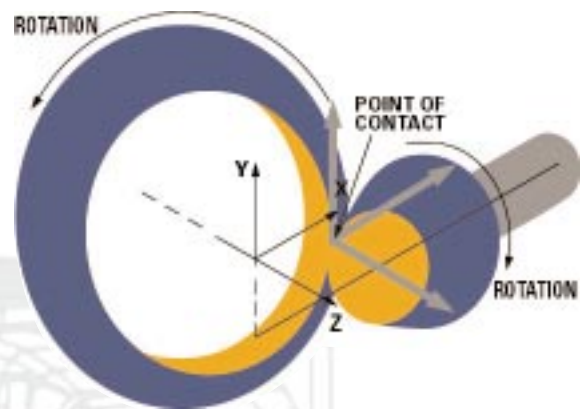


WHY YOU SHOULD USE PRELOAD ON PINION AND RING GEAR SHAFTS

To maximize bearing life, maintain proper gear mesh and provide correct rigidity and stiffness, you should use preload on pinion and ring gear shafts.

Bearings adjusted in preload are typical on pinion and ring gear shafts of heavy-duty axles. Preload is achieved by adjusting the bearings to a slight amount of bearing rolling torque. Rolling torque is a measure of a bearing's resistance to rotate, indicating tightness in the bearing setting.



Maintains Proper Gear Mesh

A slight preload bearing setting assures that proper gear tooth contact is maintained between the pinion and ring gear. This minimizes gear wear and extends the tooth life of both gears. Debris in the axle system is reduced when gear wear is minimized.

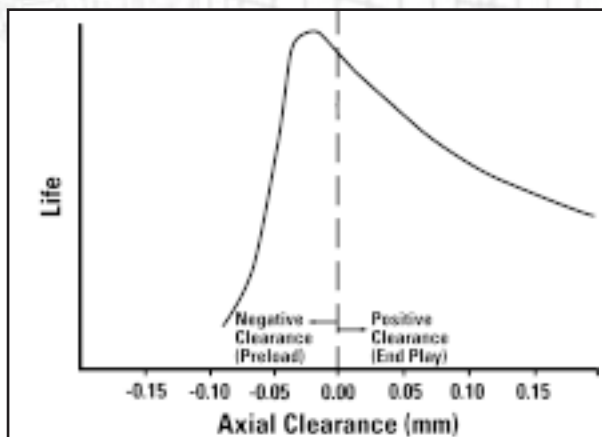
Provides Proper System Rigidity and Stiffness

A slight preload setting minimizes shaft bending, which lowers bearing misalignment and decreases seal wear. Likewise, axial shaft movement is minimized as vehicle operating conditions change from drive to coast.

To provide the correct bearing setting, gear mesh and system rigidity for your axle, always follow the axle manufacturer's recommendation for the proper amount of bearing rolling torque on these shafts. Never exceed the recommended amount of preload, as excessive heat build-up will occur, followed by possible bearing burn-up.

Maximizes Bearing Life

Optimum bearing performance on these shafts occurs at a slight preload setting (see graph).



Optimum Bearing Performance Occurs at Slight Preload.

**BEARING MAINTENANCE MANUAL
ANSWERS YOUR APPLICATION AND
TROUBLESHOOTING QUESTIONS**

Bearing application, troubleshooting and handling techniques are just a few of the topics covered in the *Bearing Maintenance Manual for Transportation Applications*. Order this manual to learn about the different types of tapered roller bearings used at the various locations on each vehicle type. You also will gain an understanding of why a certain bearing type is used for a particular application.

To receive a copy, fax your request for *Bearing Maintenance Manual for Transportation Applications* (order No. 7279) using the order form below. You also can e-mail your order to romant@timken.com. Make sure to mention *Tech Tips*, Volume 5, Issue 4 and order No. 7279 in your e-mail message.

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The Timken Company
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WARNING!

Proper maintenance and handling practices are critical. Failure to follow installation instructions and to maintain proper lubrication can result in equipment failure creating a risk of serious bodily harm. Never spin a bearing with compressed air. The rollers may be forcefully expelled creating a risk of serious bodily harm.

SAFETY CHECK

According to the National Transportation Safety Board, the incidence of wheel separations is about 750 to 1,050 per year. The Safety Board identified improper truck-wheel maintenance as a potential cause. Most often cited were inadequate in-service inspection guidelines and failure to adhere to recommended maintenance practices. At The Timken Company, we care about your safety and the safety of everyone on the road. Please follow recommended wheel-end inspection and maintenance guidelines.

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