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anniversary year,
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Best Wishes
for the
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Inspecting Your Wheels

In order to give your tires the best chance to live a long life, they must be mounted on wheels that are free of problems and properly maintained. Proper maintenance and inspection of disc wheels is always important for enhanced vehicle safety and performance.

Inspecting Wheels During Tire Inspections: Don't limit your inspection to the tires. Visually check the wheels as well. Look for excessive corrosion buildup, cracks in metal, bent/broken flanges, loose/missing/damaged nuts, bent/stripped studs. Rust streaks indicate loose nuts or improper nut fit.

Inspecting Wheels During Tire Changes: A more thorough wheel inspection should be performed during a tire change. After the tire is removed, check all metal surfaces including the tire side of the rim and the mounting area of the disc. Look for any possible out-of-service conditions. Replace damaged wheels, components, nuts, studs and valves. Most fleets replace the valve grommet when changing the tire. Now is the time to completely remove rust and dirt from all surfaces. It is very important to clean the surfaces where the wheels mount together and against the hub or drum, in order to ensure proper clamping. Be certain that the hub pilots are free of corrosion to allow the inner wheel to fully seat against the hub or drum.

Proper Disc Wheel Mounting: Always be certain to use the proper nut torque and tightening sequence when attaching wheels. Additionally, never mix wheel mounting styles on a wheel end. Disc wheels are designed for either hub-pilot or stud-pilot designs. While hub-pilot is by far the most common today, there are still some stud-piloted (or ball seat mounted) hubs operating in the market.

Replacement of Broken Studs: Ensure the replacement wheel stud is equivalent to the original wheel stud being removed, in

terms of both design and material grade. When replacing studs, the rule of thumb is to replace the broken stud along with the adjacent stud when one stud is broken. If two or more studs are broken then replace ALL studs. Always be sure that the stud is fully seated before attaching the wheel.

Special inspection of the wheel is required when a tire/wheel assembly is subjected to extreme heat. Heat damage can change the metallurgy of both steel and aluminum wheels which could cause the wheels to lose strength and change dimensions. The bead seat and rim flange wheel area may shrink and no longer have the ability, contour and dimension to hold the tire bead on the wheel while under pressure.

The easiest way to confirm if a wheel that ran hot has changed dimensions/contour is to roll the wheel on a smooth, flat surface for at least 10 feet. Any deviation from rolling in a straight line indicates that the dimensions have changed. If the wheel deviates from the straight line or the rim flanges appear damaged, then it is time to remove the wheel from service and scrap. If a rim roll test cannot be conducted, you can still check the rim flanges with a framing square.

Abnormal operating situations, such as vehicle or tire fires, brake malfunctions and wheel bearing degradation, can generate high heat. Additionally, running with little or no air for an extended period may also result in this same condition of undersized bead seats caused by heat. If a tire is suspected of running flat or with little air, the wheel should be inspected to determine if the contour dimensions have changed. The use of automatic tire inflation systems will significantly reduce the probability that a tire will run with little or no air.

The TMC of the American Trucking Associations publishes numerous recommended practices for both steel and aluminum wheels, which are highly recommended for additional information on this subject.