

Lesson: Motor Vehicles

- Lesson Objectives:**
- Describe general safety requirements for all motor vehicle construction equipment.
 - Explain the role of the *Manual on Uniform Traffic Control Devices* in occupational safety.
 - List the do's and don'ts for safe entry and exit of a loader.
 - Describe areas of testing and licensing required for commercial motor vehicle drivers.

- Topics**
- OSHA's General Provisions
 - Manual On Uniform Traffic Control Devices
 - Special Equipment

Topic: OSHA's General Provisions

The Occupational Safety and Health Administration (OSHA) has established numerous requirements for safe use of equipment and motor vehicles on a construction site. This topic reviews OSHA's general requirements for all motor vehicle construction equipment.

Having completed this topic, you should be able to:

- Describe general requirements for all construction equipment
- List six items on a construction vehicle intended for non-road use that are regulated by OSHA
- Specify some of the parts common to construction vehicles that should be checked prior to each shift
- Specify examples of materials-handling equipment

Topic summary:

Please take a moment to review these major points before you continue with the next topic.

- At the beginning of each shift, all vehicles used on the job site must be checked for safe operating condition and for damage that could cause failure while in use.
- Earth movement vehicle specifications cover:
 - Emergency access ramp and berms constructed to restrain and control runaway vehicles
 - Service braking systems capable of stopping and holding fully loaded equipment
 - Horns distinguishable from the surrounding noise level for all bi-directional machines, such as rollers, compactors, front-end loaders, bulldozers, and similar equipment
 - Reverse signal alarms distinguishable from the surrounding noise level, or an employee signaling safe conditions before earthmoving or compacting equipment with an obstructed rear view is used in reverse gear
- Powered industrial trucks must meet the following general requirements:
 - They must have the rated capacity clearly posted on the vehicle, and these ratings must not be exceeded.
 - Modifications or additions affecting the capacity or safe operation of the equipment cannot be made without the manufacturer's written approval.
 - If two or more trucks lift a load by working in unison, the proportion of the total load carried by any one truck must not exceed its capacity.
 - Steering or spinner knobs must not be attached to the steering wheel. An exception would be in a case where the steering mechanism prevents road reactions from causing the steering handwheel to spin. When used, the steering knob must be

- mounted within the periphery of the wheel.
- Unauthorized personnel must not be permitted to ride on powered industrial trucks. Where riding of trucks is authorized, a safe place to ride must be provided.

Topic: Manual on Uniform Traffic Control Devices

Vehicles and equipment operating in and around the work zone are involved in over half of the worker fatalities in this industry.

This lesson addresses the OSHA safety requirements for operating vehicles and equipment within an off-highway job site not open to public traffic. However, since OSHA does not cover machinery types or safety equipment exhaustively (nor does it address work practices, traffic control plans, or shift work), another source must be consulted. The *Manual on Uniform Traffic Control Devices (MUTCD)* more clearly defines applicable standards in these OSHA-omitted areas. By following these combined specifications, the industry believes it can minimize the confusion of motorists passing through the work zone and limit collisions involving motorists and other workplace vehicles.

Having completed this topic, you should be able to:

- Explain the purpose of the MUTCD
- Name the two primary causes of death and injury on roadway construction sites
- Describe the types of measures the MUTCD addresses concerning:
 - Work zone layout
 - Temporary traffic control devices
 - Motorist education and speed enforcement
 - Flaggers
 - High-visibility apparel

Topic summary:

Please take a moment to review these major points before you continue with the next topic.

- The two primary sources of death and injury to highway construction workers are from highway motorist vehicles and other construction vehicles.
- Low visibility increases the risk to flaggers and other workers on foot being struck by traffic vehicles or construction equipment.
- Workers who operate construction vehicles or equipment risk injury due to overturn, collision, or being caught in running equipment.
- The *Manual on Uniform Traffic Control Devices (MUTCD)* provides information on uniform design and setup of highway work zones nationwide and includes guidance for developing temporary traffic control plans (TCPs) that determine the flow of traffic through work zones.
- Safety to highway construction site workers can be improved by following government regulations on work zone layout, temporary traffic control devices, motorist education and speed enforcement, safe conditions for flaggers, and high-visibility apparel summarized in this topic from the MUTCD.

Topic: Special Equipment

This topic covers the requirements for the safe operation and training for operators of skidsteer loaders and powered industrial trucks.

Having completed this topic, you should be able to:

- Define regulations covering a skidsteer loader
- Define regulations covering powered industrial trucks
- List the do's and don'ts for safe entry and exit of a loader
- Define the term interlocked controls
- List the components of ROPS devices on special equipment such as loaders
- Describe the three ways seat belts protect operators
- Describe the proper flammable and combustible storage, both outdoor and indoor.
- Describe the proper fueling and refueling operations
- Describe the proper use of heating devices
- Describe the proper handling of LPG

Topic summary:

Please take a moment to review these key points before you continue with the next topic:

- Skidsteer loaders put workers at risk of rollover and runover incidents.
- Skidsteer loaders have required interlocked controls since the early 1980s. These controls specify that a nonoperational control or fixture (such as a seat belt or restraint bar) be secured or activated before operational controls can function.
- Manufacturers now have electronic systems to perform the interlocking function.
- Skidsteer loaders are now equipped with rollover protective structures (ROPS), side screens, and seat belts to protect the operator if the machine turns over.
- Never use concrete blocks as liftarm supports on loaders.
- Never bypass or defeat interlocked controls.

When entering a loader:

- The bucket or other attachment should be flat on the ground or the liftarm supports in place.
- Use supports supplied or recommended by the manufacturer.
- Face the seat and keep a three-point contact with handholds and steps.
- Never use foot or hand controls for steps or handholds.
- Keep all walking and working surfaces clean and clear of debris.

When exiting the operator's seat:

- Lower the bucket or other attachment flat to the ground.
- Set the parking brake.
- Turn off the engine.

Before servicing the loader:

- Follow manufacturer's recommendations.
- Set the parking brake.
- Lower the bucket or other attachment flat to the ground.
- Turn off the engine.
- Remove the key from the switch.

Seat belts as part of the interlocked control system can protect workers from being caught and crushed between the liftarms and frame; keep the operator within the ROPS during rollovers, and protect the operator from leaning or being jostled into the operating zone of the liftarms and bucket.

Forklift training and certification is required for all operators.

Each ROPS must have the manufacturer's or fabricator's name and address, model number, machine make, model, or series number that the structure is designed to fit permanently affixed to the structure.