

KELLER'S CONSTRUCTION TOOLBOX TALKS

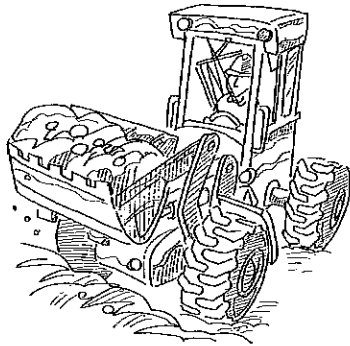
Heavy Equipment—An Overview

The OSHA rules for heavy equipment are broken down into two sections: motor vehicles, and materials handling equipment. The motor vehicles section covers off-road vehicles, and on-road vehicles such as dump trucks and pick-ups when they are off-road. The materials handling section is further broken down into: earth moving equipment such as scrapers, loaders, and dozers; and materials moving equipment such as forklifts and telescopic handlers. This Toolbox Talk will help you get the big picture of how OSHA approaches the safety rules for heavy equipment.

General safety and health provisions

Using any **machinery**, tool, material, or **equipment** not in compliance with OSHA standards is prohibited. They must be identified as unsafe by tagging or locking the controls, or be physically removed from the jobsite.

Only employees qualified by training or experience can operate **equipment** and **machinery**.



Motor vehicles and mechanized equipment—General requirements

This section covers equipment in general. It discusses: Leaving equipment unattended at night. Using safety tire racks and cages when inflating tires. Suspending, blocking, and cribbing equipment to prevent falling or shifting during maintenance. Moving in the vicinity of power lines or energized transmitters. Parking brakes, safety glass, and other safety equipment.

Motor vehicles

This section covers motor vehicles that operate at off-highway jobsites, not open to public traffic. This section discusses: (1) vehicle safety equipment such as brakes and lights, (2) horns and reverse signal alarms, (3) windshields and seat belts, and (4) inspections.

Earthmoving and excavating equipment

These rules apply to earthmoving equipment such as scrapers, loaders, crawlers, wheel tractors, bulldozers, off-highway trucks, graders, and similar equipment. This section covers seat belts, roadways and grades, brakes, fenders, rollover protective structures, and horns.

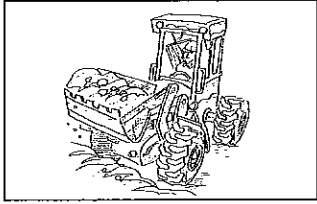
Lifting and hauling equipment

These rules apply to lift trucks, stackers, forklifts, handlers, and similar equipment. This section covers: (1) rated capacities, (2) modifications and additions, (3) steering mechanisms, (4) overhead guards, and (5) personnel platforms attached to forks.

The OSHA regulations and your operators manual, together, are good companions and give you the tools you need to make your equipment operations and your jobsite safer.

HEAVY EQUIPMENT—AN OVERVIEW HANDOUT

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—An Overview Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Heavy Equipment—An Overview at _____ (company name).

The session covered:

- The requirements for operating equipment and machinery.
- Inspection requirements for equipment and machinery.
- Safety requirements for motor vehicles, mechanized equipment, and materials handling equipment.

The space below is for employees to “sign-off” that they were in attendance.

Date of Training: _____

Job Location: _____

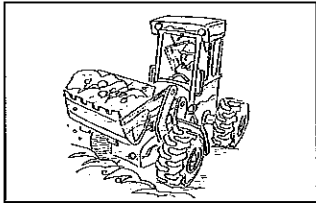
Employee Signature

Print Name Here

Supervisor's Signature

HEAVY EQUIPMENT—AN OVERVIEW SIGN-OFF

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—An Overview

Overview Of Topic

The OSHA rules for heavy equipment are broken down into two areas: motor vehicles, and materials handling equipment. The motor vehicles section covers off-road vehicles, and on-road vehicles such as dump trucks and pick-ups when they are off-road. The materials handling section is further broken down into: earth moving equipment such as scrapers, loaders, and dozers; and materials moving equipment such as forklifts and telescopic handlers.

General safety and health provisions (1926.20)

This section of the OSHA regulations has some general equipment rules you need to be aware of. They are:

- Your safety and health programs must provide for frequent and regular inspection of your jobsites, materials, and **equipment** by your competent person.
- The use of any **machinery**, tool, material, or **equipment** not in compliance with OSHA standards is prohibited. They must be identified as unsafe by tagging or locking the controls or be physically removed from the jobsite.
- Employers must permit only employees qualified by training or experience to operate **equipment** and **machinery**.

Motor vehicles and mechanized equipment—General requirements—1926.600

This section covers equipment in general. It discusses:

- Leaving equipment unattended at night.
- Using safety tire racks and cages when inflating tires.
- Suspending, blocking, and cribbing equipment to prevent falling or shifting during maintenance.
- Moving in the vicinity of power lines or energized transmitters.
- Parking brakes, safety glass, and other safety equipment.

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Motor vehicles—1926.601

This section covers motor vehicles that operate at off-highway job-sites, not open to public traffic. This section discusses: (1) vehicle safety equipment such as brakes and lights, (2) horns and reverse signal alarms, (3) wind shields and seat belts, and (4) inspections.

Earthmoving and excavating equipment—1926.602(a) & (b)

These rules apply to earthmoving equipment such as scrapers, loaders, crawlers, wheel tractors, bulldozers, off-highway trucks, graders, and similar equipment. This section covers: seat belts, roadways and grades, brakes, fenders, rollover protective structures, and horns.

Lifting and hauling equipment—1926.602(c)

These rules apply to lift trucks, stackers, forklifts, handlers, and similar equipment. This section covers: (1) rated capacities, (2) modifications and additions, (3) steering mechanisms, (4) over head guards, and (5) personnel platforms attached to forks. OSHA does not disapprove of work platforms attached to forklifts but does not encourage their use. The scaffold regulations apply to the working surface. Attachment requirements are found in this section.

Employee Training

The construction rules for equipment and machinery do not discuss specific training requirements (except for forklifts). However, operators of equipment and machinery must be qualified by training or experience to operate the equipment and machinery.

The new OSHA training requirements for forklift operators was published in the December 1, 1998 *Federal Register*. Refer to the Toolbox Talk, Forklift Operator Training, for more information.

Training Tips

This Toolbox Talk is a quick overview of the OSHA regulations for heavy equipment. You might want to prepare checklists from the requirements of the rules that specifically apply to your equipment and introduce them at this toolbox talk.

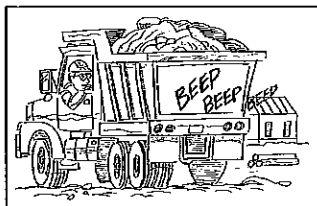
Where To Go For More Information

29 CFR Subpart O—Motor vehicles, mechanized equipment, and marine operations.

29 CFR 1926.20—General safety and health provisions.

29 CFR 1910.178(1)—Powered industrial trucks, Operator training.

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Heavy Equipment — Operating Safely

Overview Of Topic

For safe operation of heavy equipment your equipment operators must:

- Have safe equipment.
- Have the right personal stuff—proper training and an attitude toward safety.
- Be aware of the jobsite activities including the terrain, other equipment, fellow workers, overhead lines, and many more observations.

Safe equipment

OSHA usually concentrates on the safety features of equipment. Many other things can go wrong to make equipment unsafe. That is why a pre-operational walk around and a pre-start up (in cab) inspection is important. Checklists, tailored to each piece of equipment, are important in this process.

A sample of the OSHA requirements for safe equipment is:

- Are service, emergency, and parking brakes working?
- Are headlights, taillights, and backup lights operable?
- Does the audible warning device (horn) work?

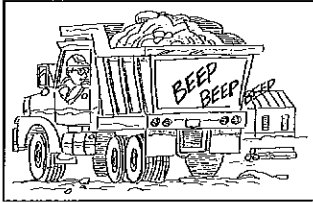
Jobsite safety

Site activity checklists are also important for safe equipment operations. Accidents can be avoided by everyone having a clear understanding of the work to be done. Consideration must be given to all actual and potential dangers at the jobsite. The following are some of the jobsite hazards to be considered:

Overhead lines

Contact between large jobsite equipment and overhead lines is a major cause of fatal occupational injuries in the United States. All overhead lines must be considered to be energized unless and until the person owning the line, or the electrical utility authorities, indicate it is not an energized line, and it is visibly grounded

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Heavy Equipment — Operating Safely

and appropriately marked. The OSHA regulations have specific requirements for the safe use of equipment close to overhead lines.

Hand signals

When operating cranes the signal man and the crane operator must know the hand signals required by OSHA. In many situations hand signals can work for other equipment.

Barricades

Barricades must be set up to protect employees from being struck or crushed by rotating superstructures of cranes and excavators. Barricades should also be set up to warn other workers of other heavy equipment operations.

These are just a few examples of what you can do to improve site safety. Each site must be evaluated for hazards and safety measures implemented.

Employee Training

The only requirement for employee training in regards to heavy equipment inspection is the requirement for competent persons to make frequent and regular inspection of jobsites, materials, and equipment by competent persons designated by the employer. It takes training to be a competent person.

Training Tips

Many things can be done to enhance this training time. You can go over a checklist for a piece of equipment, show new employees the types of barricades, warning flags, and signs you use, or go over your site safety checklist.

Where To Go For More Information

29 CFR Subpart O—Motor vehicles, mechanized equipment, and marine operations

29 CFR 1926.20—General safety and health provisions

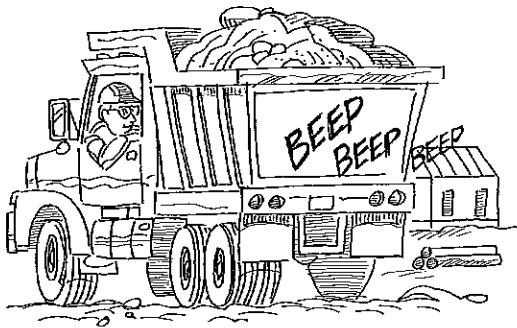
KELLER'S CONSTRUCTION TOOLBOX TALKS

Heavy Equipment — Operating Safely

Safe operation of heavy equipment involves seeing the big picture. You must: (1) have safe equipment, (2) have the right personal stuff—proper training and an attitude toward safety, and (3) be aware of jobsite activities, including the terrain, other equipment, fellow workers, overhead lines, and many more observations.

Safe equipment

OSHA usually concentrates on the safety features of equipment. Many other things can go wrong to make equipment unsafe. That is why a pre-operational walk around and a pre-start up (in-cab) inspection is important. You should have checklists, tailored to each piece of equipment, for this process. Only those employees qualified by training or experience should be allowed to operate equipment and machinery.



Jobsite safety

Site activity checklists are also important for safe equipment operations. Accidents can be avoided by everyone having a clear understanding of the work to be done. Considering must be given to all actual and potential dangers at the jobsite. The following are some of the jobsite hazards you must consider:

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Hand signals

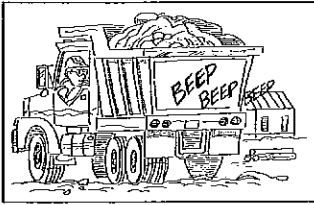
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Barricades

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These are just a few examples of what you can do to improve site safety. Each site must be evaluated for hazards and safety measures implemented.

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Heavy Equipment — Operating Safely Sign-Off Sheet

This sign-off sheet documents the employees who have taken part in a training session on Heavy Equipment — Operating Safely at _____.
(company name)

The session covered the following:

- What operator's need for safe equipment operation.
- Proper training and attitude.
- Requirements for jobsite safety.
- Inspection requirements for material handling equipment.

The space below is for each individual who has been trained on this topic to sign his/her names.

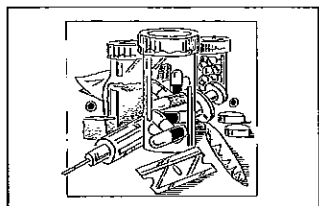
Date of Training:

Job Location:

Employee Signature

Print Name Here

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Motor Vehicles— Federal Motor Carrier Safety Regulations— Controlled Substances & Alcohol Use & Testing

Overview of Topic

The purpose of Part 382 of the Federal Motor Carrier Safety Regulations (FMCSRs) is to help prevent commercial motor vehicle accidents and injuries that are the result of driver misuse of alcohol and/or abuse of drugs.

Who must comply with Part 382

Your drivers must follow the drug and alcohol regulations if their vehicle: has a gross combination weight rating (GCWR) of 26,001 or more pounds, inclusive of a towed unit with a gross vehicle weight rating (GVWR) of more than 10,000 pounds; has a GVWR of 26,001 or more pounds; is designed to transport 16 or more passengers, including the driver; or is of any size transporting hazardous materials requiring placarding.

Whether your drivers are intrastate or interstate drivers, or both, if they are required to have a commercial driver's license (CDL), they must be drug and alcohol tested.

A physician must specifically advise your drivers that the substances in a prescription will not adversely affect their ability to safely operate a CMV.

If you employ yourself as a driver, you must follow both the requirements that apply to drivers and employers.

Testing procedures

You must ensure that all alcohol and drug tests conducted under Part 382 follow the procedures listed in Part 40.

In addition to alcohol testing, drug testing must be done for marijuana, cocaine, amphetamines, opiates, and phencyclidine (PCP).

You, as an employer, may not test for any other substances under DOT authority. However, Part 40 does not prohibit you from testing for other controlled substances under your own authority.

Requirement for notice

Before an alcohol or drug test may be given, you must notify your employee that the test is required under the Part 382 regulations. The notification can be given verbally or in writing.

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Alcohol concentration

Employees may not report for duty or remain on duty and perform safety-sensitive functions while having an alcohol level of 0.04 or greater.

Tests Required

There are six tests required under the regulations. All six are listed in Part 382, Subpart C. They are: pre-employment testing, post-accident testing, random testing, reasonable suspicion testing, return-to-duty testing, and follow-up testing.

Retention of records

Your company's drug and alcohol records must be kept in a secure area with limited (controlled) access. Only authorized personnel may have access to these records. You may not release any of your employees' drug or alcohol information except when the release of the information is required by law or authorized by the regulations.

Removal from safety-sensitive function

If an employee has tested positive for drugs, had an alcohol concentration of 0.04 or greater, or refused to be tested, they may not perform and you may not allow them to perform any safety-sensitive functions, including driving a commercial motor vehicle.

Penalties

If you and/or your employee violate the requirements listed in Part 382, you and/or your employee are subject to the penalty provisions found in 49 U.S.C. section 521(b).

Employee Training

You must make sure that all employees who supervise drivers receive the following training: 60 minutes of training on alcohol misuse, and 60 minutes of training on drug use. Supervisors will use the training to determine whether reasonable suspicion exists to require employees to undergo reasonable suspicion testing (*see §382.307*).

Training Tips

The supervisor training must cover physical, behavioral, speech, and performance indicators of probable alcohol misuse and use of drugs.

Where To Go For More Information

Federal Motor Carrier Safety Regulations, 49 CFR, Part 382—Controlled Substances and Alcohol Use and Testing.

U.S. Department of Transportation interpretations of the FMCSRs published in the *Federal Register*, April 4, 1997.

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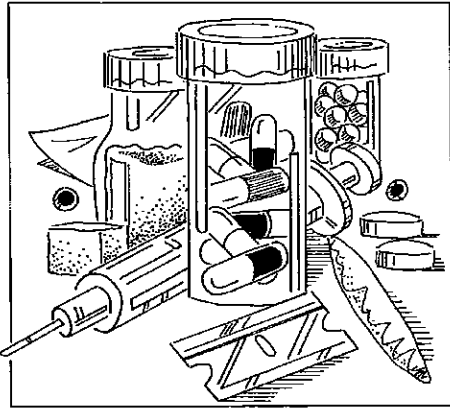
Federal Motor Carrier Safety Regulations— Controlled Substances & Alcohol Use, and Testing

The purpose of controlled substances and alcohol use and testing is to prevent commercial motor vehicle accidents and injuries that are the result of driver misuse of alcohol and/or abuse of drugs.

Who must comply with Part 382

You must follow the drug and alcohol regulations if your vehicle: has a gross combination weight rating (GCWR) of 26,001 or more pounds, inclusive of a towed unit with a gross vehicle weight rating (GVWR) of more than 10,000 pounds; has a GVWR of 26,001 or more pounds; is designed to transport 16 or more passengers, including the driver; or is of any size transporting hazardous materials requiring placarding.

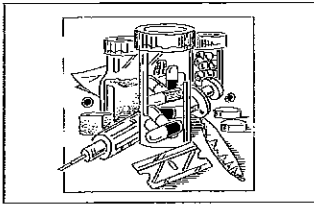
If you employ yourself as a driver, you must follow both the requirements that apply to drivers and employers.



Other requirements

- Your employer must be sure that all alcohol and drug tests follow the procedures listed in the regulations titled Procedures for Transportation Workplace Drug and Alcohol Testing Programs.
- Before an alcohol or drug test may be performed, your employer must notify you that the test is required under the Part 382 regulations.
- A physician must specifically advise you that the substances in a prescription will not adversely affect your ability to operate a CMV.
- In addition to alcohol testing, drug testing must be done for marijuana, cocaine, amphetamines, opiates, and phencyclidine (PCP).
- You may not report for duty or remain on duty and perform safety-sensitive functions while having an alcohol level of 0.04 or greater.
- There are six types of tests required under the regulations. They are: pre-employment testing, post-accident testing, random testing, reasonable suspicion testing, return-to-duty testing, and follow-up testing.
- Your company's drug and alcohol records must be kept in a secure area with limited (controlled) access. Only authorized personnel may have access to these records.
- If you and/or your employer violate the requirements listed in Part 382, you and/or your employer are subject to the penalty provisions found in 49 U.S.C. section 521(b).

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Motor Vehicles— Federal Motor Carrier Safety Regulations— Controlled Substances & Alcohol Use & Testing Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Heavy Equipment—Motor Vehicles—Federal Motor Carrier Safety Regulations—Controlled Substances & Alcohol Use & Testing at _____.

(company name)

The session covered:

- Who must comply.
- Testing procedures.
- Prohibitions.
- Penalties.

The space below is for employees to “sign-off” that they were in attendance.

Date of Training: _____

Job Location: _____

Employee Signature

Print Name Here

Supervisor's Signature

HEAVY EQUIPMENT—MOTOR VEHICLES—FMCSR—DRUG & ALCOHOL SIGN-OFF

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

12/02

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KELLER'S CONSTRUCTION TOOLBOX TALKS

Heavy Equipment—Motor Vehicles—Federal Motor Carrier Safety Regulations—Hours of Service

Overview of Topic

Regulations concerning hours of service for drivers is found in the Federal Motor Carrier Safety Regulations (FMCSRs) at 49 CFR (Code of Federal Regulations), Part 395.

Note: This Toolbox Talk is an brief overview of Part 395. For all requirements, see the Federal Motor Carrier Safety Regulations.

Who must comply with Part 395?

Employees and employers must comply with all of the Part 395 regulations if employees drive a vehicle that: (1) weighs 10,001 pounds or more, (2) is designed to carry 16 or more passengers (including the driver), or (3) transports a placardable amount of hazardous materials.

Scope of the rules in Part 395

Part 395 applies to all motor carriers and drivers. Exceptions for specific situations are covered in §395.1(b)-(o). The exceptions for ground water well drilling operations, construction materials and equipment, and utility service vehicles do not preempt State laws and regulations governing the safe operation of commercial motor vehicles.

One hundred-air-mile radius driver (logbook exemption)

Drivers are not required to make out a log if the criteria in §395.1(e) are met. One hundred-air-miles is equivalent to 115 statute miles. A driver does not need any documentation in his/her possession when claiming the 100-air-mile exemption. Accurate and true time records must be retained for six months.

Construction materials and equipment

If employees drive a commercial motor vehicle used primarily in the transportation of construction materials and equipment, or a utility service vehicle, they may restart their 7 or 8 day clock after an off-duty period of at least 24 consecutive hours.

The transportation of construction materials and equipment is defined as the transportation of construction and pavement materials, construction equipment, and construction maintenance vehicles by a driver, to or from an active construction site within a 50

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air-mile radius of the normal work reporting location of the driver. This exemption does not apply to drivers transporting placardable amounts of hazardous materials. (*See the Federal Motor Carrier Safety Regulations to be sure you qualify.*)

§395.8—Driver's record of duty status

Drivers must keep a written record of duty status (log book). The record must cover every day, including days off. Their record must cover 24 hours, and include their duty status for the entire day.

If they do intrastate and interstate driving, they must record their intrastate driving time on their record of duty status.

Drivers declared out of service

A law enforcement officer can ask for and look at your drivers' records at any time. If they have failed to keep their duty status record current on the day it is examined and the prior 7 days, they will be declared *out of service*. They may not operate a commercial motor vehicle until they have had 8 consecutive hours off duty. (Note: This applies until 1/4/2004. After that, it will be 10 hours for property-carrying vehicles and 8 hours for passenger-carrying.)

If they are declared out of service they will be given a copy of the *Driver Out of Service Notice*. They will receive a *Driver-Vehicle Examination Report form*. They should mail this form to you within 24 hours. You must return a portion of this form to the address on the form within 15 days.

Employee Training

There are no training requirements specific to Part 395. Train employees to know what actions can cause them to be declared "out of service" by the Federal Motor Carrier Safety Administration.

Training Tips

Go over those requirements from Part 395 that apply specifically to your drivers. Ensure drivers know what they are exempt from and what they are not exempt from. A review test might be appropriate.

Where To Go For More Information

Federal Motor Carrier Safety Regulations, 49 CFR, Part 395—Hours of service of drivers.

Federal Motor Carrier Safety Final Regulation—Hours of service of drivers; driver rest and sleep for safe operations (see April 28, 2003, *Federal Register*).

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Federal Motor Carrier Safety Regulations—Hours of Service

If you drive a vehicle for your company, you may be required to meet the Hours of Service requirements for the Federal Motor Carrier Safety Regulations. This handout is a reminder of your responsibilities regarding hours of service.

Note: This Toolbox Talk is a brief overview of 49 CFR Part 395. For all requirements, see the Federal Motor Carrier Safety Regulations.

Who must comply with Part 395?

You must comply with all of the Part 395 regulations if you drive a vehicle that: (1) weighs 10,001 pounds or more, (2) is designed to carry 16 or more passengers (including the driver), or (3) transports a placardable amount of hazardous materials.

Scope of the rules in Part 395

Part 395 applies to all motor carriers and drivers. Exceptions for specific situations are covered in §395.1(b)-(o). The exceptions for ground water well drilling operations, construction materials and equipment, and utility service vehicles do not mean you don't have to follow your State laws and regulations governing the safe operation of commercial motor vehicles.

One hundred-air-mile radius driver

You are not required to make out a log if the following criteria are met. You must: (1) drive within a 100 air-mile radius (115 miles) of your normal work reporting location, (2) return to your work reporting location and be released from work within 12 consecutive hours, (3) have at least 8 consecutive hours off duty separate each 12 hours on duty, (4) not drive more than 10 hours following 8 hours off duty, and (5) your employer keeps your time records for 6 months showing the time you report for duty and are released from duty each day, the total number of hours you are on duty each day, and the total time you are on duty for the past 7 days if you are used for the first time or intermittently.

Driver's record of duty status

You must keep a written record of duty status (log book). The record must cover every day, including days off. Your record must cover 24 hours and include your duty status for the entire day.

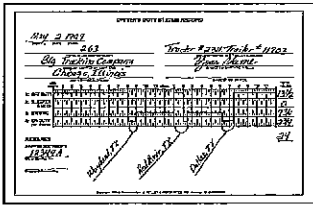
Drivers declared out of service

A law enforcement officer can ask for and look at your records at any time. If you have failed to keep your duty status record current on the day it is examined and the prior 7 days, you will be declared *out of service*. You may not operate a commercial motor vehicle until you have had 8 consecutive hours off duty. (As of 1/4/2004 it changes to 10 hours for property-carrying vehicles and 8 hours for passenger-carrying.)

If you are declared out of service you will be given a copy of the *Driver Out of Service Notice*. You will receive a *Driver-Vehicle Examination Report form*. Mail this form to your employer within 24 hours.

HEAVY EQUIPMENT—MOTOR VEHICLES—FMCSR—HOURS OF SERVICE HANDOUT

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Motor Vehicles—Federal Motor Carrier Safety Regulations—Hours of Service Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Heavy Equipment—Motor Vehicles—Federal Motor Carrier Safety Regulations—Hours of Service at

_____ (company name)

The session covered:

- Who must comply with Part 395.
- Logbooks and the 100 air-mile radius driver.

The space below is for employees to “sign-off” that they were in attendance.

Date of Training: _____

Job Location: _____

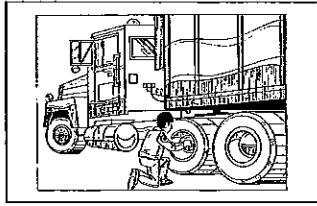
Employee Signature

Print Name Here

Supervisor's Signature

HEAVY EQUIPMENT—MOTOR VEHICLES—FMCSR—HOURS OF SERVICE SIGN-OFF

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Motor Vehicles— Federal Motor Carrier Safety Regulations— Inspection, Repair, & Maintenance

Overview of Topic

You and your employees must comply with all of the Part 396 regulations if your employees drive vehicles that: (1) weigh 10,001 pounds or more (GVWR), (2) carry 16 or more passengers (including the driver), or (3) transport a placardable amount of hazardous materials.

You and all employees who directly deal with the inspection or maintenance of motor vehicles must understand and follow the regulations in Part 396—Inspection, Repair, & Maintenance.

You must ensure that all of your company's commercial motor vehicles are on a systematic inspection, repair, and maintenance program. In other words, you must have a regular or scheduled program to keep your vehicles in a safe operating condition.

Inspection, Repair, and Maintenance Operations

Lubrication—All commercial motor vehicles must be properly lubricated and free of oil and grease leaks.

Unsafe operations forbidden—You may not drive a vehicle if its condition is likely to cause an accident or breakdown.

Driver inspection—Before driving a commercial motor vehicle your driver must: (1) be sure that the vehicle is in safe operating condition, (2) look over the last driver vehicle inspection report, and (3) if problems were listed on the report, review it and sign it if the problems were corrected.

If the previous driver vehicle inspection report does not indicate that defects that would be likely to affect the safe operation of the vehicle were repaired, or you do not certify in writing the repairs were considered unnecessary, your driver is prohibited from driving the vehicle.

Inspection of motor vehicles in operation—Authorized state and federal Department of Transportation (DOT) officials are allowed to perform vehicle inspections on the roadside and in some cases at company terminals. If an inspector finds that your vehicle's mechanical condition, or the way it is loaded, could cause an accident or breakdown, he/she can declare your vehicle out of service.

Out of service vehicles may be moved only by: (1) being placed entirely on another vehicle, (2) towed by a vehicle with a crane or hoist, or (3) repaired where the "out of service" condition no longer exists.

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Driver vehicle inspection report(s)—Your employees must complete and sign a written vehicle inspection report at the end of each day's work on each vehicle they drove. The report must cover at least the following parts and accessories: (1) service brakes including trailer brake connections, (2) parking (hand) brake, (3) steering mechanism, (4) lighting devices and reflectors, (5) tires, (6) horn, (7) windshield wipers, (8) rear vision mirror, (9) coupling devices, (10) wheels and rims, and (11) emergency equipment.

Periodic inspection—Your commercial motor vehicles must pass an inspection at least once a year. The inspection must include the parts and accessories listed in the FMCSRs at Appendix G.

The qualified inspector performing the inspection must prepare an inspection report in accordance with §396.21—Periodic inspection recordkeeping requirements.

Equivalent to periodic inspection—A commercial motor vehicle may meet the annual inspection requirements if it has received a roadside inspection in the past 12 months. If it has received a roadside inspection, your company must keep a copy of the inspection report showing the inspection was done according to the regulations.

A mandatory state inspection program may also be considered the same as an annual inspection.

Your company must keep evidence of its brake inspector's qualifications at its principal place of business or where the brake inspector is employed. This paperwork must be kept for as long as the inspector is employed as a brake inspector plus an additional year.

Employee Training

The safety regulations at §396.19—Inspector qualifications, and §396.25—Qualifications of brake inspectors, require extensive training for those doing annual and/or brake inspections.

There are no "formal" training requirements for drivers or maintenance personnel.

Training Tips

Go over your Driver Vehicle Inspection Report with your drivers to ensure they understand and can perform each inspection item.

Where To Go For More Information

Federal Motor Carrier Safety Regulations, 49 CFR 396—Inspection, Repair, and Maintenance.

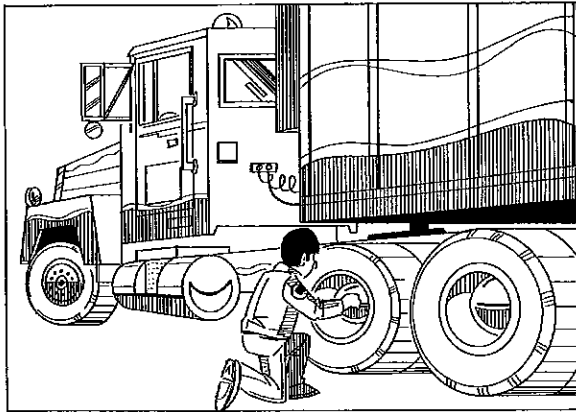
U.S. Department of Transportation interpretations of the FMCSRs (see April 4, 1997, *Federal Register*).

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Federal Motor Carrier Safety Regulations— Inspection, Repair, & Maintenance

You must comply with all of the Part 396 regulations if you drive a vehicle that: (1) weighs 10,001 pounds or more (GVWR), (2) carries 16 or more passengers (including the driver), or (3) transports a placardable amount of hazardous materials.

Your employer and all employees who directly deal with the inspection or maintenance of motor vehicles must understand and follow the regulations in Part 396—Inspection, Repair, and Maintenance.



Inspection, repair, and maintenance—your employer must make sure all of your company's commercial motor vehicles are inspected and repaired. All parts and accessories must be in safe and proper operating condition at all times.

Lubrication—All commercial motor vehicles must be properly lubricated and free of oil and grease leaks.

Unsafe operations forbidden—You may not drive a vehicle if its condition is likely to cause an accident or breakdown.

Driver inspection—Before driving a commercial motor vehicle you must: (1) be sure that the vehicle is in safe operating condition, (2) look over the last driver vehicle inspection report, and (3) if problems were listed on the report, review it and sign it if the problems were corrected.

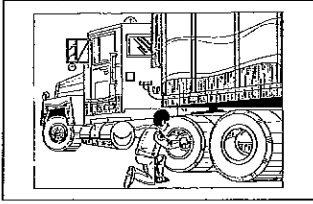
If the previous report does not indicate that the defects that would be likely to affect the safe operation of the vehicle were repaired, or your employer did not certify in writing that the repairs were considered unnecessary, you are prohibited from driving the vehicle.

Driver vehicle inspection report(s)—You must complete and sign a written vehicle inspection report at the end of each day's work on each vehicle you drove. The report must cover at least the following parts and accessories: (1) service brakes including trailer brake connections, (2) parking (hand) brake, (3) steering mechanism, (4) lighting devices and reflectors, (5) tires, (6) horn, (7) windshield wipers, (8) rear vision mirror, (9) coupling devices, (10) wheels and rims, and (11) emergency equipment.

Periodic inspection—Your commercial motor vehicle must pass an inspection at least once a year. The inspection must include the parts and accessories listed in Appendix G of the Federal Motor Carrier Safety Regulations.

Equivalent to periodic inspection—Your commercial motor vehicle may meet the annual inspection requirements if it has received a roadside inspection in the past 12 months. If it has received a roadside inspection, your company must keep a copy of the inspection report showing it was done according to the regulations.

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Motor Vehicles— Federal Motor Carrier Safety Regulations— Inspection, Repair, & Maintenance Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Heavy Equipment—Motor Vehicles—Federal Motor Carrier Safety Regulations—Inspection, Repair, & Maintenance at _____.

(company name)

The session covered:

- Lubrication.
- Unsafe operations.
- Inspection of motor vehicles in operation.

The space below is for employees to “sign-off” that they were in attendance.

Date of Training: _____

Job Location: _____

Employee Signature

Print Name Here

Supervisor's Signature

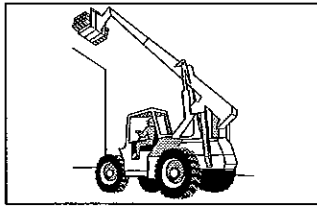
HEAVY EQUIPMENT—MOTOR VEHICLES—FMCSR—INSPECTION/MAINTENANCE SIGN-OFF

Handouts may be copied and distributed to workers for use during your training session. Please refer to HOW TO USE THIS MANUAL for restrictions.

12/02

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KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Materials Handling Equipment

Overview of Topic

Materials handling equipment covers a wide range of jobsite workhorses. OSHA divides materials handling equipment into two groups: earthmoving equipment and lifting and hauling equipment. Earthmoving equipment primarily moves dirt around; some can double as equipment haulers. Lifting and hauling equipment moves raw materials around your jobsite.

Earthmoving equipment—includes scrapers, loaders, crawler or wheel tractors, bulldozers, off-highway trucks, graders, agricultural and industrial tractors, and similar equipment. Some OSHA rules for this type of equipment are:

Seat belts—(1) must be provided on all equipment covered by the OSHA materials handling section (1926.602), (2) are not needed on equipment designed only for stand up operation, and (3) need not be provided for equipment which does not have roll-over protective structure (ROPS) or adequate canopy protection.

Roadways and grades—No construction equipment or vehicles can be driven on any access roadway or grade unless the roadway/grade is specifically made to handle safely the equipment or vehicles involved.

Every emergency access ramp and berm must be constructed to restrain and control runaway vehicles.

Brakes—All earthmoving equipment must have service brakes capable of stopping and holding the equipment when fully loaded.

Audible alarms—All bidirectional machines, such as rollers, compactors, front-end loaders, bulldozers, and similar equipment, must be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction. The horn must work at all times.

No earthmoving or compacting equipment with an obstructed view to the rear, can be used in reverse unless it has a reverse signal alarm distinguishable from the surrounding noise, or another employee signals that it is safe to operate in reverse.

Scissor points—Scissor points on all front-end loaders which are a hazard to the operator during normal operation, must be guarded.

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Lifting and hauling equipment—Industrial trucks (forklifts, telescopic handlers, etc.) must meet the following requirements:

Lift trucks, stackers, etc., must have the rated capacity clearly posted on the vehicle so the operator can see it. Capacities must be adjusted accordingly and posted when adding auxiliary removable counterweights provided by the manufacturer. **Ratings must never be exceeded.**

No modifications or additions which affect the capacity or safe operation of the equipment can be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals must be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

Steering or spinner knobs cannot be attached to the steering wheel unless the steering mechanism can prevent road reactions from causing the steering handwheel to spin. The steering knob must be mounted within the periphery of the wheel.

Unauthorized people cannot ride on powered industrial trucks. Where riding is authorized, a safe place to ride must be provided.

Employee Training

The construction rules for earthmoving type materials handling equipment (bulldozers, graders, etc.) do not discuss specific training requirements. However, operators of equipment and machinery must be qualified by training or experience to operate any equipment (1926.20).

However, on March 1, 1999, the new Powered Industrial Truck Operator Training requirements become effective. See the Toolbox Talk, Forklift Operator Training, for requirements.

Training Tips

Get a copy of the new forklift training rule and its preamble for many forklift training tips. This will be a major help in setting up forklift training.

Where To Go For More Information

29 CFR Subpart O—Motor vehicles, mechanized equipment, and marine operations, specifically 1926.602(c)—Lifting and hauling equipment, and (d)—Powered industrial truck operator training.

29 CFR 1926.20—General safety and health provisions

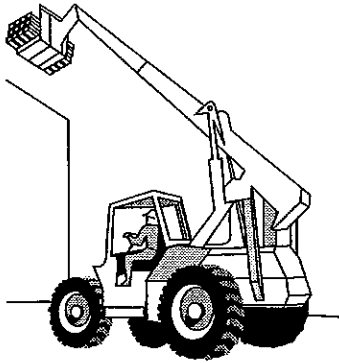
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Heavy Equipment—Materials Handling Equipment

For construction, materials handling equipment covers a wide range of jobsite workhorses. OSHA divides materials handling equipment into two groups: earthmoving, and lifting and hauling equipment. Earthmoving equipment primarily moves dirt around, but some can double as materials haulers. Lifting and hauling equipment moves raw materials around your jobsite.

Earthmoving equipment—includes scrapers, loaders, bulldozers, off-highway trucks, graders, tractors, and similar vehicles. Some OSHA rules for this type of equipment are:

- Seat belts must be provided on all equipment covered by the OSHA's materials handling rules but are not required on equipment designed for stand up operation only.
- No construction equipment can be driven on any access roadway or grade unless it is specifically made to safely handle the equipment involved.
 - All earthmoving equipment must have service brakes that can stop and hold the equipment when fully loaded.
 - All bidirectional machines, such as rollers, compacters, front-end loaders, bulldozers, and similar equipment, must be equipped with a horn, distinguishable above the construction noise. The horn must work at all times and operated as needed when the machine is moving in either direction.
 - You cannot use earthmoving or compacting equipment with an obstructed view to the rear in reverse unless it has a reverse signal alarm distinguishable above the construction noise, or another employee signals that it is safe to do so.
- During normal operation, all hazardous scissor points on front-end loaders must be guarded.



Lifting and hauling equipment—includes industrial trucks (forklifts, telescopic handlers, etc.). They must meet the following OSHA requirements.

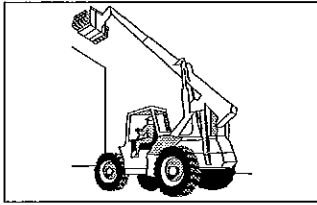
Lift trucks, stackers, etc., must have the rated capacity clearly posted on the vehicle so the operator can see it. **Ratings must never be exceeded.**

No modifications or additions which affect the capacity or safe operation of the equipment can be made without the manufacturer's written approval. If modifications or changes are made, plates, tags, or decals must be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

Unauthorized personnel cannot ride on powered industrial trucks. If a person is authorized to ride a truck, then a safe place to ride must be provided.

The OSHA regulations are the minimum requirements for safely operating vehicles and materials handling equipment. Your equipment operators manual is the best source for information on operating your specific piece of equipment properly and safely.

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Materials Handling Equipment Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Heavy Equipment—Materials Handling Equipment _____.

(company name)

The session covered:

- The categories of materials handling equipment.
- The requirements for operating materials handling equipment
- Safety requirements for materials handling equipment.

The space below is for employees to “sign-off” that they were in attendance.

Date of Training: _____

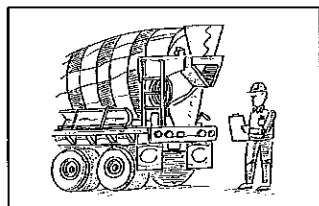
Job Location: _____

Employee Signature

Print Name Here

Supervisor's Signature

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment — Inspection

Overview Of Topic

The OSHA rules only generalize when it comes to inspection of heavy equipment, and they just cover safety equipment. The best source for inspection criteria is manufacturer's documentation. If that documentation does not have a comprehensive checklist, then you should assemble your own from the operating instructions and maintenance procedures.

You may have two or three checklists for inspecting equipment and machinery: (1) site safety checklist, (2) safety equipment on machinery and equipment, and (3) systems checks—oil, hydraulic, etc. The following requirements are OSHA's contribution to your inspection checklists.

General safety and health provisions (1926.20)

This section says that frequent and regular inspection of materials and equipment must be made by your competent person. OSHA generally considers daily, and as necessary when situations dictate, as being frequent and regular.

Motor vehicles and mechanized equipment (General requirements) (1926.600)

There are no direct requirements for equipment inspection in this general requirements section. Some site safety and general inspection questions on an inspection checklist might be:

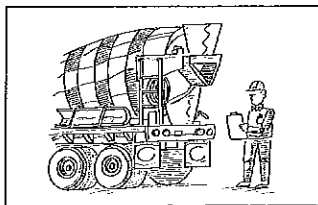
- Is all equipment left unattended at night have appropriate lights, reflectors, or barricades to identify location?
- Are all requirements of 1926.550(a)(15) being followed when equipment is used or moved in the vicinity of power lines?

Motor vehicles (1926.601)

This section covers motor vehicles that operate within an off-highway jobsite, not open to public traffic. Inspection requirements are:

All vehicles must be checked **at the beginning of each shift** to ensure the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment — Inspection

failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices.

All defects must be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

Material handling equipment (1926.602)

These rules apply to earthmoving equipment such as: scrapers, loaders, crawlers, wheel tractors, bulldozers, off-highway trucks, graders, tractors, and similar equipment. There are no direct requirements for equipment inspection in this general requirements section. Some general inspection questions on a checklist might be:

- Are seat belts provided on all equipment required by 1926.602 to have seat belts?
- Are scissor points on all front end loaders, which constitute a hazard to the operator during normal operation guarded?

Employee Training

The only requirement for employee training in regards to heavy equipment inspection is the requirement for competent persons to make frequent and regular inspection of jobsites, materials, and equipment by competent persons designated by the employer. It takes training to be a competent person.

Training Tips

You might want to prepare “checklists” from the requirements of the rules that specifically apply to your equipment and introduce them at this toolbox talk.

Where To Go For More Information

29 CFR Subpart O—Motor vehicles, mechanized equipment, and marine operations

29 CFR 1926.20—General safety and health provisions

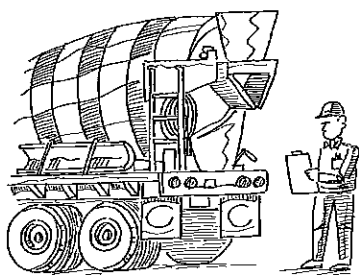
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Heavy Equipment — Inspection

Inspection of your machinery and equipment is important. If you operate any equipment or machinery you may be required to perform pre-operational and operational checks. There are also periodic inspections (monthly) and sometimes annual inspections you might be involved in. Quite often the equipment operator is also the company competent person on that equipment.

You should have at least two, and maybe three, checklists for inspecting equipment and machinery: (1) a site safety checklist—what is going on around where you are going to operate the equipment? Are appropriate areas barricaded to keep unwanted people out? (2) safety equipment on machinery and equipment—Are backup alarms, seat belts, lights, horn, etc., in good working order? Do you know how to use it? (3) systems checks—how is the oil? Does the bucket raise and lower properly?

Let's look at some of the OSHA requirements for equipment and machinery?



Motor vehicles and mechanized equipment (General requirements) (1926.600)

Some inspection requirement for this section might look like these:

- Is all equipment left unattended at night have appropriate lights, reflectors, or barricades to identify location?
- Are all requirements of 1926.550(a)(15) being followed when equipment is used or moved in the vicinity of power lines?

Motor vehicles (1926.601)

This section covers motor vehicles that operate within an off-highway jobsite, not open to public traffic including pickup trucks.

Inspection requirements are:

- All vehicles must be checked **at the beginning of each shift** to ensure safety equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use.
- All defects must be corrected before the vehicle is placed in service.

Material handling equipment (1926.602)

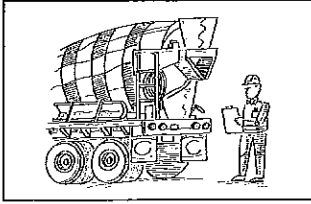
These rules apply to earthmoving equipment such as: scrapers, loaders, crawlers, wheel tractors, bulldozers, off-highway trucks, graders, tractors, and similar equipment.

There are no direct requirements for equipment inspection in this general requirements section. Some general inspection questions on a checklist might be:

- Are seat belts provided on all equipment required by 1926.602 to have seat belts?
- Are scissor points on all front end loaders, which constitute a hazard to the operator during normal operation guarded?

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Heavy Equipment — Inspection Sign-Off Sheet

This sign-off sheet documents the employees who have taken part in a training session on Heavy Equipment — Inspection at _____.

(company name)

The session covered the following:

- Manufacturers documentation for inspection requirements.
- General inspection requirements for equipment.
- Inspection requirements for motor vehicles equipment.
- Inspection requirements for material handling equipment.
- Various types of inspections.

The space below is for each individual who has been trained on this topic to sign his/her names.

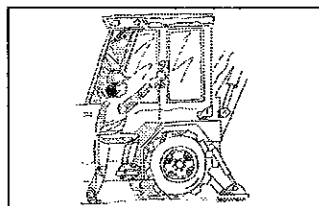
Date of Training:

Job Location:

Employee Signature

Print Name Here

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Mounting & Dismounting

Overview of Topic

The OSHA rules for heavy equipment discuss seat belts, steering knobs, and talk in detail about rollover protective devices; but they say nothing about getting on and off of equipment. However, the Mine Safety and Health Administration does, and we will borrow their information. We will also discuss cab inspection and seat belts as they apply to the subject.

Pre-operational inspection

You should always perform a pre-operational (pre-shift) inspection on equipment you plan to operate. OSHA does require this. The inspection should include checking that:

- Access ladders, steps, guardrails, and handholds are securely fastened and in good condition. Ensure there are no loose, bent, cracked, or missing parts.
- Walking and stepping surfaces are free of debris and slippery substances and non-skid surfaces are in good shape.

Getting up and down

Believe it or not there are proper ways of climbing up, getting into or out of cabs and seats, and getting down from and off of equipment. You should:

- Never climb up to or get down from cabs, seats, fuel tanks, or walking/working surfaces with tools, personal items, fuel nozzles, or other items in your hands. Always use a drop rope to raise or lower personal items or supplies, tools, and equipment.
- Always use handrails, face the ladder or steps, and maintain three points of contact (two feet and one hand, or one foot and two hands) at all times.
- Always use anti-slip surfaces for climbing or stepping.
- Never jump from or to ladders, steps, or walkways.

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Cab inspection

You should check seating equipment weekly to ensure:

- Door latches work and can be opened from the inside or out.
- Seat suspension operates properly. Any loose, binding, broken, or missing parts must be repaired before using.
- Forward and rear adjustment, weight compensators, and other adjustable features work properly.

Seat belts

OSHA definitely discusses seat belts in its motor vehicle and material handling equipment sections. (1926.601-.602)

Motor vehicles are those that operate on highway and at off-highway jobsites not open to public traffic including dump and pick-up trucks. Seat belt rules for this equipment are:

- Seat belts and anchorages must be installed and used.
- All seat belts and accessories must be checked at the beginning of each shift to ensure they are safe and free of apparent damage that could cause failure.

When using materials handling equipment (earthmoving equipment such as scrapers, loaders, crawler or wheel tractors, bulldozers, etc.) OSHA says: "when seat belts are provided you must use them, whether the rules call for them or not. You can be cited under the general duty clause of the OSHAct if equipment has seat belts and employees don't use them."

Employee Training

The OSHA rules state that: (1) you shall permit only those employees qualified by training or experience to operate equipment and machinery, and (2) you must instruct employees in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment.

Training Tips

Demonstration fits well here. Go through an inspection checklist for mounting, seating, and dismounting equipment and checking non-skid surfaces. Demonstrate how to mount and dismount several pieces of equipment.

Where To Go For More Information

Regulatory text: 29 CFR 1926.500 – .503.

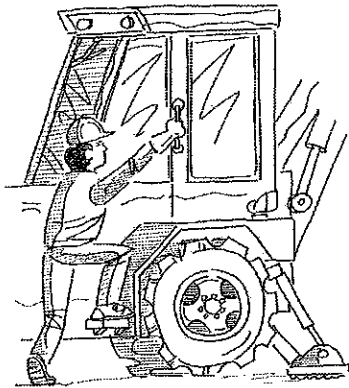
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Heavy Equipment—Mounting & Dismounting

It might seem trivial to have a training session on how to get up and down and sit properly on a bulldozer. The fact is that many workdays are lost because of slips, trips, and falls on and from heavy equipment. Following the recommendations in this Toolbox Talk can help prevent slip, trip, and fall accidents.

Pre-operational inspection—You should always perform a pre-operational (pre-shift) inspection on equipment you plan to operate. The inspection should include checking that: (1) access ladders, steps, guardrails, and handholds are securely fastened and in good condition. Ensure there are no loose, bent, cracked, or missing parts, and (2) walking and stepping surfaces are free of debris and slippery substances and that non-skid surfaces are in good shape.

Getting up and down—Believe it or not there are proper ways of climbing up, getting into or out of cabs and seats, and getting down from and off of equipment. You should:



- Never climb up to or get down from cabs, seats, fuel tanks, or walking/working surfaces with tools, personal items, fuel nozzles, or other items in your hands. Always use a drop rope to raise or lower personal items or supplies, tools, and equipment.
- Always use handrails, face the ladder or steps, and maintain three points of contact (two feet and one hand, or one foot and two hands) at all times.
- Always use anti-slip surfaces for climbing or stepping.
- Never jump from or to ladders, steps, or walkways.

Cab inspection—You should check seating equipment weekly to ensure:

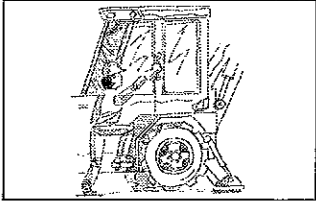
- Door latches work and can be opened from the inside or out.
- Seat suspension operates properly. Any loose, binding, broken, or missing parts must be repaired before using.
- Forward and rear adjustment, weight compensators, and other adjustable features work properly.

Seat belts—Motor vehicles are those that operate on highways and at off-highway jobsites not open to public traffic including dump and pick-up trucks. Seat belt rules for this equipment are: (1) Seat belts and anchorages must be installed and used, and (2) seat belts and accessories must be checked at the beginning of each shift to ensure they are safe and free of apparent damage that could cause failure.

When using materials handling equipment (earthmoving equipment such as scrapers, loaders, crawler or wheel tractors, bulldozers, etc.) OSHA says: “when seat belts are provided you must use them, whether the rules call for them or not.”

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Heavy Equipment—Mounting & Dismounting, Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Heavy Equipment—Mounting & Dismounting at _____.

(company name)

The session covered:

- Pre-operational safety inspections.
- Getting up on and down from heavy equipment safely.
- Cab inspections.
- Seat belt use.

The space below is for employees to “sign-off” that they were in attendance.

Date of Training: _____

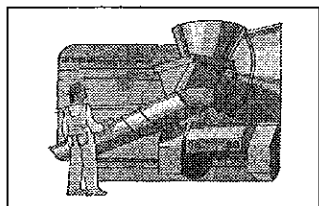
Job Location: _____

Employee Signature

Print Name Here

Supervisor's Signature

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Motor Vehicles—General

Overview of Topic

Construction jobsites are dangerous places. When heavy equipment is operating, jobsites become even more dangerous. Noise; equipment exhaust; earth vibrations; swinging buckets, forks, booms, and ropes; and backup alarms all add to the clamor. However, dangerous does not have to mean unsafe. Earplugs, ventilation, signaling, barricades, warning signs, and alert workers all contribute to making a noisy jobsite safe.

OSHA breaks down heavy equipment operating at jobsites into two areas: motor vehicles and materials handling equipment. In this Toolbox Talk we will look at motor vehicles.

Motor vehicles are those pieces of equipment that can operate both at a jobsite and on the highway. Dump trucks, flatbeds, and pickups, are some examples of these vehicles. Transporting workers, equipment, and materials would be some of their functions.

When these vehicles are operating on the highway, Department of Transportation (DOT), state, and local rules apply. When they enter a jobsite, DOT and OSHA rules must be followed.

The following rules (29 CFR 1926.601) cover equipment safety requirements and inspections. General vehicle operation requirements are found in 29 CFR 1926.20 (See the Toolbox Talk Heavy Equipment—An Overview).

Motor vehicles—Required equipment

- All vehicles must have a service, emergency, and parking brake system in good working condition.
- When visibility conditions warrant additional light, all vehicles in use must be equipped with at least two operational headlights and two taillights.
- All vehicles must have operable brake lights, and a horn at the operator's station.
- No driver can operate a motor vehicle with an obstructed view to the rear unless it has a reverse signal alarm you can hear above the surrounding noise level, or the vehicle is backed up when an observer says it is safe to do so.

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- All vehicles with cabs must have windshields and wipers. Cracked or broken glass must be replaced.
- Seat belts must be installed in all motor vehicles.
- Operating levers controlling hoisting/dumping devices must be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.
- Dump truck tailgate trip handles must be arranged so that in dumping, the operator will be in the clear.

Motor vehicles—Inspections

- Never use any machinery, tools, or equipment not in compliance with OSHA standards and the manufacturer's operations manual(s). Broken equipment must be identified as unsafe and tagged or locked, or be physically removed from the jobsite.
- At the beginning of each shift you must check each vehicle you intend to operate for damage to the following components/systems: all brake systems, tires, horn, steering mechanism, coupling devices, seat belts, operating controls, and all safety devices. When such equipment is necessary, these requirements also apply to lights, reflectors, windshield wipers, defrosters, and fire extinguishers.

Motor vehicles—Operation

Employees must be qualified by training or experience to operate any equipment or machinery (1926.20).

Employee Training

The construction rules for equipment and machinery do not discuss specific training requirements. However, operators of equipment and machinery must be qualified by training or experience to operate any equipment or machinery.

Training Tips

Use this Toolbox Talk or your own company checklists to do a pre-operational inspection on a frequently used piece of equipment.

Where To Go For More Information

29 CFR Subpart O—Motor vehicles, mechanized equipment, and marine operations.

29 CFR 1926.20—General safety and health provisions.

49 CFR, Subchapter B—Federal motor carrier safety regulations.

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Heavy Equipment—Motor Vehicles—General

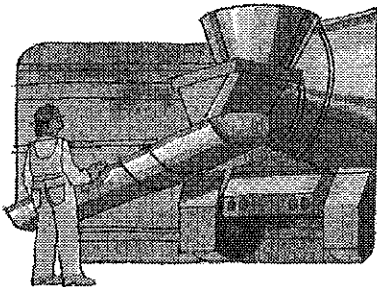
Noise; equipment exhaust; earth vibrations; swinging buckets, forks, booms, ropes; and back up alarms all make construction sites dangerous places. However, dangerous does not have to mean unsafe. Earplugs, ventilation, signaling, barricades, warning signs, alert workers, and safety monitors, can all contribute to making a noisy jobsite a safe place to work.

OSHA breaks down heavy equipment operating at jobsites into two areas: motor vehicles and materials handling equipment. In this Toolbox Talk we will look at motor vehicles.

Motor vehicles are those pieces of equipment that can operate both at a jobsite and on the highway. Dump trucks, flatbeds, and pickups, are some examples of these vehicles. Transporting workers, equipment, and materials would be some of the things they do.

The following rules talk about OSHA required safety equipment and preoperational inspections for motor vehicles.

Motor vehicles—Required equipment



- Vehicles must have a service, emergency, and parking brake system in good working order.
 - When you need additional light, your vehicle must have at least two working headlights and two taillights.
 - All vehicles must have working brake lights, and a horn at the operator's station.
 - You can't operate a motor vehicle in reverse if you can't see to the rear unless it has a reverse signal alarm others can hear above the noise, or a monitor says it is safe to do so.
- All vehicles with cabs must have windshields, wipers, and no cracked or broken glass.
 - Seat belts must be installed in all motor vehicles, and you must use them.

Motor vehicles—Inspections

Never use machinery, tools, or equipment not in compliance with OSHA standards and the manufacturer's operations manual. If equipment is broken, it must be identified as unsafe and tagged, locked, or be removed from the jobsite.

Each shift you must check the following equipment on any machine you intend to operate for damage that could cause an accident: (1) all brake systems, (2) tires, (3) horn, (4) steering mechanism, (5) coupling devices, seat belts, operating controls, and safety devices.

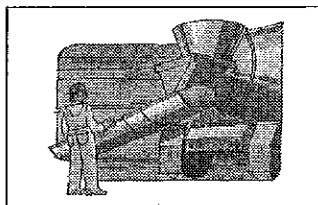
You must also check lights, reflectors, windshield wipers, defrosters, and fire extinguishers when this equipment is required.

Motor vehicles—Operation

You must be qualified by training or experience to operate equipment and machinery.

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Heavy Equipment—Motor Vehicles—General Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Heavy Equipment—Motor Vehicles at _____.

(company name)

The session covered:

- The requirements for operating motor vehicles off-road.
- Equipment requirements for motor vehicles.
- Inspection requirements for motor vehicles.

The space below is for employees to “sign-off” that they were in attendance.

Date of Training: _____

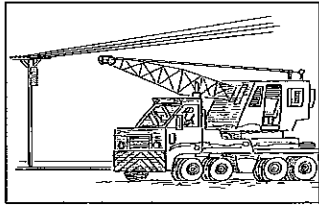
Job Location: _____

Employee Signature

Print Name Here

Supervisor's Signature

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment — Overhead Obstacles

Overview Of Topic

Contact between heavy equipment and overhead power lines is a major cause of fatal occupational injuries in the U.S. It is responsible for approximately 1.5 percent of all fatal work-related injuries each year. Although overhead power lines are the most dangerous of overhead obstacles, there are others. Hardhats are always required when dangers from falling objects and overhead hazards exist.

OSHA rules on overhead power lines

Heavy machinery, equipment, or parts thereof

Heavy machinery, equipment, or parts thereof, suspended or held aloft by slings, hoists, or jacks, must be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them.

Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, must be either fully lowered or blocked when being repaired or when not in use. All controls must be in a neutral position, with the motors stopped and brakes set, unless the work being done requires otherwise.

High lift rider industrial trucks (forklifts)

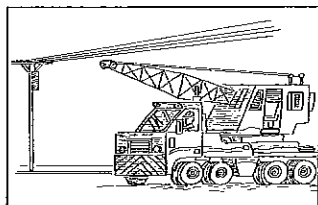
All high lift rider industrial trucks must be equipped with overhead guards that meet ANSI Standard B56.1-1969, Safety Standards for Powered Industrial Trucks. Whenever a truck is equipped to lift people, protection from falling objects, as necessary by the operating conditions, must be provided.

Overhead power lines

All equipment covered by Subpart O—Motor Vehicles, Mechanized Equipment, and Marine Operations, must comply with 1926.550(a)(15) when working or being moved in the vicinity of power lines or energized transmitters.

Any overhead line must be considered energized unless and until the person owning the line or the electric utility authorities indicate that it is not and has it visibly grounded. Three methods exist within the OSHA rules to protect equipment operators from contacting live overhead lines. They are:

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Heavy Equipment — Overhead Obstacles

- Deenergize lines and visibly ground them at the point of work. This is usually performed by the owner of the property or the utility company.
- Insulating barriers, not a part of or attached to the equipment, must be erected to prevent physical contact with the lines.
- Line clearance—operate equipment or machines only in accordance with the following clearances between the lines and any part of the equipment:
 - Lines rated 50 kV. or below: 10 feet.
 - Lines rated over 50 kV: minimum of 10 feet plus 0.4 inch for each 1 kV. over 50 kV, or twice the length of the line insulator but never less than 10 feet.
 - In transit with no load and boom lowered (for crane type equipment): minimum of 4 feet for voltages less than 50 kV., and 10 feet for voltages over 50 kV., up to and including 345 kV., and 16 feet for voltages up to and including 750 kV.

A person must be designated as a spotter to observe line clearance of the equipment and give a timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.

Employee Training

The only requirement for employee training in regards to heavy equipment inspection is the requirement for competent persons to make frequent and regular inspection of jobsites, materials, and equipment by competent persons designated by the employer. It takes training to be a competent person.

Training Tips

How does your company isolate overhead power lines? Your employees need to know that you do, and how you do it.

Where To Go For More Information

29 CFR Subpart O—Motor vehicles, mechanized equipment, and marine operations

29 CFR 1926.20—General safety and health provisions

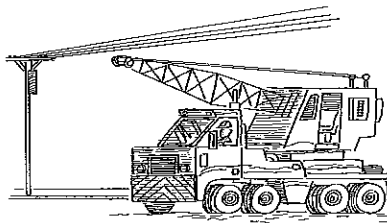
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Heavy Equipment — Overhead Obstacles

Overhead power lines are the most dangerous of overhead obstacles. In addition, hardhats are required when dangers from falling objects and overhead hazards exist. But contact between heavy equipment and overhead power lines is a major cause of fatal occupational injuries in the U.S. It is responsible for approximately 1.5 percent of all fatal work-related injuries each year. The following regulations are what OSHA considers important for your protection from overhead hazards and falling objects.

Heavy machinery, equipment, or parts thereof—Before you are permitted to work under or between heavy machinery or equipment, suspended or held aloft by slings, hoists, or jacks, they must be substantially blocked or cribbed to prevent falling or shifting. Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, must be fully lowered or blocked when being repaired or not in use. All controls must be neutral, with the motors stopped and brakes set, unless the work being done requires otherwise.

High lift rider industrial trucks (forklifts)



All high lift rider industrial trucks must be equipped with overhead guards that meet ANSI Standard B56.1-1969, Safety Standards for Powered Industrial Trucks. When a truck is equipped to lift people, protection from falling objects, as necessary by the operating conditions, must be provided.

Overhead power lines

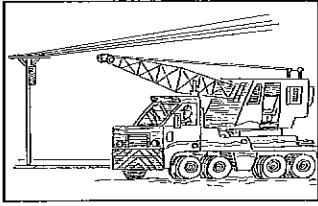
All equipment covered by Subpart O—Motor Vehicles, Mechanized Equipment, and Marine Operations, must comply with 1926.550(a)(15) when working or being moved close to power lines or energized transmitters.

Any overhead wire must be considered energized unless and until the person owning the line or the electric utility authorities indicate that it is not and has it visibly grounded. Three methods are allowed by OSHA to protect equipment operators from contacting live overhead lines. They are:

- Deenergize lines and visibly ground them at the point of work.
- Insulating barriers, not a part of or attached to the equipment, must be erected.
- Line clearance—operate equipment or machines only in accordance with the following clearances between the lines and any part of the equipment:
 - Lines rated 50 kV. or below: 10 feet.
 - Lines rated over 50 kV: minimum of 10 feet plus 0.4 inch for each 1 kV. over 50 kV, or twice the length of the line insulator but never less than 10 feet.
 - In transit with no load and boom lowered (for crane type equipment): minimum of 4 feet for voltages less than 50 kV., and 10 feet for voltages over 50 kV., up to and including 345 kV., and 16 feet for voltages up to and including 750 kV.

A person must be designated as a spotter to observe line clearance of the equipment and give a timely warning for all operations where it is difficult for you as the operator to maintain the desired clearance by visual means.

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Heavy Equipment — Overhead Obstacles Sign-Off Sheet

This sign-off sheet documents the employees who have taken part in a training session on Heavy Equipment — Overhead Obstacles at _____.

(company name)

The session covered the following:

- Statistics of overhead line contact and injury/death.
- What the OSHA rules say about heavy equipment and overhead obstacles.
- The three methods OSHA allows to protect equipment operators from contacting live overhead lines.

The space below is for each individual who has been trained on this topic to sign his/her names.

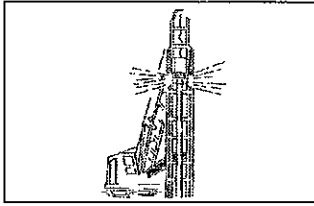
Date of Training:

Job Location:

Employee Signature

Print Name Here

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Pile Driving

Overview of Topic

When foundations are needed to transmit loads deeper into the ground, pile driving is the answer. Pile driving supports sea walls, piers, ship slips, bridges, archways, earth retention systems, and structures. Sheet piles form continuous vertical retaining walls.

Pile driving is dangerous construction work. Piles are installed or driven into the ground by a rig which supports the leads, raises the pile, and operates the hammer. Cranes, engines, exhaust gases, drop hammers, vibratory drivers, lead connections, pile positioning, and cables, all contribute to a noisy, dangerous, operation. However, dangerous does not have to mean unsafe.

The OSHA regulations, found in 1926.603, are general and do not cover more modern equipment such as vibratory drivers/extractors. The best safety practices always come from equipment manufacturers operation and maintenance manuals which usually contain safety practices for your particular equipment.

The following OSHA rules are not an exhaustive list. The OSHA regulations must be consulted to ensure all rules pertaining to your operation are followed.

Jobsite preparation

Proper personal protective equipment (shoes, gloves, hardhats, and noise protectors) must be worn.

Noise level testing should be done for each type of pile driving operation. Permitted occupational noise exposure levels are found in 1926.52, Table D-2, and range from 90 dBA for eight hours down to 115 dBA for any fifteen minute period. Any combination of exposures must be calculated per the formula in 1926.52(d)(2). Exposure to impulsive or impact noise cannot exceed 140 dBA peak sound pressure level. If levels exceed the allowed noise levels, proper hearing protection must be provided.

Fall protection is required for employees on pile driver fixed leads and sheet piling unless the employees are on a work platform equipped with guardrails or are using stirrups.

Struck by, hit by—Accessible areas within the swing radius of rotating crane superstructures must be barricaded to prevent an employee from being struck or crushed by the crane.

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Equipment installation

Overhead protection, the equivalent of 2-inch planking, which will not obscure the vision of the operator must be provided.

Guards must be provided across the top of the head block to prevent the cable from jumping out of the sheaves.

Guys, outriggers, thrustouts, or counterbalances must be provided as necessary to maintain stability of pile driver rigs.

Pile driving operations

Engineers and winchmen must accept signals only from the designated signalmen.

All employees must be kept clear when piling is being hoisted into the leads.

When anyone is working under the hammer, a blocking device, capable of safely supporting the hammer weight, must be placed in the leads under the hammer.

Employee Training

There are no specific training requirements in the OSHA regulations for pile driving. However, the OSHA regulations at 29 CFR 1926.21(b)(2) says that you must instruct employees in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.

Training Tips

Because the OSHA regulations are general in nature and do not cover specific equipment, you should prepare safety checklists using your equipment manufacturer's manuals. If they are not available go to the suggested information sources below for more information.

Where To Go For More Information

29 CFR 1926.603—Pile driving equipment.

California Code of Regulations, Title 8, Chapter 4, Subchapter 4, Article 12—Pile driving.

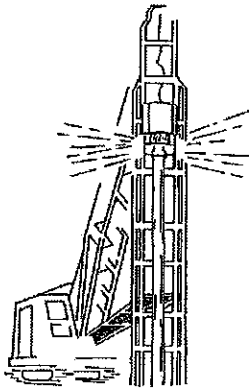
U. S. Army Field Manual, FM-134—Pile Construction.

KELLER'S CONSTRUCTION TOOLBOX TALKS

Pile Driving

When foundations are needed to transmit loads deeper into the ground, pile driving is the answer. Pile driving supports sea walls, piers, ship slips, bridges, archways, earth retention systems, and structures. Sheet piles form continuous vertical retaining walls.

The best safety practices always come from equipment operation and maintenance manuals. The manuals contain safety practices for your particular equipment. To have the best overall safety requirements, manufacturer's manuals should be combined with the OSHA requirements. The following OSHA rules give you an overview of the requirements. Your inspection checklists should contain those that pertain to your operation.



Jobsite preparation

Proper personal protective equipment (shoes, gloves, hardhats, and noise protectors) must be worn during pile driving operations.

Noise level testing should be done for each type of pile driving operation. If noise levels are exceeded, proper hearing protection must be provided.

Fall protection is required on pile driver fixed leads and sheet piling unless you are on a work platform equipped with guardrails or are using stirrups.

Accessible areas around rotating crane superstructures must be barricaded to prevent you from being struck or crushed by the crane.

Equipment installation

- Overhead protection, the equivalent of 2-inch planking, which will not obscure the vision of the operator must be provided.
- Guards must be provided across the top of the head block to prevent the cable from jumping out of the sheaves.
- Guys, outriggers, thrustouts, or counterbalances must be provided as necessary to maintain stability of pile driver rigs.

Pile driving operations

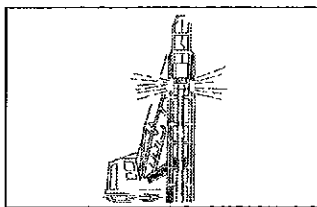
- Engineers and winchmen must accept signals only from the designated signalmen.
- You must keep clear when piling is being hoisted into the leads.

When anyone is working under the hammer, a blocking device, capable of safely supporting the hammer weight, must be placed in the leads under the hammer.

Pile driving is dangerous construction work. Cranes, engines, exhaust gases, drop hammers, vibratory drivers, lead connections, pile positioning, and cables, all contribute to a noisy, dangerous, operation. However, dangerous does not have to mean unsafe.

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KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Pile Driving Sign-Off Sheet

This sign-off sheet documents the names of employees who attended this training session on Heavy Equipment—Pile Driving at _____
(company name)

The session covered:

- Overview of topic.
- Jobsite preparation.
- Equipment installation.
- Pile driving operations.

The space below is for employees to "sign-off" that they were in attendance.

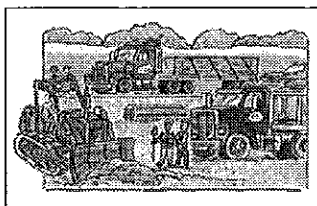
Date of Training: _____

Job Location: _____

Employee Signature

Print Name Here

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Working Safely Around Heavy Equipment

Overview Of Topic

OSHA requires you to provide a safe work environment for your employees. Working around heavy construction equipment can be very dangerous. Bulldozers, dump trucks, cranes, backhoes, forklifts, trenchers all are capable of enormous amounts of work. They are also capable of killing or injuring employees working nearby.

Two fatal accidents

The contractor was operating a backhoe when an employee attempted to walk between the swinging superstructure of the backhoe and a concrete wall. As the employee approached the backhoe from the operator's blind side, the superstructure hit the victim crushing him against the wall.

Two laborers and a fork lift driver were staking 40-foot-long I-beams in preparation for structural steel erection. One laborer was placing a 2 x 4 inch wooden spacer on the last I-beam on the stack. The fork lift driver drove up to the stack with another I-beam that was not secured or blocked on the fork lift tines. The I-beam fell from the tines, pinning the laborer between the fallen I beam and the stack of beams.

OSHA investigated both accidents and issued numerous citations.

What can your employees do to protect themselves?

Here are some important steps you and your employees can take to protect yourselves when working around heavy construction equipment:

- Don't assume that the operator can see you. If you're out of the operator's line of sight they probably don't know you're there.
- If the equipment is backing up get out of the way fast. Don't cross the path of construction equipment that is backing up. Keep your eye on the equipment.
- Cranes and backhoes have a swing radius that can crush or strike someone in that zone. The crane operator needs to block that area off with barricades or tape. Even so, you need to be aware of the swing radius and remember not to enter that zone.

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- Stay away from heavy equipment when it's operating or moving. Don't walk next to it; it could turn suddenly and hit you or the load it's carrying could shift and fall on you.
- Don't walk under a load that is being moved by a crane or forklift.
- Don't touch any equipment operating near power lines or other electrical equipment. If the crane accidentally makes contact with the hazard you could be electrocuted.
- Never ride on any construction equipment unless you are completely inside the cab and there is plenty of room for the operator to do their job. Walk, don't ride, if the equipment is not designed for occupants other than the operator.
- If the equipment needs to be repaired or adjusted make sure it is completely shut down and there is no residual power left that could crush or electrocute you. Don't work on equipment unless you are authorized to do so.

Employee Training

You are required to instruct each employee in the recognition and avoidance of unsafe conditions and regulations applicable to the work environment to control or eliminate any hazards.

OSHA state-plan-states: Remember that certain states have more stringent regulations that go above and beyond the OSHA standards.

Training Tips

Discuss any company specific requirements related to working around heavy equipment. Alert employees to any hazardous work areas they need to be especially careful in.

Where To Go For More Information

29 CFR 1926.21(b)(2)—Employer responsibility.

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Heavy Equipment—Working Safely Around Heavy Equipment

Standing on the ground looking up at those huge pieces of heavy equipment can make you feel small and vulnerable. As a matter of fact, you are small and vulnerable when working around construction heavy equipment. Bulldozers, dump trucks, cranes, backhoes, forklifts, and trenchers all are capable of enormous amounts of work. They are also capable of killing or injuring employees working nearby.

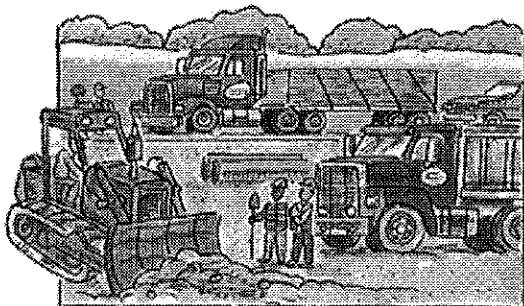
A fatal accident

The contractor was operating a backhoe when an employee attempted to walk between the swinging superstructure of the backhoe and a concrete wall. As the employee approached the backhoe from the operator's blind side, the superstructure hit the victim, crushing him against the wall.

What can you do?

Here are some important steps you can take to protect yourself when working around heavy construction equipment.

- Don't assume that the operator can see you. If you're out of the operator's line of sight they probably don't know you're there.

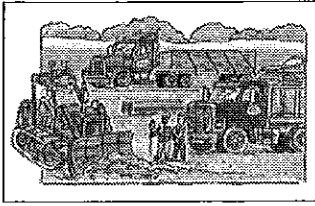


- If the equipment is backing up get out of the way fast. Don't cross the path of construction equipment that is backing up. Keep your eye on the equipment at all times.
- Cranes and backhoes have a swing radius that can crush or strike someone in that zone. The equipment operator needs to block that area off with barricades or tape. Even so, you need to be aware of the swing radius and remember not to enter that zone.
- Stay away from heavy equipment when it's operating or moving. Don't walk next to it; it could turn suddenly and hit you or the load it's carrying could shift and fall on you.
- Never walk under a load that is being moved by a crane or forklift.
- Don't touch any construction equipment operating near power lines or other electrical equipment. If the crane accidentally makes contact with the hazard you could be electrocuted.
- Never ride on any construction equipment unless you are completely inside the cab and there is plenty of room for the operator to do their job. Walk, don't ride, if the equipment is not designed for occupants other than the operator.
- If the equipment needs to be repaired or adjusted make sure it is completely shut down and there is no residual power left that could crush or electrocute you. Don't work on the machine unless you are authorized to do so.

Talk to your supervisor or foreman if you have questions on working around heavy construction equipment.

HEAVY EQUIPMENT—WORKING SAFELY AROUND HEAVY EQUIPMENT HANDOUT

KELLER'S CONSTRUCTION TOOLBOX TALKS



Heavy Equipment—Working Safely Around Heavy Equipment—Sign-Off Sheet

This sign-off sheet documents the employees at this company, _____, who have taken part in a training session on Heavy Equipment—Working Safely Around Heavy Equipment. The session covered:

- Examples of two fatal accidents that took place around heavy equipment.
- Eight safety precautions to take to protect yourself when working around heavy equipment.

The space below is for employees to “sign-off” that they were in attendance.

Date of Training: _____

Job Location: _____

Employee Signature

Print Name Here

Supervisor's Signature

HEAVY EQUIPMENT—WORKING SAFELY AROUND HEAVY EQUIPMENT SIGN-OFF