TECH TIP

HOW TO AVOID STEERING KNUCKLE DAMAGE DUE TO OVERTIGHTENING

MOOG® Ball Joints and Tie Rods

Ball Joint and Tie Rod Installation Tip

A key part of a car's suspension system, the steering knuckle is susceptible to damage due to overtightening the ball joint or tie rod. Read on to learn how to identify the damage that is caused when a ball joint or tie rod is overtightened and discover an important tip for avoiding steering knuckle damage when installing the parts.

Identifying Steering Knuckle Damage

To know if the ball joint or tie rod is overtightened, it is helpful to know the characteristics of one installed in an undamaged steering knuckle (as shown in image A). The image showcases a ball joint stud that fits snugly in the knuckle with no movement; notice the placement of the yellow ring–it sits above the knuckle.

Ball joint stud in an undamaged steering knuckle.

In a damaged steering knuckle, the ball joint sits further down in the steering knuckle (as shown in image B); notice the placement of the yellow ring–it sits further down in the knuckle. In addition, the ball joint has a lot of movement and play which over time could cause more damage to the hole or could break the stud.

Ball joint stud in a damaged steering knuckle.

Another consequence of overtightening is that the castle nut on the ball joint or tie rod ends up going past the hole for the cotter pin (as shown in image C). When the nut goes past the hole, the cotter pin won't fit. Many installers think they need washers to correct the issue. Washers aren't meant to get the castle nut back up to the proper position. The taper has become damaged and the steering knuckle has to be replaced.

Ball joint stud with castle nut going past cotter pin hole.

Avoid Overtightening – Use the Right Tool

When installing MOOG ball joints and tie rods, it is important to avoid overtightening. The best way to avoid overtightening is to use the right tool for the job. Many technicians use an impact gun, which not only overtightens the part but can also cause premature wear and damage to the steering knuckle. MOOG recommends using a torque wrench.

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