Mobile Crane- A60
Learning for CPCS

Outcomes

Through a combination of targeted training and experience, an individual with the mobile 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 • Explain all relevant documentation • Undertake all pre-use checks
Travelling and manoeuvring	• Configure and set for travel (site and highway) • Travel the crane to an area of work • Manoeuvre in confined spaces
Setting up for work	• Configure the crane for lifting duties • Deploy outriggers to specification (where applicable) • Explain action required for hazards, underground and overhead services
Working tasks	• Programme / set-up Rated Capacity Indicators 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 (where applicable) • Maintain safe working situations • Comply with signals and instructions • Explain rigging and de-rigging procedures when fitting fly jibs or boom extensions
Completing work	• Dismantle the crane in preparation of movement
Shutting down	• Carry out shut down and securing procedures

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 • Lifelong skills • Working practices • Social responsibilities	• Communication with colleagues / management / other trades • Health and Safety at Work Act • Environmental issues • Other trades
• 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 • Health and Safety at Work Act • PPE • Codes of Practice • Site plans / drawings	• Lifting requirements and limitations • Method statements • Risk assessments / COSHH • Inspection and reporting forms / procedures • Lift plans
• Explain all relevant documentation	• Test certificates	• Thorough examination certificates
• Undertake all pre-use checks	• Regular and non-scheduled maintenance procedures	• Sequence of pre-use checks • Defect reporting
• Configure and set for travel (site and highway)	• Driving controls • Attachments • Security	• Driving position • Visibility • Road Traffic Act
• Travel the crane to an area of work	• Driving controls • Ground conditions • Traction • Axle loadings • Hazards	• Working area • Site route • Environment protection / minimise damage • Road travel

Syllabus *(continued)*

Learning outcome	Training content	
• Manoeuvre in confined spaces	• Visibility • Limitations of vision • Height restrictions • Hazards	• Protection of ground / tight turns • Environmental / noise / fumes
• Configure the crane for lifting duties	• Crane positioning • Required configuration (lift plan) • Crane controls • Environmental conditions	• Hazards • Counterweights • Levelling / inclines • Site markings • Falls of rope
• Deploy outriggers to specification (where applicable)	• Types of outriggers • Support conditions • Packing / load spreading	• Bearing pressure • Footprint • Inclines / uneven ground
• Explain action 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 for lifting duties	• Types of RCI • Regulations / legislation • Principles of operation • Lifting duties • Number of falls	• Function and application of common types • Testing, setting / programming for different duties
• 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 factor	• 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 (where applicable)	• Duties charts • Configuration • Stability • Route / ground condition • Load integrity / security	• Load swing • Visibility • Hazards • Regulations / legislation
• Maintain safe working situations	• Methods and types of signals • Methods of verbal instruction • Multiple signalling	• Electronic communication / setting-up • Codes of Practice • Radio protocol
• Comply with signals and instructions	• Stability • Load swings	• Load security • Hazards
• Explain rigging and de-rigging procedures when fitting fly jibs or boom extensions	• Types of extensions / jibs • Procedures • Hazards • Supporting methods	• Storage / stowage • Testing / certification • Duties RCI set up
• Dismantle the crane in preparation of movement	• Stowage of materials / accessories	• Travel configuration
• Carry out shut down and securing procedures	• Shut down procedures • Parking and positioning	• Security

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
• Fitting and removing fly jibs and jib extensions	• Specific training and strong adherence to the specific manufacturer's procedures
• 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 unexpectedly 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
All candidates must have received the equivalent to 7 hours of site safety and induction training	

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	Theory equipment
• Mobile 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	• PUWER 1998 Regulations • LOLER 1998 Regulations • HSE GS6 • BS 7121 (parts 1, 2 and 3) • Operator's Manual • Specifications for types of mobile crane **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, for CPCS training and assessment standards, the descriptions reflect basic core use. Endorsements are sub-categories that reflect the variations for this category by duties. This category has three endorsements.

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

Category features	Category characteristics
• Multi-axled chassis containing (in most cases) power, hydraulic and electrical units • 360 degree rotating upper structure containing the operating position and multi-sectioned boom, all hydraulically operated • Winch operated lifting metal-stranded hoist rope mounted on pulleys • Hook block suspended by hoist ropes and pulleys and the end of the boom	• Able to travel in forward and reverse and change direction during travel by steering the axles • All-axle steering • Travels on hard surfaces with some types having off-road capability • 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

Endorsements

Endorsement characteristics

- **Endorsement A:** Blocked duties only – minimum of four outriggers extended to carry out lifting
- **Endorsement B:** Pick-and-carry duties only – able to travel with a suspended load using forward to reverse direction
- **Endorsement C:** All duties – able to perform both duties of blocked and pick-and-carry