

HUM INDUSTRIAL STANDARD PROCEDURES

DWG NO: HI24045801 Rev. B

DATE: 05/20/2026

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DESCRIPTION: Installation, Operation and Maintenance Manual

1. COMPANY INFORMATION:

1.1. NAME: Hum Industrial Technology

1.2. ADDRESS:

4220 Duncan Ave,
Suite 201
St. Louis, Missouri 63110

1.2. PHONE NUMBER: 314-750-8962

1.3. EMAIL: info@humindustrial.com

2. **TITLE:** Installation Instructions of HUM Boomerang v1.0 (PN: HI24030301) to Train Car Wheel Adapter

3. **SCOPE:** HUM Boomerang v1.0 (PN: HI24030301) is mounted with 4 self-tapping bolts

4. **PURPOSE OF UNIT:** Monitor vibration in the wheel bearing to determine health of the bearing.

5. DISCUSSION:

5.1. TOOLS REQUIRED:

5.1.1. Battery Powered Impact Driver

5.1.2. Battery Powered Electric Drill

5.1.3. No. 17 Cobalt Steel Drill Bit

5.1.4. HUM Boomerang v1.0 Hole Drilling Jig

5.1.5. 5/16 Socket

5.1.6. 1/4" Hex to 3/8" Drive Adapter for Impact Driver

5.1.7. 262 "Red" Loctite Tread Locking Adhesive

5.2. HARDWARE REQUIRED:

5.2.1. Two (2) 10-24, 1/2" Long 410 Stainless Steel Hex Head Thread-Cutting Screws

5.2.2. Two (2) 10-24, 5/8" Long 410 Stainless Steel Hex Head Thread-Cutting Screws

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5.3. MOUNTING LOCATION:

- 5.3.1. The Boomerang Device is mounted horizontally to the face of the bearing adapter as Shown in *Figures 1 & 2*



Figure 1

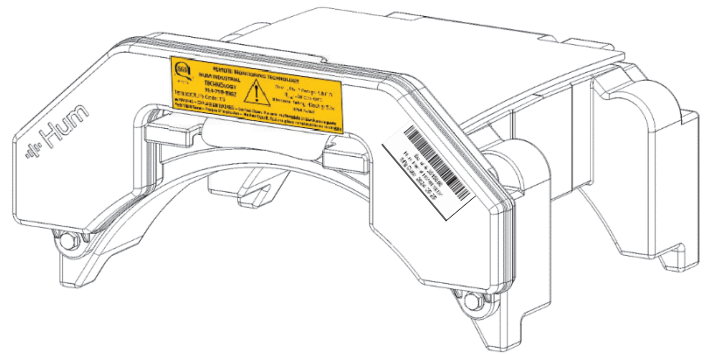


Figure 2

5.4. DRILLING MOUNTING HOLES

- 5.4.1. Place the Hole Drilling Jig onto the face of the Bearing Adapter as shown in *Figure 3*. Magnets in the Jig will help secure it onto the adapter.

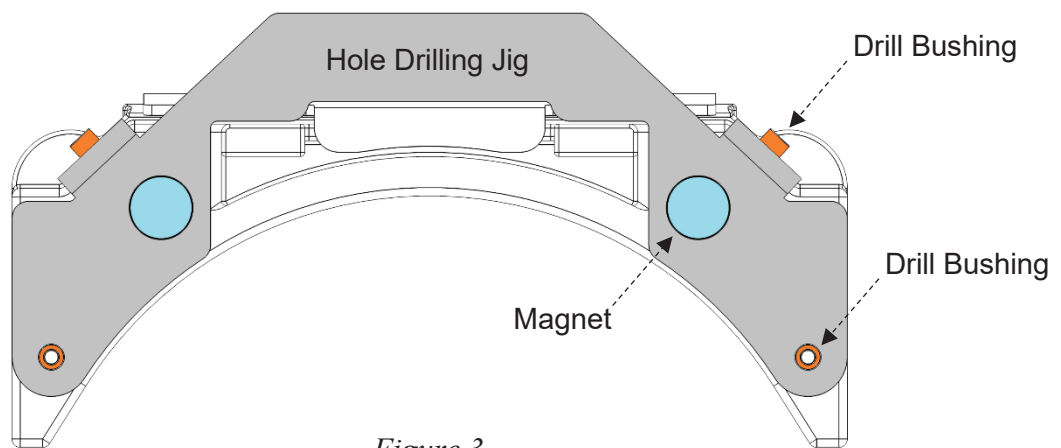


Figure 3

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- 5.4.2. Verify that the Drilling Jig is properly mounted with the top tabs resting on the angled face of the adapter. Shown in *Figure 4*

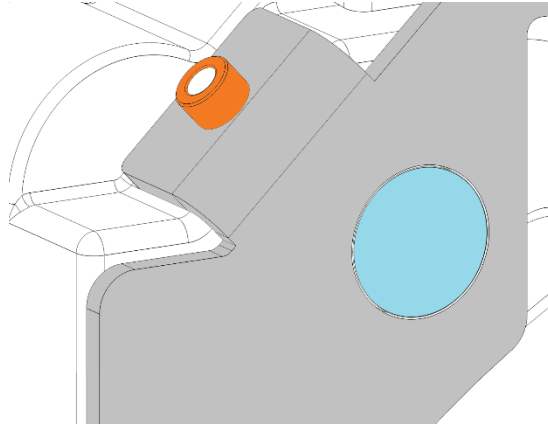


Figure 4

- 5.4.3. Use the No.17 Cobalt Steel Drill Bit with the electric drill to drill approximately ½” deep holes at the Four (4) Drill Bushings on the Drilling Jig.

- 5.4.4. Remove the Drilling Jig and clean out the drilling chips from the four holes.

5.5. BOOMERANG MOUNTING

- 5.5.1. Place the Boomerang Device onto the Bearing Adapter and Align the Four (4) mounting holes on the Boomerang with the holes drilled into the Bearing Adapter
- 5.5.2. Apply 262 “Red” Loctite Tread Locking Adhesive to the threads of Two (2) 10-24, ½” Long 410 Stainless Steel Hex Head Thread-Cutting Screws
- 5.5.3. Use the Impact Driver with the Adapter and 5/16” Socket to install the two 10-24, ½” Long Screws through the top mounting tabs of the Boomerang into the bearing adapter. Shown in *Figure 5*.

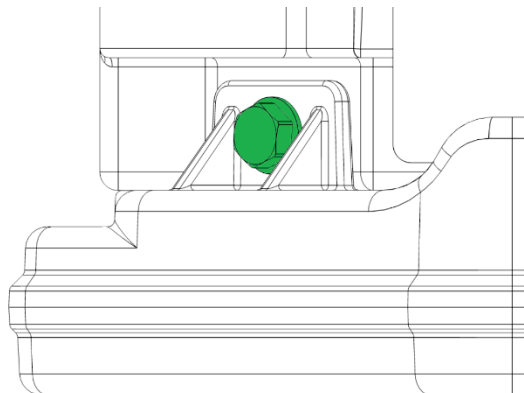


Figure 5

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- 5.5.4. Apply 262 “Red” Loctite Tread Locking Adhesive to the threads of Two (2) 10-24, 5/8” Long 410 Stainless Steel Hex Head Thread-Cutting Screws
- 5.5.5. Use the Impact Driver with the Adapter and 5/16” Socket to install the two 10-24, 5/8” Long Screws through the front mounting tabs of the Boomerang into the bearing adapter. Shown in *Figure 6*.

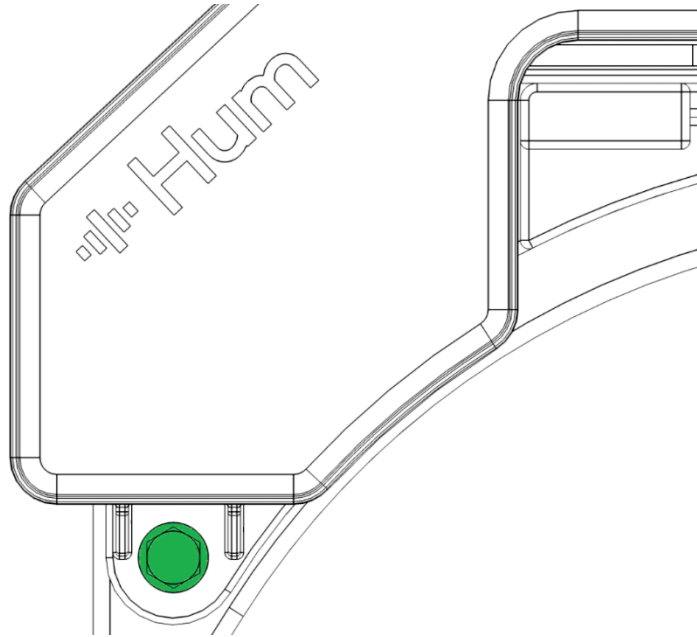


Figure 6

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6. TECHINCAL DETAILS

6.1. DEVICE LABEL DETAILS:

Hum Industrial PN: HI24030301

Class I, Div. 2 Groups A,B,C,D

Temperature Code: T6

T_{amb}: -10°C to 40°C

Electrical Rating:150mA@3.3V 

IP64 Rated

Maximum Service Temperature: 90°C

Explosion Hazard: Do Not Open Device. No user replaceable or serviceable parts.

Avertissement: Risque D'explosion. Ne Pas Ouvrir. Aucune pièce remplaçable ou réparable

6.2. BATTERY REPLACEMENT INSTRUCTIONS: This device is not intended for on-site battery replacement. Any opening or tampering of the device will result in the void of all warranties. For device service, please contact HUM INDUSTIAL.

6.3. OPERATING INSTRUCTIONS: Once installed the device will start working automatically.

6.4. MAINTENANCE INSTRUCTIONS: The device does not require any maintenance, if there are any issues with the device, please contact Hum Industrial for service.

6.5. ENVIRONMENTAL SPECIFICATIONS:

Maximum Humidity: 100%

Maximum Altitude: 12,000 feet

This device is intended to be used in Outdoor and Wet Environments

Pollution Degree: **2**

6.6. OPERATION WARNING:

If this device is used in a manner not specified by the manufacture, the function and ingress protection could be impaired.

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6.7 WIRELESS REGULATORY INFORMATION

6.7.1 FCC ID

 FCC ID: 2BUPV-BS01
IC: 35176-BS01

6.7.2 FCC Compliance Statement

Changes or modifications not expressly approved by Hum Industrial Technology Inc. could void the user's authority to operate the equipment.

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

6.7.3 ISED Canada Compliance Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: 1. This device may not cause interference. 2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : 1. L'appareil ne doit pas produire de brouillage; 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7. REVISION HISTORY:

REV	DATE	DISCRIPTION	CHKD	APRVD
A	04/15/2025	Document created	DAL	LC
B	05/20/2026	ADDED SECTION 6.7	LC	