

Motorized Equipment

MSC-PRAC-30476

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Topic: Safety and Health

Motorized Equipment

PURPOSE

This practice identifies a key aspect of the Safety and Health (S&H) program, and establishes requirements for safe operation and maintenance of motorized heavy equipment (including dozers, scrapers, loaders, lifts, etc.) used on construction projects.

SCOPE

This practice includes the following major sections:

- General Requirements
- Cranes and Forklifts
- Elevating Work Platforms and Aerial Lifts
- Inspections
- Operating Motorized Equipment
- Training and Licensing

The requirements of this practice are consistent with the requirements published in the Mission Support Contract (MSC) Safety and Health virtual manual.

APPLICATION

This practice applies to Mission Support Alliance (MSA) construction personnel.

GENERAL REQUIREMENTS

Records generated during the performance of this activity are to be included in the Construction Work Package and will be managed in accordance with [MSC-PRAC-30374](#), *Construction Work Package*.

Motorized equipment is operated and maintained in accordance with instructions and specifications of the manufacturer.

Ensure that earthmoving and compacting equipment with an obstructed view to the rear are equipped with a reverse signal alarm distinguishable from the surrounding noise level, or that a signal person directs the reverse motion. Use a signal person whenever such equipment is used in tight quarters or in areas that are congested with personnel, material, utilities, or equipment, regardless of whether an alarm is provided.

CRANES AND FORKLIFTS

For cranes and forklifts, the requirements of the Hanford Site Hoisting and Rigging Manual (HSHRM), [DOE-RL-92-36](#) are followed exclusively on the Hanford Site. Also, refer to practice [MSC-PRAC-30477](#), *Hoisting and Rigging*.

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ELEVATING WORK PLATFORMS AND AERIAL LIFTS

Refer to practice [MSC-PRAC-30478](#), *Elevating Work Platforms and Aerial Lifts*.

INSPECTIONS

Motorized equipment received for use (through purchase, contract obligations, or rental) receive an initial documented inspection before placing into operation to verify that there are no mechanical defects and/or safety deficiencies. Refer to [Appendix A](#) for a list of minimum safety equipment/requirements.

If the motorized equipment condition warrants service or repair, the motorized equipment is rejected (prior to unloading and use) and returned to the lessor or owner. The lessor is notified before such action and, if possible, is allowed to make necessary repairs at his/her own expense. Management/supervision and Safety and Health (S&H) are part of this decision-making process. A photocopy of the inspection report, noting all discrepancies, is transmitted to the lessor.

When a piece of motorized equipment becomes damaged or is in need of repair, a documented inspection is completed prior to the motorized equipment being returned for use. This inspection includes reviewing any prior inspection forms to ensure corrective actions have been dispositioned.

No modifications or additions that affect the capacity or safe operation of the motorized equipment are made without the manufacturer's written approval. If the manufacturer does not approve modifications or changes, written approval from a registered profession engineer is obtained. If such modifications or changes are made the capacity, operation, and maintenance instruction plates, tags, or decals are changed accordingly.

All motorized equipment receives a daily pre-use inspection. Inspections of motorized equipment used to raise personnel and material are documented, with results noted on the form designated for that equipment. Deficiencies are fully explained in the "remarks" section of the form. Corrective actions also are noted on the form, prior to the motorized equipment being used in the field.

NOTE: *Examples of motorized equipment used to raise personnel and material include JLGs, boom trucks, snorkel lifts, scissor lifts, cranes, forklifts and aerial lifts.*

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Monthly and annual documented inspections of cranes are conducted as required in the HSHRM.

Construction Supervisor/ Superintendent Responsibilities

The Construction Supervisor/Superintendent (CS/S):

- Notifies MSA S&H 1 day before the arrival of any motorized equipment at the job site.
- Conducts pre-use and post-repair inspections (along with S&H or a Competent Person).

Operator Responsibilities

The operator inspects motorized equipment daily prior to operation. If deficiencies are noted, the operator contacts the immediate CS/S to determine if the motorized equipment is safe to operate. The operator documents the inspection and deficiencies (if any) on an inspection record for motorized equipment used to raise personnel and material.

If the deficiency has the potential for causing bodily injury to the operator, the motorized equipment is tagged with a “Danger – Don’t Use It – Unsafe” tag [A-6004-317](#) or equal to avoid operation of the motorized equipment. The CS/S is contacted when motorized equipment is tagged out of service.

Operators may be requested to assist in the inspection of any motorized equipment.

If a piece of motorized equipment is noticed to be deficient during routine operation, the operator ceases operation and contacts the immediate CS/S.

Safety and Health Responsibilities

S&H conducts inspections on motorized equipment as requested by the responsible CS/S. Deficiencies are noted on an inspection record and provided to the CS/S.

If the deficiency has the potential for causing bodily injury to the operator, the motorized equipment is tagged with a “Danger – Don’t Use It – Unsafe” tag [A-6004-317](#) (or equal) to avoid operation of the motorized equipment. The CS/S is contacted when motorized equipment is tagged out of service.

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Specific Equipment Inspection

The following list of motorized equipment is not intended to be inclusive of all motorized equipment requiring inspection, but to provide guidance for specific motorized equipment that is used frequently on construction worksites:

- Cranes
- Trucks and trailers (does not include cars and pickups)
- Motorized (heavy construction) equipment (such as dozers, excavators, backhoes)
- Forklifts
- Elevating work platforms and aerial lifts

[Appendix A](#) shows specific safety device requirements to be reviewed during the pre-use post repair, monthly, and annual inspections (if required) of construction motorized equipment.

OPERATING MOTORIZED EQUIPMENT

Construction Supervisor/ Superintendents

CS/Ss are responsible for the following:

Designate trained/qualified operators of mechanized (heavy construction) equipment as Competent Persons for each type of equipment in accordance with practice [MSC-PRAC-30452](#), *Program General Requirements*.

Ensure that all cab glass is safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine.

Ensure that mechanized equipment is provided with roll-over protective structures (ROPS).

NOTE: *ROPS are not required for off-highway trucks, compactors, or skid-steer equipment.*

Ensure that seatbelts are provided and worn on equipment, except for equipment designed only for standup operation.

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Ensure that equipment has a braking system capable of stopping and holding the equipment fully loaded.

Where traffic is diverted onto dusty surfaces, suppress the dust with water or other approved means.

Ensure that equipment operated in flammable atmospheres or enclosed spaces is designed for use in that type of environment.

Ensure that earthmoving haulage equipment with pneumatic tires that is capable of a maximum speed exceeding 25 kilometers per hour (15 miles per hour) is equipped with fenders on all wheels.

Operators

Operators are responsible for the following:

Operate only the mechanized (heavy construction) equipment for which you have been designated as a Competent Person, and as authorized by supervision.

Handle loads being lifted or transported by mechanized equipment in a manner that ensures stability and prevents loss of the load during transit.

Ensure that equipment left unattended at night adjacent to traveled roadways has appropriate lights or reflectors, or place barricades equipped with appropriate lights or reflectors to identify the location of that equipment.

Do not mount or dismount equipment while it is in motion.

Wear seat belts provided. Do not allow riders on equipment or any part of the load unless the equipment is designed for more than 1 person or a seat with a seat belt is provided and used.

Whenever equipment is parked, set the parking brake. When equipment is parked on inclines, chock the wheels and set the parking brake.

Do not operate tracked units (such as bulldozers) on paved roads except for approved crossings.

Stop, secure, and substantially block or crib the equipment being repaired to prevent falling or shifting before allowing employees to work under or between equipment.

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TRAINING AND LICENSING

Motorized (heavy) equipment operators meet training and licensing requirements when:

- They fulfill the applicable requirements of practice [MSC-PRAC-30461](#), *Accident Prevention Training and Education*.
- They are designated as “Competent Persons” in accordance with practice [MSC-PRAC-30452](#), *Program General Requirements*.

FORMS

Danger – Don’t Use It – Unsafe Tag, [A-6004-317](#)

RECORDS IDENTIFICATION

Records Capture Table

Name of Document	Submittal Responsibility	Retention Responsibility
Construction Work Package	Construction Supervisor/ Superintendent	Project Document Control
All records produced by the use of this practice (including but not limited to, evaluations, assessments, corrective actions, etc.) go into the Construction Work Package	Construction Supervisor/ Superintendent	Project Document Control

REFERENCES

[MSC-PRAC-30374](#), *Construction Work Package*
[MSC-PRAC-30452](#), *Program General Requirements*
[MSC-PRAC-30461](#), *Accident Prevention Training and Education*
[MSC-PRAC-30477](#), *Hoisting and Rigging* [MSC-PRAC-30478](#),
Elevating Work Platforms and Aerial Lifts

U.S. Department of Energy, Richland Operations Office (RL)
[DOE-RL-92-36](#), *Hanford Site Hoisting and Rigging Manual (HSHRM)*

APPENDICES

[Appendix A](#), Safety Device Requirements for Construction Equipment

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APPENDIX A Safety Device Requirements for Construction Equipment

Equipment Categories	5 BC Rating Fire Ext.	20 BC Rating Fire Ext.	Horn	Reverse Alarm	ROPS	Seat Belt	Overhead Protection	Boom Indicator	Capacity Chart	Other
Automobile			X			X				
Boom Truck	X		X	X		X		X	X	Annual Inspection
Bus	X		X	X		X				
Compactor Self Propelled			X	X	X*	X*				
Concrete Pump Truck			X	X		X				
Concrete Transit Truck			X	X		X				
Crane Crawler	X		X					X	X	Annual Inspection
Crane Rough Terrain	X		X	X	X	X		X	X	Annual Inspection
Crane Truck	X		X	X		Carrier		X	X	Annual Inspection
Crawler Loader			X	X	X	X				
Creter Crane	X		X	X		X		X	X	Annual Inspection
Dozer			X	X	X	X				
Excavator Crawler			X	X		X			X	
Excavator Truck MTD			X	X		Carrier			X	
Farm Tractor			X	X	X	X				
FIL-Backhoe			X	X	X	X				
Flat Bed Truck (Dump)			X	X		X				Dump Body Support
Floor Sweeper			X							
Forklift			X	X	X	X*	X		X	
Fuel Truck		X	X	X		X				
Fuel Wagon		X	X			X				
Lube Truck		X	X	X		X				
Manlift Hydraulic			X							Load Limits
Motor Grader			X	X	X*	X*				
Motor Scraper			X	X	X	X				
Pick-up Truck			X			X				
Scissors Lift										
Skid Loader			X	X		X	X			
Tandem Dump			X	X		X				Dump Body Support-Cab Shield
Tower Hoist	X						X		X	
Trencher			X		X*	X*				
Truck Tracker			X			X				
Water Truck			X	X		X				
Wheel Loader			X	X	X	X				

* Required only when part of original equipment

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DEFINITION OF SAFETY DEVICE REQUIREMENTS FOR CONSTRUCTION EQUIPMENT

Fire Extinguisher

An accessible fire extinguisher not less than 5 BC is available at all operator stations or cabs of equipment.

A fire extinguisher is provided on a piece of equipment working in an isolated area or hazardous environment.

Horn

All motorized equipment is equipped with a horn, distinguishable from the surrounding noise level, which is operated as needed where the machine is moving in either direction. The horn is maintained in an operative condition.

Reverse Alarm

Motorized heavy equipment is equipped with a reverse signal alarm audible above the surrounding noise level. The alarm operates when the equipment directions control is placed in the reverse position. A signal person who directs the reverse motion may be used as an alternative, but the audible signal alarm is preferred.

NOTE: *A signal person is required whenever such equipment is used in tight quarters or in areas that are congested with personnel, material, utilities, or equipment, regardless of whether an alarm is provided.*

Rollover Protective Structures

The design objective is to minimize the likelihood of a complete overturn and thereby minimize the possibility of the operator being crushed as a result of a rollover or upset.

Seat Belt

Seat belts that meet the requirements of the Society of Automobile Engineers, J386-1993, Operator Restraint System for Off-Road Work Machines, are provided when they are part of the original equipment.

Overhead Protection

All high-lift rider industrial trucks are equipped with overhead guards that meet the design and structural requirements.

Dump Body Support

Trucks with dump bodies are equipped with positive means of support permanently attached, and are capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done.

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Cab Shields or Canopy

A cab shield and/or canopy are adequate to protect the operator from shifting or falling materials.

Cranes

Refer to practice [MSC-PRAC-30477](#), *Hoisting and Rigging*

Load Limits — Boom and Basket

Boom and basket load limits specified by the manufacturer are not exceeded.