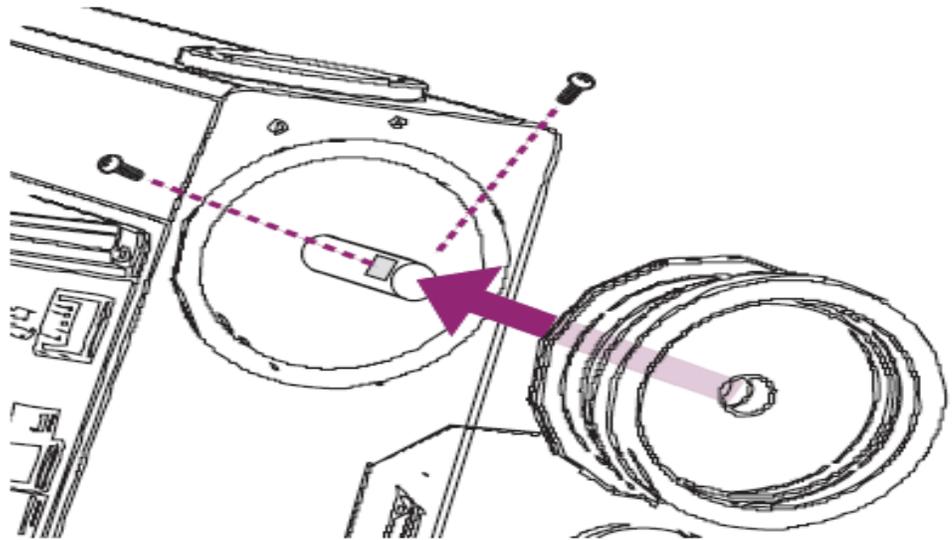
2. Make sure the cables are out of the way of any moving components.

3. Feed the wires through the hole on the control box side.



## **Attach the Handwheel**

1. Replace the handwheel with the original screws.
2. Position the handwheel where one of the screws is directly over the flat portion of the shaft.



## **Attach the Motor**

1. Feed the motor wires through the hole drilled for the motor.



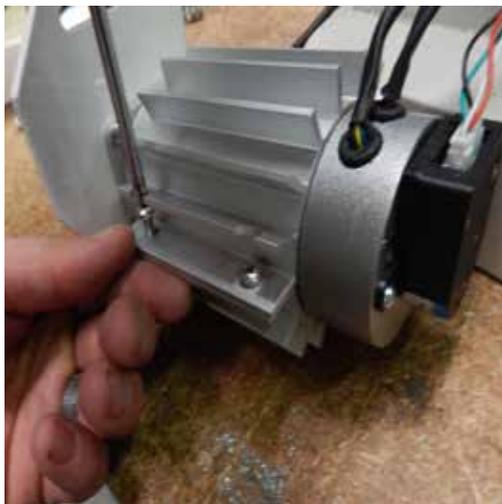
2. Feed the wires through the lower hole on the control box side.



3. Attach the PerfectStitch motor to the adjustable bracket.



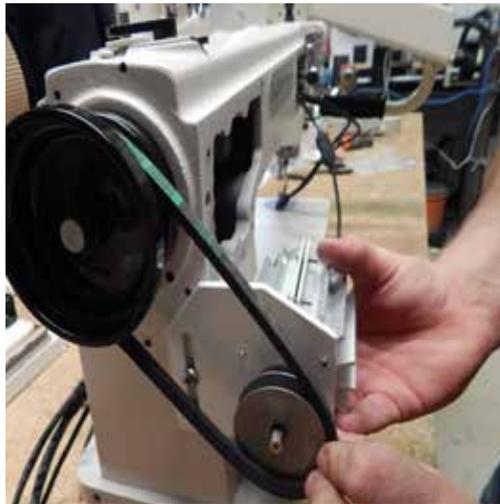
4. Attach the heat sinks to the motor.



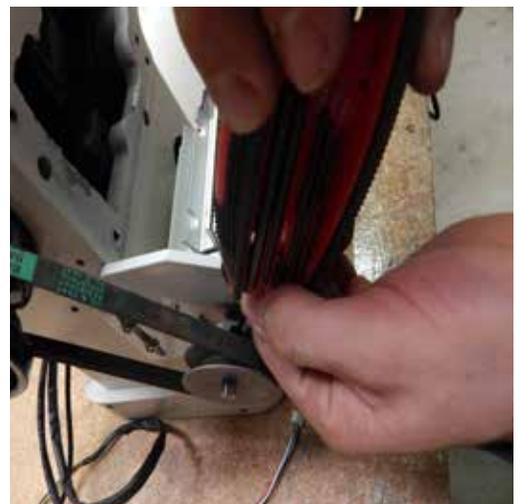
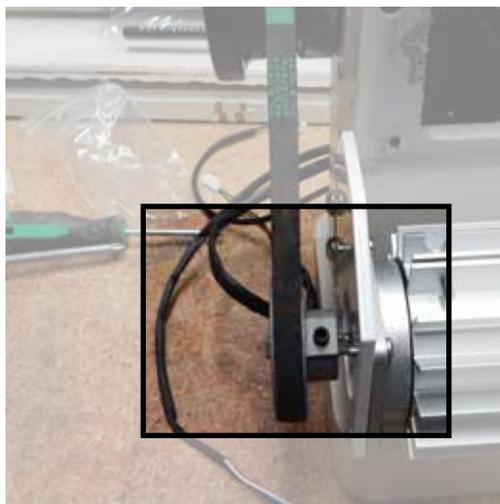
5. Attach the adjustable bracket to the frame and secure the motor pulley.



6. Loop the belt over the pulleys.



7. Tighten down the small screw on the motor pulley with a hex key.

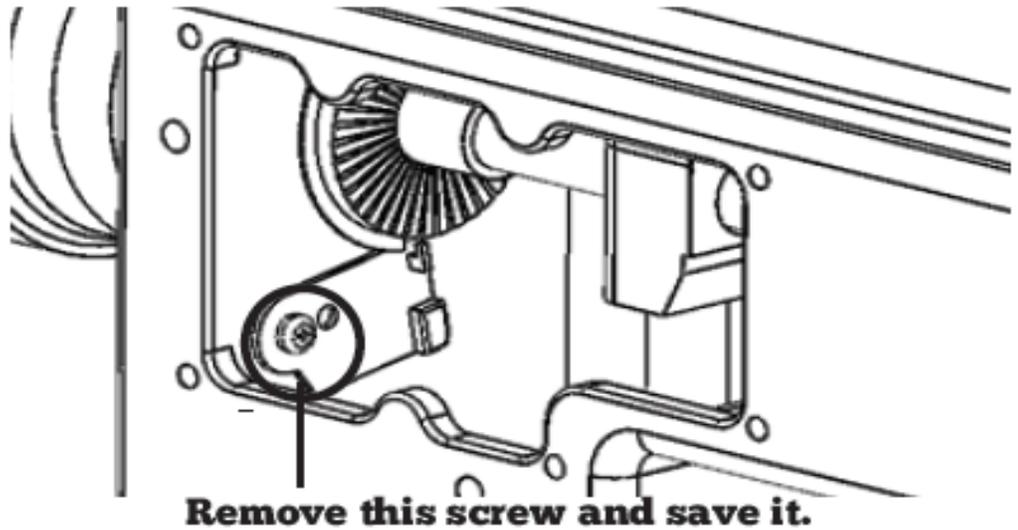


## Mount the Index Sensor

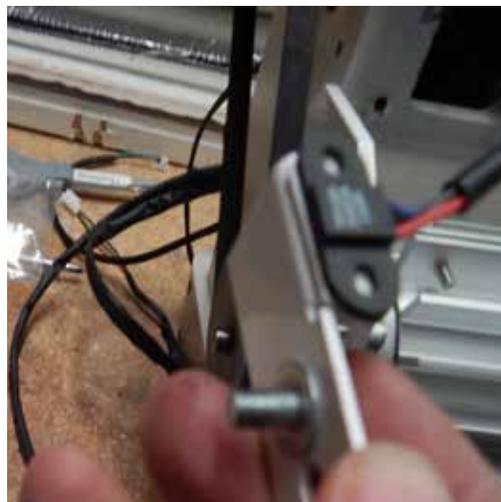
1. Remove the index flag by applying pressure toward the rear of the machine.



2. Remove the current index sensor. Save the screw for later use.



3. Use the provided double sided tape to mount the sensor to the bracket.
4. Insert the index screw into the hole on the bracket



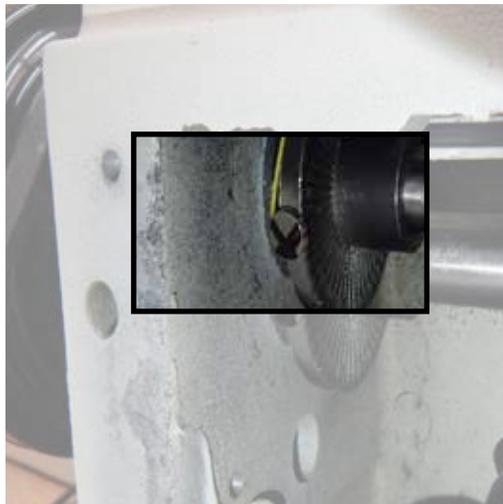
5. Install the magnetic index with the screw removed in step 3.



**Apply washers as needed.**

6. Use epoxy glue to mount the magnet on the outer edge of the index parallel to the inner set screw.

Place the magnet with the X facing out.



7. Loosen the inner set screw, and spin the handwheel until the needle is in the up position.

Rotate the sleeve until the magnet is directly over the index sensor, then tighten the set screw. The magnet should set about 1/4" above the sensor.

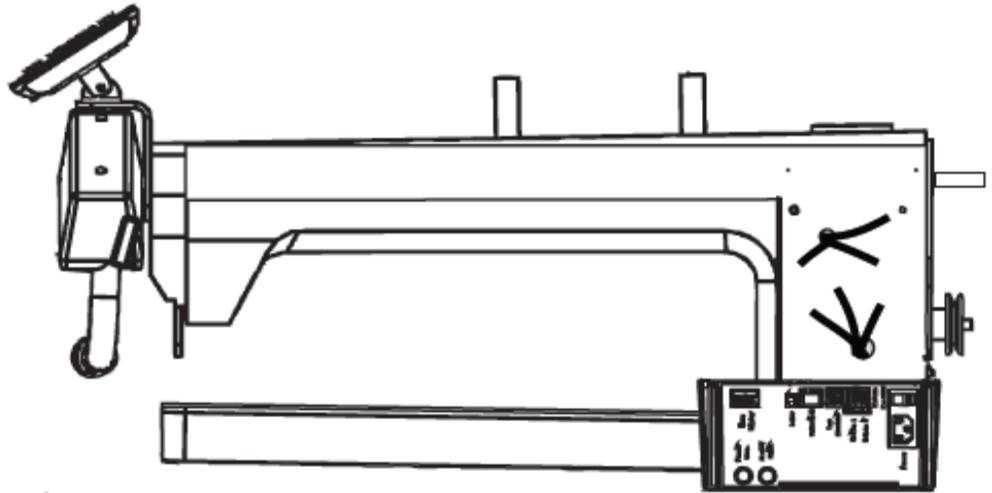
*Note: Do not move the sleeve left or right. If the magnet is not directly over the sensor use washers to space the sensor bracket until the sensor is beneath the magnet.*



**Set screw**

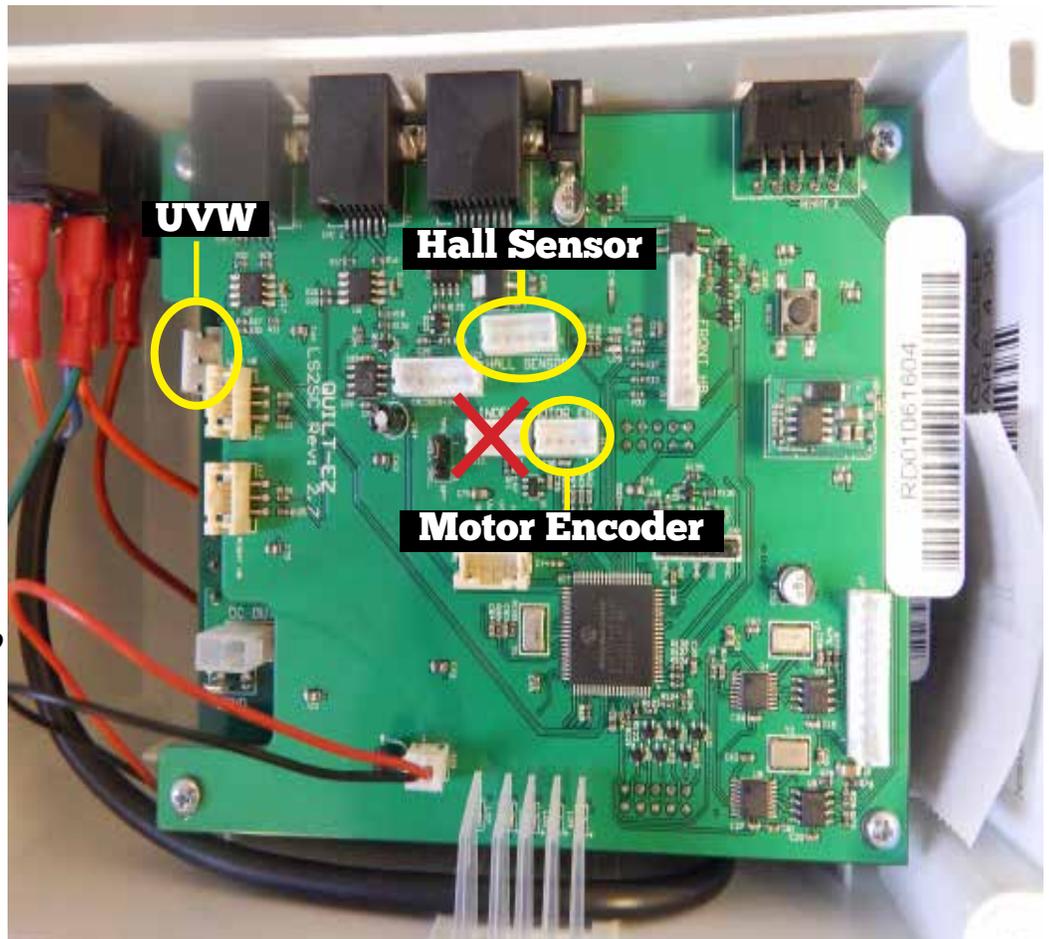
## Attach the Control Box

1. Position the control box near the internal wires.

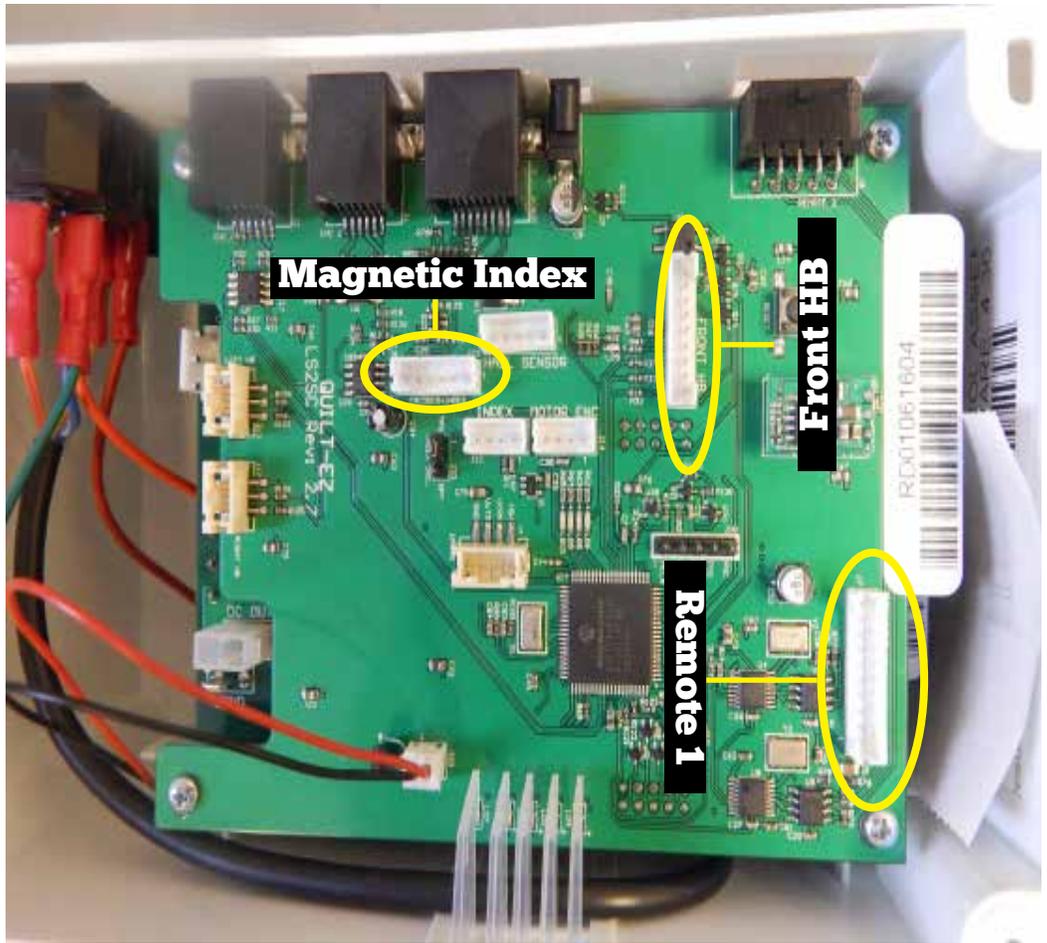


2. Connect the motor power wire to the port labeled UVW.
3. Connect the motor hall sensor wire into the wire into the Hall Sensor port.
4. Connect the motor wire to the Motor Encoder port.

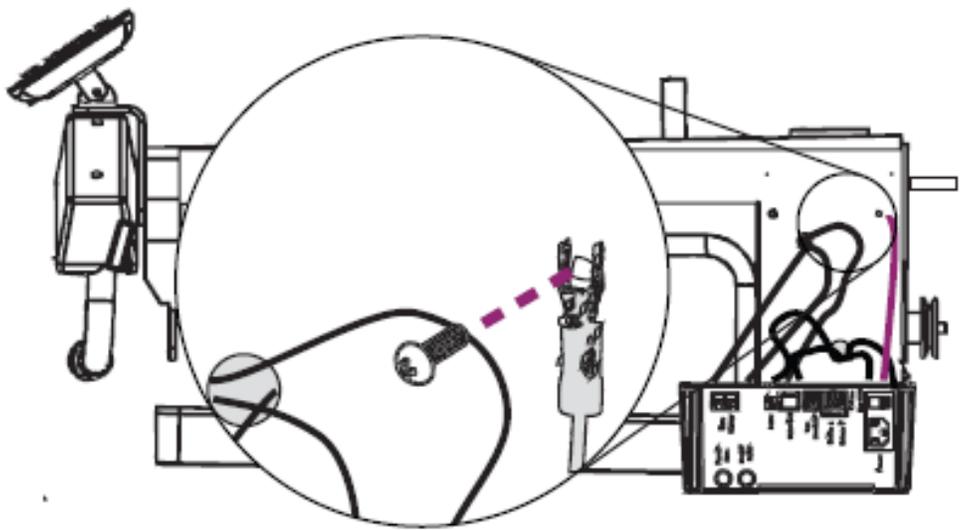
*Note: Do **NOT** plug into the port labeled Index.*



5. Connect the magnetic index sensor to the Magnetic Index port.
6. Connect the front handlebar wire to the Front HB port



7. Attach the ground wire to the frame using the factory drilled hole and one of the original control box screws.

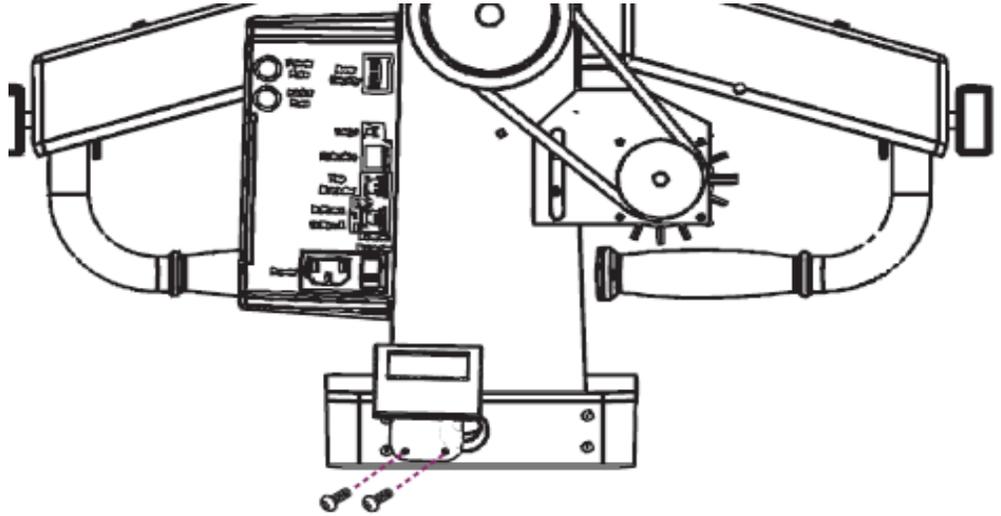


8. Mount the control box to the frame by fastening the four 8-32 x 1/2" screws to the drilled holes. Secure the bottom screws first, and then the top two.



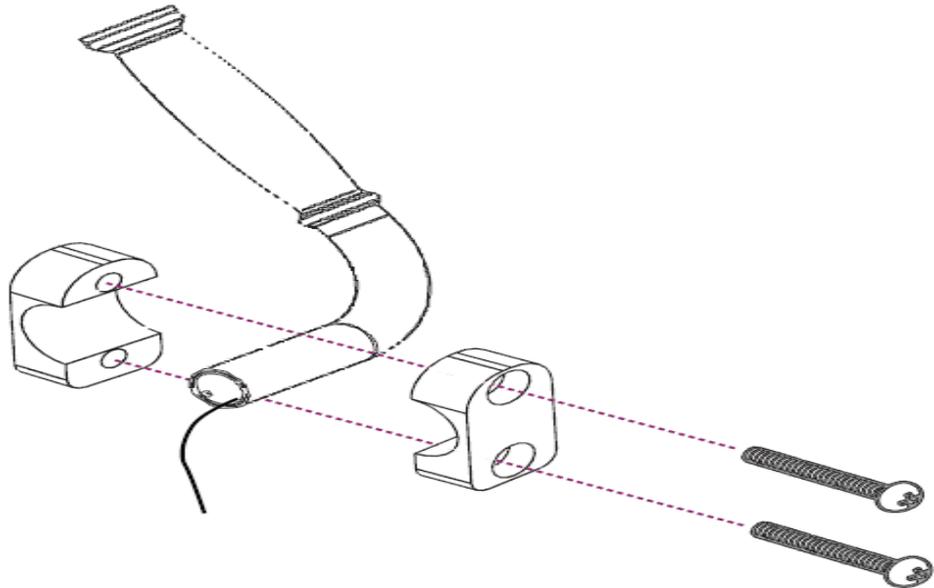
## Attach the Rear Display

1. Attach the rear display to the back of the machine with two 8-32 x 1/2" screws.

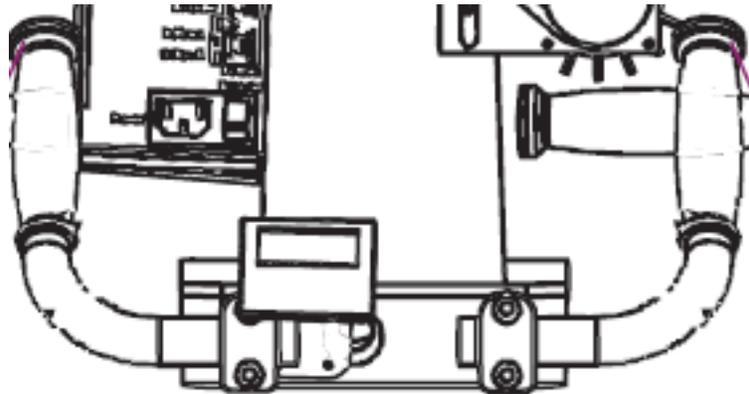


## Attach the Rear Handlebars

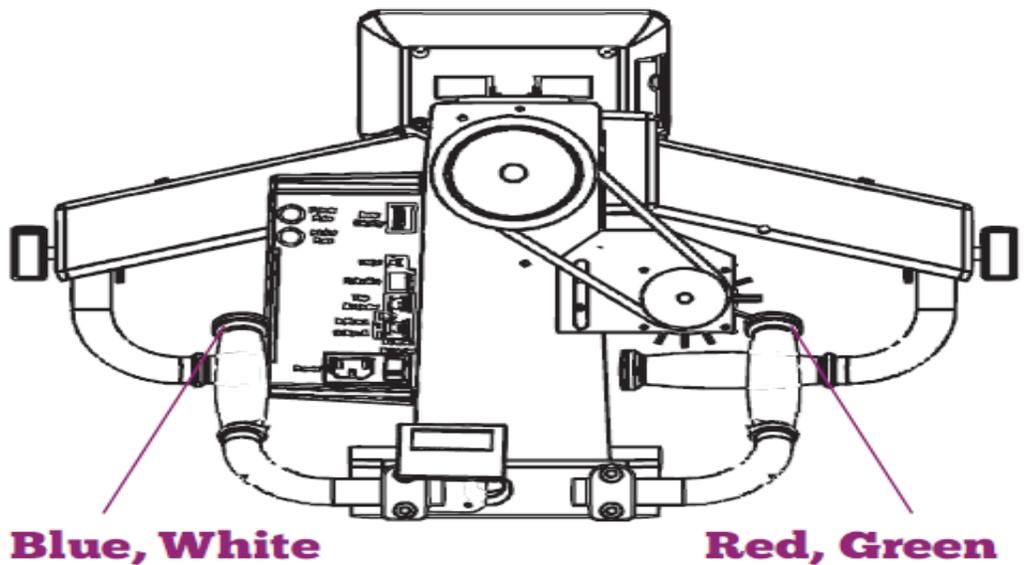
1. Insert the rear handle bar between the clamps.
2. Insert two 1/4-20 x 1 1/2" screws through the clamps
3. Repeat for the other bar.



4. Attach the handlebars to the machine. Alternate tightening bolts a little at a time to make sure the clamp goes on correctly.

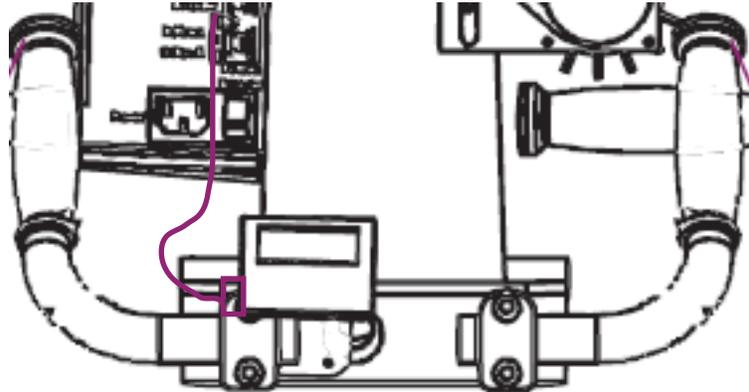
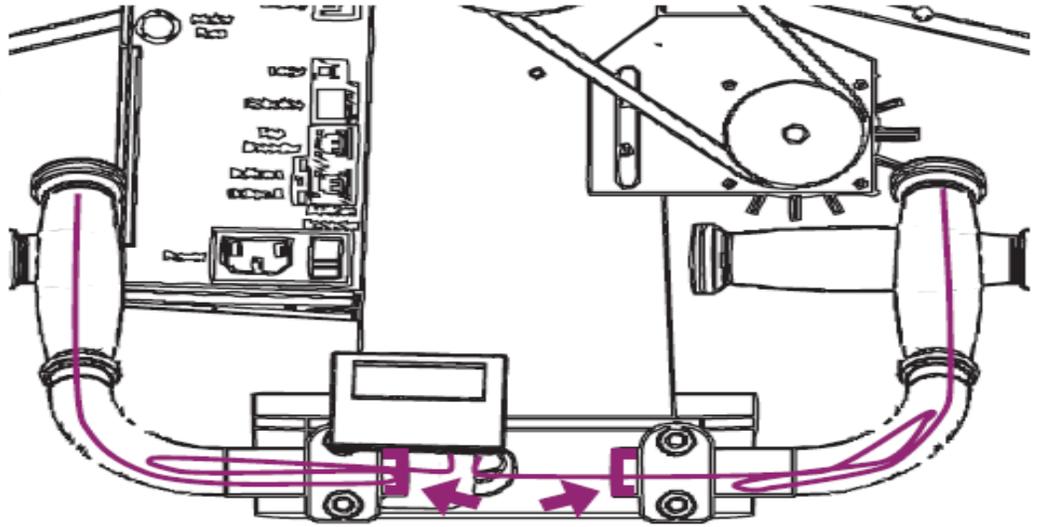


5. Attach the buttons with the blue and white on the left, and the red and green on the right.



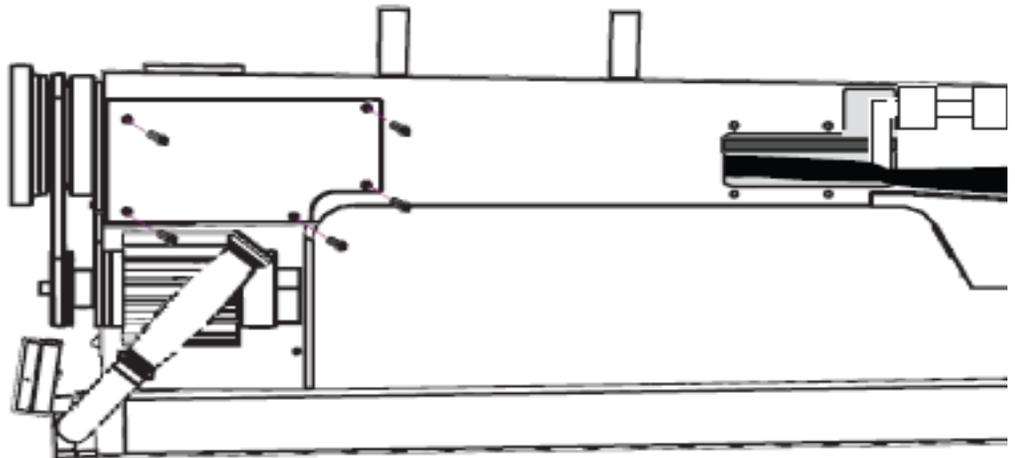
## Plug in th Rear Handlebars

1. Slide the handlebar cap onto each handlebar wire.
2. Plug the handle bar wires into the ports on the bottom of the display. Use respective sides.
3. Tuck the remaining wire inside the handlebar and attach the cap over the handlebar.
4. Attach the rear display wire to the control box port labeled rear display.



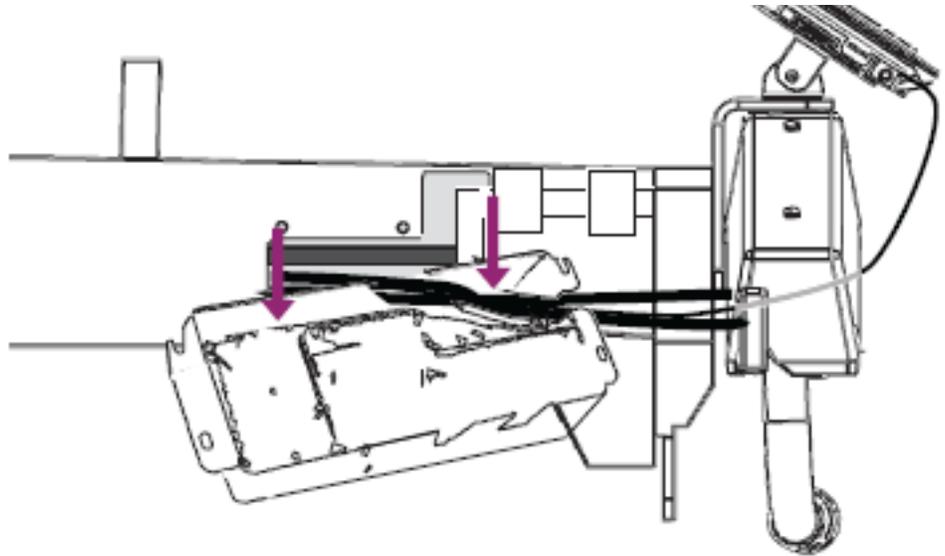
## Attach the Rear Access cover

1. Reinstall the rear access cover with its original screws.



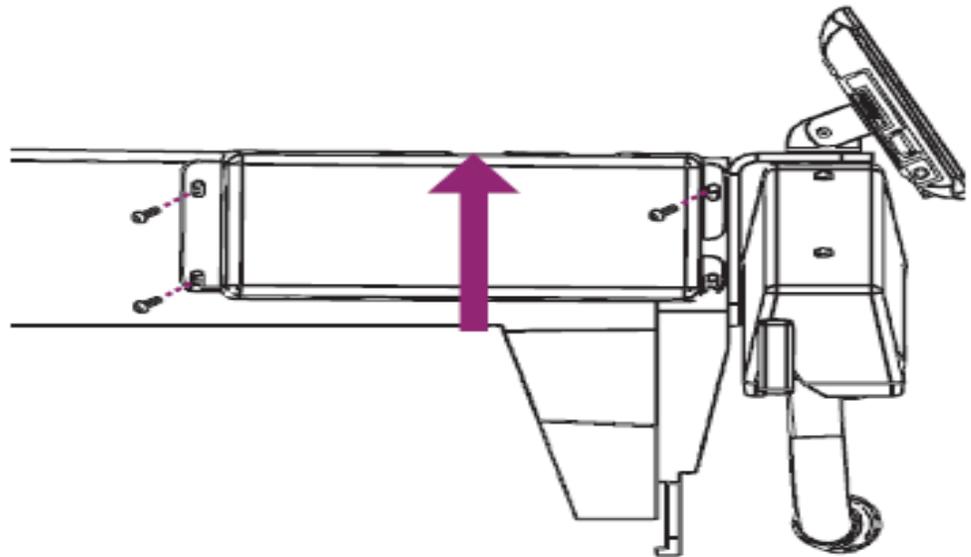
## Attach the Rocker Arm Cover

1. Slide the handlebar and display wires into the lower recess of the Perfect Stitch rocker arm cover.



2. Attach the rocker arm cover with three of the original cover screws.

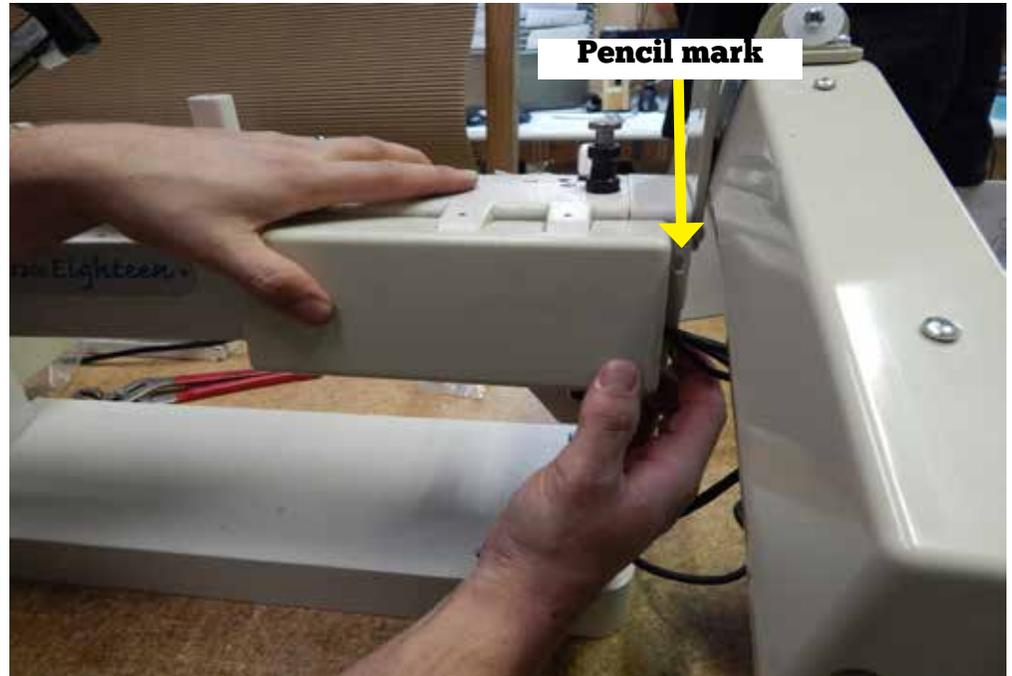
3. To avoid rubbing on the rocker arm place the cover as high as possible before tightening.



*Note: Because casting can vary from machine to machine alterations may need to be made to the rocker arm cover.*

### **If the Faceplate has no Hole**

1. Mark where the screw should go with a pencil.
2. Remove the rocker arm cover, handlebars, and faceplate.
3. Use a hammer and punch to mark the point, drill with a #29 bit, and tap with an 8/32 tap.
4. Reassemble the faceplate, handlebars, and rocker arm cover.





# Quilt EZ

**Still need help?**

Visit [support.quiltez.com](http://support.quiltez.com) for  
tutorial videos and additional  
help documentation



# **Post Upgrade Settings**

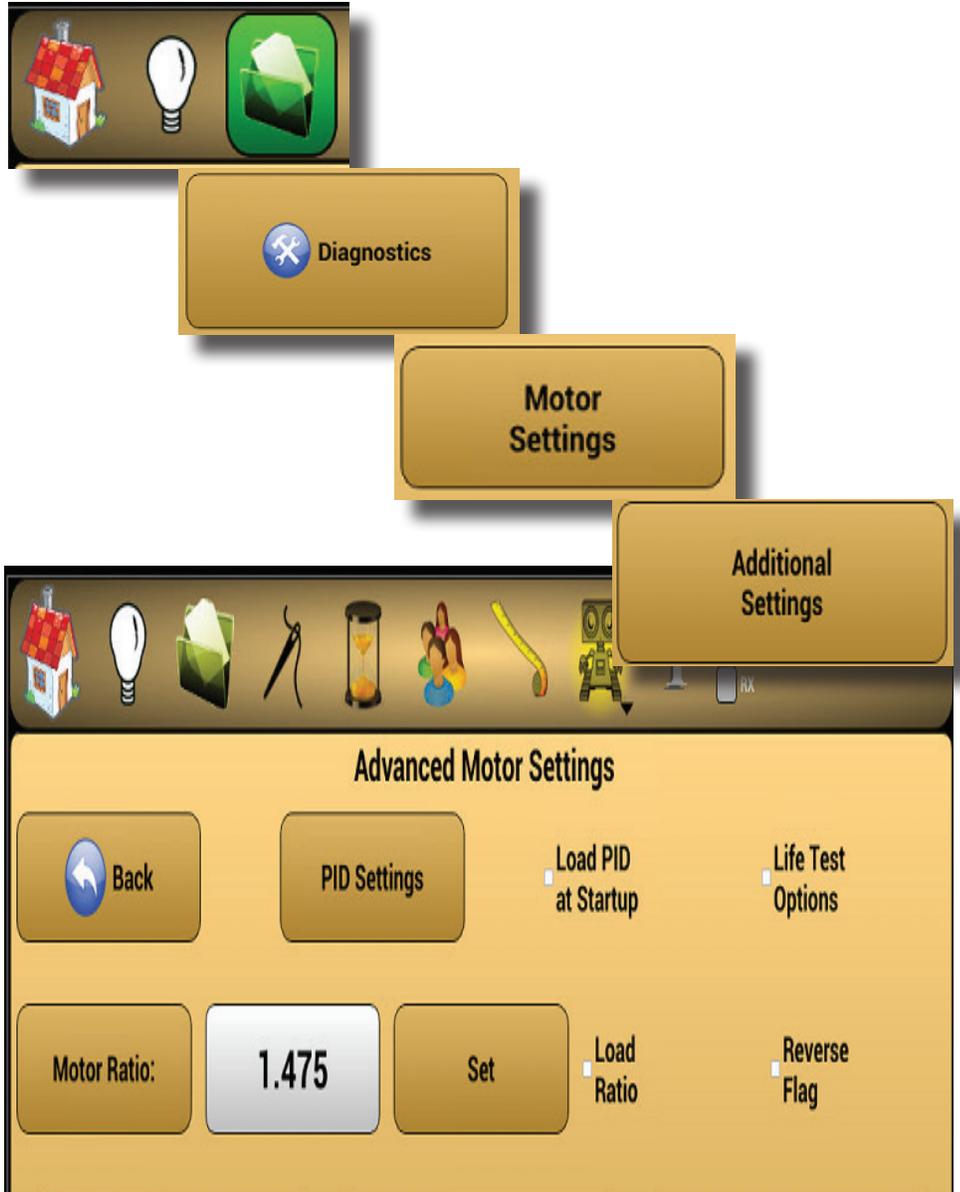
# Verify Reverse Flag Setting

**1** Locate the Advanced Motor Settings

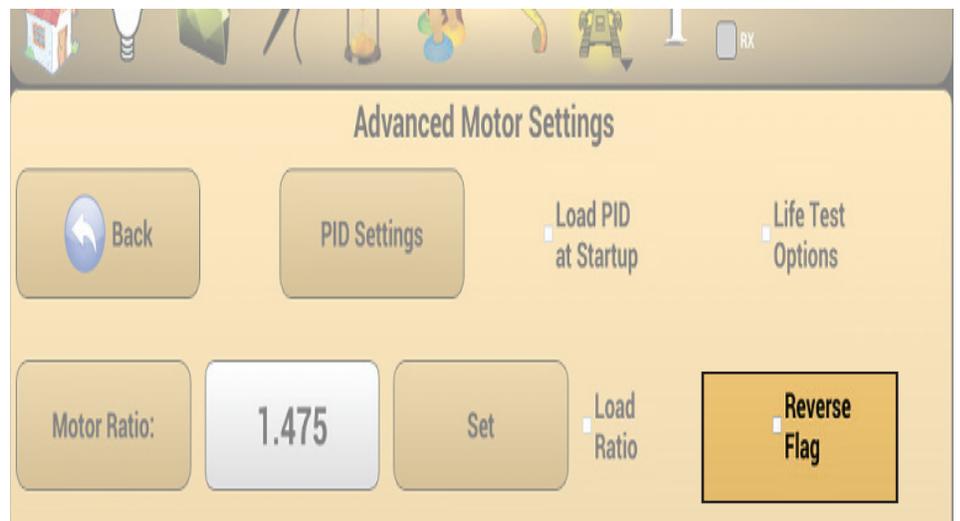
*Note: If the system prompts for a password enter “motor”*

*Images may vary in appearance from your display.*

File Menu—Diagnostics—Motor Settings—Additional Settings



**2** Make sure the Reverse Flag setting is unchecked for proper stitching.



**3** If Reverse flag is checked on boot up, tap the box to uncheck it, and then power down the machine.



**4** After turning the machine off, Android users will need to close the application by

1. selecting the Android “Home Icon,”

2. selecting the Android “Overview Icon” (looks like two overlapping rectangles)

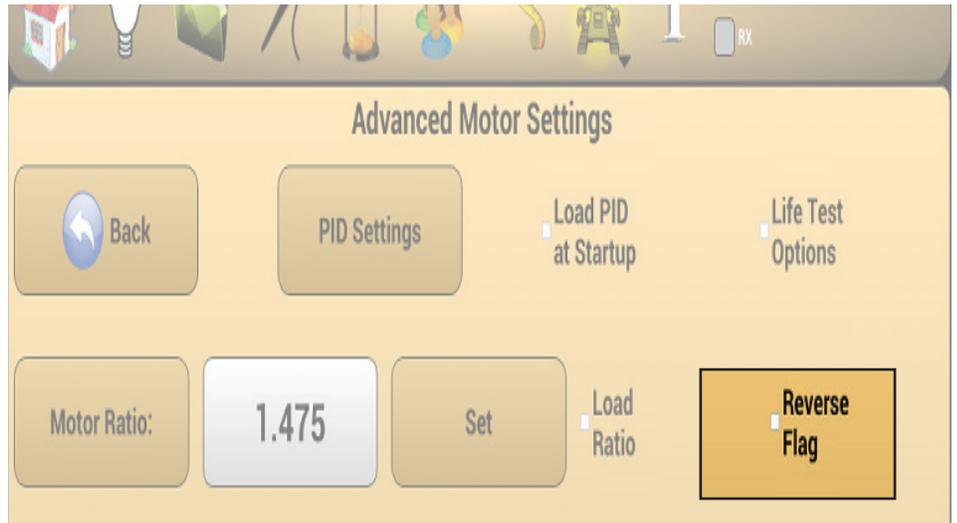
3. swiping Perfect Stitch off the screen.

*Note: Non Android displays will power off with the machine.*



**5** Power everything back on and open the Perfect Stitch application.

Go back into Advanced Motor Settings to verify the reverse flag setting saved.



**6** If the index is not counting with the Reverse Flag unchecked, then **check** Reverse Flag and repeat these steps.

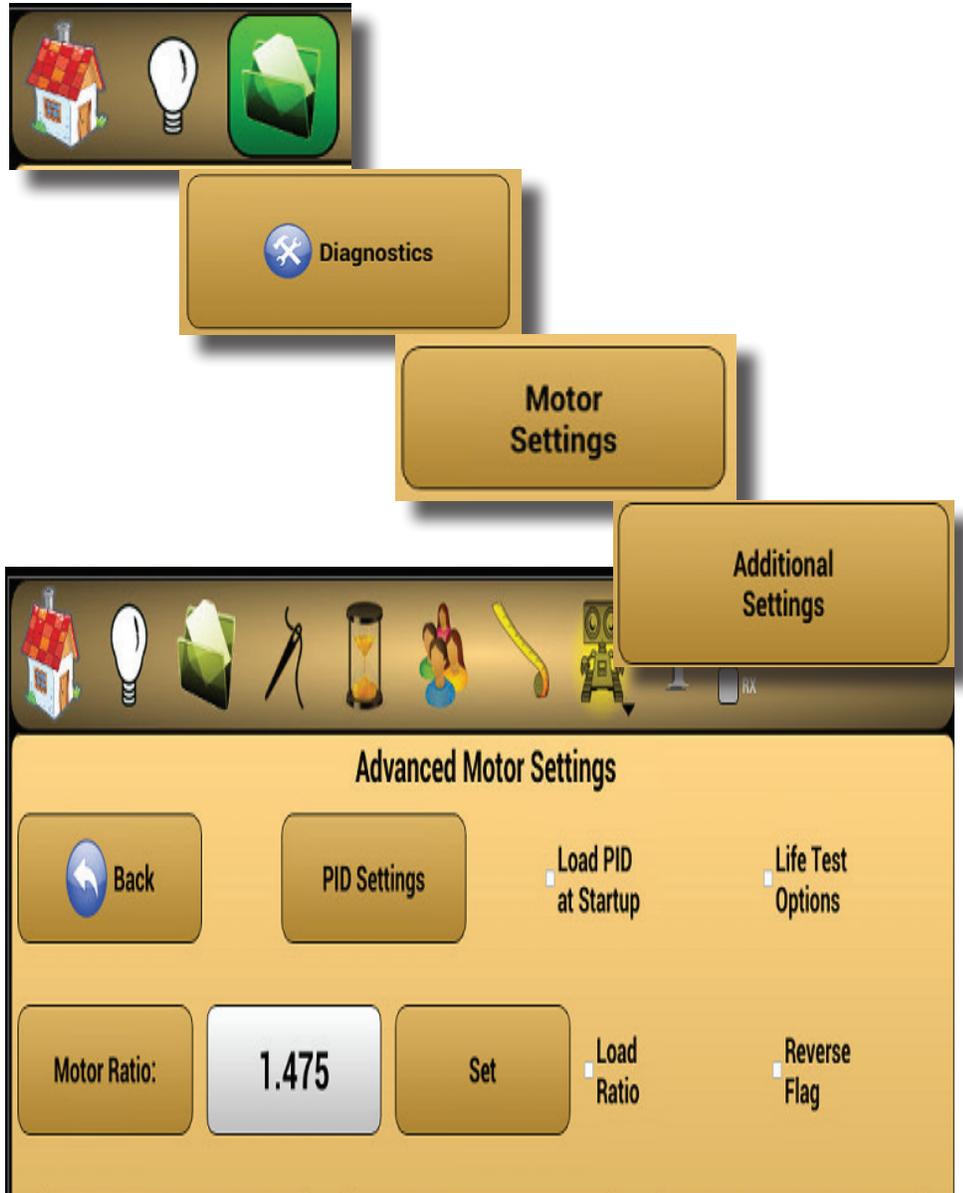
# Load Motor Ratio

**1** Locate the Advanced Motor Settings

File Menu—Diagnostics—Motor Settings—Additional Settings

*Note: If the system prompts for a password enter “motor”*

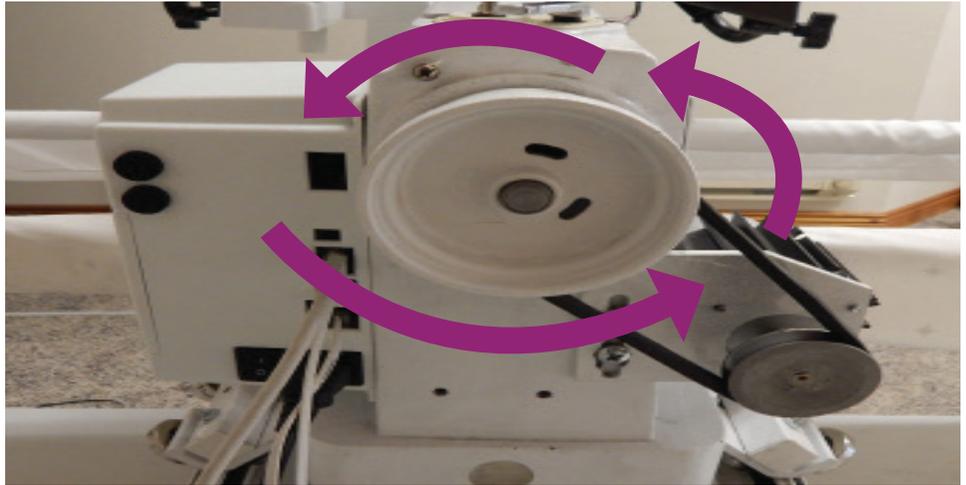
*Images may vary in appearance from your display.*



**2** Select Motor Ratio. The button will blink, but not remain highlighted.

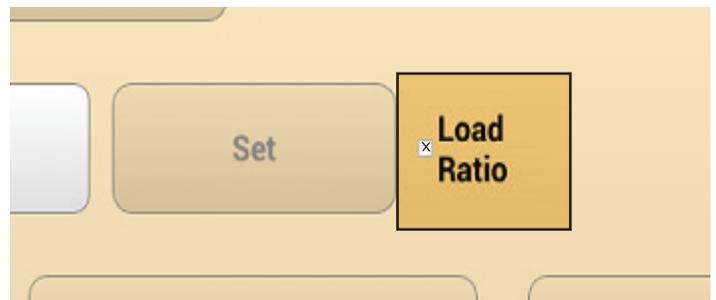


- 3** Smoothly rotate the handwheel four times being sure to not backtrack at all.



- 4** Tap the number to reset the ratio. The motor ratio will change.

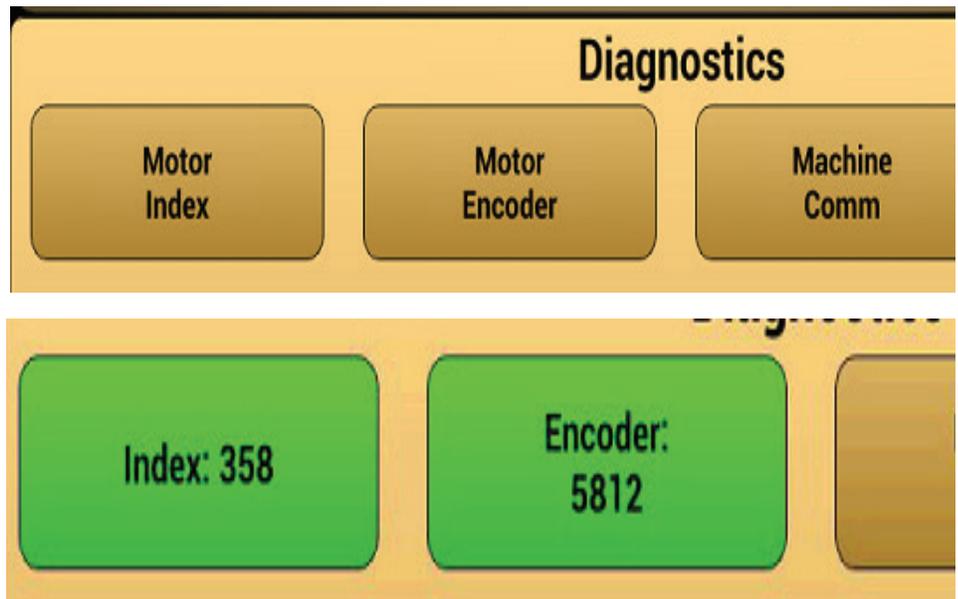
Check Load Ratio to save the setting.



- 5** Select back until you see the Diagnostic screen again.



- 6** Select Motor Index and Motor encoder. When selected they will highlight green.

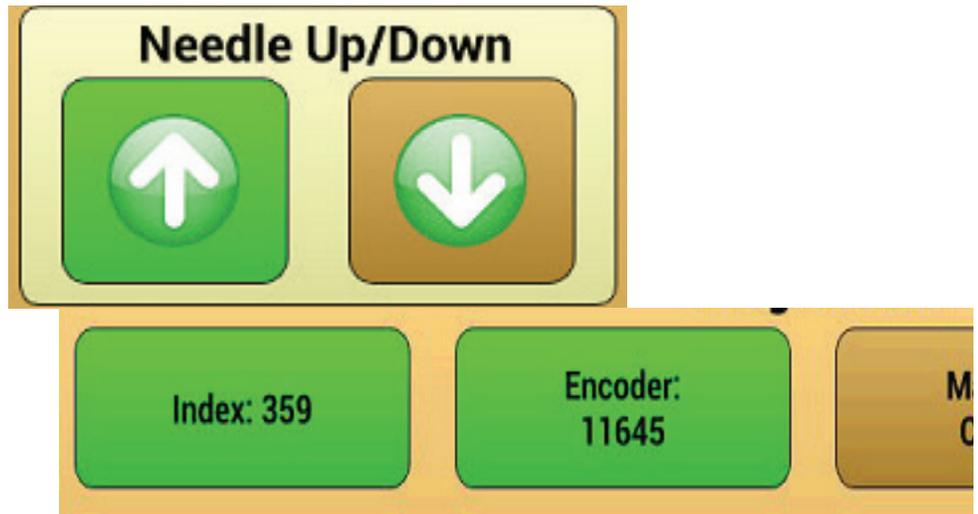


**7** Select the icon with the arrow facing up to perform a needle up.

Verify that the Index counts by 1

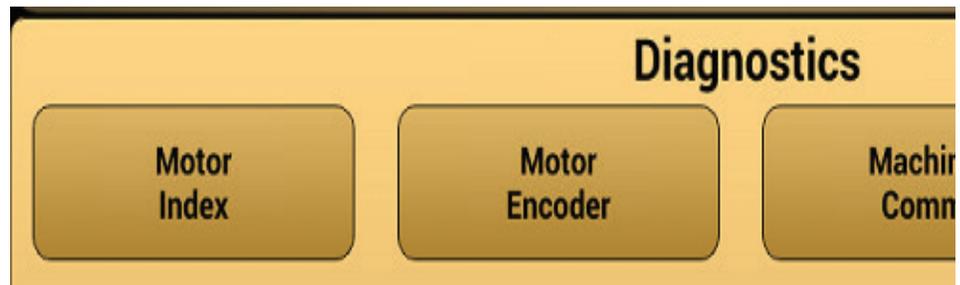
The encoder value increases

And the needle performs a full stitch every time the button is pressed.



**8** If the machine does not do a proper needle up repeat the steps to reset the motor ratio again.

**9** Make sure to unhighlight the test icons by tapping them.



# Post Assembly Machine Checklist

- Verify that all components power on.
- Confirm that the display powers.
- Confirm that all components are communication.
- Confirm all settings under Diagnostics
  - Index counts by one with each needle up
  - Motor encoder changes with each needle up
  - Top and bottom encoders count as the machine is moved, between 4000-5000 counts for every 12" moved
  - Unhighlight all diagnostic icons highlighted above.
  - White lights turn on and dim with as the slider is adjusted
  - Black lights illuminate (if applicable)
  - Laser turns on (if applicable)
- Run the machine in Manual mode for 5 minutes at various speeds, confirm proper functionality
- Run Idle mode for 1 minute, confirm proper functionality
- Run in Baste for 1 minute and confirm that the needle stops in the up position every time.
  - If the needle does not stop up consistently, Go into the PID settings under Motor Settings— PID Settings and change the Kp value under Stat Postition to .0012
- Run the machine in Precision mode for 10-15 minutes, make sure that the system operates correctly as the temperature rises.
- If the unit has rear handlebars make sure:
  - all four buttons function
  - rear display communicates and functions



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Machine Upgrade

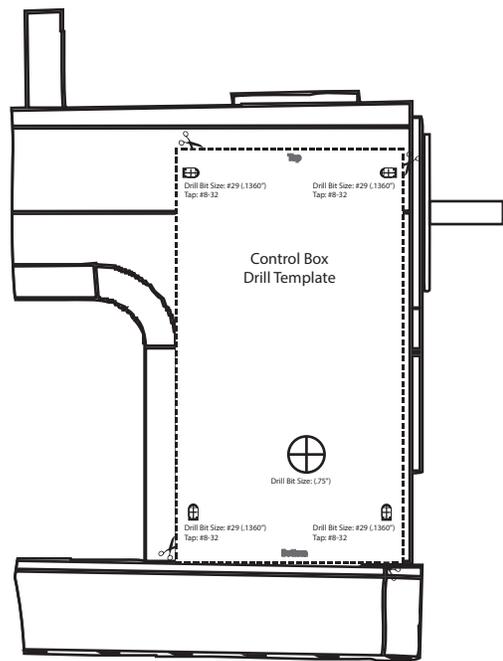
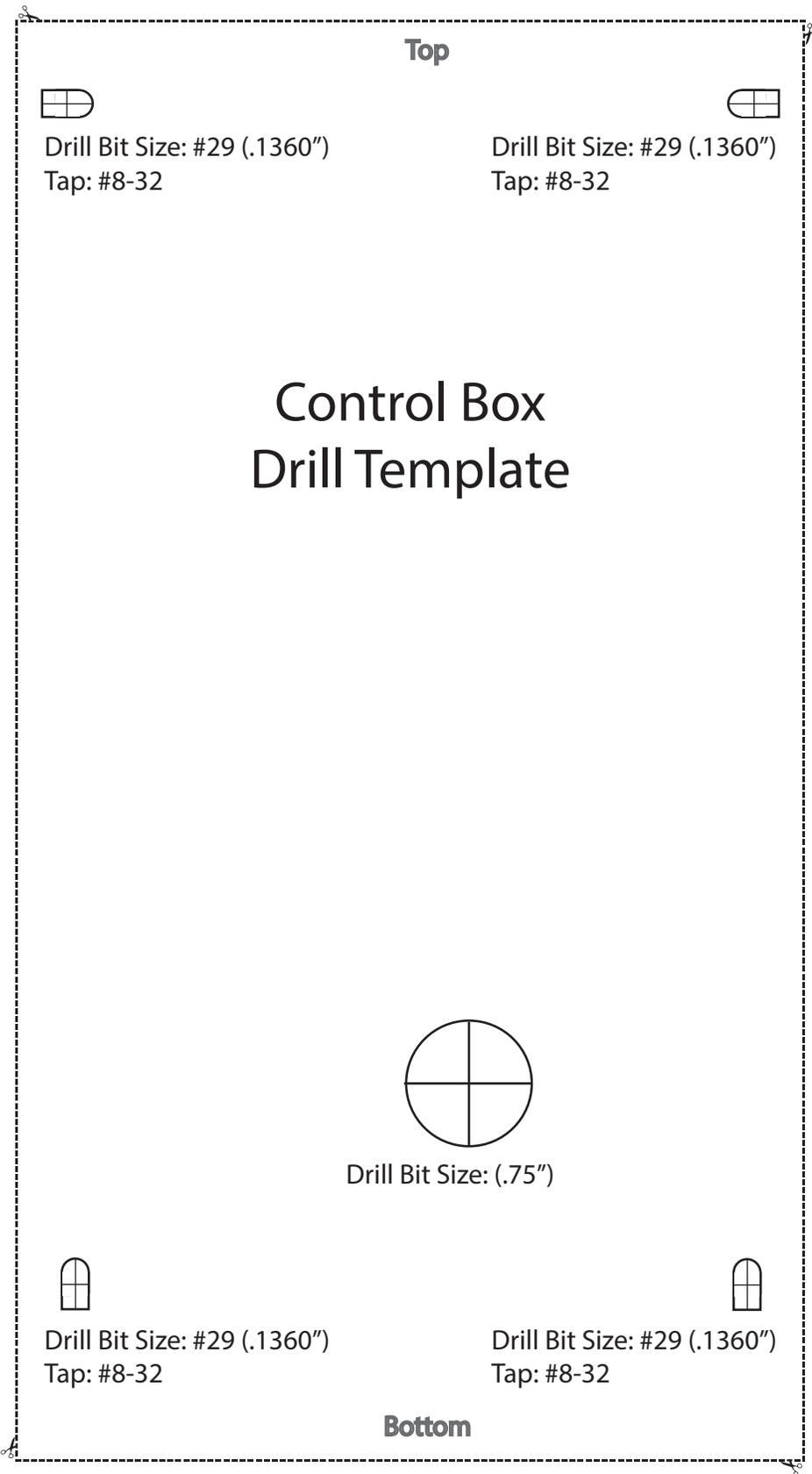
[www.quilt-ez.com](http://www.quilt-ez.com)

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# Tin Lizzie 18 (Ribbon Cable) Drill Templates

When printing PDFs, DO NOT select fit to page, otherwise the template will be distorted when printed.

To ensure the template has printed correctly, align the Control Box with the four (4) #29 drill bit drill holes in the template prior to drilling.



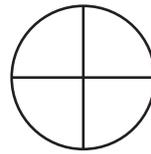
# Tin Lizzie 18 (Ribbon Cable) Drill Templates

Top

○  
Align  
with  
factory  
drilled  
hole

## Motor Side Drill Template

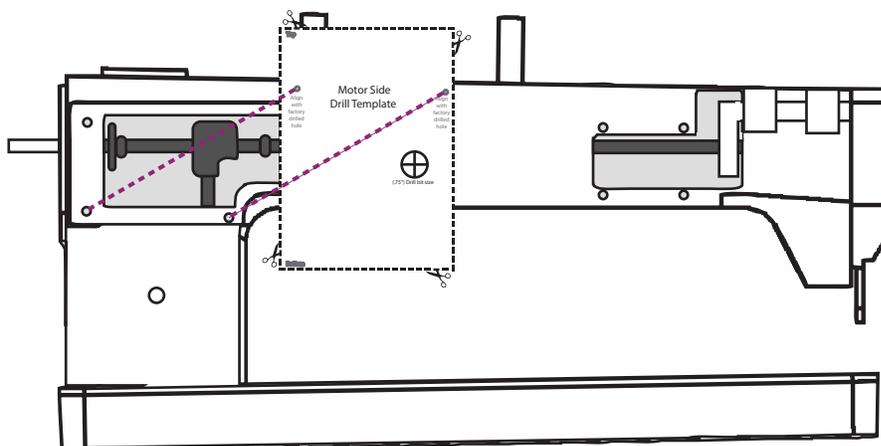
○  
Align  
with  
factory  
drilled  
hole



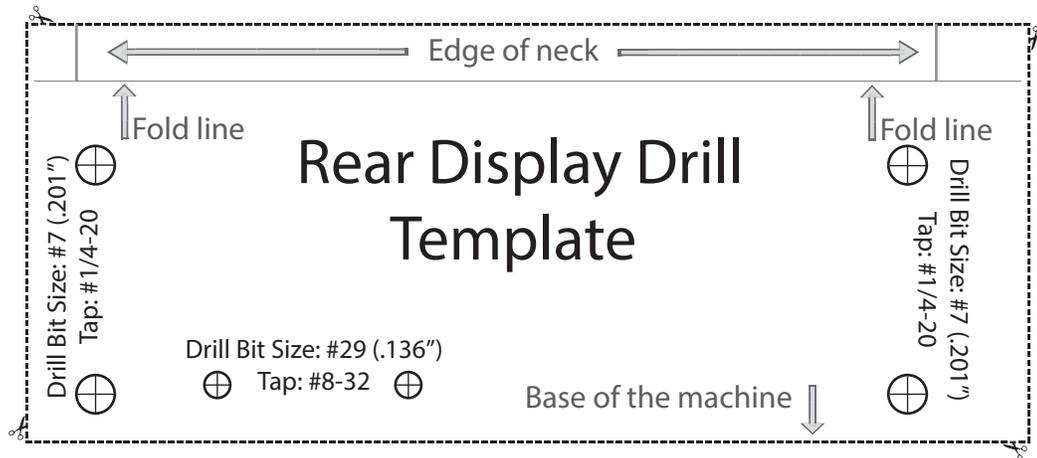
(.75") Drill bit size

Bottom

When Printing PDFs,  
DO NOT select fit to  
page, otherwise the  
template will be  
distorted when  
printed.

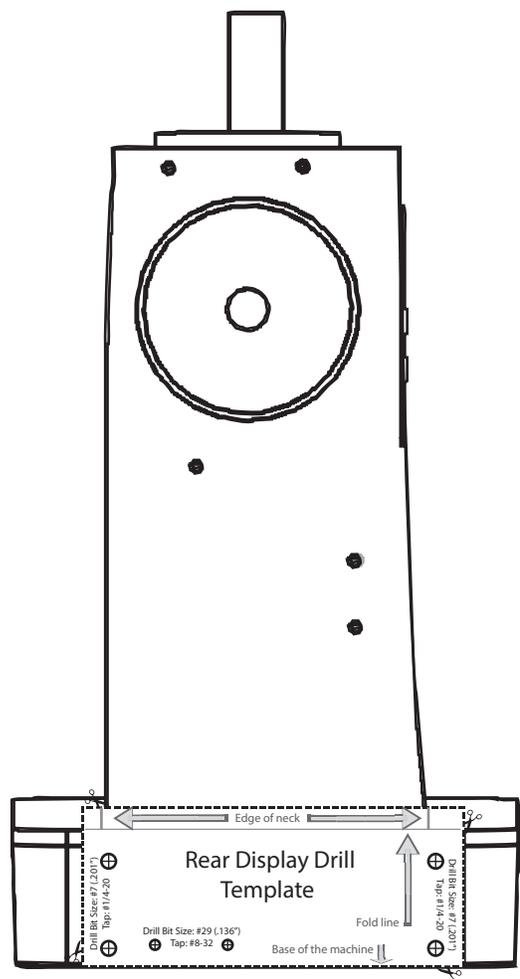


# Tin Lizzie 18 (Ribbon Cable) Drill Templates



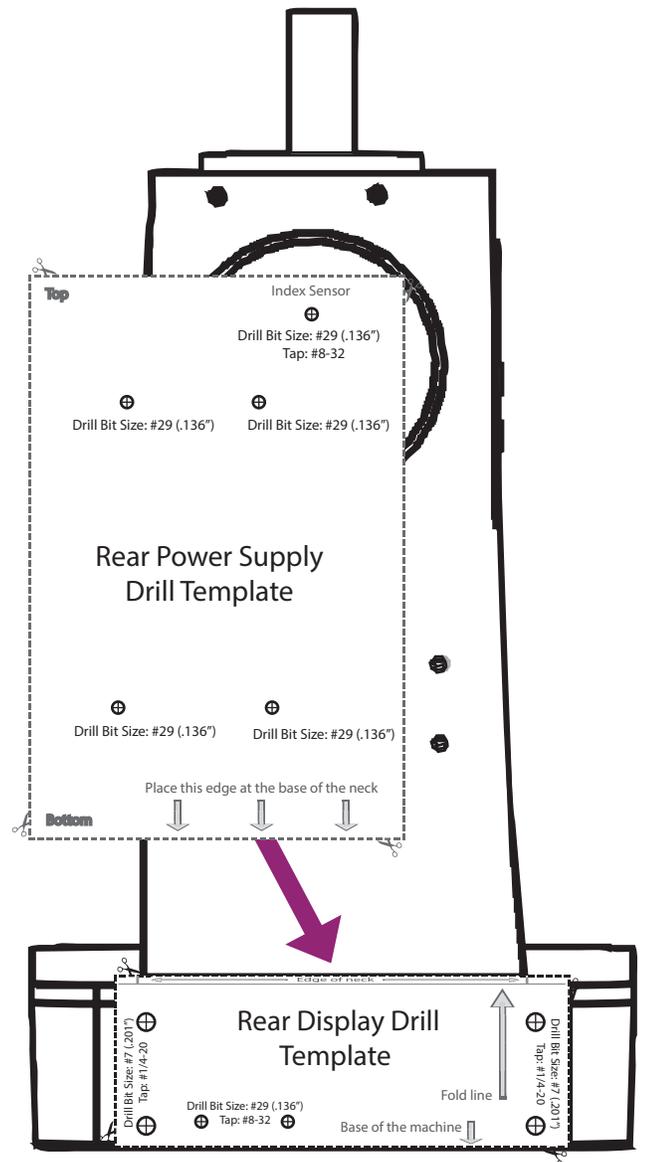
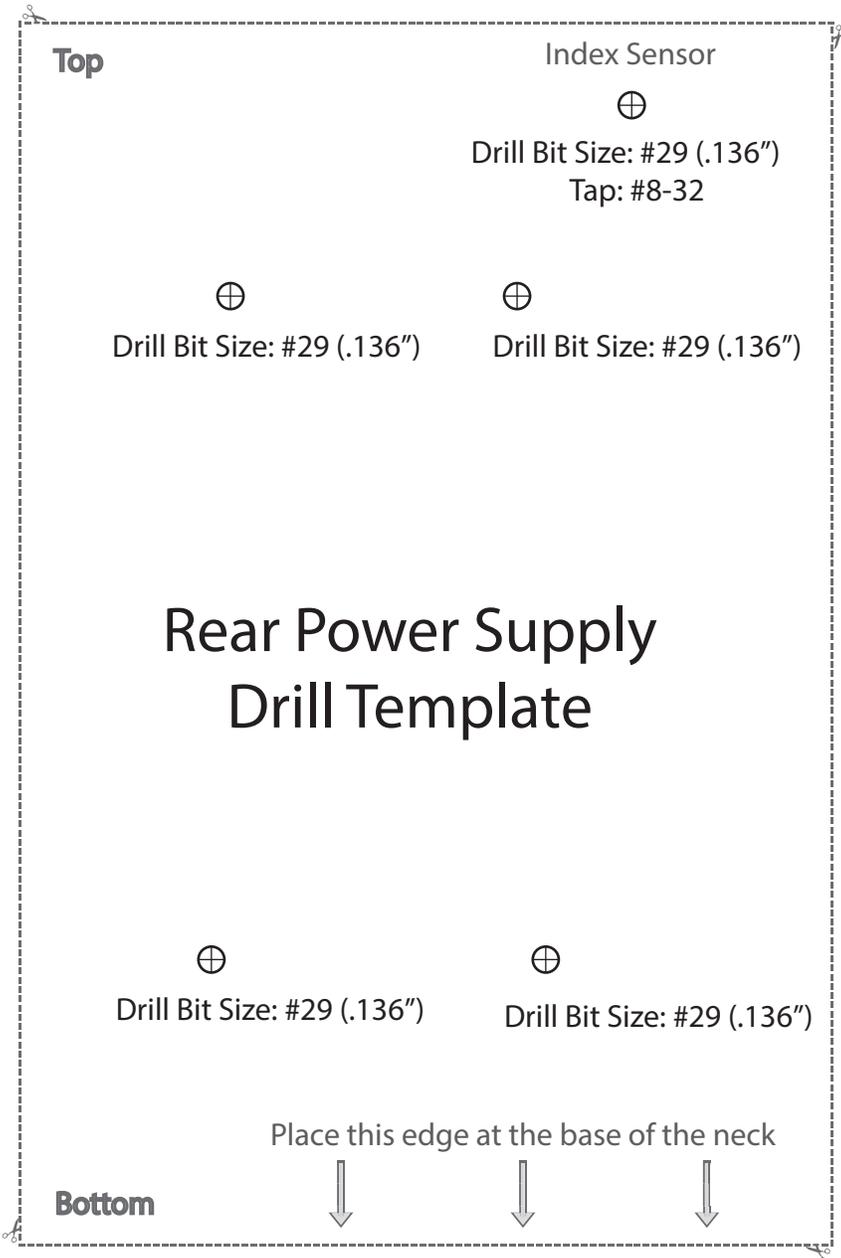
When Printing PDFs, DO NOT select fit to page, otherwise the template will be distorted when printed.

To ensure the Template has printed correctly, align the rear display bracket with the two (2) #29 drill bit drill holes in the above template prior to drilling.



# Tin Lizzie 18 (Ribbon Cable) Drill Templates

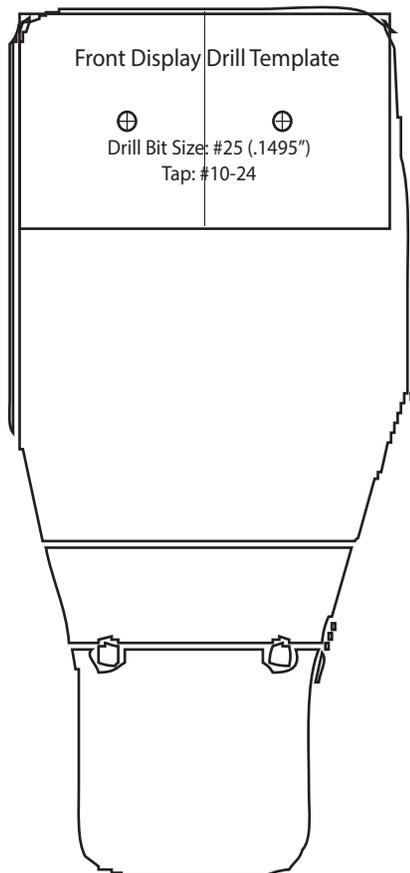
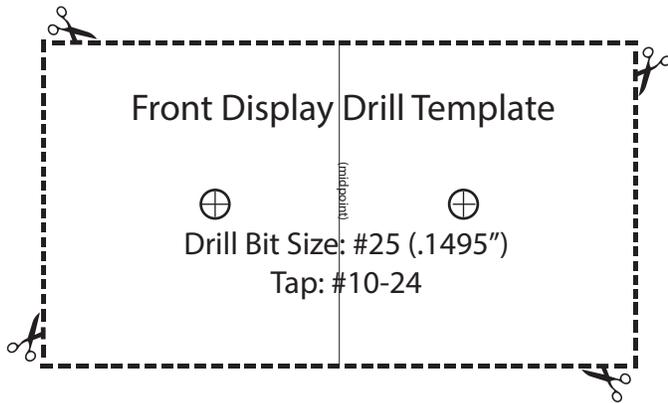
Remember the Index Sensor drill point is only necessary if there is no suitable factory drilled hole.



When Printing PDFs, DO NOT select fit to page, otherwise the template will be distorted when printed.

To ensure the Template has printed correctly, align Standoffs of the rear power supply with the four (4) #29 drill bit drill holes in the above template prior to drilling.

# PerfectStitch Handlebar Drill template



When printing PDFs, DO NOT select fit to page, otherwise the template will be distorted when printed.

To ensure the template has printed correctly, align the Handle Bar Bracket with the two (2) #25 drill bit drill holes in the above template prior to drilling.

Align the drill template horizontally with the top of the machine, with the midpoint as close to center as possible.

How high the the template sits is up to customer preference. Base it on desired height for the handlebars.