Servicing Multipiece & Single-Piece Rim Wheels

Reset Form

Self-Inspection Checklist

Optional Information

Name of School:
Date of Inspection:
Career-Technical program/course/room:
Signature of inspector:

Guidelines:

This checklist covers regulations issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR 1910.177. It applies to servicing multi- and single-piece rim wheels used on large vehicles such as trucks, tractors, trailers, busses, and off-road machines. These regulations do not apply to rim wheels used on automobiles or pickup trucks and vans with automobile tires or truck tires designated LT. The regulations cited apply only to private employers and their employees, unless adopted by a State agency and applied to other groups such as public employees. A yes answer to a question indicates that this portion of the inspection complies with the OSHA or U.S. Environmental Protection Agency (EPA) standard, or with a nonregulatory recommendation. Definitions of terms in bold type are provided at the end of the checklist.

Servicing tires on multipiece and single-piece rim wheels can result in serious injury or death to anyone in the area. The wheel can be propelled at great distances at great forces. The OSHA standard is quite specific about training requirements.

Training		
	1	Is a training program in place (including information about hazards and safety procedures) for employees or students who service rim wheels? [29 CFR 1910.177(c)(1)]
	2	As part of the training program, have all employees and students been given the information on charts, rim manuals, and the OSHA regulations covered in this checklist? [29 CFR 1910.177(c)(1)(ii)] *Note: Charts should be posted in the lab or shop.*
	3	If students or employees are unable to read or understand the charts or rim manuals, has the information been conveyed in a manner that they understand? [29 CFR 1910.177(c)(1)(iii)]

- Continued -

U.S. Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Safety Checklist Program for Schools
DHHS (NIOSH) Publication Number 2004-101
October 2003

Training		
	4	Have students and employees who service rim wheels demonstrated and maintained the ability to service rim wheels safely, including acceptable performance of the following tasks? [29 CFR 1910.177(c)(2)] 1. Demounting tires (including deflation) 2. Inspecting and identifying rim wheel components 3. Mounting tires (including inflation with restraining device or other safeguard required by this section) 4. Using the restraining device or barrier and other equipment required by this section 5. Handling rim wheels 6. Inflating a tire when a single-piece rim wheel is mounted on a vehicle 7. Installing and removing rim wheels
	5	Do students and employees stand outside the trajectory when tires are inflated and when the wheel is inspected following inflation? [29 CFR 1910.177(c)(2)]
	6	Have the students or employees who service rim wheels been individually evaluated on their ability to perform these tasks and service rim wheels safely? [29 CFR 1910.177(c)(3)] *Note: If anyone lacks proficiency in servicing rim wheels, he or she must be provided additional training.*

Tire-Servicing Equipment		
	7	Are restraining devices furnished for inflating tires on multi-piece wheels? [29 CFR 1910.177(d)(1)]
	8	When inflating a tire on a single-piece wheel that is not bolted onto the vehicle, are restraining devices or barriers provided? [29 CFR 1910.177(d)(2)]
	9	Does each restraining device or barrier have the capacity to withstand the maximum force that would be transferred to it during a rim wheel separation occurring at 150% of the maximum tire specification pressure for the rim wheel being serviced? [29 CFR 1910.177(d)(3)(i)]
	10	Are restraining devices and barriers capable of preventing the rim wheel component from being thrown outside or beyond the device or barrier? [29 CFR 1910.177(d)(3)(ii)]
	11	Are restraining devices and barriers inspected for the following before each day's use and after any separation of the rim wheel component or sudden release of contained air? [29 CFR 1910.177(d)(3)(iii)] 1. Cracks at welds 2. Cracked or broken components 3. Bent or sprung components caused by mishandling, abuse, tire explosion, or rim wheel separation 4. Pitting of components due to corrosion 5. Other structural damage that would decrease its effectiveness
	12	Are damaged restraining devices or barriers immediately removed from service? [29 CFR 1910.177(d)(3)(iii)]
	13	Are damaged restraining devices or barriers returned to service only after a manufacturer or a registered professional engineer has repaired, reinspected, and certified them as meeting strength requirements? [29 CFR 1910.177(d)(3)(iv)]
	14	Does the air line assembly used for inflating tires have a clip-on chuck; an in-line valve with a pressure gauge or a preset table regulator; and a sufficient length of hose between the clip-on chuck and the in-line valve (if one is used) to allow the student or employee to stand out of the trajectory? [29 CFR 1910.177(d)(4)]
	15	Are the current charts or rim manuals containing instructions for the types of wheels being serviced readily available in the service area? [29 CFR 1910.177(d)(5)]
	16	Do employees and students use the tools recommended in the rim manual for the type of rim being serviced? [29 CFR 1910.177(d)(6)]

Wheel Component Acceptability		
	17	Is interchanging components strictly prohibited, except as permitted in the charts or in the applicable rim manual? [29 CFR 1910.177(e)(1)]
	18	Are all multipiece wheel components and single-piece wheels inspected before assembly? [29 CFR 1910.177(e)(2)] *Note: Do not use any wheel or wheel component that is bent out of shape, pitted from corrosion, broken, or cracked. Mark or tag it as unserviceable and remove it from the service area. Replace damaged or leaky valves.*
	19	Are rim flanges, rim gutters, rings, bead seating surfaces, and the bead areas of tires free from any dirt, surface rust, scale or loose or flaked rubber buildup before mounting and inflation? [29 CFR 1910.177(e)(3)]
	20	Is the size (bead diameter and tire/wheel widths) and type of the tire and the wheel checked for compatibility before assembly of the rim wheel? [29 CFR 1910.177(e)(4)]

Safe Operating Procedures: Multipiece Rim Wheels		
	21	Have safe operating procedures been established for servicing multipiece rim wheels? [29 CFR 1910.177(f)]
	22	Do students and employees use the following procedures? [29 CFR 1910.177(f)] 1. Completely deflate tires before demounting by removing the valve core. 2. Completely deflate tires by removing the valve core before a rim wheel is removed from the axle in either of the following situations: a. When the tire has been driven underinflated at 80% or less of its recommended pressure. b. When the tire or wheel components have obvious damage or if damage is suspected. 3. Apply rubber lubricant to bead and rim mating surfaces when the wheels are assembled and tires are inflated, unless the manufacturer recommends against it. 4. If a tire on a vehicle is underinflated but has more than 80% of the recommended pressure, inflate the tire while the rim wheel is on the vehicle (provided remote control inflation equipment is used, and no one is in the trajectory during inflation). 5. Inflate tires outside a restraining device only to a pressure sufficient to force the tire bead onto the rim ledge, and create an airtight seal with the tire and bead. 6. Whenever a rim wheel is in a restraining device, do not rest or lean any equipment or part of the body on or against the restraining device. 7. After tire inflation, be sure the tire and wheel components are inspected while still within the restraining device to make sure that they are properly seated and locked. If further adjustment to the tire or wheel components is necessary, deflate the tire by removing the valve core before making the adjustment. 8. Do not correct the seating of side and lock ring by hammering, striking, or forcing the components while the tire is pressurized. 9. Do not rework, weld, braze, or otherwise heat cracked, broken, bent, or otherwise damaged rim components. 10. Whenever multipiece rim wheels are being handled, stay out of the trajectory unless the servicing makes presence in the trajectory necessary. 11. Do not apply heat to a multipiece wheel or wheel component.

Safe Operating Procedures: Single-Piece Rim Wheels		
	23	Have safe operating procedures for servicing single-piece rim wheels been established? [29 CFR 1910.177(g)]
	24	Do students and employees use the following procedures? [29 CFR 1910.177(g)] 1. Completely deflate tire by removing the valve core before demounting. 2. Mount and demount the tire only from the narrow ledge side of the wheel. Avoid damaging the tire beads while mounting tires on wheels. Mount tires only on compatible wheels of matching bead diameter and width. 3. Apply nonflammable rubber lubricant to bead and wheel mating surfaces before assembling the rim wheel, unless the tire or wheel manufacturer does not recommend rubber lubricant. 4. If a tire-changing machine is used, inflate the tire only to the minimum pressure necessary to force the tire bead onto the rim ledge. 5. If a bead expander is used, remove it before the valve core is installed and as soon as the rim wheel becomes airtight (the tire bead slips onto the bead seat). 6. Inflate tires only when they are contained within a restraining device, positioned behind a barrier, or bolted on the vehicle with the lug nuts fully tightened. 7. Do not inflate tires when any flat, solid surface is in the trajectory and within one foot of the sidewall. 8. Stay out of the trajectory when inflating a tire. 9. Do not inflate tires to more than the inflation pressure stamped in the sidewall, unless a higher pressure is recommended by the manufacturer. 10. Do not inflate tires above the maximum pressure recommended by the manufacturer to seat the tire bead firmly against the rim flange. 11. Do not apply heat to a single-piece wheel. 12. Do not rework, weld, braze, or otherwise heat cracked, broken, bent, or otherwise damaged wheels.

Definitions

Charts: The OSHA publications entitled Demounting and Mounting Procedures for Truck/Bus Tires and Multipiece Rim Matching Chart; the National Highway Traffic Safety Administration (NHTSA) publications entitled Demounting and Mounting Procedures Truck/Bus Tires and Multipiece Rim Matching Chart; or any other poster that contains at least the same instructions, safety precautions, and other information in the charts that is applicable to the types of wheels being serviced.

Multipiece rim wheel: a multipiece wheel with the tire tube and other components.

Multipiece wheel: a vehicle wheel consisting of two or more parts, one of which is a side or locking ring designed to hold the tire on the wheel by interlocking components when the tire is inflated.

Rim manual: a publication containing instructions from the manufacturer or other qualified organization for correct mounting, demounting, maintenance, and safety precautions for the type of wheel being service.

Rim wheel: an assemblage of tire, tube, and liner (where appropriate), and wheel components.

Single-piece rim wheel: the assemblage of single piece rim wheel with the tire and other components.

Single-piece wheel: a vehicle wheel consisting of one part, designed to hold the tire on the wheel when the tire is inflated.