



Wheel Safety

By Donald Burr

PLC Safety & Training Coordinator
safety@maineloggers.com

Let's talk wheels. The number one thing that I have learned while researching this topic is that after all the wheels I have put on vehicles I should have known more. It is true I was ignorant on what, how and why a wheel stays on the truck. All who know me know I don't like to be ignorant, so here goes - all you need to know about wheels and were afraid to ask.

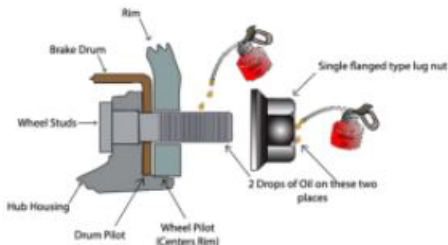
No matter what kind of wheels you are dealing with, (Hub Piloted, Stud Piloted (Bud), or the older Dayton wheels), wheel installation comes down to clamping force and how it is being applied. If you understand nothing else you need to understand clamping force and what kind of hardware performs the clamping force. Some of the hardware is very similar and even fits well, but not right. To get proper clamping force, wheels and hubs need to be clean, uncracked, and installed straight to get maximum contact between wheel and hub. The contact needs to be straight on so that there will be no movement when the wheel nuts apply proper force. See images 1 & 2 for proper alignment.

From the first to the last step when dealing with wheels you need to observe and pay attention to what the wheels are telling you. I am not going to give you step by step just the highlights with the what & why.

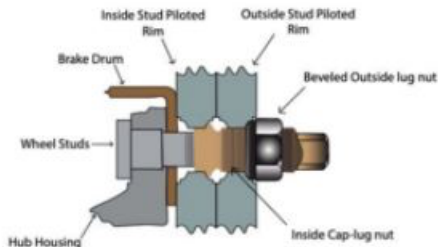
After you disassemble a wheel, clean & inspect, look for cracks, bad threads, stretched stud bolts & stretched or oblong rim stud holes. This is the only time you have to give the area behind the rims a thorough inspection, because a driver cannot inspect this area during the pre-trip. Pay very close attention to the studs at the face of the hub, where cracks can be hidden from view.

When you are ready to install the wheels, for a hub

Hub Piloted



Stud Piloted (Bud) Wheels



piloted wheel, put two drops of oil on the stud and inside the nut, set the hub so that the pilot face is at the 12 o'clock position and start tightening at that 12 o'clock stud

Wheel Safety Continued Page 30

Acadia
INSURANCE

| a Berkley Company

MAINE | CONNECTICUT | MASSACHUSETTS
NEW HAMPSHIRE | NEW YORK | VERMONT

ACADIAINSURANCE.COM
207.772.4300

COBRA®
High Load

Free Shipping
Use code: MAINE

STRAP HANDLER

Launches heavy tie-down straps and corner protectors effortlessly

- Increases Driver Safety
- Saves You Time
- Saves Wear & Tear on Arms & Shoulders
- For Professional Use
- Created by a Flat Bed Truck

(860) 539-2438

Web: <https://thetractor.com>
Email: tractor@thetractor.com

HECTOR-OLIL
USA

Safety

Wheel Safety Continued from Page 29

only to 50 foot-lbs., going around in a star pattern. At this point reevaluate if the wheel is straight (square) so that it spins round. If the wheel does not spin round the wheel will never stay tight, then loosen and retighten and check again that the wheel spins round. If the wheel spins round, then finish the wheel nuts to a torque 450 – 500 foot-lbs. If you are using stud piloted wheels tighten the inner cap nuts first to 50 foot-lbs. in a star pattern, then go around in the same pattern to 450 – 500 foot-lbs. Next the outside wheel in the same pattern 50 foot-lbs. and again 450 – 500 foot-lbs. Both type of wheels need to be re-checked after 50 – 100 miles. Please note that when the stud piloted wheels are checked you need to remove the outer nuts then check the torque of the inner cap nuts.

Remember over torquing can be just as bad as under torquing.

There are a couple of tools that can assist in tire cleaning & inspection

For cleaning the studs: Tru-bal has a tool \$148.00
<https://www.tru-bal.com/other-accessories/x-2756-sb.html>



For lining the rims up: Tru-bal has this tool which comes in numerous sizes for your need.

<https://www.tru-bal.com/solution-a>



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.

Did you know?

1. That torque wrenches should be checked and calibrated annually.
2. OSHA has a standard for employees who change tires.
3. That you should start with the hub piloted flange at the 12 o'clock position and tighten that lug nut first.
4. That you should tighten all lug nuts to 50-foot lbs. then check to see if the wheel is centered before you finish tightening to 450 – 500-foot lbs.
5. It is important to do a good inspection while the wheel is off because damage there could never be seen from a pre-trip inspection by the driver.

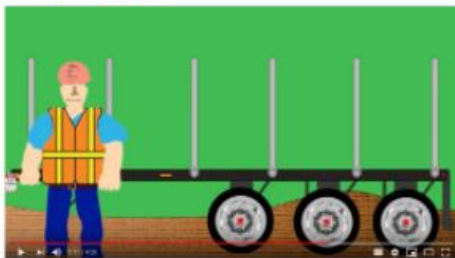
<http://www.haltec.com/pc/Inspection-Tool-p1112.htm>



Last word here is the OSHA (1910.177) standard for wheel work done by a mechanic. The bottom line is that all employees who work on tires & wheels shall be trained in the proper procedures in removal and installations. The Tire Industry Association has 3 levels of training (Basic Commercial Tire "200" / Commercial Tire Service "300" / Commercial Tire Service Instructor "400").

The OSHA standard can be found at: <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.177>

An OSHA poster can be downloaded at: <https://www.osha.gov/Publications/wheel/3401tubeless-truck-bus-tires-wall-chart.pdf>



Check out the PLC Safety Video on Wheel Safety at: <https://www.youtube.com/watch?v=jodBZlYkJYU&feature=youtu.be>