

Heavy-Duty TechTips

TIMKEN

Volume 4 • Issue 3 Promoting safe, proper bearing handling practices for the heavy-duty market

Maximizing bearing performance and life remains a commitment throughout The Timken Company, from design teams and manufacturing associates to our field sales team and distributors. TechTips helps you install and maintain Timken® bearings, seals and components to take full advantage of their performance and the systems in which they operate. For more information regarding Timken heavy-duty products and services, visit www.timken.com/aftermarket or contact your local Timken distributor.

BEARING ADJUSTMENT BASICS



Proper bearing adjustment plays a major role in maximizing bearing service life. If bearings are adjusted with too much internal axial clearance (end play) or too much internal load (preload), the life of the bearing and other wheel-end components may be shortened.

During installation of the bearing into the wheel end, bearings should be adjusted to a setting range of 0.001" to 0.005" end play. By following proper installation procedures, a technician should be able to

achieve correct bearing settings. To ensure proper end play, a dial indicator should always be used.

Rotating or oscillating the bearing

As bearings are adjusted, the rollers must be positioned tightly against the cone large rib. When tightening the adjusting nut or using a dial indicator to measure end play, always rotate or oscillate the rollers to be sure they are properly seated.

Proper bearing adjustment affects the entire wheel-end system

In addition to impacting the bearings themselves, improper bearing adjustment can also negatively impact the operation and service life of these other wheel-end components:

- Anti-lock Braking System (ABS) and traction-control systems
- Brake components
- Camber and toe settings
- Spindles
- Tires
- Wheel seals
- Hubs

Types of damage caused by poor bearing adjustment

Common examples of potential damage caused by improper adjustment include:

- Worn spindles or hub – bearing setting too loose or too tight
- Leaky seals – bearing setting too loose or too tight
- Heating (bluing) of spindle or bearings – bearing setting too tight
- Wear on roller ends – bearing setting too loose or too tight

Advantages of proper bearing adjustment

Incorporating proper bearing adjustment techniques into your maintenance routine helps standardize the practice among your technicians – improving accuracy and consistency. Proper bearing adjustment can also improve your driver's safety on the road by helping to prevent dangerous wheel separations.

In addition, a precise wheel bearing adjustment program extends bearing life and maximizes the life of the entire wheel-end system, saving valuable maintenance dollars that can be spent elsewhere.

Resources

For more information on bearing adjustment, refer to The Technology & Maintenance Council's recommended practice (RP 618) for achieving proper end play adjustment of steer, drive and trailer axle bearings.



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

Proper maintenance and handling procedures are critical. Always follow installation instructions and maintain proper lubrication.
Never spin a bearing with compressed air. The rollers may be forcefully expelled.

TechTips are 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.

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