

RCML15 Mounting Instructions – Static Commutation

Verify that you received the following items:

- Encoder
- .048" Four Flute Spline Wrench
- (2) 2-56 X 3/8 T8 TORX Screws with integral flat washers

CAUTION ---- ESD Precautions Apply ---- CAUTION

RCML15 Preparation

Rotate hub until setscrew aligns with midpoint mark. ([Figure 1](#))

Ensure that the slide lock mechanism is pulled out completely (installation position). You may hear a click when hub engages with centering mechanism as slide lock is pulled out. ([Figure 2](#))

Note: When setscrew is aligned with midpoint mark, U commutation output is within 20 degrees mechanical with the index underneath the sensors on the encoder. Energize motor windings.

Commutation outputs should be in the following states:

U in transition

V at a low logic level

W at a high logic level

Step 1

With the slide lock mechanism pulled out completely, align hub with motor shaft and gently press down on hub to insure the encoder is resting on mounting surface. ([Figure 3](#))

Do not push down on encoder, push on hub only!

Step 2

Press down on top of hub with 2 pounds of pressure. Release pressure and reapply 1/2 pound of pressure on hub. Using supplied wrench, secure the hub setscrew with 20 oz-in torque (60 degrees rotation on the end of the wrench.)

CAUTION: Over tightening the setscrew will Brinell the shaft making it difficult to remove encoder.

Step 3

Install supplied mounting screws finger tight in center of each slot, rotating the body of the encoder if necessary. ([Figure 4](#)) Threadlocker may be applied to the mounting screws prior to mounting the encoder to prevent loosening during operation.


Step 4

Install cable assembly. ([Figure 5](#)) Use an appropriate method to measure the commutation outputs. ([Figure 6](#)) shows a method using LED's to represent the output states.) Rotate encoder body until U commutation output transitions. Rotate encoder body in the opposite

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Change: General Update

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direction until U commutation output transitions. Rotate encoder body to the midpoint of these two positions.

Step 5

Verify U commutation alignment. The commutation output is aligned properly when a slight twisting of the energized motor shaft in one direction causes U to transition high and a twist in the opposite direction causes U to transition low. If alignment is incorrect, repeat Step 4.

Step 6

Secure the mounting screws to 40 oz-in torque. Slight compression of encoder cover is normal. Push in slide lock mechanism to operating position. [\(Figure 2\)](#) High speed or high accel/decel applications require hub to be bonded to shaft. [\(Bonding and Debonding Methods\)](#) Encoder is now ready for operation. [\(Figure 7\)](#)

Encoder Removal

Lift end of connector locking tab [\(Figure 7\)](#) and gently remove cable assembly.

Loosen setscrew in hub.

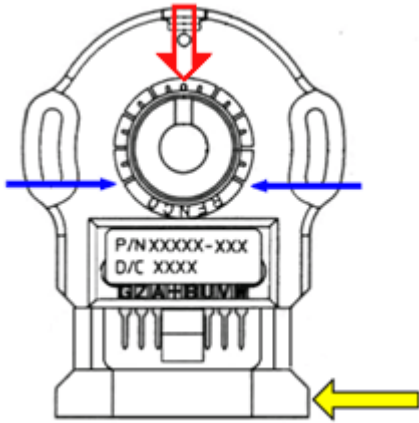
If hub was bonded to shaft, debond using recommended method. [\(Bonding and Debonding Methods\)](#)

Remove mounting screws.

Pull slide-lock mechanism to full extended position (installation position). [\(Figure 2\)](#)

Remove encoder.

FIGURE 1

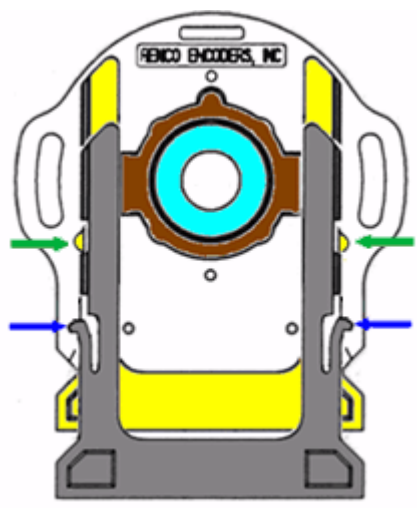


- Red arrow = Midpoint mark (9 marks from end marks)
- Blue arrows = End marks
- Yellow arrow = Slide lock mechanism

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FIGURE 2



- Blue arrow = Installation position
- Green arrow = Operating position
- Blue area = Hub
- Brown area = Centering Ring
- Grey area = Extended slide-lock mechanism
- Yellow area = Slide-lock in operating position

FIGURE 3

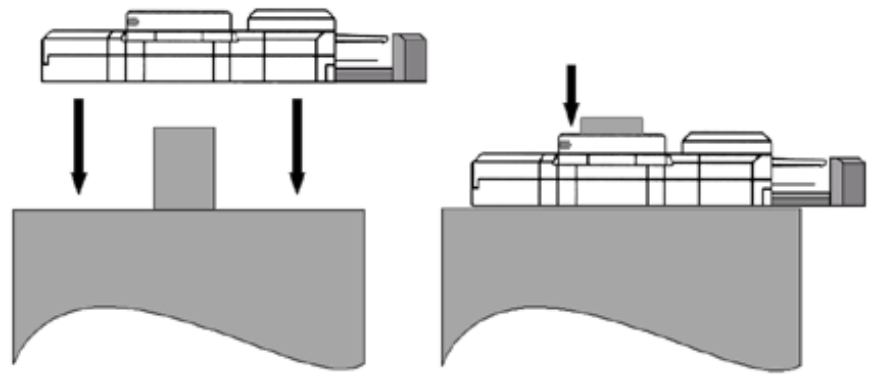
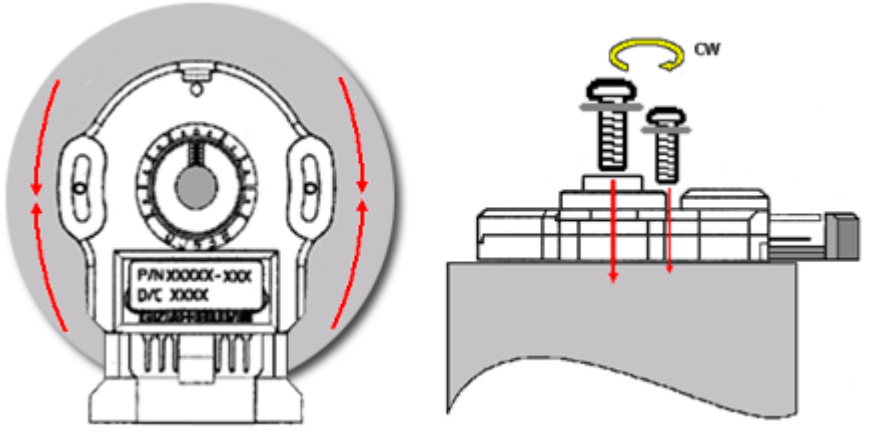


FIGURE 4




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FIGURE 5

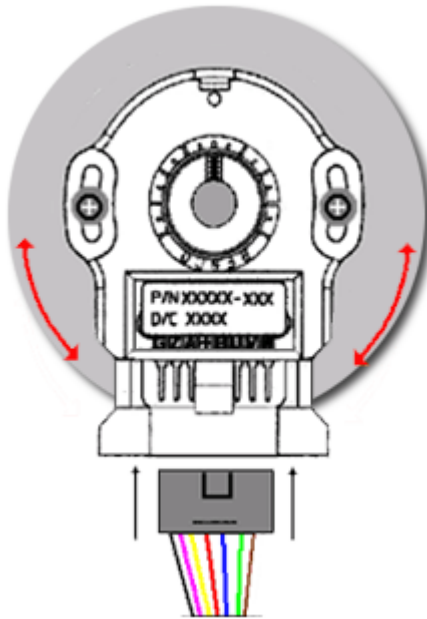
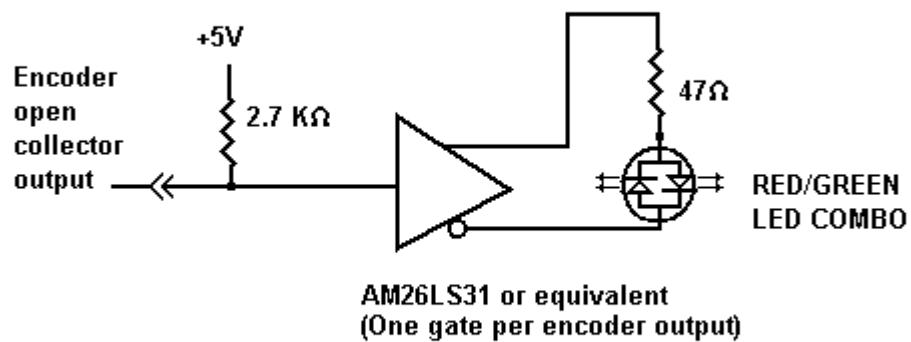


FIGURE 6

LED Driver to Show Encoder Output States



RED = Logic Level Low
GREEN = Logic Level High

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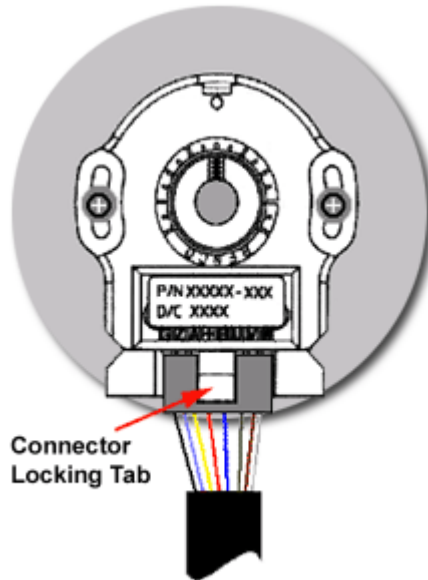

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FIGURE 7



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