MERITOR® WHEEL BEARING ADJUSTMENT SYSTEM FOR THE AFTERMARKET

IDEAS DRIVING RESULTS
OPTIMAL WHEEL BEARING ADJUSTMENT.
LONGER TIRE LIFE AND MORE TIME ON THE ROAD.
Together to Provide a Superior Bearing Adjustment Solution.

With more than 100 years of axle-manufacturing experience, Meritor has consistently brought advanced axle technologies to the marketplace. Whether designing and manufacturing from the ground up or partnering with another industry leader, our goal is to provide fleets and end users with products that deliver maximum operating efficiency and premium performance. And now, Meritor Aftermarket is teaming up with Temper® to offer Doctor Preload® and Temper-Loc® spindle nuts – a superior bearing adjustment system for wheel-end management, longer tire life and less downtime. That’s an idea that really does drive results.

Founded in 1969, Temper is a leading engineering and manufacturing company in precision assemblies and equipment for industrial products. The company introduced its first product – Temper Load Rings – in 1970 to offer better bearing adjustment for a wide variety of industrial applications. Today, Temper continues to pioneer technologies that provide complete solutions for heavy vehicle applications, including the Doctor Preload and Temper-Loc bearing adjustment system.

Doctor Preload and Temper-Loc bearing adjustment system is designed and manufactured in the U.S.A.

“I’m a firm believer in the Doctor Preload and Temper-Loc nut system. It’s helped us cut recap use by one-third over two years and reduce inside tire edge wear-out by 90%. Our wheel ends run truer and run longer.”

Russ Van Beek, Heyl Truck Lines
Akron, Iowa

“I use the system on roughly 100 trailers and it’s keeping preload on the wheel bearings. It has been a good addition to my fleet.”

John Herbst, Owner, J&R Transport
Dickeyville, WI

“Setting the proper pre-load can’t be anything but good. That’s why we’ve invested in Doctor Preload and Temper-Loc spindle nuts. I’m glad I spent the money on this system and it’s working well on all my trailers.”

Brock Ackerman, K & B Transportation
South Sioux City, Nebraska

“We believe in the product and it’s doing exactly what it promised to do – keeping a consistent preload on the wheel bearings and contributing to good-to-better tire wear. The system has been a valuable addition to our maintenance operation. On our two most recent orders of new trailers, we insisted that the OEMs install Temper-Loc nuts, which puts us on the right track with properly managed bearing settings.”

Roy Hegland, Fleet Maintenance Supervisor, Midwest Motor Express
Bismarck, ND
Better Bearing Management Through Preload.

Optimum wheel-end management begins with optimal wheel bearing adjustment. According to the Society of Automotive Engineers (SAE), the optimal setting for wheel bearings is a light preload.

What is preload? Preload is simply defined as a measured "tight" bearing setting in which all of the rollers in the tapered roller bearings are kept under a slight force, or load. This preload condition keeps vibration and angular movement in the wheel end to a minimum during operation, reducing potential bearing wear and other wheel-end problems.

Load on bearings, including preload, is measured in "pounds-force" or lbf. SAE recommended practice J2535 stipulates the optimal settings for drive and trailer axle wheel bearings to be between 500 and 1,000 lbf, and between 250 and 500 lbf for steer axle wheel bearings. With these settings, bearings, seals and other wheel-end components provide maximum performance.

Without preload, there is space or "clearance" between the bearing components and the bearings are said to have end play (also referred to as a "loose" bearing setting). Excessive end play can result in extreme wear on bearings, spindles, tires, and wheel seals. It can also cause anti-lock braking system (ABS) faults.

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<table>
<thead>
<tr>
<th>Preload Setting Range (SAE J2535)</th>
<th>Conventional Practice End Play (Degraded Performance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.004 - 0.008 lbs</td>
<td>0.004 - 0.012 inches</td>
</tr>
<tr>
<td>0.012 lbs</td>
<td>0.012 - 0.016 inches</td>
</tr>
</tbody>
</table>

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**Diagram:**

- **Doctor Preload setting range (SAE J2535)**
- **Conventional practice end play (degraded performance)**

**Axes:**
- **Preload Pounds**
- **End Play Inches**

**Graph:**

- Increasing Wheel-End Performance
- Minimum Wheel-End Performance
Optimal Preload with the Doctor Preload Tool.

Doctor Preload, when used in conjunction with Temper-Loc spindle nuts, is the ideal wheel-end bearing adjustment solution. The system sets the bearings to precise preload settings with a quick, simple, reliable and repeatable process.

Features and Benefits:
- Measured, precise, repeatable settings to optimal preload for more time on the road
  - Improved tire life
  - Optimal bearing, spindle and wheel seal life
  - Decreased ABS faults
- Adjusts wheel-end bearings to meet SAE J2535 recommended preload settings

<table>
<thead>
<tr>
<th>Specification</th>
<th>Use with Temper-Loc Nut</th>
<th>Axle Spindle Application</th>
<th>Axle Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>MER415005</td>
<td>MER614723</td>
<td>TP Trailer</td>
<td>Meritor (TP), Dana, Eaton (P22), Fruehauf, Propar</td>
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<tr>
<td>MER415003*</td>
<td>MER614743</td>
<td>TN Trailer</td>
<td>Hendrickson (HN)</td>
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<td></td>
<td></td>
<td></td>
<td>Ingersoll (A22T)</td>
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<td></td>
<td></td>
<td></td>
<td>Standard Forge (A25, A26, 17,000 lbs, 18,000 lbs trade)</td>
</tr>
<tr>
<td>MER415084</td>
<td>MER614743</td>
<td>TN Trailer with Aluminum Hubs</td>
<td>Hendrickson (HN)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Ingersoll (A22T)</td>
</tr>
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<td></td>
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<td></td>
<td>Standard Forge (A25, A26, 17,000 lbs, 18,000 lbs trade)</td>
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<tr>
<td>MER415002</td>
<td>MER614836</td>
<td>FF Steer</td>
<td>Meritor (FD900, FD901, FD961, FE900, FE901, FF900, FF901, FF931, FF932, FF933, FF941, FF942, FF943, FF944, FF952, FF961, FG941)</td>
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<tr>
<td>MER415347</td>
<td>MER614837</td>
<td>FF Steer</td>
<td>Eaton (EFA12FA, EFA12FA, EFA13FS, E12001, FE931, 12K, 13.2K)</td>
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<td></td>
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<td>Ford Sisco 12K</td>
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<td>Ford 6K</td>
</tr>
<tr>
<td>MER415004</td>
<td>MER614973</td>
<td>R Drive</td>
<td>Meritor (TR), Eaton (P22), Ford, Rainstar</td>
</tr>
</tbody>
</table>

* Note: Not compatible with Conmet aluminum hubs for TN trailer axles. Contact our Customer Care team for more information.
Precise Positioning With Temper-Loc Spindle Nuts.

Temper-Loc precision single-locking nut system provides bearing adjustment with pinpoint accuracy; each Temper-Loc nut is manufactured to ultra-tight machining tolerances. The nut system sets optimal wheel-end preload maximizing tire life and vehicle uptime. With its unique chamfered mounting face, Temper-Loc is the exclusive spindle nut used in conjunction with the Doctor Preload bearing adjustment tool.

Features and Benefits:

- Heat-treated nut face for superior strength
- Fingertip control retainer ring for ease of placement and positioning
- EasyView™ verification of positive locking

<table>
<thead>
<tr>
<th>Specifications</th>
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<tbody>
<tr>
<td>Temper-Loc Nut Assembly Number</td>
</tr>
<tr>
<td>MER614723</td>
</tr>
<tr>
<td>MER614743</td>
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<tr>
<td>MER614836</td>
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<tr>
<td>MER614837</td>
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<tr>
<td>MER614973</td>
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</tbody>
</table>
1. Attach Doctor Preload tool to end threads of the axle. Use a sweeping motion to guide the load arms around the locknut while engaging the key locator in the keyway. Engage the thread with two turns of thread with the end of the axle.

2. Seat the bearing rollers. Tighten T-handle to load the bearings until the gauge pointer is in green “Roll In Zone.” Roll the wheel three revolutions.

3. To set the bearings, loosen T-handle slowly until gauge pointer points to “Set Drive/Trailer Axle” or “Set Front Axle” accordingly.

4. Finger-tighten the Temper-Loc nut against the bearing; align the closest dot on the nut to the key locator indicator mark.

5. Remove the Doctor Preload tool.


SIX SIMPLE STEPS. COUNTLESS BENEFITS.
Register your Doctor Preload tool today. Simply complete the registration details and send this form with a copy of your original invoice to:

Meritor, Inc.
7975 Dixie Highway
Florence, KY 41042
Attn: Peter Freeman

**Doctor Preload Tool Registration**

- **Name:**
- **Company Name:**
- **Address:**
- **City:**
- **State:**
- **Zip Code:**
- **Phone:**
- **E-Mail Address:**
- **Note:** E-mail address will be used to confirm receipt of registration for warranty purposes.

**Doctor Preload Tool Part Number:**

**Doctor Preload Tool Serial Number:**

**Purchased From:**

**Purchase Date:**

(Please attach copy of invoice)

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**Product Protection You Expect. Customer Support You Deserve.**

Doctor Preload tools are covered by a 1-year warranty from the sale date to the end user. Temper-Loc nuts are covered by a 3-year warranty from the date of installation. Documentation of tool sale date and nut installation details (including date of installation) must accompany warranty claim submission. The Doctor Preload tool and Temper-Loc nut system must be registered for warranty eligibility.

Our highly trained Customer Care team is your source for complete support. Call them at 888-725-9355 (in Canada, call 800-387-3889). Or visit MeritorPartsOnline.com – our industry-leading online catalog, ordering and tracking system – with real-time access to complete parts information resources.

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Each tool is shipped with a registration card. Registration must be completed for warranty eligibility of Doctor Preload tool and Temper-Loc nut system.
IDEAS DRIVING RESULTS

As a world leader in providing aftermarket solutions for the global commercial vehicle and industrial markets, Meritor is committed to providing our customers with innovative aftermarket ideas that deliver the results you need to get the job done faster, better and more efficiently.

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