Wheel Hub Damage Analysis Guide

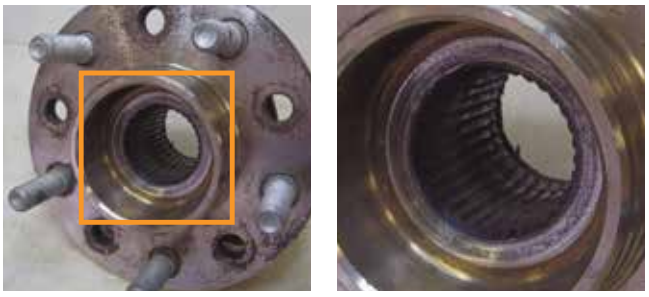
To diagnose the cause of bearing damage, look closely at damaged hubs and compare customers' hubs with the photos below.

Loss of Bearing Retention

Symptoms: Wheel vibration and/or excessive noise.

Diagnosis: Rough or worn axle retaining nuts indicate movement due to loss of bearing retention.

Cause: Loss of bearing retention is the leading cause of hub bearing damage, resulting in wheel vibration and/or noise.



Tighten axle lock nut to proper torque to help avoid rough and worn surface under the nut.

The axle-retaining nut backs off when bearings demonstrate improper torque or have lost their self-retention features. This changes the setting of the bearings inside the hub, causing misalignment and accelerating wear.

Solution: Always use a new axle retaining nut and tighten it to the proper torque to avoid a rough and worn surface under the nut.

Excessive Wear on Cone Bore

Symptoms: Accelerated bearing wear or multiple returns for the same wheel-end application.

Diagnosis: Inspect the hub barrel when replacing a wheel bearing with a separate hub. Check the hub barrel outer diameter (OD) for signs of damage. Look for ridges or discoloration on the barrel surface due to heat damage from cone turning. Replace the hub if you find any signs of damage.

Reduce excessive wear by using hubs in good condition.

Cause: Loss of axle retention or reinstalling a worn hub can allow the cone or inner race to spin on the hub, accelerating wear on the cone bore and hub barrel. This cone turning can indicate loss of bearing retention or improper fit between the cone bore and hub barrel diameter.

Solution: If you see damage to the hub barrel, replace it.

Skill Level: Easy | Special Tools: Torque Wrench

TIMKEN