RCML15 Mounting Instructions - Dynamic 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 will be within 20 degrees of the transition point.
Rotate the motor shaft feature to a known position in relation to the encoder connector and mounting screws.

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) and apply power to the encoder.

Step 5

Back drive the motor so the encoder hub rotates CCW at a speed that generates an acceptable sinewave output from motor windings on channel 1 of an oscilloscope. Add the U commutation output to channel 2 of the oscilloscope.(Figure 6)

Step 6

Rotate the encoder body until the transition of the U commutation track occurs at the zero crossing of the sinewave signal generated by the motor winding.(Figure 7) If you have successfully aligned the U commutation output go to Step 8.

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RENCO	Release-no. **13676**		Created	Responsible	Released		Version	Rev.	Sheet	Page
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Step 7

If the U commutation track alignment could not be accomplished by rotating the encoder body, cease back driving the motor. Realign the encoder hub setscrew with the midpoint mark on the encoder cover. Pull slide lock mechanism to the installation position. Loosen setscrew in hub. Turn hub to mark on either side of midpoint mark depending on the location of the U commutation track with respect to the sinewave signal generated by the motor windings. Repeat Steps 4 to 6.

Step 8

Secure the mounting screws to 40 oz-in torque while holding the encoder body in place. Cease back driving the motor. 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 8)

Encoder Removal

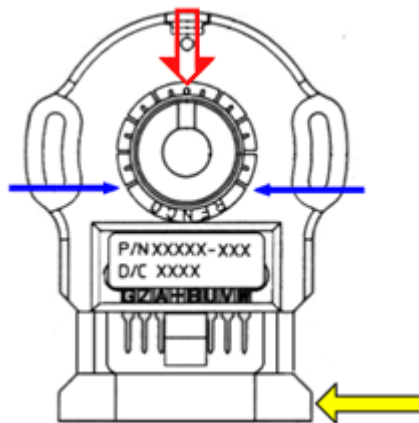Lift end of connector locking tab (Figure 8) and gently remove cable assembly.
Loosen setscrew in hub.
If hub was bonded to shaft, debond using recommended method. (Bonding and Debonding Methods)
Remove mounting screws.
Pull slide-lock mechanism to full extended position (installation position).(Figure 2)
Remove encoder.
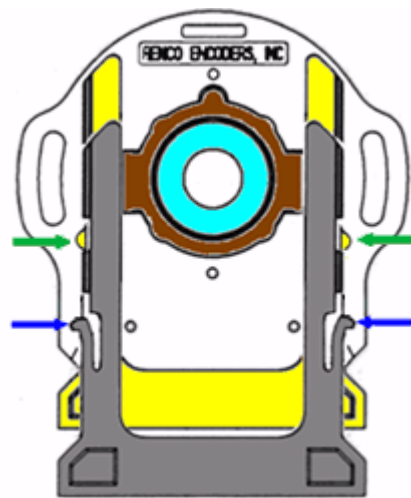

FIGURE 1

- Red arrow = Midpoint mark (9 marks from end marks)

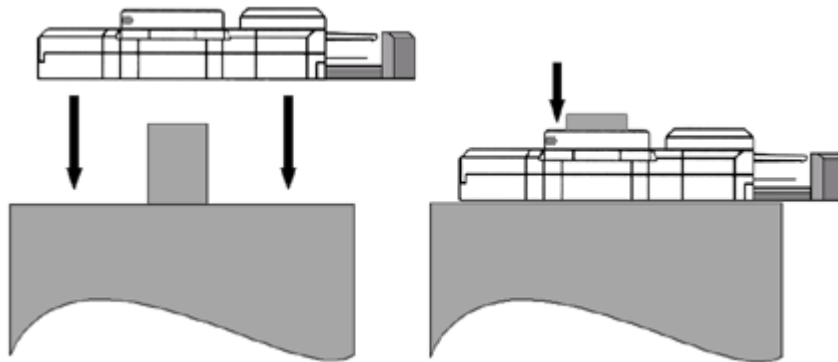- Blue arrows = End marks

- Yellow arrow = Slide lock mechanism

FIGURE 2

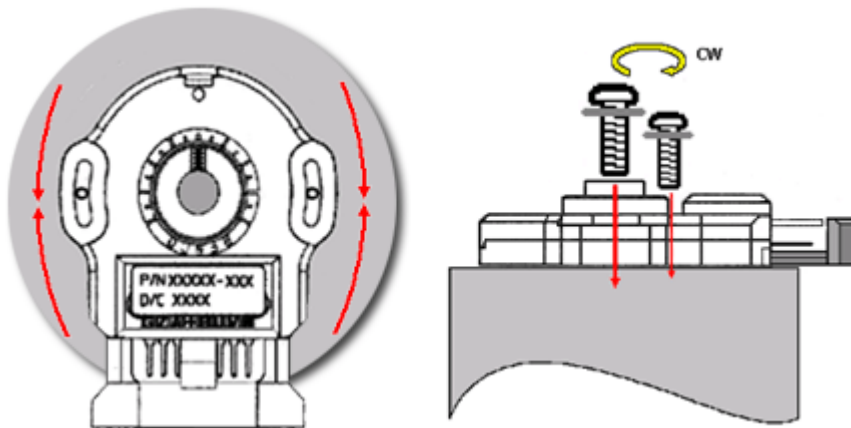|	Release-no.		Created	Responsible	Released		Version	Rev.	Sheet	Page
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- Blue arrow = Installation position
- Green arrow = Operating position
- Blue area = Hub
- Brown area = Centering Ring
- Grey area = Extended slide-lock mechanism
- Yellow area = Slide-lock in operating position
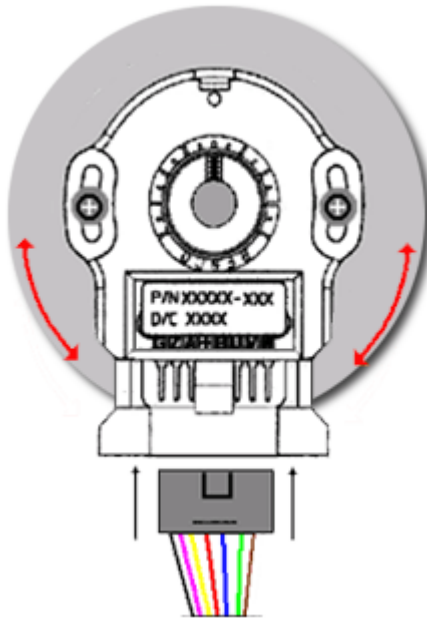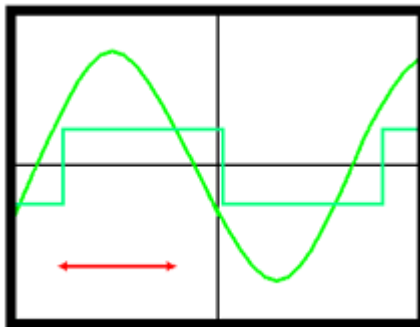
FIGURE 3

FIGURE 4
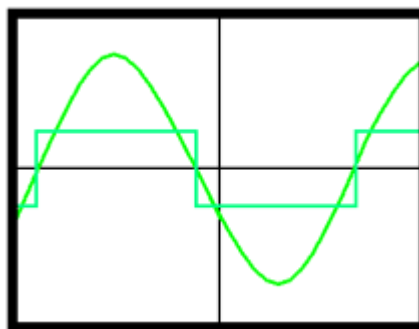
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FIGURE 5

FIGURE 6

Commutation not aligned with motor winding

FIGURE 7

Proper commutation alignment with motor winding

FIGURE 8

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Connector Locking Tab

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