

Welcome to *The Hard Hat Training Series*



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Today you will learn how to safely operate a digger derrick, sometimes referred to as digger trucks. We will strive to provide information that will increase your knowledge and help to make you a better operator.



HARD HAT
TRAINING SERIES

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DIGGER DERRICK
OPERATOR
SAFETY TRAINING





In our highly-mechanized world, cranes are the workhorses that have increased economic growth and productivity in construction, mining, logging, maritime, production, and utility services. It is not uncommon, while driving in urban areas, to see mobile cranes, tower cranes, and maritime cranes all in a short period of time, performing a wide variety of jobs. But, did you know that digger derricks are also included by OSHA as cranes.



LOAD CAPACITIES (L.B.) FOR DIGGER DERRICK USE

THE FIRST LINE REQUIRED FOR LOADS IN RED!

LIFT CAP. WT.	FULLY RETRACTED		INTERMEDIATE BOOM ONLY EXTENDED		UPPER BOOM ONLY EXTENDED		INTERMEDIATE & UP BOOMS EXTENDED	
	BOOM HGT.	LOAD CAPACITY	BOOM HGT.	LOAD CAPACITY	BOOM HGT.	LOAD CAPACITY	BOOM HGT.	LOAD CAPACITY
1.2	6'0"	20000	6'0"	18000	-	-	-	-
8	7'4"	16000	7'0"	12600	7'7"	13200	-	-
10	8'0"	14400	7'0"	10300	7'4"	10000	7'8"	8710
12	8'7"	11810	7'3"	10300	7'4"	10000	7'4"	7350
16	9'0"	8800	8'0"	7770	8'0"	6100	8'0"	5230
20	9'7"	7010	8'0"	5560	8'0"	5130	8'0"	4010
24	-	-	8'0"	4320	8'0"	4850	8'0"	4010
30	-	-	8'0"	3460	8'0"	4040	8'0"	3210
36	-	-	8'0"	2800	8'0"	3380	8'0"	2650
40	-	-	-	-	-	-	8'0"	2220
44	-	-	-	-	-	-	8'0"	1850
50	-	-	-	-	-	-	8'0"	1350
-	0'	4810	0'	2120	0'	2720	0'	1230

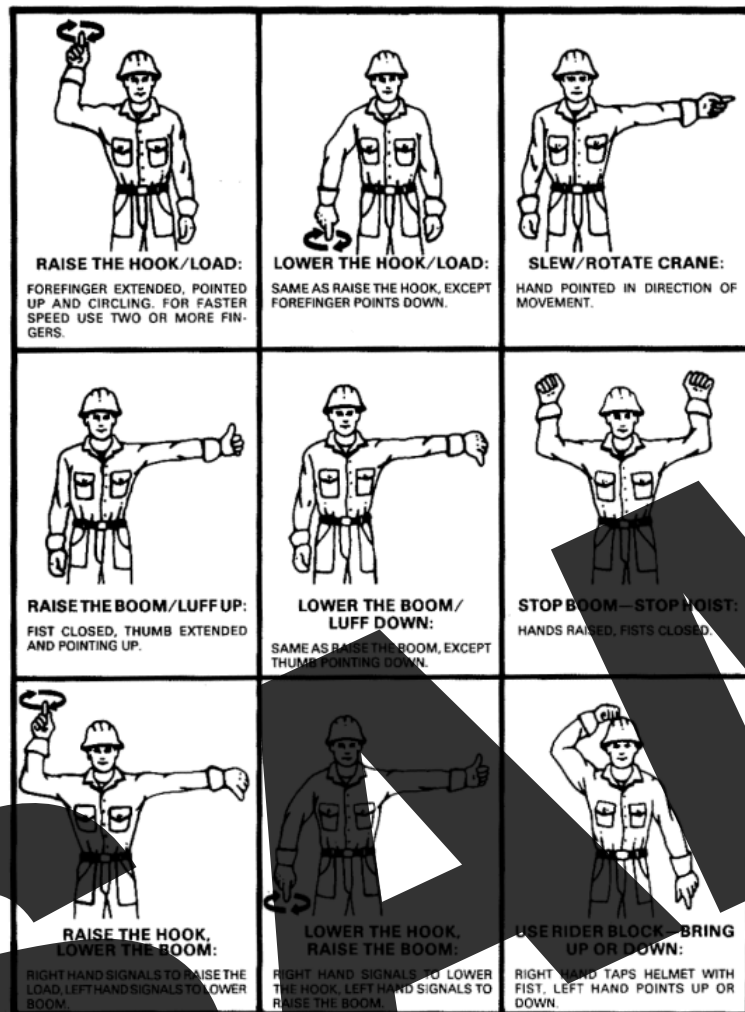
CAUTION

Fixed and understand all operating and safety information in manual and on all placards before operating the unit. If you do not have manual, or if placards are missing or illegible, please call 1-877-462-5555 for assistance. See operating placards for more information. See also the relevant operating manual.

INCLUDED W/ UNIT: 1 IF
WHEN IN USE, WARNING LIGHTS
WIND CAPACITY
WIND SPEED
WIND DIRECTION
WIND FORCE
WIND VELOCITY
WIND PRESSURE
WIND TEMPERATURE
WIND HUMIDITY
WIND DENSITY
WIND ALTITUDE
WIND SPEED
WIND DIRECTION
WIND FORCE
WIND VELOCITY
WIND PRESSURE
WIND TEMPERATURE
WIND HUMIDITY
WIND DENSITY
WIND ALTITUDE

During this training, we will cover the anatomy of the digger derrick and stress the importance of inspecting it each day before it is put into service. We will look at stability and the importance of understanding and using the load charts





We will discuss the safety considerations of properly setting up the digger derrick and the importance of good communication on the job site, as well as the hand signals for mobile cranes.



We will discuss some basic rigging principles and how to safely inspect and use lifting slings, as well as other lifting hardware.





We will discuss various parts found on the digger derrick and how they are to be properly used and inspected, as well as some of the hazards they present

Upon completion of this training, you should be familiar with digger derricks, have an increased knowledge of how to set-up and safely operate them, and be able to recognize the common hazards that surround their use.



Training

No matter the equipment, it is common to hear workers and even employers ask “where does it state operators need to be trained? Can’t an operator also be deemed *qualified* based on experience?” First, 29 CFR 1926.21(b)(2), the employer responsibility section on safety training and education for the construction industry, states that “the employer shall instruct each employee 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.”



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Confusion and even false justification often surface due to 1926.20(b)(4) in the General Safety and Health Provision, which states “the employer shall permit only those employees qualified by training *or* experience to operate equipment and machinery.”

So there appears to be a conflict: one says training is a must, the other says it’s an option. Generally speaking, in the case that two standards or differing organizations (OSHA, ASME/ANSI, SAE) contradict each other, it is always best to follow the stricter of the two rules.



American National Standards Institute



SETTING THE STANDARD



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Ultimately, in the case of an accident, OSHA will want to see proof of training. If you cannot furnish that proof and can, instead, only offer up that the worker came into the job with 20 years of experience, you'll most likely be in trouble. Experience may qualify an operator, but very rarely will experience alone suffice. A history of operating for any given amount of time does not necessarily mean the operator knows how to operate safely and competently.



Did you know?

OSHA 1926.20(f)(2) states that the employer:

“must train each affected employee in the manner required by the standard, and each failure to train an employee may be considered a separate violation.”



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Bad habits are easily passed from one worker on one site to another, all in the name of “experience.” Can you think of a particular time—in or outside of construction—where you did something a certain way for years only to discover that you had been doing it wrong the whole time? In this case, as in all cases, training will only help. It can reinforce and enhance the good experience while addressing and correcting the bad habits from misguided experience.



Have you heard?

The story of the woman who got in a fight with her husband because she believed “you” were supposed to cut the ends of the ham off before cooking it. Her mom had done it that way for years. Her husband argued it was a waste. Turns out her mom cut the ends off only so it would fit into their smaller pan.



When it comes to refresher training, OSHA's standard in some instances (like forklifts) are very specific: operators must be re-evaluated every three years to see if they are still competent to operate the equipment. Best practices say to apply this same rule to all types of equipment. A so-called "free-pass" cannot be awarded based on experience, age, or time on the job. The extent of the evaluation is to be determined by the employer, but should include a written and practical examination that prove continued competency.





Did you know?

Regulations specify that an operator **must** take a refresher course if any of the following apply:

- The operator is observed operating the equipment in an **unsafe** manner (e.g., no seat belt, reckless driving, etc.).
- The operator is involved in an **accident** **or** a **near miss**.
- The operator received a **poor evaluation** for performance.
- The operator is required to **use a different type of machine** **or** **attachment**.
- Workplace conditions have changed.

Additionally, 1926.64(g)(2) states that “The employer...shall determine the appropriate frequency of refresher training.”

It's important to note the last two conditions for refresher training. This term “*type*” also causes a lot of confusion. Generally speaking, by “*type*,” OSHA means boom truck vs. knuckle boom vs. RT vs. AT vs. crawler, etc. and they do not necessarily mean size, although size can play a factor.

Can you think of any differences that might make a boom truck crane a different type, thus requiring additional training?



The same goes for attachments, below-the-hook devices, and other changes in work site conditions. You will need to be instructed on safe use and potential hazards when it comes to using any attachments or means of rigging to hoist loads.

Additionally, if you have been certified to operate a derrick doing line work and then move on to work on a construction site, additional training and certification will be required.





Initial training, as well as any evaluations or refresher courses, must be documented with the name of the person, or persons, who taught the class or conducted the evaluation. Although OSHA doesn't require wallet cards as proof of training, many companies and worksites do require onsite proof that you have been trained. At the very least, in the case of an investigation, OSHA will want to see proof of proper and consistent training (in the way of training outlines, class lists, training goals, tests, certificates, etc.).

Equipment operators also share in the responsibility to ensure they and their co-workers have:

- Received training by a qualified person.
- Read and understood the manufacturer's operating instructions and safety rules as found in the operator's manual.
- Read and understood all decals, warnings, and capacity plates on the crane.
- Performed a thorough pre-shift inspection each day prior to operating the machine.



STANDARDS

29 CFR 1926.180 - Crawler, Locomotive and Truck cranes

29 CFR 1926.1400 - Cranes and Derricks

ASME B30.5 - Mobile and locomotive cranes

ASME B30.22 Articulating boom cranes

Standards

These are some of the main standards concerning cranes and material hoists. Of course, states and cities have additional standards, as do some industries such as maritime, mining, and offshore oil platforms.

We have provided these as a guide, but it's your responsibility to know all federal, state, local, and company rules that apply to your machine and job site.



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Anatomy & Components

SAMPLE



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