MAINE MOTOR TRANSPORTATION ASSOCIATION PRESENTS

WHEEL & HUB SAFETY AWARENESS TRAINING

Based on Tire Industry Association (TIA) Guidelines

Presented by:

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- Lockout and tagout
- OSHA Workplace fatalities data (2010-2014)

32 fatalities associated with rollover accidents

- Wheel chock the vehicle
- Jack up vehicle and support vehicle with jack stands

92 fatal jacking and lifting accidents (2010-2014)

- Remove all fasteners

- Using a lifting bar or wheel dolly, remove tire & wheel assemblies

WHAT IS TORQUE?

Torque is the measurement of twisting force that is applied to a lug nut to create bolt tension.

WHAT IS CLAMPING FORCE?

Clamping force is the result of bolt tension and it is the physical property that holds the wheels on the vehicle.

DOES THE CORRECT TORQUE GUARANTEE THE CORRECT CLAMPING FORCE?

No. Clamping force cannot be measured in the field, so technicians must use the correct torque to approximate the amount of clamping force.

Since there are a number of factors that determine how much clamping force is generated per foot pound of torque, technicians should always **follow the RIST procedure** developed by the Tire Industry Association (TIA).

R stands for **remove** debris from mating surfaces

I stands for **inspect** all of the components

S stands for **snug** the lug nuts in a star pattern

T stands for **torque** the fasteners to specification

TORQUE SPECIFICATIONS

Hub-Pilot Wheel: 450-500 ft/lbs. oiled | Stud-Pilot Wheel: 450-500 ft/lbs. dry | Demountable Rim: 200-260 ft/lbs. dry

TIA is the industry leader in commercial truck tire and wheel service education. Since Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1910.177 requires training for all employees that service truck tires, fleets must make sure that every technician who installs, removes or handles truck tires in any way has compliant training. TIA developed the Fleet Tire Service OSHA Compliance Program so the trucking industry could provide in-house technician training that exceeds the minimum requirements established by 29 CFR 1910.177.

For more information on TIA training or the RIST procedure, visit TIA's website: http://www.tireindustry.org/training.asp or call 800-876-8376, ext. 106.

TIA TIRE INDUSTRY ASSOCIATION

- Clean the mating surfaces on both sides of the inner and outer wheels

- Clean center hole in wheel

- Clean hub, including mating surfaces on the brake drum and the studs

- Remove any dirt, rust or corrosion from pilot pads

- Inspect disc wheel mating surfaces on both sides of the wheel

- Check the hub and drum especially the condition of the pilot pads and studs

- Apply 2 to 3 drops of motor oil:

  - between the nut body and the flange on every fastener and

  - to threads on the end of each stud

- Apply a drop of motor oil to the pilot pads

- Install the wheels with a pilot pad at 12 o’clock
- Make sure the inner valve stem is accessible and the outer valve stem is in the opposite hand-hole

- Seat the wheels by hand, tightening the flange nut at the 12 o’clock position

- Starting at the 12 o’clock position, snug fasteners in a star pattern

- Torgue the lug nuts in a star pattern to specifications

- After the first 50 to 100 miles of service, the fasteners should be rechecked with a torque wrench

5-in-1 Gauge

FOR INSPECTING WHEEL END COMPONENTS

This gauge is designed to inspect hub-pilot wheel systems to include: M22 x 1.5 wheel studs, wheel nuts, and disc wheel bolt holes. Precision machined, coated to prevent rust and is not affected by the day-to-day work environment. In the hands of a trained technician, the 5-in-1 Gauge is designed to enhance current industry inspection methods and best practices.

www.atgwheeltool.com

1. INSPECTING STUDS FOR UNDER DIAMETER

When using the 5-in-1 Gauge, inspect the stud for under diameter by inserting the gauge over the threaded end of the stud. If the stud enters the gauge more than the first 4-5 threads, replace it and contact the stud manufacturer for dimensional specifications.

INSPECTING HUB-PILOT WHEEL NUTS

2. INSPECTING FOR BELL MOUTHING

With the key chain already removed, begin by turning the gauge upside down inserting it into the top of the nut at the threads, the scribe line on the outside of the gauge should not enter the threaded area of the nut. Remove any nut from service where the gauge enters past the scribe line and contact the nut manufacturer for dimensional specifications.

3. INSPECTING FOR OVER DIAMETER

With the key chain still removed, insert the gauge into the bottom of the nut. Again, the scribe line should not enter the threaded area of the nut. Remove any nut from service where the scribe line enters past the threads (not flange washer) and contact the manufacturer for dimensional specifications.

4. INSPECTING DISC WHEEL BOLT HOLES FOR ELONGATION OR FOREIGN MATERIAL

Insert the 5-in1 Gauge into the bolt hole inspecting for elongation and foreign material. If elongation or distortion is found, replace the wheel. If foreign material is found, clean the bolt holes.

5. INSPECTING DISC WHEEL BOLT HOLES FOR DIAMETER

Place the large end of the gauge on each bolt hole. It will not pass through if it meets SAE J694/ISO4107 sizing. It is possible to have a larger bolt hole, if there is no elongation or distortion, contact the manufacturer for specifications before returning the wheel to service.

A•T•G

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