# Replacing the 4x00 Y-Axis Motor Belt

**Intro:**

Over time, the timing belts on the 4400 and 4800 machines that join the motor and pinion gear pulleys will wear out and require replacements. The instructions below explain the procedure for replacing the belts.

**Tools:**

- 1/8 Allen Wrench
- 3/16 Allen Wrench
- 9/64 Allen Wrench
- 5/64 Allen Wrench

**Warning:**

BEFORE BEGINNING, PLEASE POWER OFF ALL EQUIPMENT INCLUDING THE ACCUMOVE CONTROLLER!*

*Irreparable damage will occur to the controller and will not be covered under warranty if the equipment is not turned off.

**Part 1:**

**Removing the side cover and guard shown in Fig. 1a & b**

(a) (b)

Fig. 1: (a) Side cover and (b) Side guard.



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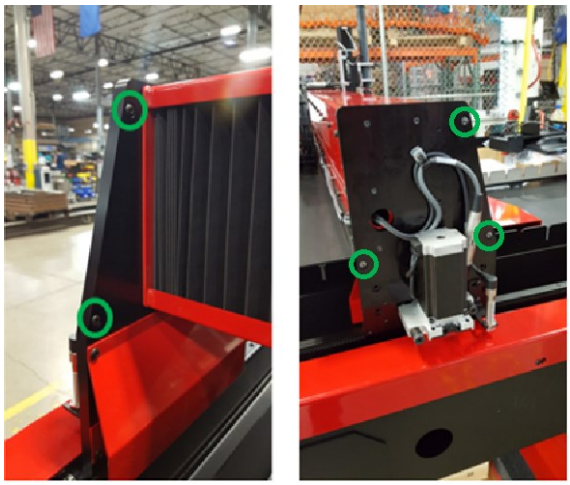
**Step 1:**

Unscrew each of the three screws on the back side of the side cover as shown in Figs. 2a & b with a 1/8 Allen Wrench. Remove the cover (Fig. 2b) carefully as it has the potential of falling as well as possible pinch points.

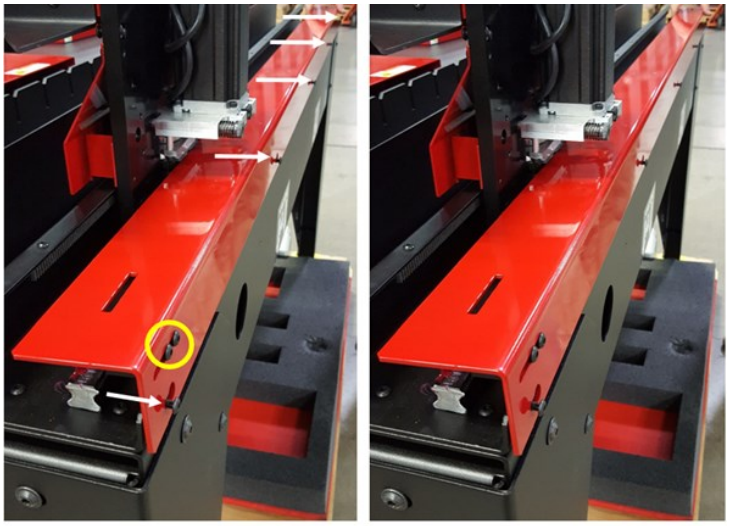


(a) (b)

Fig. 2: Removing the side cover.

**Step 2:**

Loosen each of the five screws on the side guard with a 1/8 Allen Wrench as shown in Fig. 3a by the arrows, but avoid loosening the screws with the yellow circle. Make sure not to fully remove the screws (Fig 3b).



(a) (b)

Fig. 3: (a) Five screws to be loosened on side guard and (b) Screws not fully removed.

**Step 3:**

Slide the side guard in the direction shown in Fig. 4 to move the bottom set of screws over the large diameter holes.

Fig. 4: Slide the side guard in the direction shown.

**Step 4:**

Once the screw head is over the larger diameter hole on the side guard, again slide in the direction shown in Fig. 5 to remove the side guard. The guard may be heavy and has the possibility to fall, so it is recommend to get assistance during this step.

**Pro Tip:**

This would be a good time to clear any dirt and debris from the cassette rail and channel.

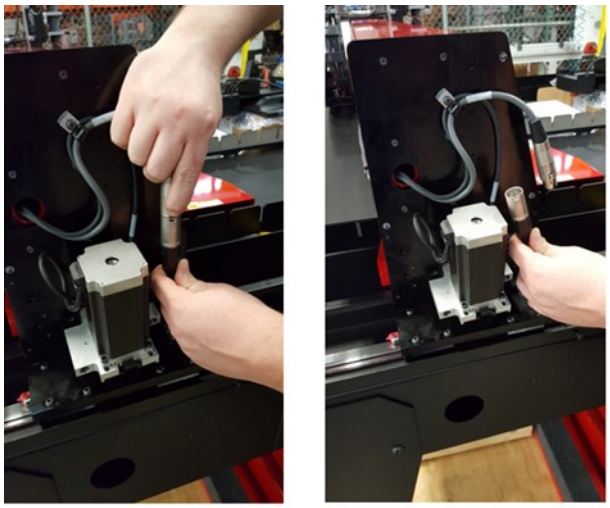
Fig. 5: Slide side guard in the direction shown to remove it.

## Part 2:

**Removing the side motor shown in Fig. 6a.**

### Step 1:

Disconnect the motor cable by pressing down on the release switch and pulling apart as shown in Fig. 6a & b.

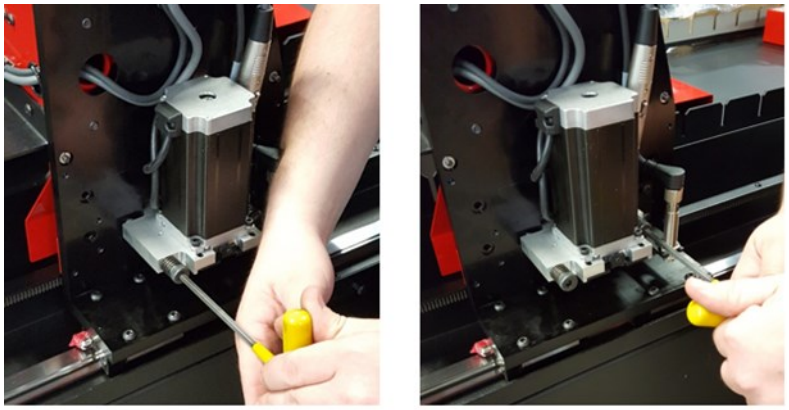


(a) (b)

Fig. 6: Disconnecting the motor cable.

### Step 2:

Remove the two shoulder bolts with a 3/16 Allen Wrench from the motor mount as shown in Fig. 7a & b, ensuing to avoid pinch points as well as dropping the motor.



(a) (b)

7: Removing the two shoulder bolts from the motor mount.

**Step 3:**

Once the motor cable is disconnected and the shoulder bolts are removed, pull the motor up and out in the directions shown in Fig. 8 to remove the motor from the gantry assembly.

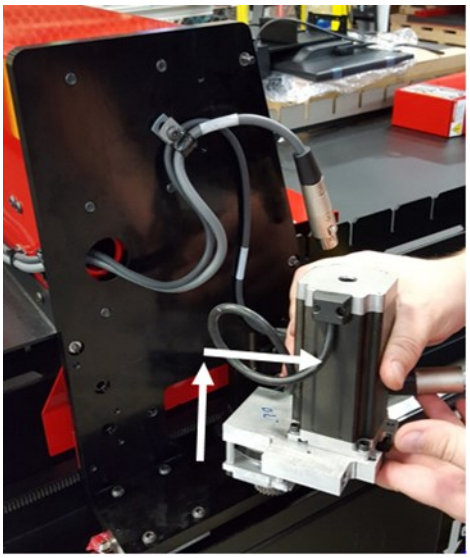


Fig. 8: Removing the motor from the gantry assembly.

## Part 3:

### Removing the Side Motor Belt.

**Step 1:**

Loosen the four motor screws with a 9/64 Allen Wrench in each of the corners as shown below in Fig. 9, making sure to not fully remove them from the plate.

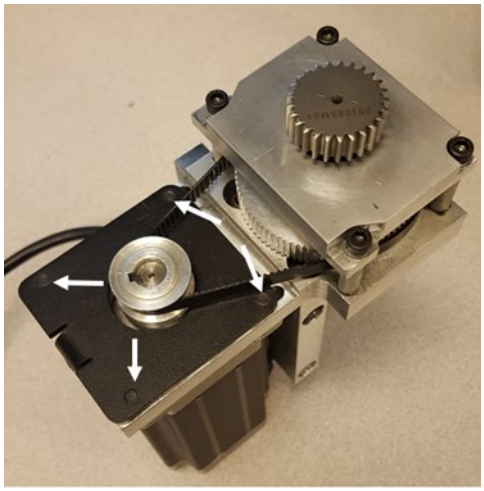


Fig. 9: Loosening the four screws.

**Step 2:**

Loosen the set screw with a 5/64 Allen Wrench as shown in Fig. 10 making sure to not fully remove it from the plate. The motor should be able to slide so the belt tension is relieved

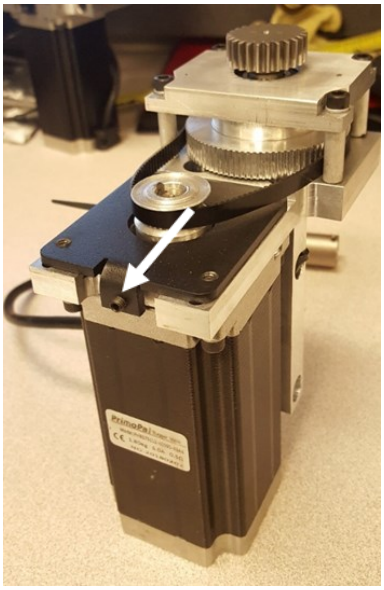


Fig. 10: Loosening the set screw.

**Step 3:**

Remove the four screws shown in Fig. 11 with a 9/64 Allen Wrench .

Fig. 11: Remove the four screws shown.

**Step 4:**

Remove the four aluminum bushings shown in Fig. 12.

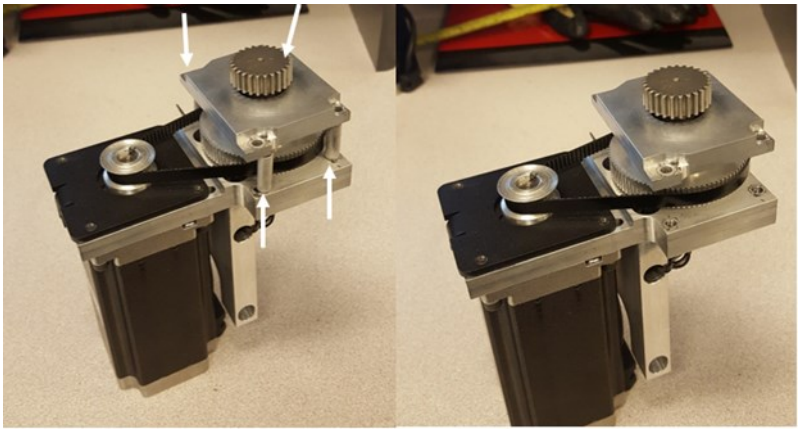


Fig. 12: Removing aluminum bushings.

**Step 5:**

Push up on the belt from the large pulley to release it from the small pulley. Remove the belt from the motor assembly as shown in Fig. 13.

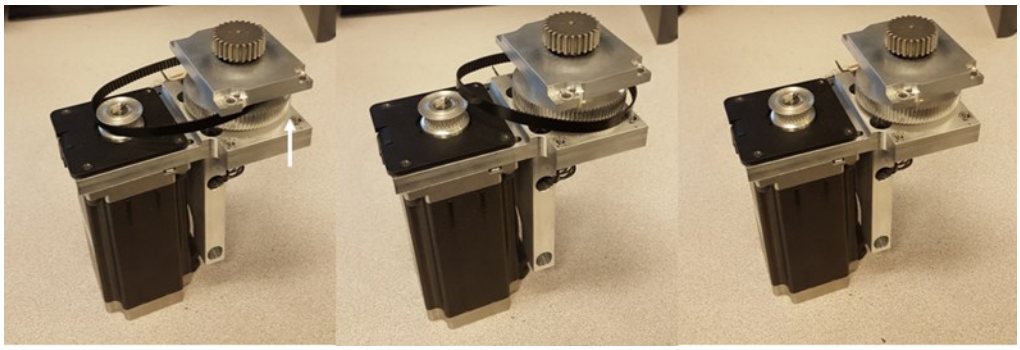


Fig. 13: Removing the belt.

## Part 4:

### Installing & Adjusting the New Motor Belt

**Step 1:**

Place the belt as shown in Fig. 14.

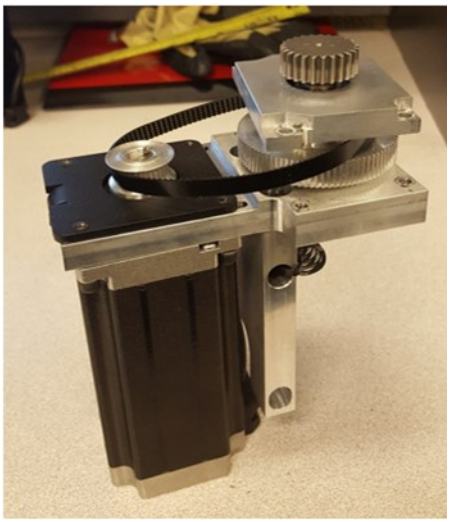


Fig. 14: Placing the belt.

**Step 2:**

Place a portion of the belt onto the large pulley. Then spin the top gear in the direction shown to ensure the teeth from the belt "catch" onto the gear.

Fig. 15: Positioning the belt.

**Step 3:**

Place the aluminum bushings as shown and tighten the four screws with a 9/64 Allen Wrench as shown in Fig. 16.

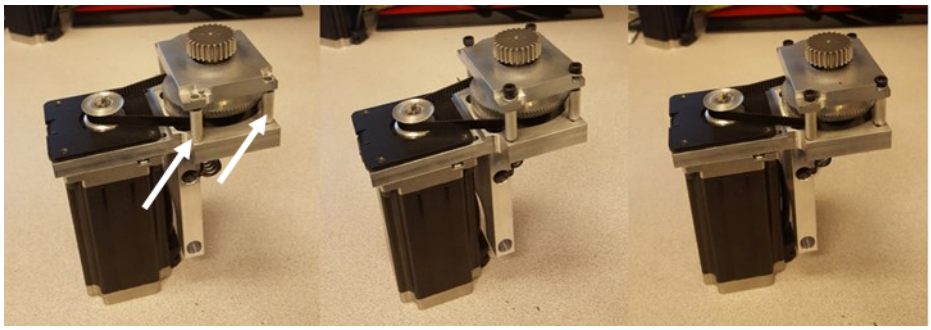


Fig. 16: Reinstalling the aluminum bushings.

**Step 4:**

Tighten the set screw with a 5/64 Allen Wrench as shown in Fig. 17 in small increments (1/8 to 1/4 of a turn at a time). Squeeze the belt with approximately 1 pound of force to make sure that the belt is not too loose or too tight. When squeezing the belt from both sides, there should be a maximum deflection between 1/16 to 1/8 of an inch. The arrows indicate how the belt should be squeezed to determine proper tension.

Fig. 17: Setting the proper tension on the belt.

**Step 5:**

Once the proper tension has been achieved, tighten the four screws as shown in Fig. 18 with a 9/64 Allen Wrench to secure the motor into position.

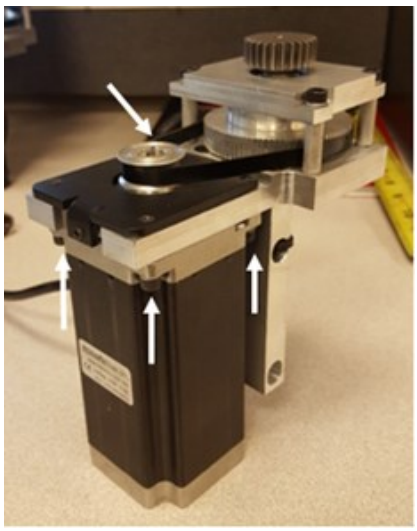


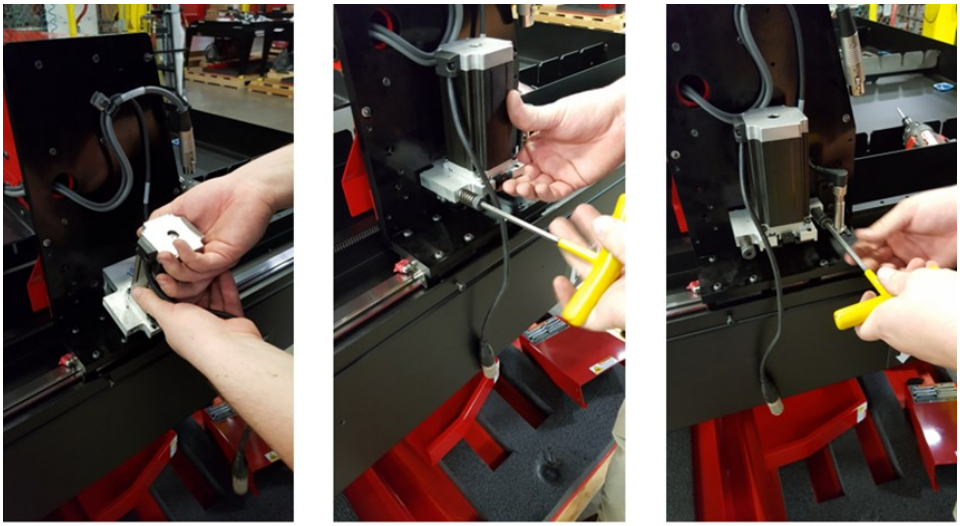
Fig. 18: Tightening the four screws.

## Part 5:

### Reinstalling the Side Motors

**Step 1:**

Place and secure the side motor into the slot with the long screw on the left and short screw on the right side as shown in Fig. 19a-c with a 3/16 Allen Wrench .

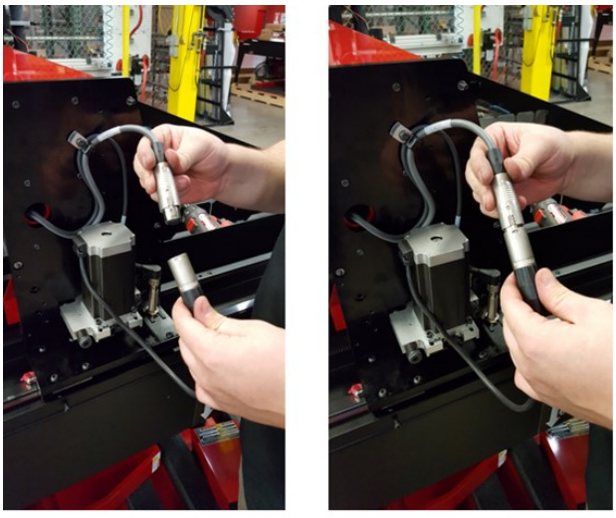


(a) (b) (c)

Fig. 19: Securing the side motor.

**Step 2:**

Reconnect the motor cable as shown in Fig. 20a & b. Make sure the release switch snaps into position so that the two ends are locked into position.

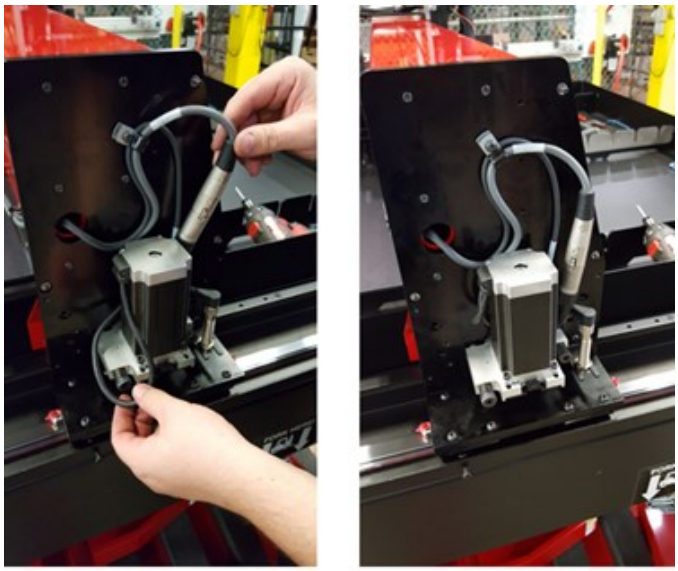


(a) (b)

Fig. 20: Reconnecting the motor cable.

**Step 3:**

Position the motor cable as shown in Fig. 21. Make sure the motor cable is not able to get caught in any potential pinch points.

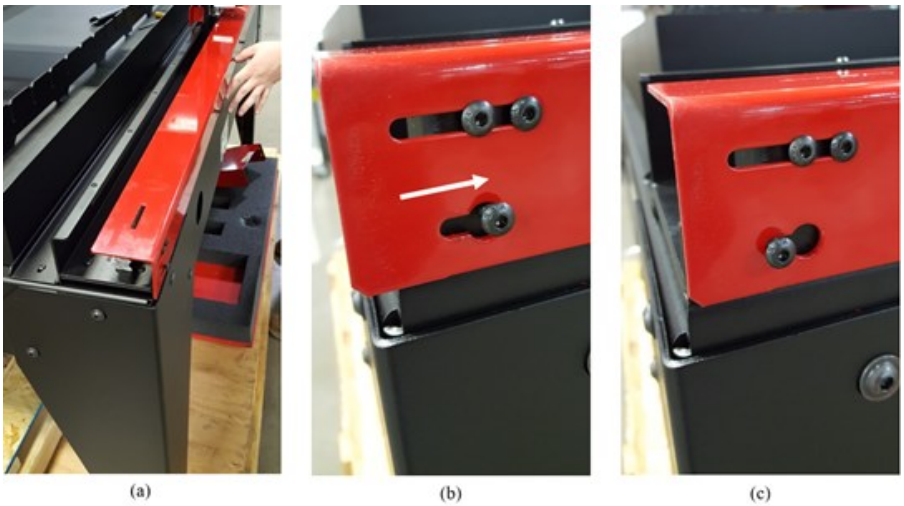


(a) (b)

Fig. 21: Positioning the motor cable.

**Step 4:**

Replace the side guard as shown in Fig. 22a. Slide in the direction shown in Fig. 22b and re-secure the screws with a 1/8 Allen Wrench.



(a) (b) (c)

Fig. 22: Re-securing the side guard.

**Step 5:**

Replace the side cover and secure the three screws with a 1/8 Allen Wrench as shown in Fig. 23a-c.


Fig. 23: Re-securing the side guard.





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