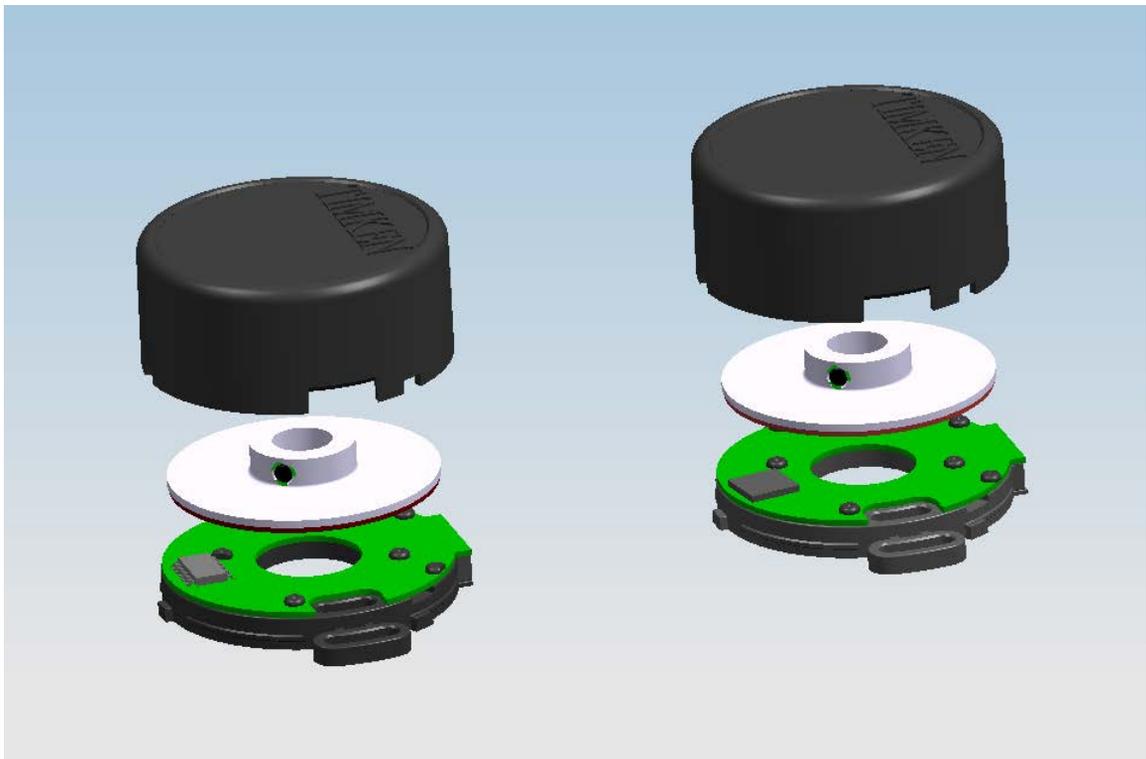


# TIMKEN M15/M15H MODULAR ENCODER INSTALLATION INSTRUCTIONS

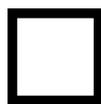


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# M15/M15H INSTALLATION INSTRUCTIONS



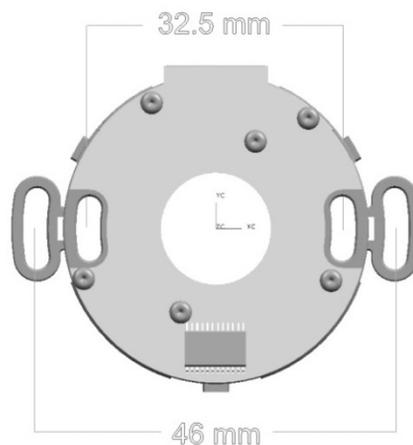
## Attention – Electrostatic Sensitive Device

Observe precautions during handling and installation.

1. Make sure the encoder mounting surface is flat and clean.

*The Timken M15/M15H Modular Encoder's base allows for some flexibility when mounting to motors with bearing caps and bosses. If the Timken M15/M15H Modular Encoder does not sit flat, the installer must provide a flat surface for proper installation.*

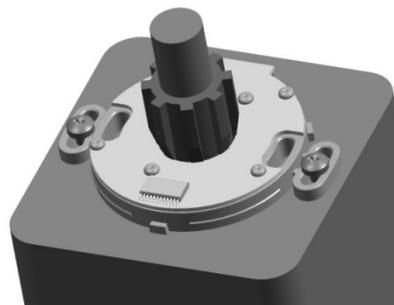
2. Using either of the available mounting locations, fasten the **M15/M15H Encoder** to the motor using Timken Timken supplied optional hardware or customer supplied hardware. **DO NOT TIGHTEN!** The use of an anaerobic sealer, like Loctite 222 or 242, is recommended for all mounting fasteners and should be applied just to the threaded end of the screws. (Loctite datasheet suggests potential chemical compatibility issues with thermoplastics). See **Figure 1** for mounting locations and dimensions.



**Figure 1**

*The Timken M15/M15H Modular Encoder will accept fasteners up to 2.9mm in diameter with head sizes ranging from 4.5mm to 5.0mm in diameter. A captive washer is recommended.*

3. Slide the **Alignment Tool** down the motor shaft into the Timken M15/M15H Modular Encoder as shown in **Figure 2**.
4. Rotate the Timken M15/M15H Modular Encoder as needed, center the encoder by lightly pushing the Alignment Tool into the center hub and tighten the mounting screws to a recommended torque of 0.28N-m (40 oz-in).

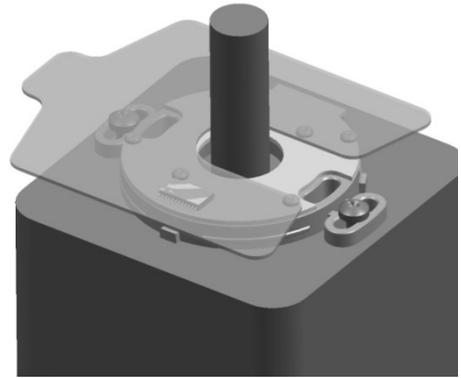


**Figure 2**

*For easy alignment, the Timken M15/M15H Modular Encoder allows for up to  $\pm 8^\circ$  of rotation around its base plain.*

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5. Remove the Alignment Tool.
6. Position the Air Gap Shim so it is covering the Timken ASIC, MPS160 or MPS512, as shown in **Figure 3**.
7. Note the set screw location on the M15/M15H Encoder Wheel. Slide the M15/M15H Encoder Wheel down the motor shaft until it is resting on the Air Gap Shim.

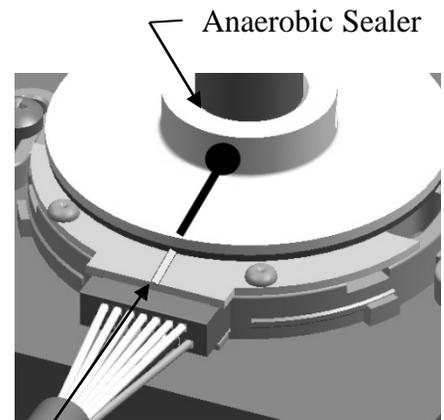


**Figure 3**

**WARNING - DO NOT FORCE the M15/M15H Encoder Wheel onto the Air Gap Shim as this could damage the Timken M15/M15H Modular Encoder.**

8. Align the set screw of the M15/M15H Encoder Wheel with the Index line on the Timken M15/M15H Modular Encoder PCB as shown in **Figure 4**.

*The use of an anaerobic sealer, like Loctite 641, is recommended for mounting the M15/M15H Encoder Wheel. Apply a small amount of anaerobic sealer to the gap between the top of the M15/M15H Encoder Wheel and the motor shaft. See **Figure 4**.*



**Figure 4**

Index Line

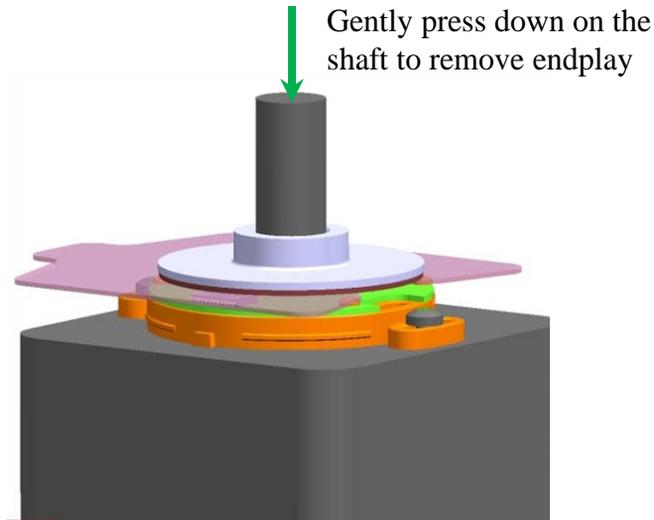
## **Caution**

**Failure to observe the following cautions could create a risk of serious injury.**

**The following step is different from the normal procedure because of the tighter air gap requirements of the 2000 line encoder. The following step is meant to eliminate the possibility of the target making contact with the electrical components on the PCB by eliminating the endplay movement towards the PCB. Insufficient tightening of the set screws may result in encoder wheel coming off the shaft.**

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9. While gently push down on the shaft to seat the shaft as far back into the motor as possible, tighten the M15/M15H Encoder Wheel's set screw to a maximum torque of 0.71N-m (100 oz-in). See **Figure 5**.



**Figure 5**

10. Gently remove the Air Gap Shim
11. Snap the Cover into place aligning the connector relief with the connector on the Timken M15/M15H Modular Encoder PCB. See **Figure 6**.



**Figure 6**

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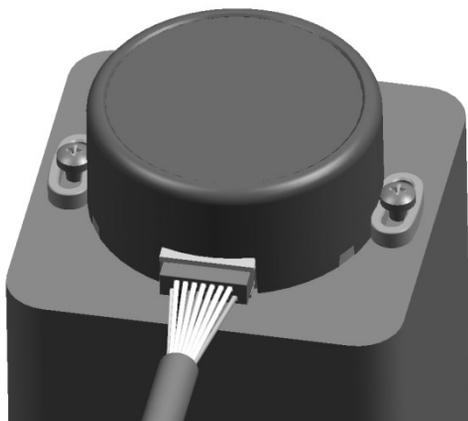
# INSTALLATION INSTRUCTIONS – ELECTRICAL CONNECTIONS

**WARNING – System Power must be OFF before making any electrical connections. Refer to any applicable NEC regulations**

1. Connect the optional M15/M15H Connecting Cable to customer supplied motor controller and feedback systems using the recommended terminations in **Table 1**.

*Timken recommends the Installer to attach the cable shield to electrical ground.*

2. Attach the optional M15/M15H Connecting Cable to the Timken M15/M15H Modular Encoder as shown in **Figure 7**.
3. Timken recommends anchoring the M15/M15H Connecting Cable no more than six inches (6”) from the Timken M15/M15H Modular Encoder.



**Figure 7**

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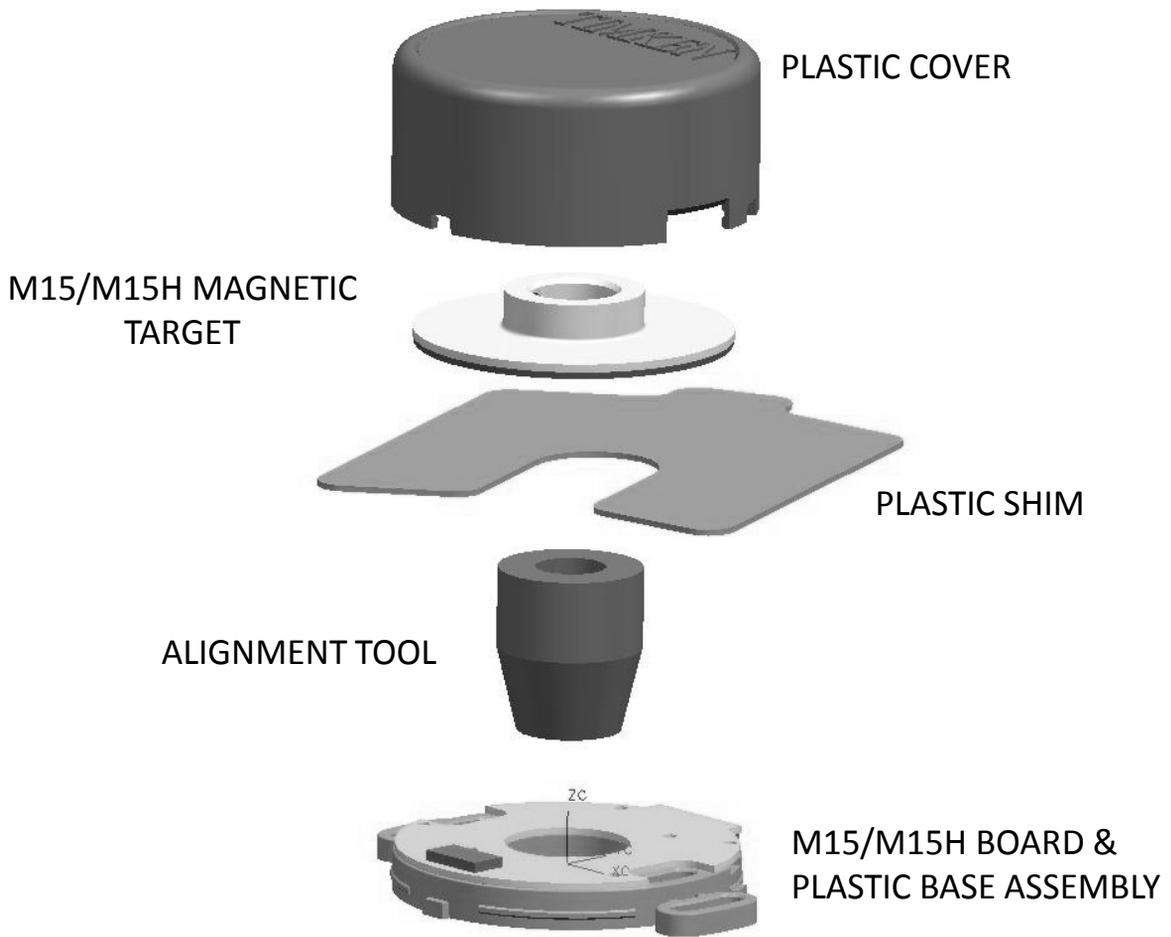
# M15/M15H CABLE/PIN FUNCTIONS (TIMKEN COLOR CODE SHOWN)

Pin Number	Function	Color (15 Pin Cable)	Color (8 Pin Cable)
PIN 1	A+	YEL	YELLOW
PIN 2	A-	YEL/WHT	WHITE
PIN 3	B+	BLU	BLUE
PIN 4	B-	BLU/WHT	GREEN
PIN 5	INDEX+	ORN	ORANGE
PIN 6	INDEX-	ORN/WHT	BROWN
PIN 7	U+	GRN	NC
PIN 8	U-	GRN/WHT	NC
PIN 9	V+	BRN	NC
PIN 10	V-	BRN/WHT	NC
PIN 11	W+	WHT	NC
PIN 12	W-	WHT/GRY	NC
PIN 13	+5V	RED	RED
PIN 14	GROUND	BLACK	BLACK
Pin 15	NC	GRAY	NC

**Table 1**



# M15/M15H ENCODER AND ACCESSORIES



**TIMKEN**

1.5mm HEX WRENCH



MATING CABLE



MOUNTING SCREWS



# TIMKEN