

# BEARING ADJUSTMENT

**PRO-TORQ® AND ZIP-TORQ® INSTALLATION PROCEDURE FOR HUBS WITH MANUALLY ADJUSTED WHEEL BEARINGS**

## STEP 1

### Remove the Keeper From the Nut

When using Pro-Torq, use a screwdriver to carefully pry the keeper arm from the undercut groove on each side until the keeper is released.

## STEP 2

### Thread the Nut Onto the Axle

Thread the nut onto the axle until hand tight against the bearing.

## STEP 3

### Seat the Bearing

#### With wheel hub assembly:

- Using a torque wrench:
  - Tighten the nut to 200 ft-lb. Spin the wheel hub assembly at least one full rotation.
  - Tighten the nut to 200 ft-lb. Spin the wheel hub assembly at least one full rotation.
  - Tighten the nut to 200 ft-lb. Spin the wheel hub assembly at least one full rotation.
- Back the nut off one full rotation.

## STEP 4

### Adjust the Bearing

#### With wheel hub assembly:

- Using a torque wrench:
  - Tighten the nut to 100 ft-lb. Spin the wheel hub assembly at least one full rotation.
  - Tighten the nut to 100 ft-lb. Spin the wheel hub assembly at least one full rotation.
  - Tighten the nut to 100 ft-lb. Spin the wheel hub assembly at least one full rotation.
- Back the nut off one face mark (according to chart).

#### Final Back Off

PRO-TORQ PART #	ZIP-TORQ PART #	BACK OFF
<b>TRAILER AXLE FASTENER</b>		
447-4723, 447-4724, 449-4973	400-4723, 400-4973	1/8 turn
447-4743	400-4743	1/4 turn
<b>STEERING AXLE FASTENER</b>		
448-4836, 448-4838, 448-4839, 448-4863, 448-4865, 448-4864	400-4836	1/4 turn
448-4837, 448-4840	400-4837	1/3 turn
<b>DRIVE AXLE FASTENER</b>		
449-4904, 449-4973, 449-4974, 449-4975	400-4973	1/8 turn

## STEP 5

### Install the Keeper (Skip this step if using Zip-Torq)

#### Orange side facing out:

- Insert the keeper tab into the undercut groove of the nut and engage the keyway tang in the axle keyway. Insert keeper tab with the orange side facing out.
- Engage the mating teeth.
- 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, 448-4840, 448-4863, 448-4864, and 448-4865

- 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 the orange side facing out.
- Engage the mating teeth.
- Compress and insert the keeper arms, one at a time, into the undercut groove with a screwdriver.

**NOTE:** Recommended practice is to replace the keeper each time the Pro-Torq nut assembly is removed for maintenance purposes.

## STEP 6

### Inspect the Installation

Failure to follow this instruction could cause the wheel to come off and cause bodily injury. When using Pro-Torq, make sure that the keeper tab and keeper arms are fully seated into the undercut groove. Inspect keyway tang to ensure it does not contact the bottom of the keyway. If contact exists, immediately notify a STEMCO representative. This procedure will consistently produce a bearing setting of 0.001" to 0.003" end play.

## STEP 7

### Acceptable End Play

The dial indicator should be attached to the spindle with its magnetic base. Adjust the dial indicator so that its plunger is against the end of the hub face with its line of action approximately parallel to the axis of the spindle. If spindle mounting is not possible, the dial indicator should be attached to the hub and aligned to indicate on 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.

**NOTE:** Acceptable end play is 0.001" - 0.005".

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



# BEARING ADJUSTMENT



## TMC'S RP-618A WHEEL BEARING ADJUSTMENT PROCEDURE FOR STANDARD SPINDLE NUTS

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 in the form of this technical guide. Working together in this way, STEMCO® helps keep rigs rolling.

The following RP-618A seven-step bearing adjustment recommendation for standard spindle nuts 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-lb while rotating the wheel hub assembly.

### STEP 3

#### Initial Back Off

Back the adjusting nut off one full turn.

### STEP 4

#### Re-Torque Adjustment

Re-torque adjusting nut to 50 ft-lb while rotating the wheel hub assembly.

### STEP 5

#### Final Back Off

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

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

### STEP 6

#### Jam Nut Torque

AXLE TYPE	NUT SIZE/ TYPE	TORQUE SPECIFICATIONS
Steer (Double Nut)	Less Than 2 5/8"	200-300 ft-lb
Drive	Dowel-Type Washer	300-400 ft-lb
	Tang-Type Washer	200-275 ft-lb
Trailer	2 5/8" and Larger	200-300 ft-lb

### 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.

**NOTE:** Acceptable end play is 0.001" - 0.005".



#### IMPORTANT

##### Pro-Torq Installation Procedure for PreSet® or LMS® Hubs:

Pro-Torq spindle nuts may be used with PreSet or LMS hub assemblies. When used with these systems, it is important to follow the hub manufacturers' product-specific installation instructions. For PreSet and LMS hub assemblies, torque the Pro-Torq spindle nut to a minimum of 250 ft-lb. Engage the keeper. If the keeper cannot be engaged, advance the spindle nut until it can be engaged. **DO NOT BACK OFF THE SPINDLE NUT.**

#### WARNING

Failure to follow this instruction could cause the wheel to come off and cause bodily injury. STEMCO Pro-Torq axle fasteners are 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 installed inside the nut. Doing so may deform the keeper and allow the nut to unthread during operation. Spindle thread damage could also occur, leaving the axle unusable.

**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 axle fasteners on non pre-adjusted systems will cause the bearings to run hot and be damaged.

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