

# CRANE ELITE

## LATTICE BOOM

---

## CORE REVIEW

## QUESTIONS

CRANE ELITE PREP SCHOOL  
[WWW.CRANEELITEPREPSCHOOL.COM](http://WWW.CRANEELITEPREPSCHOOL.COM)

- 1) On lattice boom cranes with power load lowering mounted on the hoist, a heavy load should be lowered by using which functions listed below?
  - a) Power load-lowering feature and the foot brake.
  - b) Foot brake feature and slipping the converter.
  - c) Foot brake feature and throttle of the engine.
  - d) Power load-lowering feature only.
  
- 2) A pin-connected lattice boom is being dismantled. After connecting the equalizer (bridle) to the connecting lugs on the boom butt, which boom connecting pins should be removed first?
  - a) Top connection pins, located at and behind the equalizer.
  - b) Top connection pins, located at and ahead of the equalizer.
  - c) Lower connection pins, located at and ahead of the equalizer.
  - d) Lower connection pins, located at and behind the equalizer.
  
- 3) When using a mobile crane on a barge, the crane's load capacity ratings will be:
  - a) replaced by a list chart.
  - b) de-rated to 50% rated capacity.
  - c) de-rated to 60% rated capacity.
  - d) replaced by a cycle chart.
  
- 4) How many broken wires are permitted at the end connection of a standing pendant line before it must be taken out of service?
  - a) 6.
  - b) 5.
  - c) 3.
  - d) 1.
  
- 5) When assembling a lattice boom on most mobile cranes and using inserts of different lengths, which insert section generally should be closest to the boom butt section?
  - a) 40 ft.
  - b) 30 ft.
  - c) 20 ft.
  - d) 10 ft.

- 6) Backward stability of a mobile crane is tested in which configuration listed below?
- a) Basic boom at maximum angle with maximum load.
  - b) Maximum boom at maximum angle with maximum load.
  - c) Basic boom at minimum angle with no load.
  - d) Basic boom at maximum angle with no load.
- 7) The device that automatically stops the boom when it nears the cranes maximum angle is called the:
- a) boom hoist limiting device.
  - b) boom hoist back stop.
  - c) mechanical boom stop.
  - d) mechanical limiting pawl.
- 8) What does the term "jib offset" mean when referring to a lattice boom mobile crane?
- a) Jib angle to the boom.
  - b) Jib angle to the ground.
  - c) Jib angle to vertical.
  - d) Jib angle to horizontal.
- 9) Manufacturer specifications permit only a certain amount of lattice boom to be suspended out past the connection point of the pendants during assembly or disassembly of the boom. The term for that length of boom that is suspended is called the:
- a) jib section length.
  - b) head section length.
  - c) cantilever length.
  - d) butt section length.
- 10) On the majority of friction style mobile cranes the power is transferred to the torque converter by which component?
- a) Sprocket.
  - b) Bull gear.
  - c) Worm gear.
  - d) Master clutch.

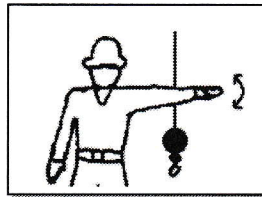
- 11) When lattice boom is being disassembled or shortened, it is extremely important to:
- a) always be positioned inside the boom to drive out the lower pins.
  - b) never touch any pin on any boom section located between the pendant attachment points and the crane.
  - c) drive the top pins out from inside the boom.
  - d) drive the bottom pins out from inside the boom.
- 12) When swinging a suspended load on any lattice boom crane, the most ground pressure will be exerted over which position?
- a) Front.
  - b) Rear.
  - c) Side.
  - d) Corner.
- 13) On a lattice boom truck crane, the main boom length is measured from the:
- a) bottom of the heel section to the tip of the head section.
  - b) ground to top of head section.
  - c) center of the heel pins to the center of the tip sheave pins.
  - d) crane's center of rotation to the center of the sheave on the boom head.
- 14) How should the gantry of a lattice boom crane be positioned when hoisting a suspended load?
- a) Highest position.
  - b) Third position.
  - c) Mid position.
  - d) Retracted position.
- 15) When assembling or disassembling lattice booms, when is it safe to work under the boom?
- a) When the tension on the boom is firm.
  - b) When the bottom pins are lubricated.
  - c) When the outriggers are blocked firm.
  - d) None of the above.

- 16) When handling boom sections, where is the best location for slings to be attached?
- a) At the pin connection points at the ends of the top cords.
  - b) On the lattice members across the top of the boom.
  - c) On the lattice members across the bottom of the boom.
  - d) At the pin connection points at the ends of the bottom cords.
- 17) Booms that are being assembled or disassembled on the ground with or without support of the boom harness should be?
- a) pinned at connecting points with synthetic slings.
  - b) attached at connecting points with synthetic slings.
  - c) securely blocked to prevent dropping of the boom and boom sections.
  - d) assembled or disassembled with the longest boom section first.
- 18) When installing boom pins on lattice boom cranes, which direction should the connection pins be pointing?
- a) Out away from boom center.
  - b) In toward boom center.
  - c) None of the above.
  - d) All of the above.
- 19) A hydraulic lattice mobile crane is equipped with an anti two-block lock-out device. When the device is activated which functions should be disabled?
- a) Hoist, and raise the boom.
  - b) Lower, boom up.
  - c) Hoist, travel
  - d) Hoist, boom down.
- 20) According to OSHA, when is it safe to hoist loads with a lattice boom crane below energized power lines?
- a) If a crane is equipped with an insulating link or proximity alarm.
  - b) If the crane only raises the boom to a maximum angle of 60 degrees.
  - c) When the boom in a true vertical position can't reach the prohibited zone.
  - d) The boom is kept 10 feet away from the power line for 360 degrees.



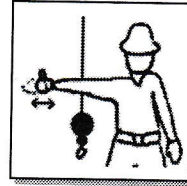
- 21) A crane loses stability when its leverage on the load is:
- a) less than the load's leverage on the crane.
  - b) 70% of the load's leverage on the crane.
  - c) 80% of the load's leverage on the crane.
  - d) more than the load's leverage on the crane.
- 22) What is the design factor required when using rotation resistant wire rope slings and lifting personnel in a platform suspended from a mobile crane?
- a) 3.5
  - b) 5
  - c) 7
  - d) 10
- 23) A mobile crane's jib is offset at  $15^{\circ}$  versus its original  $30^{\circ}$  offset, but the boom angle remains unchanged. In this situation, the load radius would:
- a) increase.
  - b) remain the same.
  - c) decrease.
  - d) cannot be determined.
- 24) On mobile cranes, what information does the boom angle indicator display to the operator?
- a) Radius of the boom to ground.
  - b) Angle of boom to horizontal.
  - c) Angle of boom to vertical.
  - d) Axis of tipping from centerline.
- 25) Select the correct OSHA Standard Method Hand Signal that matches the illustration.

- a) Swing.
- b) Emergency stop.
- c) Travel.
- d) Stop.



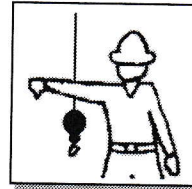
- 26) Select the correct OSHA Standard Method Hand Signal that matches the illustration.

- a) Raise boom, lower load.
- b) Extend boom.
- c) Lower boom, raise load.
- d) Hoist.



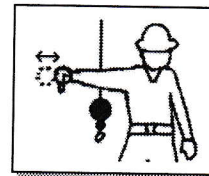
- 27) Select the correct OSHA Standard Method Hand Signal that matches the illustration.

- a) Swing.
- b) Retract boom.
- c) Lower boom.
- d) Lower.



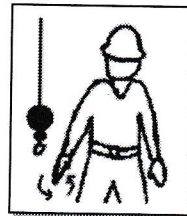
- 28) Select the correct OSHA Standard Method Hand Signal that matches the illustration.

- a) Stop.
- b) Travel. (1 Track)
- c) Raise boom and lower load.
- d) Lower boom and raise load.



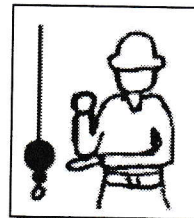
- 29) Select the correct OSHA Standard Method Hand Signal that matches the illustration.

- a) Stop.
- b) Hoist.
- c) Lower.
- d) Lower boom.



- 30) Select the correct OSHA Standard Method Hand Signal that matches the illustration.

- a) Use whipline.
- b) Travel.
- c) Use main hoist.
- d) Retract boom.



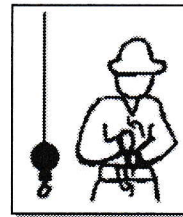
Crawler Cranes Only:

- 1) What boom position produces the least amount of ground pressure on a lattice boom crawler crane
  - a) Corner.
  - b) Side.
  - c) Front.
  - d) Rear.
  
- 2) What should the operator do if he or she cannot properly level the crane?
  - a) Don't operate crane.
  - b) Reduced capacity 50%.
  - c) Operate only on high side.
  - d) Operate only on low side.
  
- 3) What effect does having the crawlers retracted have on a mobile crawler crane with a long boom?
  - a) Decrease track wear.
  - b) Decrease in capacity.
  - c) Increase in capacity.
  - d) Increase track wear.
  
- 4) A mobile crawler crane is on a barge, what item listed below is important to check?
  - a) The 50% reduced load chart.
  - b) The 75% reduced load chart
  - c) Crane is positioned north.
  - d) Crane is secured to barge.
  
- 5) When operating a lattice boom crawler crane what is the least stable allowable quadrant of operation?
  - a) Front.
  - b) Rear.
  - c) Corner.
  - d) Side.



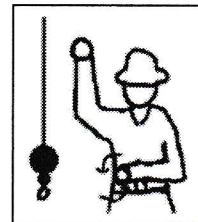
- 6) Tipping capacities of lattice boom crawler cranes are based on what percentage of tipping?
- a) 75%.
  - b) 70%.
  - c) 85%.
  - d) 80%.
- 7) Approved blocking placed under the tips of the tracks on some mobile crawler cranes will:
- a) increase the crane's stability.
  - b) decrease the crane's stability.
  - c) stop crane from traveling unexpectedly.
  - d) stop crane from sliding unexpectedly.
- 8) The tipping axis over the side on most lattice boom crawler cranes is generally inline with what component?
- a) Pinion gear.
  - b) Track rollers.
  - c) Crane cab.
  - d) Boom butt.
- 9) Select the correct OSHA Standard Method Hand Signal that matches the illustration.

- a) Travel. (both tracks)
- b) Travel. (one track)
- c) Dog everything.
- d) Emergency stop.



- 10) Select the correct OSHA Standard Method Hand Signal that matches the illustration.

- a) Emergency stop
- b) Travel (both tracks)
- c) Travel (one track)
- d) Raise boom.

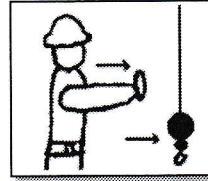


Truck Cranes Only:

- 1) When operating on tires, lattice boom truck cranes are rated at what percentage of tipping?
  - a) 70%.
  - b) 75%.
  - c) 80%.
  - d) 85%.
  
- 2) Lattice boom truck crane manufactured after 11/8/2011 must have which of the following?
  - a) Swing radius indicator.
  - b) Boom length indicator
  - c) Proximity warning device
  - d) Outrigger position monitor.
  
- 3) A lattice boom truck crane, with outriggers properly set, is rated at what percentage of its tipping capacity?
  - a) 75%.
  - b) 90%.
  - c) 85%.
  - d) 100%.
  
- 4) On a lattice boom truck crane with the outriggers extended and set, and wheels still bearing machine weight, the operator should refer to what load chart in the manual?
  - a) Back chart.
  - b) Front chart.
  - c) Rubber chart.
  - d) 85% chart.
  
- 5) On lattice boom truck cranes operating with outriggers retracted, the least stable position is when the boom is directly over the:
  - a) Front.
  - b) Rear.
  - c) Side.
  - d) Corner.

- 6) A lattice boom truck crane with a 120 ft. boom will be operating at a 42 ft. radius. The load chart shows an entry indicating 25,000 lbs. at a 40 ft. radius, followed immediately by an entry listing 20,000 lbs. at a 45 ft. radius. What is the crane's capacity at the 42 ft. radius?
- a) 20,000 lbs.
  - b) 22,000 lbs.
  - c) 23,000 lbs.
  - d) 25,000 lbs.
- 7) Lattice boom truck crane capacities are generally greater over which quadrant?
- a) Front.
  - b) Rear.
  - c) Right.
  - d) Side.
- 8) Outriggers must be set:
- a) to raise tires off the ground.
  - b) to remove machine weight from the wheels.
  - c) and fully extend the jack.
  - d) so beam just touches frame.
- 9) When operating a lattice boom truck crane and extending the outrigger beams from the upper cab, you should:
- a) boom up to 50 degrees.
  - b) boom up to 65 degrees.
  - c) swing over the side with a low boom.
  - d) make visual contact with beam and jack.
- 10) When making a lift on outriggers, the maximum ground-bearing pressure occurs in which boom position?
- a) Over the rear.
  - b) Over the corner.
  - c) Over the front.
  - d) Over the side.

- 11) Blocking or mats under the outrigger pads/float must be?
- a) parallel to the outriggers.
  - b) able to sustain the load and maintain stability.
  - c) perpendicular to the outriggers.
  - d) at least three times the pad/float area.
- 12) Select the correct OSHA Standard Method Hand Signal that matches the illustration.



- a) Trolley travel.
  - b) Wheel travel.
  - c) Swing.
  - d) Stop.
- 13) True or False – Wood mats work best when they are bolted together.
- a) True.
  - b) False.
- 14) Outrigger floats must:
- a) be round.
  - b) not be secured to the jack.
  - c) be secured to the jack.
  - d) be sitting on concrete.
- 15) Outrigger pad must be at a \_\_\_\_\_ angle to the cylinder.
- a)  $60^{\circ}$
  - b)  $70^{\circ}$
  - c)  $80^{\circ}$
  - d)  $90^{\circ}$