

Wheel end inspection and service guidelines for commercial vehicles

TT 08-034
September 2008

Tech tip

Below you will find the SKF recommendations for a manually adjusted wheel end for on-highway applications. Other vocations are not covered here. PreSet and Unitized wheel ends are also not covered here. Inspection criteria are broken out into 2 levels: the more frequent in-service or pre-trip inspection and the more detailed inspection.

Level 1: Pre-trip (In-Service)

Frequency: Prior to every trip and whenever driver returns to vehicle while in service

Inspect as soon as vehicle is stopped:

- Feel hubs, taking care not to burn yourself, for excessive heat or variance in temperatures between wheel ends.

Inspect prior to (re)entering the vehicle:

- Visually inspect each wheel end for loose, damaged or missing fasteners.
- Inspect each hubcap for sufficient lubricant level, missing or loose bolts or plugs
- Check for leaks by looking for wetness at hubcap gasket, axle flange gasket or seal, hub or brake lining. Wetness at the hubcap plug or hub vent is not an indication of a leak.

If any of the above conditions exist, take appropriate actions including placing vehicle out of service if need be.

Level 2: Detailed inspection

Frequency: Annually or every 100,000 miles (whichever comes first)

- Conduct all of the inspection criteria listed under level 1.
- For oilbath non-driven axles, check lubricant fill level and condition. If lubricant is in good condition but low, fill to proper level using the same lubricant within the wheel end. If lubricant contains contaminants such as water (milky or white appearance) or debris (gritty), replace lubricant with same lubricant type within the wheel end. A magnet may be used to find metal particles.
- For semi-fluid grease non-driven axles, pull the outer bearing and inspect lubricant level and condition. Use OEM recommended fill level or 3 o'clock / 9 o'clock as prescribed by Technology and Maintenance Council (TMC). Replace lubricant if contaminants are found as recommended above.

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Wheel end inspection and service guidelines for commercial vehicles – cont.

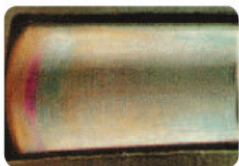
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Level 2: Detailed inspection – (continued)

- Lift and support each axle. Rotate wheel checking for vibration. If rotation is not smooth or a vibration is detected, inspect bearings for wear or damage.
- Check bearing end play with dial indicator. If end play is out of the TMC recommended range (RP618) .001" to .005", inspect bearings for wear or damage.
- Check abnormal or uneven tire wear as this may be an indication bearing is in need of replacement.
- Whenever seal is replaced, thoroughly inspect bearings. A leaky seal often precedes or leads to a bearing failure.
- Bearings should be replaced in sets (cup and cone). These are mating components that wear together. You may see the wear characteristics more prevalent on one or the other but both are affected. Below are examples of conditions where bearings should be replaced:
 - ❖ Discoloration – indication of high levels of heat (picture A).
 - ❖ Wear, spalling or pitting at ends of rollers indicates improper bearing adjustment either excessive or too tight (picture B).
 - ❖ Pitting, circular wear of the race indicate contaminants in the lubricant (picture C).
 - ❖ Spalling on the race, a wearing away of the bearing surface, is the result of contamination, improper installation, improper lubrication or the end of normal bearing life (picture D).
 - ❖ Vertical etching on the race indicates moisture contamination of the lubricant (picture E).
- If one seal is replaced, it is recommended to check the records when the other wheel seals were last serviced. If they have similar in-service time, it would be economical to replace those also while the vehicle is in the shop. An expensive, non-scheduled service or even road call could potentially be avoided.

A.



B.



C.



D.



E.



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