

# STEMCO Endorses TMC's Recommended Wheel Bearing Adjustment Procedure

*Proper wheel bearing adjustment is critical to the performance of wheel seals and other related wheel end products. For that reason we are proud to be a part of TMC's Wheel End Task Force.*

*We are happy to bring these standards to you in the form of this technical guide. Working together, in this way, STEMCO helps keep your rigs rolling.*

The following bearing adjustment recommendation was developed by TMC's

Wheel End Task Force. It represents the combined input of manufacturers of wheel end components.

## STEP 1.

### Bearing Lubrication:

Lubricate the wheel bearing with clean lubricant of the same type used in the axle sump or hub assembly.

## STEP 2.

### Initial Adjusting Nut Torque:

Tighten the adjusting nut to a torque of 200 ft-lbs, while rotating the wheel.

## STEP 3.

### Initial Back Off:

Back the adjusting nut off one full turn.

## STEP 4.

### Final Adjusting Nut Torque:

Tighten the adjusting nut to a final torque of 50 ft-lbs while rotating the wheel.



**STEMCO®**

*A Higher Standard of Performance.™*

QS 9000 & ISO 9001

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## STEP 5.

### Final Back Off:

| AXLE TYPE                 | THREADS PER INCH | FINAL BACK OFF   |
|---------------------------|------------------|------------------|
| <b>Steer (Single Nut)</b> | <b>12</b>        | <b>1/6 Turn*</b> |
|                           | <b>18</b>        | <b>1/4 Turn*</b> |
| <b>Steer (Double Nut)</b> | <b>14</b>        | <b>1/2 Turn</b>  |
|                           | <b>18</b>        | <b>1/2 Turn</b>  |
| <b>Drive</b>              | <b>12</b>        | <b>1/4 Turn</b>  |
|                           | <b>16</b>        | <b>1/4 Turn</b>  |
| <b>Trailer</b>            | <b>12</b>        | <b>1/4 Turn</b>  |
|                           | <b>16</b>        | <b>1/4 Turn</b>  |

\*Install cotter pin to lock axle nut in position.

## STEP 6.

### Jam Nut Torque:

| AXLE TYPE                 | NUT SIZE                                     | TORQUE SPECIFICATIONS |
|---------------------------|--|-----------------------|
| <b>Steer (Double Nut)</b> | <b>Less Than 2<sup>5</sup>/<sub>8</sub>"</b> | <b>200-300 ft-lbs</b> |
|                           | <b>2<sup>5</sup>/<sub>8</sub>" And Over</b>  | <b>300-400 ft-lbs</b> |
| <b>Drive</b>              | <b>Dowel Type Washer</b>                     | <b>300-400 ft-lbs</b> |
|                           | <b>Tang Type Washer</b>                      | <b>200-275 ft-lbs</b> |
| <b>Trailer</b>            | <b>Less Than 2<sup>5</sup>/<sub>8</sub>"</b> | <b>200-300 ft-lbs</b> |
|                           | <b>2<sup>5</sup>/<sub>8</sub>" And Over</b>  | <b>300-400 ft-lbs</b> |

## STEP 7.

### Acceptable End Play:

The dial indicator should be attached to the hub or brake drum with its magnetic base. Adjust the dial indicator so that its plunger is against the end of the spindle with its line of action approximately parallel to the axis of the spindle.

Grasp the wheel or hub assembly at the 3 o'clock and 9 o'clock positions. Push and pull the wheel-end assembly in and out *while oscillating the wheel approximately 45 degrees*. Stop oscillating the hub so that the dial indicator tip is in the same position as it was before oscillation began. Read the bearing end-play as the *total* indicator movement.

\*Acceptable end-play is .001" - .005"

*For single nut self-locking systems, consult manufacturers' specifications. STEMCO assumes no responsibility for bearing warranty.*

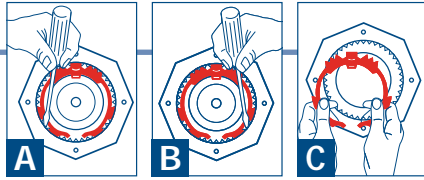
# PRO-TORQ® Installation Procedure & Wheel Bearing Adjustment

## STEP 1.

### Remove the Keeper from the Nut:

A, B, C

Use a screwdriver to carefully pry the keeper arm from the undercut groove on each side until the keeper is released.



## STEP 2.

### Seat the Bearing:

With hub or hub/drum only:

Using a torque wrench:

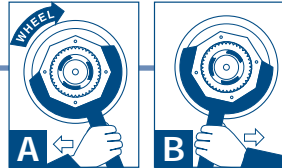
- A (1) Tighten the nut to 200 ft-lbs. Spin the wheel at least one full rotation.  
 (2) Tighten the nut to 200 ft-lbs. Spin the wheel at least one full rotation.  
 (3) Tighten the nut to 200 ft-lbs.

B Back the nut off until it is loose.

With hub/drum/wheels:

A Tighten the nut to 200 ft-lbs while the wheel is rotating.

B Back the nut off until it is loose.



## STEP 4.

### Install the Keeper:

ORANGE SIDE FACING OUT

A Insert the keeper tab into the undercut groove of the nut and engage the keyway tang in the axle keyway. Insert keeper tab with bent legs facing out.

B Engage the mating teeth.

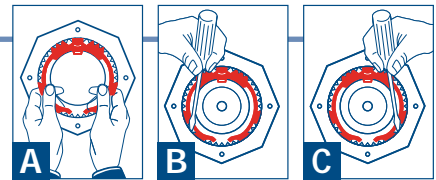
C Compress and insert the keeper arms, one at a time, into the undercut groove with a screwdriver.

For Steering Spindle Nut 448-4836, 448-4839 and 448-4864:

A Align the flat of the keeper with the milled flat on the spindle and insert the single keeper tab into the undercut groove of the nut. Insert keeper tab with bent legs facing out.

B Engage the mating teeth.

C Compress and insert the keeper arms, one at a time, into the undercut groove with a screwdriver.



| TOOLS REQUIRED FOR INSTALLATION                                       |  |                              |                                      |
|---|--|------------------------------|--------------------------------------|
| Part Numbers  | (3/4" Drive) Socket Req'd  | Owatonna Co. Ref. Part No.   | Euclid Int'l Ref. Part No.           |
| <b>Trailer Axle Nut</b><br>447-4723<br>447-4724                       | 4 13/16" 8 point   | 1941                         | E-1597                               |
| <b>Trailer Axle Nut</b><br>447-4743                                   | 3 3/4" 8 point   | 1925                         | E-1925                               |
| <b>Steering Spindle Nut</b><br>448-4836<br>448-4837<br>448-4839       | 2 1/2" 6 point   | 1921                         | E-1921                               |
| 448-4864  | 2 5/8" 6 point<br>3" 6 point   | 1922<br>1906                 | E-1922<br>E-1906                     |
| <b>Drive Axle Nut</b><br>449-4904<br>449-4973<br>449-4974<br>449-4975 | 4 1/8" 6 point<br>4 3/8" 8 point<br>3 3/4" 8 point<br>3 3/4" 8 point | 1915<br>1917<br>1925<br>1925 | E-1915<br>E-1917<br>E-1925<br>E-1925 |

Note: Ford application 12,000 lbs SIFCO Steer Axle requires OEM inner washer to be installed prior to installation of PRO-TORQ® nut system.

## STEP 3.

### Adjust The Bearing:

With hub or hub/drum only:

Using a torque wrench:

A (1) Tighten the nut to the adjusting torque. Spin the wheel at least one full rotation.

(2) Tighten the nut to the adjusting torque. Spin the wheel at least one full rotation.

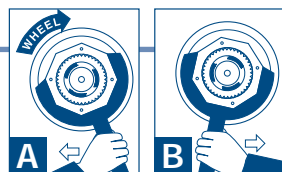
(3) Tighten the nut to the adjusting torque.

B Back the nut off one raised face mark (according to chart).

With hub/drum/wheels:

A Tighten the nut to the adjusting torque while the wheel is rotating.

B Back the nut off one raised face mark (according to chart).

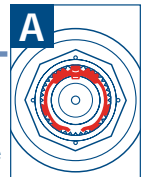


| ADJUSTING TORQUE AND BACKOFF  |                  |          |
|---|------------------|----------|
| Part Numbers  | Adjusting Torque | Backoff  |
| <b>Trailer Axle Nut</b><br>447-4723<br>447-4724                       | 100 ft-lbs       | 1/8 turn |
| <b>Trailer Axle Nut</b><br>447-4743                                   | 100 ft-lbs       | 1/4 turn |
| <b>Steering Spindle Nut</b><br>448-4836<br>448-4839<br>448-4864       | 100 ft-lbs       | 1/4 turn |
| <b>Steering Spindle Nut</b><br>448-4837                               | 100 ft-lbs       | 1/3 turn |
| <b>Drive Axle Nut</b><br>449-4904<br>449-4973<br>449-4974<br>449-4975 | 100 ft-lbs       | 1/8 turn |

## STEP 5.

### Inspect the Installation:

A Failure to follow this instruction could cause the wheel to come off and cause bodily injury. Make sure that the keeper tab and keeper arms are fully seated into the undercut groove. Inspect keyway tang to insure it does not contact the bottom of the keyway. If contact exists, immediately notify your PRO-TORQ® representative.



**THIS PROCEDURE WILL CONSISTENTLY PRODUCE A BEARING SETTING OF .001" TO .003" END PLAY.**

## WARNING

Failure to follow this instruction could cause the wheel to come off and cause bodily injury. The PRO-TORQ® Spindle Nut is sold as an assembly with the keeper in place. **DO NOT** attempt to place the nut on the spindle or tighten or loosen the nut on the spindle while the keeper is locked inside the nut. Doing so may deform the keeper and allow the nut to unthread during operation. **DO NOT** bend or manipulate keyway tang in any way. Doing so may cause the tang to break off in service. Failure to back off the nut will cause the bearings to run hot and be damaged.

# PRO-TORQ®

## ADVANCED AXLE SPINDLE NUTS

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