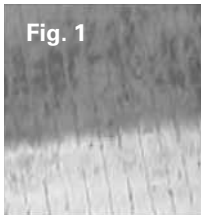
Checking A Hub Bearing Assembly

This information will help you to recognize common causes of wheel noise.

1. Verify the source of any unfamiliar noise: Road surface conditions, tire tread design, wear patterns and improper maintenance conditions including poor alignment and worn suspension parts. (Fig. 1)


Fig. 1

Roads with uneven characteristics


Tread design

2. Make sure you have the proper tools.

3. Perform a full hand rotation check on the wheel. Grasp the wheel at the 3 and 9 o'clock positions. Push and pull while oscillating the wheel. Perform a second check, grasping the wheel at the 12 and 6 o'clock positions. Listen and feel for roughness. (Fig. 2)


Fig. 2

4. Remove the lug nuts and the wheel. Remove the caliper from the caliper-mounting bracket. Support the caliper with an "S" hook or a piece of wire. (Fig. 3)


Fig. 3

5. Remove the caliper-mounting bracket and the brake rotor. (Fig. 4)


Fig. 4

6. Rotate the hub bearing assembly by hand. A loose hub bearing assembly may indicate bearing damage, the axle nut may have backed off, or improper axle nut clamping. Roughness, looseness or noise from the bearing is an indication of bearing damage and requires replacement. (Fig. 5)


Fig. 5

Skill Level: Intermediate | Special Tools: Torque Wrench, Dial Indicator with Magnetic Base

TIMKEN

7. Check the hub bearing assembly's internal clearance using a dial indicator with a magnetic base. For an accurate reading, thoroughly clean and smooth the surfaces where you will place the dial indicator base and tip. Use a fine file, wire brush, emery cloth or honing stone as appropriate to remove any debris, nicks or burrs. (Fig. 6)


Fig. 6

8. Place the dial indicator base on the knuckle or a secure portion of the suspension. When setting the dial indicator tip, the indicator itself should have ample travel for the variation around the face. Position the indicator tip perpendicular on the wheel pilot as close to the center of the hub bearing assembly as possible to provide the most accurate results. (Fig. 7)


Fig. 7

9. Grasp the wheel flange at the 3 and 9 o'clock positions, and push while oscillating the hub bearing assembly approximately 90° side-to-side at least five times. Set the dial indicator to zero. Next, pull while oscillating the hub bearing assembly approximately 90 degrees side-to-side at least five times. Proper loading and oscillation is necessary to fully seat the bearings. (Fig. 8)


Fig. 8

10. Observe the total indicator movement. If it exceeds 0.004 in., replace the hub bearing assembly. (Fig. 9)



Fig. 9

⚠WARNING

Failure to observe the following warnings could create a risk of death or serious injury.

Do not attempt to disassemble and reassemble unitized wheel-end hubs and bearing assemblies. Improper reassembly could lead to failure.

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Tensile stresses can be very high in tightly fitted bearing components. Attempting to remove such components by cutting the cone (inner race) may result in a sudden shattering of the component causing fragments of metal to be forcefully expelled. Always use properly guarded presses or bearing pullers to remove bearings from shafts, and always use suitable personal protective equipment, including safety glasses.

CAUTION

Failure to observe these cautions may result in property damage.

The products cataloged are application specific. Any use in applications other than those intended could lead to equipment failure or to reduced equipment life.

Use of improper bearing fits may cause damage to equipment.

Do not use damaged bearings. The use of a damaged bearing can result in equipment damage.

TechTips is not intended to substitute for the specific recommendations of your equipment suppliers. Every reasonable effort has been made to ensure the accuracy of the information contained in this writing, but no liability is accepted for errors, omissions or for any other reason.

TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets high-performance mechanical components, including bearings, gears, belts, chain and related mechanical power transmission products and services.

Stronger. **Commitment.** Stronger. **Value.** Stronger. **Worldwide.** Stronger. **Together.** | **Stronger.** By Design.

www.timken.com/aftermarket

02-16: 29 Order No. 10839 | Timken® is a registered trademark of The Timken Company. | © 2016 The Timken Company | Printed in U.S.A.