



Things to look for to reduce wheel end roll-offs

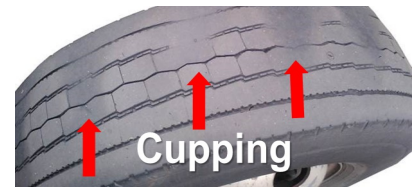
Wheel roll-offs and wheel end separations occur within the intermodal industry. Although they have a relatively low frequency they can carry catastrophic losses to include serious property damage, injury and/or death to the motoring public and bystanders.

This document was designed to provide information to the driver to alert them to potential wheel end roll-offs.

✓ **Tire Tread** Inspect the tire for any type of irregular wear.

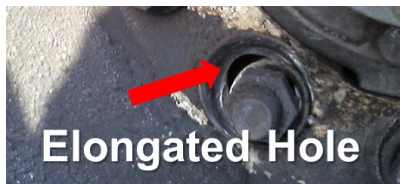
There are numerous reasons for irregular tire wear. Here is a list of reasons that could affect the wheel end:

1. Non-concentric tire, rim, wheel mounting or other non-conformity.
2. Worn or improper bearing adjustment
3. Worn or damaged suspension parts.
4. Assembly out of balance.



✓ **Rims** Inspect around the rim area for issues. Look for:

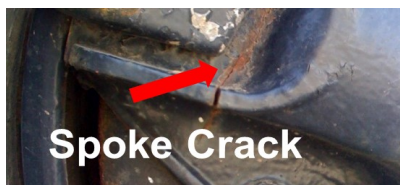
1. **Elongated or distorted stud and bolt holes**



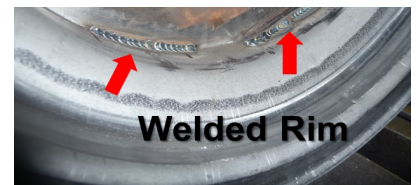
2. **Cracking in the rim area** (stud holes, hand holes & rim edges)



3. **Rim Slippage** where the rim is shiny or where the valve stem has been bent or cut



4. **Evidence of welding repair** in any area—there should be none. The **flange of the rim should not be bent** or distorted from its original shape or contour.



✓ Lug Nuts/Spoke Clamps Should be present, tight & in good condition. Look for:

- Missing Lug Nuts, Missing Clamps and Loose lug nuts
- Variations in the number of stud threads after the nut may indicate loose lug nuts or spoke clamps
- Damaged/Broken Nuts & Clamps
- If present, loose wheel indicators. Make sure they are lined up. The device fits over the lug nuts & if a lug nut comes loose the indicator will point in another direction.



✓ Hub/Hubcap Inspect the hub & hubcap for possible heat or damage issues. Look for:

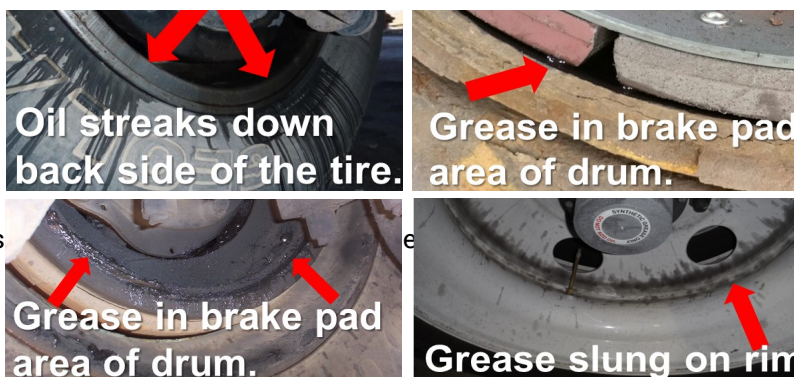
- Excessive heat (might be discolored, have a burnt smell, visual smoke coming off of it)
- Hot to the touch
- If present, label on hubcap that's turned from white to black **OR** a red button that will pop out from a hubcap bolt if it has gotten too hot.
- Cracked hubcap and missing bolts—these can lead to loss of grease/oil
- On Wheel-ends equipped with a viewing glass on hubcap, make sure oil is at correct level & filler plug present. If the hubcap window is distorted this might indicate the hub has gotten too hot in the past.



✓ Oil/Grease Inspect each wheel for the presence of oil or grease leakage.

On the front side of the wheel:

- Pooling of oil in the bottom groove of the rim.
- Oil streaks on the sidewalls of the tires
- Shiny sidewall appearance on tire
- In a grease hub system, look for signs of grease rim.



On the back side of the wheel:

- Oil streaks running down the tire
- Excessive grease in the brake shoe or seal area.



The back side of the wheel can be inspected by looking from the opposite side of the unit.

Note: A small amount of oil / grease residue around the hubcap vent or seal is normal and should not be a concern.