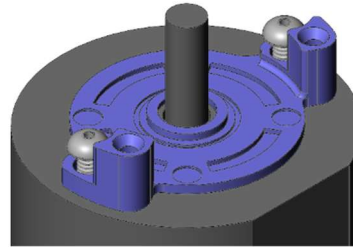


**Step 1:**

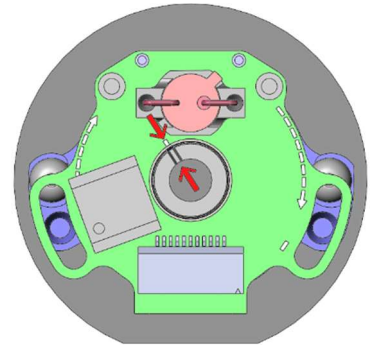
- a) Mounting surface must be clean and flat. Fasten ring to mounting/motor surface by installing mounting screws as shown in **Illustration 1**. Screws must be tightened and then backed out  $\frac{1}{4}$  to 1 turn.



**Illustration 1**

**Step 2:**

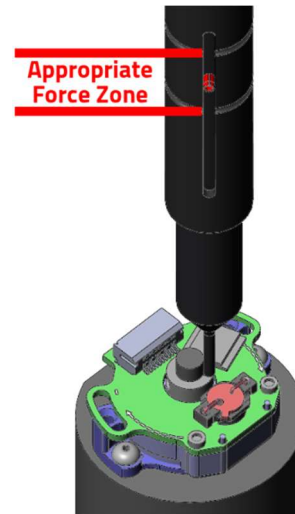
- a) Before putting base and printed circuit board (PCB) assembly on to the shaft, align the Z slot on the hub with the white mark on the PCB. **Illustration 2**
- b) Place the base and PCB assembly on the ring and shaft as illustrated in **Illustration 2**.



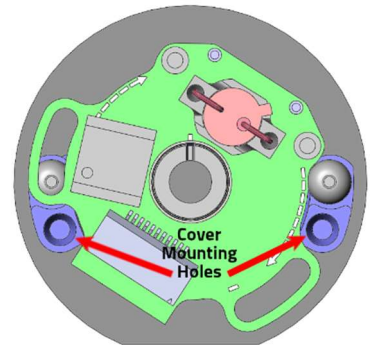
**Illustration 2**

**Step 3:**

- a) Press down on the hub with the Q-Scale to a force between 150gr (.33lbs) and 700gr (1.5lbs). This will center the encoder assembly to the motor shaft. **Illustration 3** shows the appropriate zone for the pin on the Q-Scale to achieve the specified force range.
- b) Rotate the assembly Clockwise - as indicated by the white arrows on the PCB - to the installation position. Proper installation position is achieved when rotation is at limit and the two cover mounting holes are exposed as indicated in **Illustration 4**.
- c) Confirm the Z slot and white mark alignment; realign if necessary.



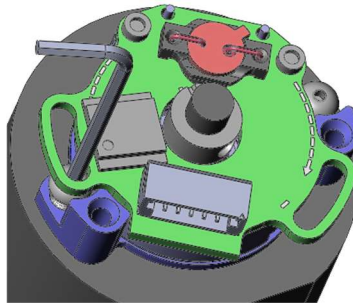
**Illustration 3**



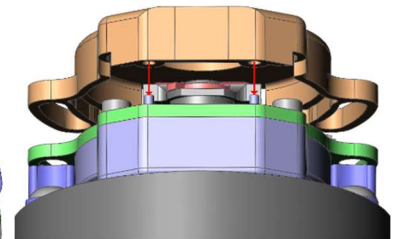
**Illustration 4**

**Step 4:**

- a) Tighten hub set screw to motor shaft to 18-22oz-in.
- b) The downward force on the hub can be removed.
- c) Tighten mounting screws to 45-51oz-in. One screw will have to be tightened through the slot in the PCB as show in **Illustration 5**.



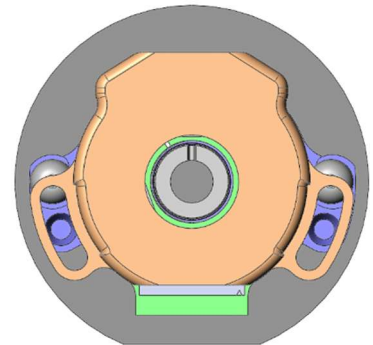
**Illustration 5**



**Illustration 6**

**Step 5:**

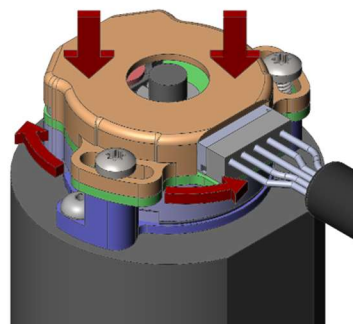
- a) Place cover on encoder, ensuring alignment of base dowel pins into mating cover holes. **Illustration 6**
- b) Rotate encoder so cover and PCB mounting slots align with the cover mounting holes in the ring. **Illustration 7**
- c) Install cover screws and tighten to 37-43oz-in.



**Illustration 7**

**DYNAMIC ALIGNMENT OF U, V, AND W COMMUTATION CHANNELS:**

- a) Install cable.
- b) Loosen the cover screws slightly, allowing the encoder body to be rotated. **Illustration 8**
- c) While maintaining a slight downward pressure on the cover, rotate encoder to align commutation channels to motor windings.
- d) Tighten cover screws to 37-43oz-in.



**Illustration 8**