



National Center for Construction
Education and Research

Assessment Packet

Boom Truck Crane

ASMT-21BMTRK01

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Table of Contents

Focus Statement	2
Assessment Structure	2
Time Limit	2
Passing Score	3
Materials Permitted During the Assessment	3
Assessment Specifications	3
ANSI Accreditation	4
Assessment Development	4
Practical Examination	4
Scaled Score	4
Score Report	4
Credentials	5
Contact	5
Resources	6
Codes, Laws, and Standards	6

Focus Statement

The Boom Truck Crane Operator Certification, accredited by ANAB and aligned with OSHA 29 CFR 1926 Subpart CC and ASME B30 standards, measures whether candidates demonstrate the minimum competence necessary to operate a boom truck crane safely and effectively in construction environments.

A certified operator will:

1. Regulatory Compliance and Safety Awareness
 - Demonstrate working knowledge of OSHA/ASME standards, employer responsibilities, and operator duties.
 - Apply general safety principles to prevent hazards related to ground conditions, weather, power lines, and personnel exposure.
2. Crane Setup and Operational Readiness
 - Conduct pre-operational inspections, equipment setup, and assembly in accordance with manufacturer guidance and site conditions.
 - Verify the function of operational aids, safety devices, and load charts.
3. Operational Proficiency
 - Accurately interpret and apply load chart data to determine safe rated capacities under varying configurations.
 - Safely execute crane movements including travel, lifting, booming, and load positioning while accounting for net and gross capacities.
4. Rigging and Communication
 - Verify load weights, rigging hardware, and sling configurations to ensure compliance with ASME B30.9 and B30.26.
 - Demonstrate clear communication using standardized hand and voice signals to coordinate with ground personnel.
5. Inspection, Maintenance, and Emergency Response
 - Identify inspection intervals, testing requirements, and maintenance needs for ropes, hooks, and crane components.
 - Respond effectively to equipment malfunctions, powerline contact, or site emergencies following OSHA/ASME protocols.

Performance Level Expectation

A minimally competent operator possesses the foundational knowledge, interpretive skills, and decision-making ability to prevent accidents, maintain regulatory compliance, and safely complete lifting operations. Performance at this level confirms readiness for real-world crane operations under supervision-free conditions.

Assessment Structure

- There are 80 scored items on this assessment.
 - Pilot items are included for research purposes throughout the assessment: these items will not affect the candidate's overall score.
- The [Assessment Specifications](#) is a blueprint that includes the topic domains and weightings for this assessment.
 - Please note that not all topic areas may be covered on every form of the test. The content may vary among different versions.

Time Limit

This assessment must be completed within the 3 hours allotted.

Passing Score

The minimum passing [scaled score](#) is 80.

Materials Permitted During the Assessment

- The candidate may use a basic function, non-printing calculator.
- The following load charts will be measured in this assessment:
 - Manitex 2892S
 - Altec AC26-103B
- No extra papers, books, notes, or study materials are allowed.

Assessment Specifications

The specifications for this assessment are a framework of content on which the candidate will be tested, using the following outline of domains, sub-domains, and content areas. Each domain comprises a specific percentage of the assessment, as identified in the tables.

1. General Knowledge and Safety <ul style="list-style-type: none">a. Regulatory Standardsb. General Safety Procedures	7%
2. Crane Set-up and Assembly <ul style="list-style-type: none">a. Assembly of Craneb. Site Prep/Conditionsc. Operational Componentsd. Safety Devices and Operational Aids	16%
3. Inspection, Testing, and Maintenance <ul style="list-style-type: none">a. Inspection Typesb. Testing Proceduresc. Rope Inspection/Maintenance and Crane Maintenance	13%
4. Crane Operations <ul style="list-style-type: none">a. Crane Function Controlsb. Load Handlingc. Travel Proceduresd. Load Charts<ul style="list-style-type: none">i. Net Capacityii. Gross Capacity	24%
5. Emergency Response	3%
6. Standard Hand Signals	22%
7. Verify Load and Rigging Weights	15%

ANSI Accreditation

NCCER's Mobile Crane Operator Certification Program is accredited by the American National Standards Institute (ANSI). Details are available on NCCER's website.

Assessment Development

Under the direction of NCCER's Test Development department, subject matter experts assist in the development of the contents within this assessment package, including the focus statement; domains, sub-domains, and content areas in the assessment specifications; and corresponding items' content and complexity on the assessment. The Test Development department continuously maintains the assessment, ensuring the content remains valid in the construction industry.

Practical Examination

A corresponding hands-on Practical Examination is available, and a "pass" status required, to become certified. The practical examination consists of the following tasks. Candidates will be required to complete the tasks in order:

- **Task 1: Pre-Operation Inspection**
Candidates must demonstrate the ability to identify and inspect the essential parts of the crane prior to operation.
- **Task 2: Crane Setup**
Candidates must demonstrate proper knowledge and application of crane setup procedures.
- **Task 3: Hand Signals**
Candidates must correctly interpret and respond to standard hand signals while operating the crane.
- **Task 4: Target Location**
Candidates must demonstrate control of the boom and load to accurately reach the designated target location.
- **Task 5: Oral Load Chart Questions**
Candidates must demonstrate proficiency in reading and interpreting load charts by accurately answering oral questions.
- **Task 6: Slalom Course**
Candidates must safely and effectively maneuver the crane and control the load through a designated slalom course.
- **Task 7: Crane Breakdown**
Candidates must demonstrate the ability to properly break down and secure the crane in accordance with the manufacturer's specifications.

Scaled Score

A scaled score is the candidate's raw score that has been converted to a scale of 1 to 100. Scaling raw scores is a standardization procedure to account for differences in total points possible on each assessment form to include item types, weightings, and difficulties. It is also performed to consider the difficulty of assessment forms when comparing performance across all of NCCER's offerings.

Score Report

Each candidate will have online access through their NCCER account to their assessment results, including their overall score with a "pass" or "training recommended" status.

Credentials

Upon successful completion of the certification requirements, credentials can be viewed and printed by the candidate or assessment program through their NCCER account.

Contact

Please contact NCCER's Test Development department if you have questions or concerns about this assessment, or if you find errors in the content: testdev@nccer.org.

For customer support, please go to <https://nccer.my.site.com/Support/s/contact-support-team>.

Resources

A candidate is expected to have relevant education and/or on-the-job experience to be successful in completing this assessment and the associated practical examination. Although not an all-inclusive list of available resources, the following NCCER resources can aid candidates with their preparation, in addition to applicable codes, laws, and standards relevant to the job.

Codes, Laws, and Standards

- ASME B30.5- Mobile and Locomotive Cranes (2021)
- ASME B30.10- Hooks (2014)
- ASME B30.26- Rigging Hardware (2010)
- ASME B30.9- Slings (2009)
- OSHA 29 CFR 1926 Subpart CC Crane and Derricks in Construction
- IPT's Crane and Rigging Training Manual (2005)