



Shop Safety: Equipment and Tools

UW Extension Webinar
January 28, 2014



Mary Bauer CIH, CSP
Compliance Assistance Specialist
Eau Claire, WI 54701
715-832-9019

My Background

- **Mary Bauer**
 - 28 years w/ OSHA
 - 20 Compliance Officer
 - 8 Compliance Assistance Specialist
 - IH/ Safety
 - CIH: Certified Industrial Hygienist
 - CSP: Certified Safety Professional
 - 1000 + Inspections



Session Topics


1. Organization
 - walk paths, shelving, work areas
2. **Equipment and tools, including electrical safety**
3. Ventilation
 - vehicle exhaust and welding areas
4. Lockout/tagout
5. Lifting and blocking
 - slings, chains and rigging

General Industry Standards

- **1910.241 Definitions**
- **1910.242 Hand & Portable Powered Tools**
 - General
 - Compressed Air
- **1910.243 Guarding Portable Powered Tool**
 - Portable Circular Saws
 - Pneumatic Powered Tools and Hose
 - Portable Abrasive Wheels
 - Explosive Actuation Fastening Tools
 - Powered Lawnmowers
- **1910.244 Other Portable Tools-Equip**
 - Jacks
 - Abrasive Blasting Nozzles

Related Standards/Hazards

- 1910.132-.138: PPE
 - Respirators
- 1910.95: Noise
- 1910.305: Electrical
- 5(a)(1): Ergo
- 1910.145: Accident Prevention Tags
- 1910.215: Portable Bench Grinder




Variety of Tools Covered



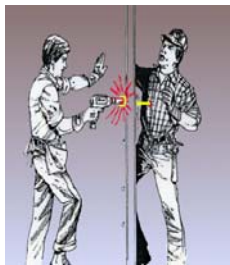
Hazards Associated w/ Tools

- Electrical Shock
- Moving Parts:
 - Unguarded Cracked
 - Blades, Gears, Wheels, etc.
- Struck By
 - Flying Debris / Parts / Wheel
 - Nail/Fasteners
 - Hose Whipping
- Crushed In-Between
- Noise
- Cuts due to sharp edges
- Dead End to Skin: Embolism



Hazard Associated

- Create issues: Above, Below, Behind
 - Dropped
 - Falling / Tipped Over
 - Drill into Electrical
 - Flying Parts



Employee Owned Tools

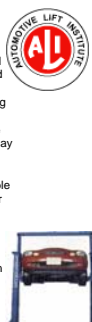
- Employee Owned Tools & Equipment
 - Construction, Machining, Maintenance
 - ER Knowledge of Employee's Tool Condition?
 - EE Has Financial Interest
 - EE Has Favorite Tool




Automotive Lifts: Not Jacks

<http://intranet.osha.gov/cgi-bin/vabs/vabsm?ocr=006&asis=N&ins=310558655&query=automotive+lifts&cid=01001>


Section 5(a)(1) of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to potential crushing hazards from falling loads and/or lift parts: (a) Service bay area, for an employee who was utilizing the Rotary in-ground 9000 #TML97C0005 automotive lift to elevate a vehicle where the lifting contact pads were damaged and/or missing from the lifting arms. (b) Service bay area, for employees operating automotive lifts and having potential exposure to crushing and/or struck-by hazards, the employer had not implemented an annual training program. Abatement Note: Among other methods, one feasible and acceptable method of abatement would be to follow the requirements of ANSI/ALI ALOIM and/or ANSI B153.1 which includes, among other requirements, the following: 1. Institute a preventive maintenance program according to the manufacturer's specifications. 2. Provide training to employees on proper use and care of the lifts. 3. Ensure all lifts are rated and marked with their load capacity. 4. Schedule and complete all periodic and annual inspections. Abatement Note: Abatement certification and documentation are required for this item (see enclosed "Sample Abatement Certification Letter").



Madison: 2 Fatalities Vehicle Fell from Lift



In-Ground Lifts: General Duty



Bearing Press Guard

Hand Tool Misuse

- The greatest hazards posed by hand tools result from misuse and improper maintenance.
- Some examples:
 - Using a screwdriver as a chisel may cause the tip of the screwdriver to break and fly, hitting the user or other employees.
 - If a wooden handle on a tool such as a hammer or an axe is loose, splintered, or cracked, the head of the tool may fly off and strike the user or another worker.
 - A wrench must not be used if its jaws are sprung, because it might slip.
 - Impact tools such as chisels, wedges, or drift pins are unsafe if they have mushroomed heads. The heads might shatter on impact, sending sharp fragments flying.

1910.242(b) Compressed air used for cleaning.

Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i.

CAUTION

The use of compressed air in excess of 30 psi is unlawful. Do not remove or alter this 30 psi nozzle.

Razor Knife Safety

- AKA:
 - Box Cutter, Utility Knife, Scrap Knife
- Cause of Numerous Injuries

Abrasive wheels shall be used only on machine provided with safety guards.

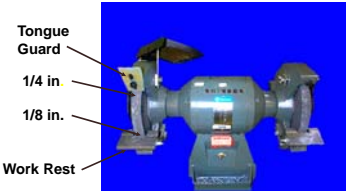
180 deg

17

Common Violation: Upper and Lower Guard Out of Position

General requirements: "Tongue guard"
 The distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed **1/4 inch**.

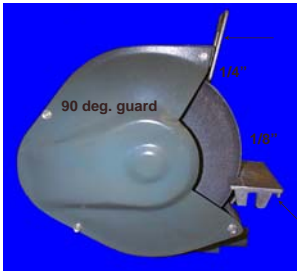
"Work rests"
 On floor and bench mounted grinders, shall be provided with work rests which are rigidly supported and readily adjustable. Such work rests shall be kept at a distance not to exceed **one-eighth inch** from the surface of the wheel.



Tongue Guard
 1/4 in.
 1/8 in.
 Work Rest

"Safety Guard"

The angular exposure of the grinding wheel periphery and sides for safety guards used on machines known as bench and floor stands should not exceed **90 deg.**, or **one-fourth** of the periphery.




90 deg. guard
 1/4"
 1/8"
 Adjustable tongue
 Work rest



Pneumatic Tool Connections

UNACCEPTABLE **ACCEPTABLE**

HOSE CLAMP



1926.305(a)(1) "Jacks"


Rated capacity shall be legibly marked on all jacks and shall not be exceeded.

(a)(2) Have a positive stop to prevent overtravel.

(c) Block or cribbed. Where there is a possibility of slippage of the metal cap of the jack, a wood block shall be placed between the cap and the load.


(d) Adequate antifreeze liquid.

- thoroughly inspected
- out of order shall be tagged

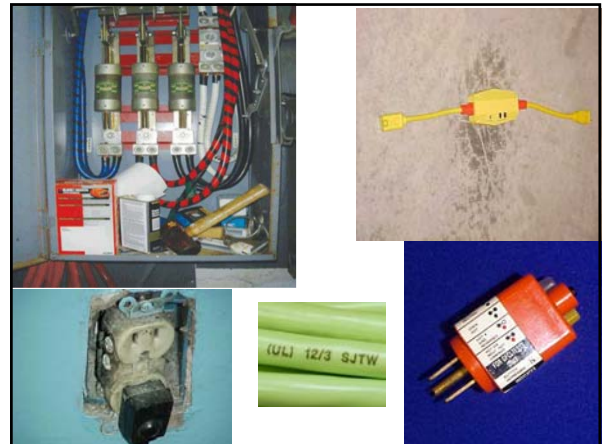


Blocked
 Capacity


Electrical - Common Violations



- Ungrounded Extension Cords
- Open Boxes
- Unapproved equipment or use of equipment
- Wet Locations
- Wiring damaged by vehicles or pinch points
- No GFCI or Assured Grounding Conductor Program.
- Cords not approved for heavy use: SJ/ SJO
- Access to Electrical Boxes not Clear (3')



Machine Electrical Feed

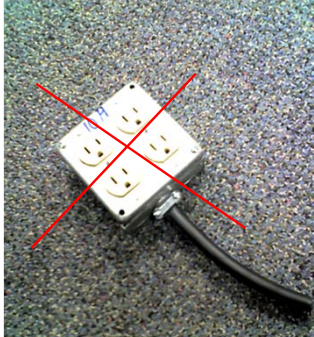


Before



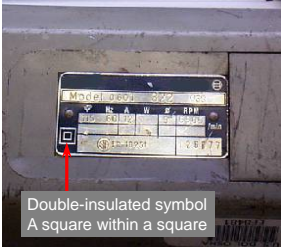
After

Not An Approved Use




1926.302(a)(1) "Double insulated"

Electric power operated tools shall either be of the approved double-insulated type or grounded in accordance with Subpart K.



Double-insulated symbol
A square within a square

Moving / Material Handling Ergonomics

- Moving Implements
- Lifting/moving Engines
- Positioning Components
- Awkward Positions



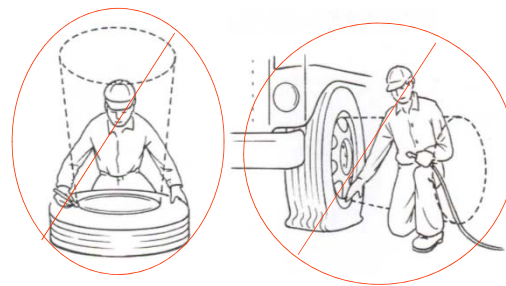
Parts Washer: Lid is Blocked



Fusible Link Melts w/ Fire



Tires-Stay OUT of The "LINE OF FIRE": Cages



Cages for Split Rim Tires



UNITED STATES DEPARTMENT OF LABOR

Occupational Safety & Health Administration We Can Help

Hand and Power Tools

Hand and power tools are a common part of our everyday lives and are present in nearly every industry. These tools help us to easily perform tasks that otherwise would be difficult or impossible. However, these simple tools can be hazardous and have the potential for causing severe injuries when used or maintained improperly. Special attention toward hand and power tool safety is necessary in order to reduce or eliminate these hazards.

Hand and power tool hazards are addressed in specific standards for the general industry, shipyard employment, marine terminals, longshoring, and the construction industry.

OSHA Standards

This section highlights OSHA standards, directives (instructions for compliance officers), and standard interpretations (official letters of interpretation of the standards) related to hand and power tools in the workplace.

Note: Twenty-five states, Puerto Rico and the Virgin Islands have OSHA-approved State Plans and have adopted their own standards and enforcement policies. For the most part, these States adopt standards that are identical to Federal OSHA. However, some States have adopted different standards applicable to this topic or may have different enforcement policies.

General Industry (29 CFR 1910)

- 1910.241, Hand and portable powered tools and other hand-held equipment
- 1910.241, Definitions
- 1910.242, Hand and portable powered tools and equipment, general

Contents

- Home
- OSHA Standards
- Hazards and Solutions
- Additional Information

Page last reviewed: 05/18/2007

Highlights

- 29 CFR 1910.241, OSHA, (2013).**
- Woodworking: OSHA eTool.** An interactive web-based training tool on the hazards associated with woodworking. Provides information on topics such as assembly, production, and shipping.
- Construction: OSHA eTool.** A Search: recorder is also available. Helps workers identify and control the hazards that commonly cause the most serious injuries.
- Electrical Incidents: Power Tools.** Identifies some common-sense safety

Disclaimer

- This information has been developed by an OSHA Compliance Assistance Specialist and is intended to assist employers, workers, and others as they strive to improve workplace health and safety. While we attempt to thoroughly address specific topics or hazards, it is not possible to include discussion of everything necessary to ensure a healthy and safe working environment in a presentation of this nature. Thus, this information must be understood as a tool for addressing workplace hazards, rather than an exhaustive statement of an employer's legal obligations, which are defined by statute, regulations, and standards. Likewise, to the extent that this information references practices or procedures that may enhance health or safety, but which are not required by a statute, regulation, or standard, it cannot, and does not, create additional legal obligations. Finally, over time, OSHA may modify rules and interpretations in light of new technology, information, or circumstances; to keep apprised of such developments, or to review information on a wide range of occupational safety and health topics, you can visit OSHA's website at www.osha.gov.