Crawler crane - A02
Learning for CPCS

Outcomes

Through a combination of targeted training and experience, an individual with the Crawler crane will be able to:

Roles and responsibilities	• Describe the nature of the sector of industry and their role and responsibilities as a plant operator
Preparing for work	• Name and explain the purpose of principal components, the basic construction, controls and terminology • Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation • Undertake all pre-use checks
Travelling and manoeuvring	• Configure and ready for travel • Travel the crane to an area of work • Manoeuvre in confined spaces
Setting up for work	• Configure the crane for lifting duties • Explain rigging and de-rigging procedures when fitting a lattice-type extension • Explain actions required for hazards, underground and overhead services
Working tasks	• Programme / set-up Rated Capacity Indicators (RCI) for lifting duties • Lift various loads using the full radius and slewing capabilities of a crane • Accurately place loads • Change falls of rope on a hook block • Minimise the swinging of loads • Move loads through machine travel • Comply with signals and instructions • Maintain safe working situations
Completing work	• Prepare the crane in preparation of movement from lifting duties
Shutting down	• Carry out shut down and securing procedures • Explain loading and unloading procedures for machine transporting

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Syllabus

Learning outcome	Training content	
• Describe the nature of the sector of industry and their role and responsibilities as a plant operator	• Industry type • Customer / client needs • Sector contribution • Role • Reporting structures • Social responsibilities • Environmental issues	• Communication with colleagues /management / other trades • Lifelong skills • Health and Safety at Work Act • Other trades • Working practices
• Name and explain the purpose of principal components, the basic construction, controls and terminology	• Differing Types • Functions and applications • Power units • Hydraulic systems • Counterweights • Chassis / steering / tyres	• Stability • Booms / jibs • Hoisting gear / ropes • Safety systems • Slewing arrangements • Attachments
• Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation	• Operator's Manual • Duties charts • Ground loading charts • Machine decals • Lift plans • PPE • Inspection and reporting forms / procedures	• Codes of Practice • Site plans / drawings • Lifting requirements and limitations • Method statements • Risk assessments • COSHH • Health and Safety at Work Act
• Undertake all pre-use checks	• Regular and non-scheduled maintenance procedures	• Sequence of pre-use checks • Defect reporting
• Configure and ready for travel	• Driving controls • Attachments • Security • Driving position	• Visibility • Boom / jib positioning • Stowage of accessories
• Travel the crane to an area of work	• Travel routes • Slopes / inclines • Direction of travel • Hazards	• Working area • Site route • Environment protection / minimise damage

Syllabus *(continued)*

Learning outcome	Training content	
• Manoeuvre in confined spaces	• Visibility • Protection of ground / tight turns • Hazards	• Limitations of vision • Environmental / noise / fumes
• Configure the crane for lifting duties	• Crane positioning • Required configuration (lift plan) • Crane controls • Environmental conditions	• Levelling / inclines • Site markings • Stability / ground pressure • Falls of rope • Hazards • Counterweights
• Explain rigging and de-rigging procedures when fitting a lattice-type extension	• Types of extensions • Procedure • Hazards • Supporting methods	• Storage • Testing / certification • Duties / RCI set-up
• Explain actions required for hazards, underground and overhead services	• Types of typical services • Warning / identification systems	• Reporting procedures for damage to services • Minimum distances and clearances
• Programme / set-up Rated Capacity Indicators (RCI) for lifting duties	• Types of RCI • Regulations / legislation • Principles of operation • Lifting duties	• Function and application of common types • Testing, setting / programming for different duties • Number of falls
• Lift various loads using the full radius and slewing capabilities of a crane	• Duties charts • Lifting accessories and slinging requirements • Lift plans • Lifting controls • Boom deflection • Signalling procedures • Hazards	• Stability • Trial lifts • Load stability / security • Visibility • Environmental conditions • Load swings • Falls of rope
• Accurately place loads	• Ground conditions / hazards • Visibility • Signalling / following instructions	• Stability • Load swings • Out-of-sight lifts • Protection of lifting accessories

Syllabus *(continued)*

Learning outcome	Training content	
• Change falls of rope on a hook block	• Falls of rope • Security • Stability factors	• Procedures • Types of hook block • Duties / RCI set-up
• Minimise the swinging of loads	• Rope length • Techniques • Slew speeds	• Observation / anticipation • Stability
• Move loads through machine travel	• Duties charts • Configuration • Stability • Route / ground condition • Load swing	• Load integrity / security • Visibility • Hazards • Regulations / legislation
• Comply with signals and instructions	• Methods and types of signals • Methods of verbal instruction • Multiple signalling	• Electronic communication / setting-up • Codes of Practice • Radio protocol
• Maintain safe working situations	• Stability • Load swings	• Load security • Hazards
• Prepare the crane in preparation of movement from lifting duties	• Stowage of materials / accessories	• Travel configuration
• Carry out shut down and securing procedures	• Shut down procedures • Security	• Parking and position
• Explain loading and unloading procedures for machine transporting	• Compatibility • Positioning	• Security • Types of transporter

Note: The listed training content should not be considered exhaustive and subjects may be added to reflect the individuals' working environment.

Safety critical

Emphasis to be placed on the following topics:

Topic	Emphasis
• Lift plans / method statements	• Lift plan types and requirements and the need for lift planning • Adherence to the lift plan as constructed by a competent person
• Manoeuvring	• Facing the direction of travel and no reversing unless authorised by a nominated vehicle marshaller
• Hands Off Step Away – Slinger/ Signaller	• Identifying where it will be safe to be positioned during the lift, especially the first raising of the load (including trial lift), taking into account the potential unexpected load movement that may occur at this stage • Understanding the actions to take before directing the equipment to first raise the load (including for trial lift): taking hands off the load, stepping away from the load, and moving to a safe space • Understanding the actions to take after initial raising of the load: stopping the lift if there is an issue, not intervening in an unexpecting moving load, waiting for the load to become steady and stable, and only approaching when safe and if necessary

Duration / Ratios

To allow effective learning, these training times are recommended for this category. Candidates must be profiled to establish learning needs. Durations should be of a length to ensure the learning outcomes are met.

Experience	Accumulated hours
• Novice operators with no industry or machine experience	70
• Novice operators with industry experience but no machine experience	62
• Operators with unrelated (lifting) machine experience	42
• Operators with similar (lifting) machine experience	28

To allow effective learning, the listed candidate / machine / instructor ratio is the maximum recommended for this category

4 candidates : 2 machines: 1 instructor

Resources

Practical equipment

- Crawler Crane that meets current legislation
- Operator's manual for the machine(s)
- Different types of loads
- Lifting accessories
- Sufficient area of ground suitable for placing loads at various heights and radius

PLUS

- Suitable PPE
- Risk assessment for all areas where training is occurring

Theory equipment

- PUWER 1998 Regulations
- LOLER 1998 Regulations
- HSE GS6
- Operator' Manual
- Specifications for types of Crawler cranes

PLUS

- Suitable room for theory training purposes
- Welfare and rest facilities during training

Category

Category description and types

CPCS defines a category as an item of plant or equipment used within the construction or allied industries and worked in accordance with the manufacturer's basic design. Although this category can have varying uses within industry and used with many attachments, for CPCS training and assessment standards, the descriptions reflect basic core use.

To identify a machine within this category, a typical crawler would normally have the listed features and be used within the described characteristics.

Category features

- Tracks mounted chassis
- 360 degree rotating upper structure containing the operating position; power, hydraulic and electrical units and winches
- Lattice or telescopic multi-sectioned jib
- Winch operated lifting metal-stranded hoist rope mounted on pulleys
- Hook block suspended by hoist ropes and pulleys and the end of the boom

Category characteristics

- Able to travel in forward and reverse and change direction during travel
- Can travel and operate on uneven and loose ground and slopes
- Lift loads by vertically raising the hook block
- Moves and places loads by using a combination of slew and linear motions within the confines of the operating radius, depth and height
- Travel with loads suspended from the hook block