Mobile Crane Operator
Guide to Course Content

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Recognition:
To promote transparency and consistency, this document has been adapted from the 2021 Mobile Crane Operator Red Seal Occupational Standard (Employment and Social Development Canada).

A complete version of the Occupational Standard can be found at www.red-seal.ca

STRUCTURE OF THE GUIDE TO COURSE CONTENT

To facilitate understanding of the occupation, this guide to course content contains the following sections:

Description of the Mobile Crane Operator trade: an overview of the trade's duties and training requirements.

Essential Skills Summary: an overview of how each of the nine essential skills is applied in this trade.

Elements of harmonization of apprenticeship training: includes adoption of Red Seal trade name, number of levels of apprenticeship, total training hours (on-the-job and in-school) and consistent sequencing of technical training content.

Task Matrix: a chart which outlines graphically the major work activities, tasks and sub-tasks of this standard detailing the essential skills and the level of training where the content is covered.

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities.

Task: distinct actions that describe the activities within a major work activity.

Sub-task: distinct actions that describe the activities within a task.

Training Profile Chart: a chart which outlines the model for Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training.

Technical Training Course Content for the Mobile Crane Operator trade: a chart which outlines the model for SATCC technical training sequencing. For the harmonized level of training, a cross reference to the Harmonized apprenticeship technical training sequencing, at the learning outcome level, is provided.

Appendix A: Post Harmonization Training Profile Chart: a chart which outlines the finalized model for SATCC technical training sequencing with a cross reference to the Harmonized apprenticeship technical training sequencing, at the topic level.

DESCRIPTION OF THE MOBILE CRANE OPERATOR TRADE

Mobile crane operators operate mobile cranes to lift, move, position and place materials and equipment. They perform pre-operational inspections. They calculate crane capacities, determine load weight, and set up, position and stabilize the crane before the lift. Mobile crane operators have the additional responsibilities of disassembling, traveling and transporting mobile cranes. They may also participate in rigging procedures. They also perform some routine maintenance and housekeeping of the crane equipment such as lubricating and cleaning.

Mobile cranes are used in many industry sectors. They are very commonly used in the construction of buildings and the assembly of large equipment. They are used in locations such as construction sites, warehouses, factories, mines, oil rigs, refineries, railway yards, ships, windmill farms and ports. Mobile crane operators may be employed by rental companies, construction firms, manufacturers, public utilities, transport sector companies, ship builders, cargo-handlers, airports, railways and mines.

Mobile cranes come in different types such as crawlers, truck-mounted, rough-terrain and all-terrain. The boom of the crane may be lattice or telescopic. Some mobile cranes are fitted with equipment, including piledriver, clamshell, dragline, wrecking ball, magnet and personnel basket, which can perform specialized functions. They may be outfitted with heavy lift attachments, tower attachments and luffing jibs.

Some mobile crane operators specialize in different crane functions. In some cases, an operator may work for years on a single large site, operating a single type and size of mobile crane.
Mobile crane operators working for rental companies may rarely work on the same site more than once and may routinely perform a variety of tasks with different types and sizes of mobile cranes.

The majority of the work in this trade is outdoors. Key attributes for people entering the trade are strong communication skills, mechanical aptitude, mathematical ability, excellent visual and depth perception and a high degree of hand-foot-eye coordination. The operation of some mobile cranes is physically demanding as is the handling of accessories. Mobile crane operators interact with other tradespeople, contractors and customers.

The skills of mobile crane operators are transferable to operating other heavy equipment. With experience, mobile crane operators may move into careers such as business owners, supervisors, trainers and job coordinators.

Training Requirements: To graduate from each level of the apprenticeship program, an apprentice must successfully complete the required technical training and compile enough on-the-job experience to total at least 1800 hours each year. Total trade time required is 5400 hours and at least 3 years in the trade. There are three levels of technical training delivered by the Western Trade Training Institute in various locations around the province:

Level One:	8 weeks
Level Two:	8 weeks
Level Three:	2 weeks

Examination required for proficiency certificates: Boom truck operator “A”; Boom truck operator “B”.

The information contained in this guide to course content details the technical training delivered for each level of apprenticeship. An apprentice spends approximately 15% of their apprenticeship term in a technical training institute learning the technical and theoretical aspects of the trade. The hours and percentages of technical and practical training may vary according to class needs and progress.

The content of the technical training components is subject to change without notice.

Entrance Requirements for Apprenticeship Training

Your grade twelve transcripts (with no modified classes) or GED 12 is your guarantee that you meet the educational entrance requirements for apprenticeship in Saskatchewan. In fact, employers prefer and recommend apprentices who have completed high school. This ensures the individual has all of the necessary skills required to successfully complete the apprenticeship program and receive journeyperson certification.

Individuals with “modified” or “general” classes in math or science do not meet our entry requirements. These individuals are required to take an entrance assessment prescribed by the SATCC.

English is the language of instruction in all apprenticeship programs and is the common language for business in Saskatchewan. Before admission, all apprentices and/or “upgraders” must be able to understand and communicate in the English language. Applicants whose first language is not English must have a minimum Canadian Language Benchmark Assessment of six (CLB6).

Note: A CLB assessment is valid for a one-year period from date of issue.

Designated Trade Name	**Math Credit** at the Indicated Grade Level❶	**Science Credit** at Grade Level
Mobile Crane Operator	Grade 10	Grade 10

❶ - (One of the following) WA – Workplace and Apprenticeship; or F – Foundations; or P – Pre-calculus, or a Math at the indicated grade level (Modified and General Math credits are not acceptable.).

*Applicants who have graduated in advance of 2015-2016, or who do not have access to the revised Science curricula will require a Science at the minimum grade level indicated by trade.

For information about high school curriculum, including Math and Science course names, please see: http://www.curriculum.gov.sk.ca/

Individuals not meeting the entrance requirements will be subject to an assessment and any required training

ESSENTIAL SKILLS SUMMARY

Essential skills are needed for work, learning and life. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change.

Through extensive research, the Government of Canada and other national and international agencies have identified and validated nine essential skills. These skills are used in nearly every occupation and throughout daily life in different ways.

A series of CCDA-endorsed tools have been developed to support apprentices in their training and to be better prepared for a career in the trades. The tools can be used independently or with the assistance of a tradesperson, trainer, employer, teacher or mentor to:

- understand how essential skills are used in the trades;
- learn about individual essential skills strengths and areas for improvement; and
- improve essential skills and increase success in an apprenticeship program.

The tools are available online or for order at: www.canada.ca/en/services/jobs/training/initiatives/skills-success/tools.html

The application of these skills may be described throughout this document within the skills and knowledge which support each sub-task of the trade. The most important essential skills for each sub-task have also been identified. The following are summaries of the requirements in each of the essential skills, taken from the essential skills profile. A link to the complete essential skills profile can be found at www.red-seal.ca.

READING

In their daily work, mobile crane operators read and comprehend several types of texts. These include safety and work procedures as well as more complex hoisting regulations and manufacturers' operating manuals.

DOCUMENT USE

Mobile crane operators use workplace documents such as logbooks, load charts, hazard assessments and workplace policies and procedures to carry out their job. They must be familiar with regulations relating to hoisting, rigging and safe work environments. They must have the ability to read and interpret manufacturers' specifications and load charts for the model of crane they are using. Depending on site-specific requirements, they may obtain information from engineered and construction drawings and plans.

WRITING

Mobile crane operators use writing skills to record comments or notes in logbooks or work records. They write messages to colleagues or management to give work details or reply to requests for technical information. They may also write longer descriptions and explanations for various reporting and data collection forms.

ORAL COMMUNICATION

Mobile crane operators use oral communication skills to coordinate work with site crews. Clear communication of technical and complex information is very important to avoid injuries and promote efficiency. Mobile crane operators also use communication skills when instructing apprentices, co-workers and on-site work crews. Good listening and visual skills are also required to communicate with riggers, signallers and other operators during lifts. Operators use verbal communication and hand signals to communicate the speed of lift movements and precise positioning of loads.

NUMERACY

Mobile crane operators use a range of math skills in their daily work. These include mathematical and physics concepts such as conversions, geometry, algebraic calculations, measurement and calculation of load and lift requirements. They use code books, load charts and manufacturers' specifications to further determine procedures, limits and the necessary equipment for rigging and hoisting.

THINKING

Mobile crane operators must use decision-making skills to perform work planning and prioritizing. The decisions they make about the sequence of work have implications for everyone on site. Mobile crane operators require strong analytical skills to effectively use their equipment.

Mobile crane operators use problem solving skills to choose setup locations and crane configurations for specific jobs. During lifts mobile crane operators make operational decisions to start, stop and vary the speed and direction of lifts to ensure safe movement and placement of a load. They evaluate the safety of lifts before and during lifts and stop work if necessary.

WORKING WITH OTHERS

To be effective, mobile crane operators must establish close and ongoing job-task coordination with other workers on the job site. They work closely with clients to plan lifts and ensure that their activities are coordinated with those of on-site crews. They are in close communication with riggers, signallers and supervisors to coordinate lifts and load placements. Mobile crane operators work in close coordination with other operators when performing multiple crane lifts and when in close proximity with other cranes and heavy equipment.

DIGITAL TECHNOLOGY

Mobile crane operators are increasingly required to interpret electronic data transmitted from LMI, anemometers and electronic scales to a display located in the cab of the crane. Controls for the mobile crane may also involve computerized applications.

CONTINUOUS LEARNING

As construction methods and crane technology are advancing, mobile crane operators must keep abreast of these developments. There are requirements for site or crane specific training and regulatory changes that may require additional certification and ongoing learning to ensure compliance and safe working conditions.

ELEMENTS OF HARMONIZATION FOR APPRENTICESHIP TRAINING

At the request of industry, the Harmonization Initiative was launched in 2013 to *substantively align* apprenticeship systems across Canada by making training requirements more consistent in the Red Seal trades. Harmonization aims to improve the mobility of apprentices, support an increase in their completion rates and enable employers to access a larger pool of apprentices.

As part of this work, the Canadian Council of the Directors of Apprenticeship (CCDA) identified four main harmonization priorities in consultation with industry and training stakeholders:

1. Trade name

The official Red Seal name for this trade is Mobile Crane Operator.

2. Number of Levels of apprenticeship

The number of levels of technical training recommended for the Mobile Crane Operator trade is three.

3. Total Training Hours during apprenticeship training

The total hours of training, including both on-the-job and in-school training for the Mobile Crane Operator trade is 5400.

4. Consistent sequencing of training content (at each level) using the most recent occupational standard

Harmonization for the Welder trade has been fully implemented for each level of technical training. See the “Technical Training Course Content” section of this guide for more details.

White boxes are “Topics,” grey boxes are “In-Context”. In-Context means learning that has already taken place and is being applied to the applicable task. Learning outcomes for In-Context topics are accomplished in other topics in that level.

Level 1 (2016/2017 implementation)	Level 2 (2017/2018 implementation)	Level 3 (2018/2019 implementation)
Safety		
Types and Terminology		
Systems and Components		
Wire Rope and Rigging		
Transporting a Crane		
Crane Maintenance		

Level 1 (2016/2017 implementation)	Level 2 (2017/2018 implementation)	Level 3 (2018/2019 implementation)
Lift Planning		
Crane Applications		
	Lift Planning Hydraulic Crane	
	Lift Planning Lattice Boom Crane	
	Hydraulic Crane Operations	
	Lattice Boom Crane Operations	
		Specialized Hoisting Applications

MOBILE CRANE OPERATOR TASK MATRIX CHART

This chart outlines the major work activities, tasks and sub-tasks from the 2021 Mobile Crane Operator Red Seal Occupational Standard (RSOS). Each sub-task details the corresponding essential skill and level of training where the content is covered. *

* Sub-tasks with numbers in the boxes is where the content will be delivered in training. Harmonization for the Mobile Crane trade has been fully implemented for each level of technical training.

A – Performs common occupational skills — 6%

Task A-1 Performs safety-related functions	**1.01 Maintains a safe work environment** 1, 2, 3	**1.02 Uses personal protective equipment (PPE) and safety equipment** 1, 2, 3	**1.03 Uses documentation** 1, 2, 3
Task A-2 Uses communication and mentoring techniques	**2.01 Use communication techniques** 1, 2, 3	**2.02 Uses mentoring techniques** 1, 2, 3	

B – Performs hoisting calculations — 18%

Task B-3 Determines load weights	**3.01 Identifies weight** 1, 2, 3	**3.02 Calculates weight** 1, 2, 3
Task B-4 Calculates crane capacity	**4.01 Determines radius and crane configuration** 1, 2, 3	**4.02 Interprets load charts** 1, 2, 3
Task B-5 Performs rigging calculations	**5.01 Performs sling angle calculations** 1, 2, 3	**5.02 Performs working load limit (WLL) calculations** 1, 2, 3

C – inspects and maintains crane

13%

Task C-6 Performs pre-operational checks and regular inspections	**6.01 Inspects engine systems** 1, 2, 3	**6.02 Inspects air systems** 1, 2, 3	**6.03 Inspects electrical systems** 1, 2, 3	**6.04 Inspects hydraulic systems** 1, 2, 3	**6.05 Inspects chassis/car body and running gear components** 1, 2, 3
	6.06 Inspects outriggers and counterweights 1, 2, 3	**6.07 Inspects boom components and attachments** 1, 2, 3	**6.08 Inspects hoisting systems** 1, 2, 3		
Task C-7 Performs operational and continual checks	**7.01 Checks operating controls** 1, 2, 3	**7.02 Inspects monitoring and warning systems** 1, 2, 3	**7.03 Monitors running lines, hoist lines and standing ropes** 1, 2, 3	**7.04 Monitors gauges and warning systems** 1, 2, 3	**7.05 Monitors support base** 1, 2, 3
Task C-8 Performs minor crane maintenance	**8.01 Changes oil and filters** 1	**8.02 Greases crane** 1, 2, 3	**8.03 Lubricates wire ropes** 1, 2, 3	**8.04 Makes adjustments and replacements** 1, 2, 3	

D – Performs rigging

12%

Task D-9 Inspects, maintains and stores slings and hardware	**9.01 Lubricates slings and hardware** 1, 2, 3	**9.02 Identifies deficiencies in slings and hardware** 1, 2, 3	**9.03 Disposes of damaged slings and hardware** 1, 2, 3	**9.04 Stores slings and hardware** 1, 2, 3
Task D-10 Follows rigging procedures	**10.01 Selects required rigging** 1, 2, 3	**10.02 Rigs load** 1, 2, 3	**10.03 Monitors rigging** 1, 2, 3	

E – Plans lift, prepares site and sets up crane — 15%

Task E-11 Performs pre-lift planning	11.01 Participates in routine, engineered and specialty lift planning 1, 2, 3	11.02 Evaluates risks and hazards 1, 2, 3	
Task E-12 Sets up crane	12.01 Performs final site inspection 2, 3	12.02 Positions crane 2, 3	12.03 Completes setup 2, 3

F – Assembles, disassembles and transports crane — 13%

Task F-13 Loads and unloads components for transport	13.01 Loads crane and components 2, 3	13.02 Unloads and crane and components 2, 3			
Task F-14 Drives cranes on public roadways	14.01 Performs pre-trip planning 1, 2, 3	14.02 Prepares crane for transport 2, 3	14.03 Drives cranes 2, 3		
Task F-15 Assembles and disassembles lattice boom cranes	15.01 Installs tracks on car body (lattice boom) 1, 2, 3	15.02 Installs superstructure/ upperworks (lattice boom) 1, 2, 3	15.03 Installs outrigger boxes (lattice boom) 1, 2, 3	15.04 Installs boom base (lattice boom) 1, 2, 3	15.05 Assembles couterweights (lattice boom) 1, 2, 3
	15.06 Assembles main boom, tip and boom attachments (lattice boom) 1, 2, 3	15.07 Installs hook blocks and overhaul ball (lattice boom) 1, 2, 3	15.08 Removes hook blocks and overhaul ball (lattice boom) 1, 2, 3	15.09 Disassembles main boom, tip and boom attachments (lattice boom) 1, 2, 3	15.10 Removes counterweights (lattice boom) 1, 2, 3
	15.11 Removes boom base (lattice boom) 1, 2, 3	15.12 Removes superstructure/ upperworks (lattice boom) 1, 2, 3	15.13 Removes tracks from car body (lattice boom) 1, 2, 3	15.14 Removes outrigger boxes (lattice boom) 1, 2, 3	

Task F-16 Assembles and disassembles telescopic boom cranes	16.01 Installs tracks on car body (telescopic boom) 1, 2, 3	16.02 Installs outrigger boxes (telescopic boom) 1, 2, 3	16.03 Installs superstructure/ upperworks (telescopic boom) 1, 2, 3	16.04 Installs main boom (telescopic boom) 1, 2, 3	16.05 Installs hook blocks and overhaul ball (telescopic boom) 1, 2, 3
	16.06 Installs counterweights (telescopic boom) 1, 2, 3	16.07 Installs jibs and inserts (telescopic boom) 1, 2, 3	16.08 Removes jibs and inserts (telescopic boom) 1, 2, 3	16.09 Removes counterweights (telescopic boom) 1, 2, 3	16.10 Removes hook blocks and overhaul ball (telescopic boom) 1, 2, 3
	16.11 Removes main boom (telescopic boom) 1, 2, 3	16.12 Removes outrigger boxes (telescopic boom) 1, 2, 3	16.13 Removes tracks from car body (telescopic boom) 1, 2, 3	16.14 Removes superstructure/up perworks (telescopic boom) 1, 2, 3	
Task F-17 Assembles and disassembles specialty equipment and attachments	17.01 Assembles specialty equipment and attachments 3	17.02 Disassembles specialty equipment and attachments 3			

G – Operates crane

23%

Task G-18 Performs common craning operations	18.01 Configures load moment indicator (LMI) 1, 2, 3	18.02 Mobilizes crane on jobsite 1, 2, 3
Task G-19 Operates friction drive lattice boom cranes	19.01 Operates friction drive crawler-mounted lattice boom cranes 1, 2, 3	19.02 Operates friction drive truck-mounted lattice boom cranes 1, 2, 3
Task G-20 Operates hydraulic drive lattice boom cranes	20.01 Operates hydraulic drive crawler-mounted lattice boom cranes 1, 2, 3	20.02 Operates hydraulic drive truck-mounted lattice boom cranes 1, 2, 3

Task G-21 Operates telescopic boom cranes	**21.01 Operates crawler-mounted telescopic cranes** **1, 2, 3**	**21.02 Operates rubber-mounted telescopic cranes** **1, 2, 3**			
Task G-22 Performs specialty craning operations	**22.01 Operates crane with piledriving equipment** **2, 3**	**22.02 Performs duty cycle operations** **2, 3**	**22.03 Operates cranes on floating platforms** **3**	**22.04 Performs multi-crane lifts** **2, 3**	**22.05 Uses personnel hoisting equipment** **2, 3**
Task G-23 Secures crane	**23.01 Secures crane for short-term** **1, 2, 3**	**23.02 Secures crane for long-term** **1, 2, 3**			

TRAINING PROFILE CHART

This Training Profile Chart represents Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training at the topic level.

Mobile Crane Operator technical training for levels 1 and 2 are provided in alternative delivery. This method uses a combination of in-class training and at-home course work between training sessions. As a result, hours are listed below for a specific training level, but not for individual courses.

Technical training for levels 1 and 2 are both equivalent to 8 weeks in length, while level 3 is a 2 week in-class session.

Level One	Hours
Safety/Tools and Equipment	
Rigging	
Mobile Crane Operations	
Load Charts I	
Load Weight Calculations	
	240

Level Two	Hours
Rigging	
Load Weight Calculations II	
Load Charts II	
Mobile Crane Setup	
Mobile Crane Operations	
Pre-operational Checks, Inspections and Maintenance	
	240

Level Three	Hours
Mobile Crane Operations	
Safety/Tools and Equipment	
Rigging	
Load Charts	
Load Weight Calculations	
Preoperational Checks, Inspections and Maintenance	
Mobile Crane Setup	
	80

TECHNICAL TRAINING COURSE CONTENT

This chart outlines the model for Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training sequencing.

Harmonization for the Mobile Crane Operator trade has been fully implemented for each level of technical training.

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Level One 8 weeks 240 hours

Safety/Tools and Equipment

- types of personal protective equipment (PPE) and clothing and describe their applications, limitations and procedures to maintain
- hazards and describe workplace safety and health regulations
- techniques for effective verbal and non-verbal communication
- applicable hand signals used during craning operations
- trade related documents and describe their applications
- hand, power and measuring tools and describe their applications, procedures for use
- retaining devices and describe their applications and procedures to install and remove

RSOS topics covered in this section of training:

A-1 Performs safety related functions

A-1.01 Maintains safe work environment

- safe work practices and procedures
- induced currents, power line hazards and high voltage electrical equipment
- regulatory requirements pertaining to safety

A-1.02 Uses personal protective equipment (PPE) and safety equipment

- PPE and safety equipment, their applications, limitations, maintenance, storage and procedures for use
- inspection requirements for PPE and safety equipment
- regulatory requirements pertaining to PPE and safety equipment

A-1.03 Uses documentation

- safety-related and work-related documentation and their applications
- procedures used to interpret and prepare safety-related and work-related documentation
- regulatory requirements pertaining to safety-related and work-related documentation

E-11 Performs pre-lift planning

E-11.02 Evaluates risks and hazards

- procedures used to evaluate risks and hazards
- regulatory requirements pertaining to pre-lift planning

F-15 Assembles and disassembles lattice boom cranes

F-15.01 Installs tracks on car body (lattice boom)

- lattice boom cranes, their components, characteristics and applications
- procedures used to install tracks on car body of lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.02 Installs superstructure/upperworks (lattice boom)

- procedures used to install superstructure/upperworks on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.03 Installs outrigger boxes (lattice boom)
- procedures used to install outrigger boxes on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.04 Installs boom base (lattice boom)
- procedures used to install boom bases on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.05 Installs counterweights (lattice boom)
- procedures used to install counterweights on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.06 Assembles main boom, tip and boom attachments (lattice boom)
- procedures used to assemble main boom, tip, and their components and attachments on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.07 Installs hook blocks and overhaul ball (lattice boom)
- procedures used to install hook blocks and overhaul ball on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.08 Removes hook blocks and overhaul ball (lattice boom)
- procedures used to remove hook blocks and overhaul ball on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.09 Disassembles main boom, tip and boom attachments (lattice boom)
- procedures used to disassemble main boom, tip and their components and attachments on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.10 Removes counterweights (lattice boom)
- procedures used to remove counterweights on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.11 Removes boom base (lattice boom)
- procedures used to remove boom base from lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

15.12 Removes superstructure/upperworks (lattice boom)
- procedures used to remove superstructure/upperworks from lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

15.13 Removes tracks from car body (lattice boom)
- procedures used to remove tracks from car body on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.14 Removes outrigger boxes (lattice boom)
- procedures used to remove outrigger boxes on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-16 Assembles and disassembles telescopic boom cranes

F-16.01 Installs tracks on car body (telescopic boom)
- telescopic boom cranes, their components, characteristics and applications
- procedures used to install tracks on car body of telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.02 Installs outrigger boxes (telescopic boom)
- telescopic boom cranes, their components, characteristics and applications
- procedures used to install outrigger boxes on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.03 Installs superstructure/upperworks (telescopic boom)
- procedures used to install superstructure/upperworks on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.04 Installs main boom (telescopic boom)
- procedures used to install main boom on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.05 Installs hook blocks and overhaul ball (telescopic boom)
- procedures used to install hook blocks and overhaul ball on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.06 Installs counterweights (telescopic boom)
- Installs counterweights (telescopic boom)
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.07 Installs jibs and inserts (telescopic boom)
- procedures used to install jibs and inserts on telescopic boom cranes
- procedures used to install jibs and inserts on telescopic boom cranes

F-16.08 Removes jibs and inserts (telescopic boom)
- procedures used to remove jibs and inserts on telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.09 Removes counterweights (telescopic boom)
- procedures used to remove counterweights on telescopic boom cranes
- procedures used to remove counterweights on telescopic boom cranes

F-16.10 Removes hook blocks and overhaul ball (telescopic boom)
- procedures used to remove hook blocks and overhaul ball from telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.11 Removes main boom (telescopic boom)
- procedures used to remove main boom from telescopic boom cranes
- procedures used to remove main boom from telescopic boom cranes

F-16.12 Removes outrigger boxes (telescopic boom)
- procedures used to remove outrigger boxes on telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.13 Removes tracks from car body (telescopic boom)
- procedures used to remove tracks from car body on telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.14 Removes superstructure/upperworks (telescopic boom)
- procedures used to remove superstructure/upperworks from telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

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Rigging

- codes, standards and regulations pertaining to wire ropes, rigging hardware and slings
- wire ropes, rigging hardware and slings and describe their applications, limitations and procedures for use and storage
- procedures used to select, install and connect wire ropes, rigging hardware and slings
- procedures used to troubleshoot issues with wire rope, slings and rigging components
- procedures used to dispose of damaged rigging components
- information pertaining to rigging and hoisting found on drawings and specifications
- procedures used to calculate sling angles and their effect on sling capacities
- procedures used to determine the appropriate sling size for a given load
- considerations and calculations used to determine WLLs

RSOS topics covered in this section of training:

B-5 Performs rigging calculations

B-5.01 Performs sling angle calculations
- knowledge of slings, hardware, sling configurations, their characteristics, applications and capacities

- knowledge of performing sling angle calculations
- regulatory requirements pertaining to rigging

B-5.02 Performs working load limit (WLL) calculations
- WLL, their characteristics and applications
- perform WLL calculations

C-6 Performs pre-operational checks and regular inspections

C-6.08 Inspects hoisting systems
- hoisting systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hoisting systems and their components
- regulatory requirements pertaining to hoisting systems and their components

D-9 Inspects, maintains and stores slings and hardware

D-9.01 Lubricates slings and hardware
- slings and hardware lubrication requirements
- procedures used to lubricate slings and hardware
- standards and manufacturers' specifications pertaining to lubrication of slings and hardware

D-9.02 Identifies deficiencies in slings and hardware
- procedures used to identify deficiencies in slings and hardware
- regulatory requirements pertaining to inspection of slings and hardware

D-9.03 Disposes of damaged slings and hardware
- procedures used to remove and destroy damaged slings and hardware
- regulatory requirements pertaining to removal and destruction of damaged slings and hardware

D-9.04 Stores slings and hardware
- procedures used to store slings and hardware
- regulatory requirements pertaining to storage of slings and hardware

D-10 Follows rigging procedures

D-10.01 Selects required rigging
- rigging, its characteristics and applications
- procedures used to select required rigging
- regulatory requirements pertaining to rigging

D-10.02 Rigs loads
- rigging techniques
- lifting theory and forces
- procedures used to rig loads
- regulatory requirements pertaining to rigging

D-10.03 Monitors rigging
- procedures used to monitor rigging
- regulatory requirements pertaining to rigging

Load Weight Calculations

- Demonstrate knowledge of the weight of basic shaped loads.
- Demonstrate knowledge of center of gravity.

RSOS topics covered in this section of training:

B-3 Determines load weights

B-3.01 Identifies weight
- procedures used to identify weight of objects and basic shaped loads

B-3.02 Calculates weight

- procedures used to calculate weight of objects and basic shaped loads
- knowledge of center of gravity

Load Charts

- knowledge of basic load charts, their characteristics and applications.
- knowledge of crane capacity, crane component capacity and working radius for basic lifting operations.

RSOS topics covered in this section of training:

B-4 Calculates crane capacity

B-4.01 Determines radius and crane configuration

- knowledge of determining radius and crane configurations
- knowledge of regulatory requirements pertaining to crane configurations

B-4.02 Interprets load charts

- knowledge of load charts, their characteristics and applications
- knowledge of interpreting load charts

Mobile Crane Operations

- lifting theory and forces
- units of measure and symbols regarding lifting plans and load charts
- basic crane operations, applications and procedures
- procedures used to perform pre/post-operational inspections
- crane computers and integrated computerized components, their applications and procedures for use
- procedures used to plan and organize job tasks
- mobile cranes, their characteristics and applications

RSOS topics covered in this section of training:

A-1 Performs Safety related functions

A-1.03 Uses documentation

- safety-related and work-related documentation and their applications
- procedures used to interpret and prepare safetyrelated and work-related documentation
- regulatory requirements pertaining to safety-related and work-related documentation

C-6 Performs pre-operational checks and regular inspections

C-6.01 Inspects engine systems

- engines and drive systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain engines, drive systems, and their components
- regulatory requirements pertaining to engines, drive systems and their components

C-6.02 Inspects air systems

- air systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain air systems and their components
- regulatory requirements pertaining to air systems and their components

C-6.03 Inspects electrical systems

- electrical systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain electrical systems and their components
- regulatory requirements pertaining to electrical systems and their components

C-6.04 Inspects hydraulic systems
- hydraulic systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hydraulic systems and their components
- regulatory requirements pertaining to hydraulic systems and their components

C-6.05 Inspects chassis/car body and running gear components
- chassis/car body and running gear components, their purpose, operation, characteristics and applications
- procedures used to inspect and maintain chassis/car body and running gear components
- regulatory requirements pertaining to chassis/car body and running gear components

C-6.06 Inspects outriggers and counterweights
- outriggers and counterweights, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain outriggers, counterweights and their components
- regulatory requirements pertaining to outriggers, counterweights and their components

C-6.07 Inspects boom components and attachments
- boom components and attachments, their purpose, operation, characteristics and applications
- procedures used to inspect and maintain boom components and attachments
- regulatory requirements pertaining to boom components and attachments

C-6.08 Inspects hoisting systems
- hoisting systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hoisting systems and their components
- regulatory requirements pertaining to hoisting systems and their components

C-8 Performs minor crane maintenance

C-8.01 Changes oil and filter
- oil and filters, their characteristics and applications
- procedures used to change oil and filters
- regulatory requirements pertaining to maintenance of cranes

C-8.02 Greases crane
- grease, its characteristics and applications
- procedures used to grease cranes
- regulatory requirements pertaining to maintenance of cranes

C-8.03 Lubricates wire ropes
- lubricants, their characteristics and applications
- procedures used to lubricate wire ropes
- regulatory requirements pertaining to maintenance of cranes

C-8.04 Makes adjustments and replacements
- procedures used to make minor adjustments and replacements to cranes
- regulatory requirements pertaining to maintenance of cranes

D-10 Follows rigging procedures

D-10.01 Selects required rigging
- rigging, its characteristics and applications
- procedures used to select required rigging
- regulatory requirements pertaining to rigging

D-10.02 Rigs loads
- rigging techniques
- lifting theory and forces
- procedures used to rig loads
- regulatory requirements pertaining to rigging

D-10.03 Monitors rigging

- procedures used to monitor rigging
- regulatory requirements pertaining to rigging

E-11 Performs pre-lift planning

E-11.01 Participates in routine, engineered and specialty lift planning

- procedures used to plan lifts
- regulatory requirements pertaining to pre-lift planning

F-14 Drives crane on public roadways

F-14.01 Performs pre-trip planning

- procedures used to perform pre-trip planning
- regulatory requirements pertaining to crane transportation

G-18 Performs common craning operations

G-18.01 Configures electronic operational aids

- electronic operational aids, their characteristics and applications Performs common craning operations
- procedures used to configure electronic operational aids
- regulatory requirements pertaining to craning operations

G-18.02 Mobilizes crane on jobsite

- procedures used to mobilize cranes on jobsite
- regulatory requirements pertaining to craning operations

G-23 Secure crane

G-23.01 Secures crane for short term

- procedures used to secure crane for short term
- regulatory requirements pertaining to securing of cranes

G-23.02 Secures crane for long term

- procedures used to secure crane for long term
- regulatory requirements pertaining to securing of cranes for long term

Rigging

- non-routine rigging and lifts, their applications, limitations and procedures
- non-routine rigging and lift techniques
- reeving operations
- methods and equipment used for reeving operations
- multi-crane lifts and their applications
- procedures used for multi-crane lifts

RSOS topics covered in this section of training:

D-9 Inspects, maintains and stores slings and hardware

D-9.01 Lubricates slings and hardware
- slings and hardware lubrication requirements
- procedures used to lubricate slings and hardware
- standards and manufacturers' specifications pertaining to lubrication of slings and hardware

D-9.02 Identifies deficiencies in slings and hardware
- procedures used to identify deficiencies in slings and hardware
- regulatory requirements pertaining to inspection of slings and hardware

D-9.03 Disposes of damaged slings and hardware
- procedures used to remove and destroy damaged slings and hardware
- regulatory requirements pertaining to removal and destruction of damaged slings and hardware

D-9.04 Stores slings and hardware
- procedures used to store slings and hardware
- regulatory requirements pertaining to storage of slings and hardware

D-10 Follows rigging procedures

D-10.01 Selects required rigging
- rigging, its characteristics and applications
- procedures used to select required rigging
- regulatory requirements pertaining to rigging

D-10.02 Rigs loads
- rigging techniques
- lifting theory and forces
- procedures used to rig loads
- regulatory requirements pertaining to rigging

D-10.03 Monitors rigging
- procedures used to monitor rigging
- regulatory requirements pertaining to rigging

G-22 Performs specialty craning operations

G-22.04 Performs multi-crane lifts
- multi-crane lift operations, their characteristics and applications
- procedures used to perform multi-crane lifts
- regulatory requirements pertaining to multi-crane lift operations

Load Weight Calculations

- procedure to determine weight of irregular shaped loads
- procedure to determine center of gravity

RSOS topics covered in this section of training:

B-3 Determines load weights
B-3 Determines load weights
B-3.01 Identifies weight
- procedures used to identify weight of objects and basic shaped loads

B-3.02 Calculates weight
- procedures used to calculate weight of objects and basic shaped loads
- knowledge of center of gravity

Load Charts

- load charts, their characteristics and applications
- crane capacity, crane component capacity and working radius for lift operations

RSOS topics covered in this section of training:

B-4 Calculates crane capacity
B-4.01 Determines radius and crane configuration
- knowledge of determining radius and crane configurations
- regulatory requirements pertaining to crane configurations

B-4.02 Interprets load charts
- load charts, their characteristics and applications
- knowledge of interpreting load charts

Pre-operational Checks, Inspections and Maintenance

- engines and drive systems, components, their purpose and operation
- procedures used to inspect, maintain and troubleshoot engines and drive systems
- mechanical systems, components, their purpose and operation
- procedures used to inspect, maintain and troubleshoot mechanical systems and their components
- hydraulic systems, components, their purpose and operation
- procedures used to inspect, maintain and troubleshoot hydraulic systems and their components
- procedures used to perform continual checks

RSOS topics covered in this section of training:

C-6 Performs pre-operational checks and regular inspections
C-6.01 Inspects engine systems
- engines and drive systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain engines, drive systems, and their components
- regulatory requirements pertaining to engines, drive systems and their components

C-6.02 Inspects air systems
- air systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain air systems and their components
- regulatory requirements pertaining to air systems and their components

C-6.03 Inspects electrical systems
- electrical systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain electrical systems and their components
- regulatory requirements pertaining to electrical systems and their components

C-6.04 Inspects hydraulic systems
- hydraulic systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hydraulic systems and their components
- regulatory requirements pertaining to hydraulic systems and their components

C-6.05 Inspects chassis/car body and running gear components
- chassis/car body and running gear components, their purpose, operation, characteristics and applications
- procedures used to inspect and maintain chassis/car body and running gear components
- regulatory requirements pertaining to chassis/car body and running gear components

C-6.06 Inspects outriggers and counterweights
- outriggers and counterweights, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain outriggers, counterweights and their components
- regulatory requirements pertaining to outriggers, counterweights and their components

C-6.07 Inspects boom components and attachments
- boom components and attachments, their purpose, operation, characteristics and applications
- procedures used to inspect and maintain boom components and attachments
- regulatory requirements pertaining to boom components and attachments

C-6.08 Inspects hoisting systems
- hoisting systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hoisting systems and their components
- regulatory requirements pertaining to hoisting systems and their components

C-7 Performs operational and continual checks

C-7.01 Checks operating controls
- operating controls, their purpose, characteristics and applications
- procedures used to check operating controls
- regulatory requirements pertaining to inspection of cranes

C-7.02 Inspects monitoring and warning systems
- monitoring and warning systems, their purpose, characteristics and applications
- procedures used to inspect monitoring and warning systems
- regulatory requirements pertaining to inspection of cranes

C-7.03 Monitors running lines, hoist ropes and standing ropes
- running lines, hoist ropes and standing ropes, their purpose, characteristics and applications
- procedures used to monitor running lines, hoist ropes and standing ropes
- regulatory requirements pertaining to inspection of cranes

C-7.04 Monitors gauges and warning systems
- gauges and warning systems, their purpose, characteristics and applications
- procedures used to monitor gauges and warning systems
- regulatory requirements pertaining to inspection of cranes

C-7.05 Monitors support base
- support bases, their purpose, characteristics and applications
- procedures used to monitor support bases
- regulatory requirements pertaining to inspection of cranes

C-8 Performs minor crane maintenance

C-8.01 Changes oil and filter
- oil and filters, their characteristics and applications

- procedures used to change oil and filters
- regulatory requirements pertaining to maintenance of cranes

C-8.02 Greases crane
- grease, its characteristics and applications
- procedures used to grease cranes
- regulatory requirements pertaining to maintenance of cranes

C-8.03 Lubricates wire ropes
- lubricants, their characteristics and applications
- procedures used to lubricate wire ropes
- regulatory requirements pertaining to maintenance of cranes

C-8.04 Makes adjustments and replacements
- procedures used to make minor adjustments and replacements to cranes
- regulatory requirements pertaining to maintenance of cranes

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Mobile Crane Set-up

- positioning, blocking and leveling operations and their applications
- lattice boom cranes and their associated components
- procedures used for the assembly and disassembly of lattice boom cranes and their components
- telescopic boom cranes and their associated components
- procedures used for the assembly and disassembly of telescopic boom cranes and their components
- procedures used to prepare cranes for transport
- procedures used to transport cranes, their components and accessories
- steps required for pre-lift planning
- procedures used to determine crane positioning and setup
- procedures used to prepare worksite for crane operations

RSOS topics covered in this section of training:

A-1 Performs Safety related functions

A-1.03 Uses documentation
- safety-related and work-related documentation and their applications
- procedures used to interpret and prepare safetyrelated and work-related documentation
- regulatory requirements pertaining to safety-related and work-related documentation

A-2 Uses communication and mentoring techniques

A-2.01 Uses communication techniques
- knowledge of trade terminology
- knowledge of effective communication practices

E-11 Performs pre-lift planning

E-11.01 Participates in routine, engineered and specialty lift planning
- procedures used to plan lifts
- regulatory requirements pertaining to pre-lift planning

E-11.02 Evaluates risks and hazards
- procedures used to evaluate risks and hazards
- regulatory requirements pertaining to pre-lift planning

E-12 Sets up crane

E-12.01 Performs final site inspection
- procedures used to prepare worksite for crane operations
- regulatory requirements pertaining to worksite preparations for crane operations

E-12.02 Positions crane
- procedures used to position cranes
- regulatory requirements pertaining to positioning of cranes

E-12.03 Completes setup
- procedures used to complete set up of cranes
- regulatory requirements pertaining to positioning of cranes

F-13 Loads and unloads components for transport

F-13.01 Loads crane and components
- mobile cranes, their characteristics and applications
- procedures used to load cranes and components for transport
- regulatory requirements pertaining to crane transportation

F-13.02 unloads crane and components
- procedures used to unload cranes and components after transport
- regulatory requirements pertaining to crane transportation

F-14 Drives crane on public roadways

F-14.01 Performs pre-trip planning
- procedures used to perform pre-trip planning
- regulatory requirements pertaining to crane transportation

F-14.02 Prepares crane for transport
- procedures used to prepare cranes for transport
- regulatory requirements pertaining to crane transportation

F-14.03 Drives crane
- procedures used to drive cranes
- regulatory requirements pertaining to crane transportation

F-15 Assembles and disassembles lattice boom cranes

F-15.01 Installs tracks on car body (lattice boom)
- lattice boom cranes, their components, characteristics and applications
- procedures used to install tracks on car body of lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.02 Installs superstructure/upperworks (lattice boom)
- procedures used to install superstructure/upperworks on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.03 Installs outrigger boxes (lattice boom)
- procedures used to install outrigger boxes on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.04 Installs boom base (lattice boom)
- procedures used to install boom bases on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.05 Installs counterweights (lattice boom)
- procedures used to install counterweights on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.06 Assembles main boom, tip and boom attachments (lattice boom)
- procedures used to assemble main boom, tip, and their components and attachments on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.07 Installs hook blocks and overhaul ball (lattice boom)
- procedures used to install hook blocks and overhaul ball on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.08 Removes hook blocks and overhaul ball (lattice boom)
- procedures used to remove hook blocks and overhaul ball on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.09 Disassembles main boom, tip and boom attachments (lattice boom)
- procedures used to disassemble main boom, tip and their components and attachments on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.10 Removes counterweights (lattice boom)
- procedures used to remove counterweights on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.11 Removes boom base (lattice boom)
- procedures used to remove boom base from lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

15.12 Removes superstructure/upperworks (lattice boom)
- procedures used to remove superstructure/upperworks from lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

15.13 Removes tracks from car body (lattice boom)
- procedures used to remove tracks from car body on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.14 Removes outrigger boxes (lattice boom)
- procedures used to remove outrigger boxes on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-16 Assembles and disassembles telescopic boom cranes

F-16.01 Installs tracks on car body (telescopic boom)
- telescopic boom cranes, their components, characteristics and applications
- procedures used to install tracks on car body of telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.02 Installs outrigger boxes (telescopic boom)
- telescopic boom cranes, their components, characteristics and applications
- procedures used to install outrigger boxes on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.03 Installs superstructure/upperworks (telescopic boom)
- procedures used to install superstructure/upperworks on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.04 Installs main boom (telescopic boom)
- procedures used to install main boom on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.05 Installs hook blocks and overhaul ball (telescopic boom)
- procedures used to install hook blocks and overhaul ball on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.06 Installs counterweights (telescopic boom)
- Installs counterweights (telescopic boom)
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.07 Installs jibs and inserts (telescopic boom)
- procedures used to install jibs and inserts on telescopic boom cranes
- procedures used to install jibs and inserts on telescopic boom cranes

F-16.08 Removes jibs and inserts (telescopic boom)
- procedures used to remove jibs and inserts on telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.09 Removes counterweights (telescopic boom)

- procedures used to remove counterweights on telescopic boom cranes
- procedures used to remove counterweights on telescopic boom cranes

F-16.10 Removes hook blocks and overhaul ball (telescopic boom)

- procedures used to remove hook blocks and overhaul ball from telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-17 Assembles and disassembles specialty equipment and attachments

F-17.01 Assembles specialty equipment and attachments

- specialty equipment, their attachments, characteristics and applications
- procedures used to assemble specialty equipment and their attachments
- regulatory requirements pertaining to assembly of specialty equipment and their attachments

F-17.02 Disassembles specialty equipment and attachments

- procedures used to disassemble specialty equipment and their attachments
  regulatory requirements pertaining to disassembly of specialty equipment and their attachments

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Mobile Crane Operations

- hydraulic telescopic boom cranes, their applications and operation
- procedures used to operate telescopic boom cranes and their attachments
- hydraulic drive lattice boom cranes, their applications and operation
- procedures used to operate hydraulic drive lattice boom cranes, hydraulic drive systems and their attachments
- friction drive lattice boom cranes, their applications and operation
- procedures used to operate friction drive lattice boom cranes, friction drive systems and their attachments
- knowledge of specialty crane operations, their characteristics, applications and procedures

RSOS topics covered in this section of training:

G-18 Performs common craning operations

G-18.01 Configures electronic operational aids

- electronic operational aids, their characteristics and applications Performs common craning operations
- procedures used to configure electronic operational aids
- regulatory requirements pertaining to craning operations

G-18.02 Mobilizes crane on jobsite

- procedures used to mobilize cranes on jobsite
- regulatory requirements pertaining to craning operations

G-19 Operates friction drive lattice boom cranes

G-19.01 Operates friction drive lattice boom cranes

- Operates friction drive lattice boom cranes
- procedures used to operate friction drive crawler mounted lattice boom cranes and their attachments
- regulatory requirements pertaining to friction drive crawler-mounted lattice boom cranes

G-19.02 Operates friction drive truck-mounted lattice boom cranes

- friction drive truck-mounted lattice boom cranes, their attachments, characteristics and applications
- procedures used to operate friction drive truck-mounted lattice boom cranes and their attachments
- regulatory requirements pertaining to friction drive truck-mounted lattice boom cranes

G-20 Operates hydraulic drive lattice boom cranes

G-20.01 Operates hydraulic drive crawler-mounted lattice boom cranes

- hydraulic crawler-mounted lattice boom cranes, their attachments, characteristics and applications
- procedures used to operate hydraulic crawler-mounted lattice boom cranes and their attachments
- regulatory requirements pertaining to hydraulic crawler-mounted lattice boom cranes

G-20.02 Operates hydraulic drive truck-mounted lattice boom cranes

- hydraulic truck-mounted lattice boom cranes, their attachments, characteristics and applications
- procedures used to operate hydraulic truck-mounted lattice boom cranes and their attachments
- regulatory requirements pertaining to hydraulic truck-mounted lattice boom cranes

G-21 Operates telescopic boom cranes

G-21.01 Operates crawler-mounted telescopic cranes

- crawler-mounted telescopic cranes, their attachments, characteristics and applications
- procedures used to operate crawler-mounted telescopic cranes and their attachments
- regulatory requirements pertaining to crawler-mounted telescopic cranes

G-21.02 Operates rubber tire-mounted telescopic cranes

- rubber tire-mounted telescopic cranes, their attachments, characteristics and applications
- procedures used to operate rubber tire-mounted telescopic cranes and their attachments
- regulatory requirements pertaining to rubber tire-mounted telescopic cranes

G-22 Performs specialty craning operations

G-22.01 Operates crane with piledriving equipment

- piledriving equipment, their attachments, characteristics and applications
- procedures used to operate piledriving equipment and their attachments
- regulatory requirements pertaining to piledriving equipment

G-22.02 Performs duty cycle operations

- duty cycle operations, their characteristics and applications
- procedures used to perform duty cycle operations
- regulatory requirements pertaining to duty cycle operations

G-22.03 Operates cranes on floating platforms

- crane on floating platform operations, their characteristics and applications
- procedures used to operate crane on floating platform
- regulatory requirements pertaining to crane on floating platform operations

G-22.04 Performs multi-crane lifts

- multi-crane lift operations, their characteristics and applications
- procedures used to perform multi-crane lifts
- regulatory requirements pertaining to multi-crane lift operations

G-22.05 Uses personnel hoisting equipment

- personnel hoisting equipment, their characteristics and applications
- procedures to use personnel hoisting equipment
- regulatory requirements pertaining to personnel hoisting equipment

Safety/Tools and Equipment

- safety equipment, their applications, maintenance and procedures for use
- safe work practices and regulatory requirements pertaining to safety
- effective communication practices
- communication devices, their operation and the procedures used to communicate during hoisting operations
- procedures used to operate cranes near high voltage electrical equipment
- procedures used to complete documentation
- tools and equipment, their applications, maintenance and procedures for use
- fasteners and retaining devices, their applications and procedures for use

RSOS topics covered in this section of training:

A-1 Performs Safety related functions

A-1.01 Maintains safe work environment

- safe work practices and procedures
- induced currents, power line hazards and high voltage electrical equipment
- regulatory requirements pertaining to safety

A-1.02 Uses personal protective equipment (PPE) and safety equipment

- PPE and safety equipment, their applications, limitations, maintenance, storage and procedures for use
- inspection requirements for PPE and safety equipment
- regulatory requirements pertaining to PPE and safety equipment

A-1.03 Uses documentation

- safety-related and work-related documentation and their applications
  procedures used to interpret and prepare safety-related and work-related documentation
  regulatory requirements pertaining to safety-related and work-related documentation

A-2 Uses communication and mentoring techniques

A-2.01 Uses communication techniques

- knowledge of trade terminology
- knowledge of effective communication practices

C-8 Performs minor crane maintenance

C-8.01 Changes oil and filter

- oil and filters, their characteristics and applications
- procedures used to change oil and filters
- regulatory requirements pertaining to maintenance of cranes

C-8.02 Greases crane

- grease, its characteristics and applications
- procedures used to grease cranes
- regulatory requirements pertaining to maintenance of cranes

C-8.03 Lubricates wire ropes

- lubricants, their characteristics and applications
- procedures used to lubricate wire ropes
- regulatory requirements pertaining to maintenance of cranes

C-8.04 Makes adjustments and replacements

- procedures used to make minor adjustments and replacements to cranes
- regulatory requirements pertaining to maintenance of cranes

E-11 Performs pre-lift planning
E-11.02 Evaluates risks and hazards
- procedures used to evaluate risks and hazards
- regulatory requirements pertaining to pre-lift planning

Load Weight Calculations

- Demonstrate knowledge of the weight of basic shaped loads.
- Demonstrate knowledge of center of gravity.
- Demonstrate knowledge of the procedure to determine weight of irregular shaped loads.
- Demonstrate knowledge of the procedure to determine center of gravity.

RSOS topics covered in this section of training:

B-3 Determines load weights
B-3.01 Identifies weight
- procedures used to identify weight of objects and basic shaped loads

B-3.02 Calculates weight
- procedures used to calculate weight of objects and basic shaped loads
- knowledge of center of gravity

Rigging

- wire ropes, their applications, limitations and procedures for use
- procedures used to install, monitor, inspect, maintain, store and dispose of wire ropes and rigging hardware
- rigging hardware, their applications, limitations and procedures for use
- rigging and hoisting applications and techniques
- sling configurations, their characteristics and applications
- working load limits (WLL)
- non-routine rigging and lifts, their applications, limitations and procedures
- non-routine rigging and lift techniques
- methods and equipment used for reeving operations
- procedures used for multi-crane lifts

RSOS topics covered in this section of training:

B-5 Performs rigging calculations
B-5.01 Performs sling angle calculations
- knowledge of slings, hardware, sling configurations, their characteristics, applications and capacities
- knowledge of performing sling angle calculations
- regulatory requirements pertaining to rigging

B-5.02 Performs working load limit (WLL) calculations
- WLL, their characteristics and applications
- perform WLL calculations

C-6 Performs pre-operational checks and regular inspections
C-6.08 Inspects hoisting systems
- hoisting systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hoisting systems and their components regulatory requirements pertaining to hoisting systems and their components

C-8 Performs minor crane maintenance

C-8.03 Lubricates wire ropes

- lubricants, their characteristics and applications
- procedures used to lubricate wire ropes
- regulatory requirements pertaining to maintenance of cranes

C-8.04 Makes adjustments and replacements

- procedures used to make minor adjustments and replacements to cranes
- regulatory requirements pertaining to maintenance of cranes

D-9 Inspects, maintains and stores slings and hardware

D-9.01 Lubricates slings and hardware

- slings and hardware lubrication requirements
- procedures used to lubricate slings and hardware
- standards and manufacturers' specifications pertaining to lubrication of slings and hardware

D-9.02 Identifies deficiencies in slings and hardware

- procedures used to identify deficiencies in slings and hardware
- regulatory requirements pertaining to inspection of slings and hardware

D-9.03 Disposes of damaged slings and hardware

- procedures used to remove and destroy damaged slings and hardware
- regulatory requirements pertaining to removal and destruction of damaged slings and hardware

D-9.04 Stores slings and hardware

- procedures used to store slings and hardware
- regulatory requirements pertaining to storage of slings and hardware

D-10 Follows rigging procedures

D-10.01 Selects required rigging

- rigging, its characteristics and applications
- procedures used to select required rigging
- regulatory requirements pertaining to rigging

D-10.02 Rigs loads

- rigging techniques
- lifting theory and forces
- procedures used to rig loads
- regulatory requirements pertaining to rigging

D-10.03 Monitors rigging

- procedures used to monitor rigging
- regulatory requirements pertaining to rigging

G-22 Performs specialty craning operations

G-22.04 Performs multi-crane lifts

- multi-crane lift operations, their characteristics and applications
- procedures used to perform multi-crane lifts
- regulatory requirements pertaining to multi-crane lift operations

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Load Charts

- load charts, their characteristics and applications
- crane component capacity and working radius for lift operations

RSOS topics covered in this section of training:

B-4 Calculates crane capacity

B-4.01 Determines radius and crane configuration

- knowledge of determining radius and crane configurations
- knowledge of regulatory requirements pertaining to crane configurations

B-4.02 Interprets load charts

- knowledge of load charts, their characteristics and applications
- knowledge of interpreting load charts

Pre-operational Checks, Inspections and Maintenance

- engines and drive systems, their purpose, components and operation
- procedures used to inspect, maintain and troubleshoot engines, drive systems and their components
- procedures used to inspect, maintain and troubleshoot mechanical systems and their components
- hydraulic systems and components, their purpose and operation
- procedures used to inspect, maintain and troubleshoot hydraulic systems and their components
- procedures used to perform continual checks

RSOS topics covered in this section of training:

C-6 Performs pre-operational checks and regular inspections

C-6.01 Inspects engine systems

- engines and drive systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain engines, drive systems, and their components
- regulatory requirements pertaining to engines, drive systems and their components

C-6.02 Inspects air systems

- air systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain air systems and their components
- regulatory requirements pertaining to air systems and their components

C-6.03 Inspects electrical systems

- electrical systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain electrical systems and their components
- regulatory requirements pertaining to electrical systems and their components

C-6.04 Inspects hydraulic systems

- hydraulic systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hydraulic systems and their components
- regulatory requirements pertaining to hydraulic systems and their components

C-6.05 Inspects chassis/car body and running gear components

- chassis/car body and running gear components, their purpose, operation, characteristics and applications
- procedures used to inspect and maintain chassis/car body and running gear components
- regulatory requirements pertaining to chassis/car body and running gear components

C-6.06 Inspects outriggers and counterweights

- outriggers and counterweights, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain outriggers, counterweights and their components
- regulatory requirements pertaining to outriggers, counterweights and their components

C-6.07 Inspects boom components and attachments

- boom components and attachments, their purpose, operation, characteristics and applications
- procedures used to inspect and maintain boom components and attachments
- regulatory requirements pertaining to boom components and attachments

C-6.08 Inspects hoisting systems

- hoisting systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hoisting systems and their components
- regulatory requirements pertaining to hoisting systems and their components

C-7 Performs operational and continual checks

C-7.01 Checks operating controls

- operating controls, their purpose, characteristics and applications
- procedures used to check operating controls
- regulatory requirements pertaining to inspection of cranes

C-7.02 Inspects monitoring and warning systems

- monitoring and warning systems, their purpose, characteristics and applications
- procedures used to inspect monitoring and warning systems
- regulatory requirements pertaining to inspection of cranes

C-7.03 Monitors running lines, hoist ropes and standing ropes

- running lines, hoist ropes and standing ropes, their purpose, characteristics and applications
- procedures used to monitor running lines, hoist ropes and standing ropes
- regulatory requirements pertaining to inspection of cranes

C-7.04 Monitors gauges and warning systems

- gauges and warning systems, their purpose, characteristics and applications
- procedures used to monitor gauges and warning systems
- regulatory requirements pertaining to inspection of cranes

C-7.05 Monitors support base

- support bases, their purpose, characteristics and applications
- procedures used to monitor support bases
- regulatory requirements pertaining to inspection of cranes

Mobile Crane Setup

- positioning, blocking and leveling operations and their applications
- procedures used for the assembly and disassembly of lattice boom cranes and their components
- procedures used for the assembly and disassembly of telescopic boom cranes and their components
- procedures used to transport cranes, their components and accessories
- steps required for pre-lift planning
- procedures used to determine crane positioning and setup
- procedures used to prepare worksite for crane operations

RSOS topics covered in this section of training:

A-1 Performs safety related functions

A-1.03 Uses documentation

- safety-related and work-related documentation and their applications
- procedures used to interpret and prepare safety-related and work-related documentation
- regulatory requirements pertaining to safety-related and work-related documentation

E-11 Performs pre-lift planning

E-11.01 Participates in routine, engineered and specialty lift planning

- procedures used to plan lifts
- regulatory requirements pertaining to pre-lift planning

E-11.02 Evaluates risks and hazards

- procedures used to evaluate risks and hazards
- regulatory requirements pertaining to pre-lift planning

E-12 Sets up crane

E-12.01 Performs final site inspection

- procedures used to prepare worksite for crane operations
- regulatory requirements pertaining to worksite preparations for crane operations

E-12.02 Positions crane

- procedures used to position cranes
- regulatory requirements pertaining to positioning of cranes

E-12.03 Completes setup

- procedures used to complete set up of cranes
- regulatory requirements pertaining to positioning of cranes

F-13 Loads and unloads components for transport

F-13.01 Loads crane and components

- mobile cranes, their characteristics and applications
- procedures used to load cranes and components for transport
- regulatory requirements pertaining to crane transportation

F-13.02 unloads crane and components

- procedures used to unload cranes and components after transport
- regulatory requirements pertaining to crane transportation

F-14 Drives crane on public roadways

F-14.02 Prepares crane for transport

- procedures used to prepare cranes for transport
- regulatory requirements pertaining to crane transportation

F-14.03 Drives crane

- procedures used to drive cranes
- regulatory requirements pertaining to crane transportation

F-15 Assembles and disassembles lattice boom cranes

F-15.01 Installs tracks on car body (lattice boom)

- lattice boom cranes, their components, characteristics and applications
- procedures used to install tracks on car body of lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.02 Installs superstructure/upperworks (lattice boom)

- procedures used to install superstructure/upperworks on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.03 Installs outrigger boxes (lattice boom)

- procedures used to install outrigger boxes on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.04 Installs boom base (lattice boom)

- procedures used to install boom bases on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.05 Installs counterweights (lattice boom)

- procedures used to install counterweights on lattice boom cranes
  regulatory requirements pertaining to assembly of lattice boom cranes

F-15.06 Assembles main boom, tip and boom attachments (lattice boom)

- procedures used to assemble main boom, tip, and their components and attachments on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.07 Installs hook blocks and overhaul ball (lattice boom)

- procedures used to install hook blocks and overhaul ball on lattice boom cranes
- regulatory requirements pertaining to assembly of lattice boom cranes

F-15.08 Removes hook blocks and overhaul ball (lattice boom)
- procedures used to remove hook blocks and overhaul ball on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.09 Disassembles main boom, tip and boom attachments (lattice boom)
- procedures used to disassemble main boom, tip and their components and attachments on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.10 Removes counterweights (lattice boom)
- procedures used to remove counterweights on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.11 Removes boom base (lattice boom)
- procedures used to remove boom base from lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

15.12 Removes superstructure/upperworks (lattice boom)
- procedures used to remove superstructure/upperworks from lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

15.13 Removes tracks from car body (lattice boom)
- procedures used to remove tracks from car body on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-15.14 Removes outrigger boxes (lattice boom)
- procedures used to remove outrigger boxes on lattice boom cranes
- regulatory requirements pertaining to disassembly of lattice boom cranes

F-16 Assembles and disassembles telescopic boom cranes

F-16.01 Installs tracks on car body (telescopic boom)
- telescopic boom cranes, their components, characteristics and applications
- procedures used to install tracks on car body of telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.02 Installs outrigger boxes (telescopic boom)
- telescopic boom cranes, their components, characteristics and applications
- procedures used to install outrigger boxes on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.03 Installs superstructure/upperworks (telescopic boom)
- procedures used to install superstructure/upperworks on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.04 Installs main boom (telescopic boom)
- procedures used to install main boom on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.05 Installs hook blocks and overhaul ball (telescopic boom)
- procedures used to install hook blocks and overhaul ball on telescopic boom cranes
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.06 Installs counterweights (telescopic boom)
- Installs counterweights (telescopic boom)
- regulatory requirements pertaining to assembly of telescopic boom cranes

F-16.07 Installs jibs and inserts (telescopic boom)
- procedures used to install jibs and inserts on telescopic boom cranes
- procedures used to install jibs and inserts on telescopic boom cranes

F-16.08 Removes jibs and inserts (telescopic boom)
- procedures used to remove jibs and inserts on telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.09 Removes counterweights (telescopic boom)
- procedures used to remove counterweights on telescopic boom cranes
- procedures used to remove counterweights on telescopic boom cranes

F-16.10 Removes hook blocks and overhaul ball (telescopic boom)
- procedures used to remove hook blocks and overhaul ball from telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.11 Removes main boom (telescopic boom)
- procedures used to remove main boom from telescopic boom cranes
- procedures used to remove main boom from telescopic boom cranes

F-16.12 Removes outrigger boxes (telescopic boom)
- procedures used to remove outrigger boxes on telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.13 Removes tracks from car body (telescopic boom)
- procedures used to remove tracks from car body on telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-16.14 Removes superstructure/upperworks (telescopic boom)
- procedures used to remove superstructure/upperworks from telescopic boom cranes
- regulatory requirements pertaining to disassembly of telescopic boom cranes

F-17 Assembles and disassembles specialty equipment and attachments

F-17.01 Assembles specialty equipment and attachments
- specialty equipment, their attachments, characteristics and applications
- procedures used to assemble specialty equipment and their attachments
- regulatory requirements pertaining to assembly of specialty equipment and their attachments

F-17.02 Disassembles specialty equipment and attachments
- procedures used to disassemble specialty equipment and their attachments
- regulatory requirements pertaining to disassembly of specialty equipment and their attachments

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Mobile Crane Operations

- lifting theory and forces
- units of measure and symbols relating to lifting plans and load charts
- procedures used to perform pre- and post-operational inspections
- procedures to perform crane operations
- crane computers, integrated computerized components, their applications and procedures for use
- procedures used to operate telescopic boom cranes and their attachments
- procedures used to operate hydraulic drive lattice boom cranes, hydraulic drive systems and their attachments
- procedures used to operate friction drive lattice boom cranes, friction drive systems and their attachments
- procedures used to perform specialty crane operations

RSOS topics covered in this section of training:

A-1 Performs Safety related functions

A-1.03 Uses documentation
- safety-related and work-related documentation and their applications
- procedures used to interpret and prepare safety-related and work-related documentation
- regulatory requirements pertaining to safety-related and work-related documentation

C-6 Performs pre-operational checks and regular inspections

C-6.01 Inspects engine systems

- engines and drive systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain engines, drive systems, and their components
- regulatory requirements pertaining to engines, drive systems and their components

C-6.02 Inspects air systems

- air systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain air systems and their components
- regulatory requirements pertaining to air systems and their components

C-6.03 Inspects electrical systems

- electrical systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain electrical systems and their components
- regulatory requirements pertaining to electrical systems and their components

C-6.04 Inspects hydraulic systems

- hydraulic systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hydraulic systems and their components
- regulatory requirements pertaining to hydraulic systems and their components

C-6.05 Inspects chassis/car body and running gear components

- chassis/car body and running gear components, their purpose, operation, characteristics and applications
- procedures used to inspect and maintain chassis/car body and running gear components
- regulatory requirements pertaining to chassis/car body and running gear components

C-6.06 Inspects outriggers and counterweights

- outriggers and counterweights, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain outriggers, counterweights and their components
- regulatory requirements pertaining to outriggers, counterweights and their components

C-6.07 Inspects boom components and attachments

- boom components and attachments, their purpose, operation, characteristics and applications
- procedures used to inspect and maintain boom components and attachments
- regulatory requirements pertaining to boom components and attachments

C-6.08 Inspects hoisting systems

- hoisting systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hoisting systems and their components
- regulatory requirements pertaining to hoisting systems and their components
- hoisting systems, their components, purpose, operation, characteristics and applications
- procedures used to inspect and maintain hoisting systems and their components
- regulatory requirements pertaining to hoisting systems and their components

C-8 Performs minor crane maintenance

C-8.01 Changes oil and filter

- oil and filters, their characteristics and applications
- procedures used to change oil and filters
- regulatory requirements pertaining to maintenance of cranes

C-8.02 Greases crane

- grease, its characteristics and applications
- procedures used to grease cranes
- regulatory requirements pertaining to maintenance of cranes

C-8.03 Lubricates wire ropes

- lubricants, their characteristics and applications
- procedures used to lubricate wire ropes

- regulatory requirements pertaining to maintenance of cranes

C-8.04 Makes adjustments and replacements
- procedures used to make minor adjustments and replacements to cranes
- regulatory requirements pertaining to maintenance of cranes

D-10 Follows rigging procedures

D-10.01 Selects required rigging
- rigging, its characteristics and applications
- procedures used to select required rigging
- regulatory requirements pertaining to rigging

D-10.02 Rigs loads
- rigging techniques
- lifting theory and forces
- procedures used to rig loads
- regulatory requirements pertaining to rigging

D-10.03 Monitors rigging
- procedures used to monitor rigging
- regulatory requirements pertaining to rigging

E-11 Performs pre-lift planning

E-11.01 Participates in routine, engineered and specialty lift planning
- procedures used to plan lifts
- regulatory requirements pertaining to pre-lift planning

F-14 Drives crane on public roadways

F-14.01 Performs pre-trip planning
- procedures used to perform pre-trip planning
- regulatory requirements pertaining to crane transportation

F-14.02 Prepares crane for transport
- procedures used to prepare cranes for transport
- regulatory requirements pertaining to crane transportation

G-18 Performs common craning operations

G-18.01 Configures electronic operational aids
- electronic operational aids, their characteristics and applications
- performs common craning operations
- procedures used to configure electronic operational aids
- regulatory requirements pertaining to craning operations

G-18.02 Mobilizes crane on jobsite
- procedures used to mobilize cranes on jobsite
- regulatory requirements pertaining to craning operations

G-19 Operates friction drive lattice boom cranes

G-19.01 Operates friction drive lattice boom cranes
- friction drive crawler-mounted lattice boom cranes, their attachments, characteristics and applications
- procedures used to operate friction drive crawler mounted lattice boom cranes and their attachments
- regulatory requirements pertaining to friction drive crawler-mounted lattice boom cranes

G-19.02 Operates friction drive truck-mounted lattice boom cranes
- friction drive truck-mounted lattice boom cranes, their attachments, characteristics and applications

- procedures used to operate friction drive truck-mounted lattice boom cranes and their attachments
- regulatory requirements pertaining to friction drive truck-mounted lattice boom cranes

G-20 Operates hydraulic drive lattice boom cranes

G-20.01 Operates hydraulic drive crawler-mounted lattice boom cranes

- hydraulic crawler-mounted lattice boom cranes, their attachments, characteristics and applications
- procedures used to operate hydraulic crawler-mounted lattice boom cranes and their attachments
- regulatory requirements pertaining to hydraulic crawler-mounted lattice boom cranes

G-20.02 Operates hydraulic drive truck-mounted lattice boom cranes

- hydraulic truck-mounted lattice boom cranes, their attachments, characteristics and applications
- procedures used to operate hydraulic truck-mounted lattice boom cranes and their attachments
  regulatory requirements pertaining to hydraulic truck-mounted lattice boom cranes

G-21 Operates telescopic boom cranes

G-21.01 Operates crawler-mounted telescopic cranes

- crawler-mounted telescopic cranes, their attachments, characteristics and applications
- procedures used to operate crawler-mounted telescopic cranes and their attachments
- regulatory requirements pertaining to crawler-mounted telescopic cranes

G-21.02 Operates rubber tire-mounted telescopic cranes

- rubber tire-mounted telescopic cranes, their attachments, characteristics and applications
- procedures used to operate rubber tire-mounted telescopic cranes and their attachments
- regulatory requirements pertaining to rubber tire-mounted telescopic cranes

G-22 Performs specialty craning operations

G-22.01 Operates crane with piledriving equipment

- piledriving equipment, their attachments, characteristics and applications
- procedures used to operate piledriving equipment and their attachments
- regulatory requirements pertaining to piledriving equipment

G-22.02 Performs duty cycle operations

- duty cycle operations, their characteristics and applications
- procedures used to perform duty cycle operations
- regulatory requirements pertaining to duty cycle operations

G-22.03 Operates cranes on floating platforms

- crane on floating platform operations, their characteristics and applications
- procedures used to operate crane on floating platform
- regulatory requirements pertaining to crane on floating platform operations

G-22.04 Performs multi-crane lifts

- multi-crane lift operations, their characteristics and applications
- procedures used to perform multi-crane lifts
- regulatory requirements pertaining to multi-crane lift operations

G-22.05 Uses personnel hoisting equipment

- personnel hoisting equipment, their characteristics and applications
- procedures to use personnel hoisting equipment
- regulatory requirements pertaining to personnel hoisting equipment

G-23 Secure crane

G-23.01 Secures crane for short term

- procedures used to secure crane for short term
- regulatory requirements pertaining to securing of cranes

G-23.02 Secures crane for long term

- procedures used to secure crane for long term
- regulatory requirements pertaining to securing of cranes for long term