Heavy-Duty TechTips

TIMKEN
Where You Turn

Volume 1 • Issue 5 Promoting safe, proper bearing handling practices for the heavy-duty market

Maximizing bearing performance and life remains an objective 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 or contact your local Timken distributor.

GENERAL GUIDELINES FOR MONITORING WHEEL-END SETTING IN ADJUSTABLE WHEEL BEARING SYSTEMS

Proper bearing setting is important for maximizing bearing, seal and tire life. For adjustable wheel bearing systems, Timken recommends following *Technology & Maintenance Council (TMC) Recommended Practice (RP) 618.*

Note: The two other main types of wheel bearing systems are pre-adjusted and unitized. Unitized systems are non-serviceable. A pre-adjusted wheel-end assembly can be serviced; always refer to the manufacturer's service recommendations for specific service instructions.

If properly adjusted, wheel-end setting should not change significantly during early operation. However, over time, small changes will result from bearing break-in and wear. Poor cleanliness and improper maintenance practices can increase wear and cause additional change in bearing setting. For proper wheel-end cleaning and maintenance procedures, refer to *TMC RP 622.*

Users should follow the axle manufacturer's guidelines for wheel bearing service intervals.

Timken recommends performing Step 8 of TMC RP 618 (verifying wheel endplay setting) when any wheel-end:

- maintenance is performed
- component appears worn or stained
- component is inspected or replaced

This includes (but is not limited to):

- brake jobs
- tire changes
- lubrication changes or checks
- when the hub cap or end cap is removed
- when S-cams or bushings are maintained or replaced
- when abnormal tire wear occurs
- when wheel seal leakage occurs

If there is a questionable increase in mounted endplay (internal axial clearance) in the wheel-end, a thorough investigation of the entire system should be carried out and documented.

Figures 1 and 2 show the result of excessive endplay on bearing components.

Improper wheel bearing adjustment is a costly problem for the trucking industry. This is why Timken recommends using a dial indicator (Figure 3) to verify wheel bearing setting. A dial indicator is used to measure the wheel bearing endplay after the adjustment procedure is complete. The endplay range of a correctly adjusted wheel bearing is 0.001" to 0.005" per TMC RP 618.

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. For your safety and the safety of everyone on the road, always follow recommended wheel-end inspection and maintenance guidelines.

Fig. 1 - Outer race (cup) scalloping; uneven localized wear resulting from excessive endplay.

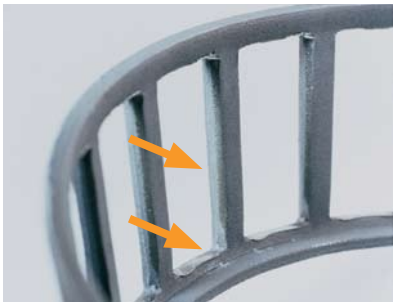

Fig. 2 – Cage pocket wear; heavy contact between the rollers and cage pocket surfaces caused by bearing operating too loosely.

Fig. 3 – A typical endplay gauge.

⚠WARNING ***Failure to observe the following warnings could create a risk of serious bodily harm.***

Proper maintenance and handling practices are critical. Failure to follow installation instructions and to maintain proper lubrication can result in equipment failure.

Never spin a bearing with compressed air. The rolling elements may be forcefully expelled.

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