

Excavator 360° above 10 tonnes A59C – Lifting Operations

Learning Outcomes for CPCS



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Outcomes

Through a combination of targeted training and experience, an individual with the 360° excavator will be able to:

Roles and responsibilities	<ul style="list-style-type: none"> Describe the nature of the sector of industry and their role and responsibilities as a plant operator
Preparing for work	<ul style="list-style-type: none"> Name and explain the purpose of principal components, the basic construction, controls and terminology Conform with manufacturer's requirements as per the operator's manual, other types of information source and relevant regulations and legislation Undertake all pre-use checks
Travelling and manoeuvring	<ul style="list-style-type: none"> Configure and set for travel (site and highway – where applicable) Travel over rough, undulating ground, substantial inclines and level surfaces Manoeuvre in confined spaces
Setting up for work	<ul style="list-style-type: none"> Configure and set for lifting operations Explain actions required for hazards, underground and overhead services
Working tasks	<ul style="list-style-type: none"> Lift, move and place a variety of slung loads (Endorsement C) Travel with slung loads (Endorsement C)
Shutting down	<ul style="list-style-type: none"> Carry out shut down and securing procedures

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Syllabus

Learning outcome	Training content	
<ul style="list-style-type: none"> Describe the nature of the sector of industry and their role and responsibilities as a plant operator 	<ul style="list-style-type: none"> Industry type Customer / client needs Sector contribution Role Reporting structures Social responsibilities Lifelong skills 	<ul style="list-style-type: none"> Health and Safety at Work etc. Act Environmental issues Other trades Working practices Communication with colleagues / management / other trades
<ul style="list-style-type: none"> Name and explain the purpose of principal components, the basic construction, controls and terminology 	<ul style="list-style-type: none"> Differing types Function / applications Power units Hydraulic systems Undercarriage Wheels/tracks 	<ul style="list-style-type: none"> Stability / ground pressure Booms / dipper / buckets Slewing arrangements Attachments Safety systems ROPS / FOPS
<ul style="list-style-type: none"> Conform with manufacturer's requirements as per the operator's manual, other types of information source and relevant regulations and legislation 	<ul style="list-style-type: none"> Operator's manual Machine decals Health and Safety at Work etc. Act PPE Codes of Practice Site plans/drawings 	<ul style="list-style-type: none"> Method statements Lifting requirements and limitations Risk assessments / COSHH Inspection and reporting forms / procedures
<ul style="list-style-type: none"> Undertake all pre-use checks 	<ul style="list-style-type: none"> Regular and non-scheduled maintenance procedures 	<ul style="list-style-type: none"> Sequence of pre-use checks Defect reporting
<ul style="list-style-type: none"> Configure and ready for travel 	<ul style="list-style-type: none"> Travel controls Attachments / accessories Travel position Site travel 	<ul style="list-style-type: none"> Visibility Road travel Road Traffic Act
<ul style="list-style-type: none"> Travel over rough, undulating ground, substantial inclines and level surfaces 	<ul style="list-style-type: none"> Travel routes Slopes / inclines Direction of travel Traction / aids Ground conditions 	<ul style="list-style-type: none"> Hazards Working area Travel motors Environment protection/minimise damage
<ul style="list-style-type: none"> Manoeuvre in confined spaces 	<ul style="list-style-type: none"> Visibility Limitations of vision Protection of ground / tight turns 	<ul style="list-style-type: none"> Environmental / noise / fumes Height restrictions

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Syllabus (continued)

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Learning outcome	Training content	
<ul style="list-style-type: none"> • Explain actions required for hazards, underground and overhead services 	<ul style="list-style-type: none"> • Types of typical services • Warning / identification systems 	<ul style="list-style-type: none"> • Reporting procedures for damage to services • Minimum distances and clearances
<ul style="list-style-type: none"> • Remove and re-attach buckets 	<ul style="list-style-type: none"> • Preparation • Types of bucket • Security • Quick-hitch systems, including semi and fully automatic versions 	<ul style="list-style-type: none"> • Codes of practice / Industry best practice • Manufacturers' procedures • Manual handling • Lifting regulations
<ul style="list-style-type: none"> • Lift, move and place a variety of slung loads 	<ul style="list-style-type: none"> • Legislation and regulations • Lift planning • Machine configuration • Stability / ground conditions • Lifting accessories and slinging requirements • Hazards 	<ul style="list-style-type: none"> • Trial lifts • Load stability / security • Signalling procedures • Visibility • Environmental conditions • Load swings • Working danger zones
<ul style="list-style-type: none"> • Travel with slung loads 	<ul style="list-style-type: none"> • Duties charts • Configuration • Stability • Route/ ground condition • Load integrity/ security 	<ul style="list-style-type: none"> • Load swing • Visibility • Hazards • Legislation and regulations
<ul style="list-style-type: none"> • Carry out shut down and securing procedures 	<ul style="list-style-type: none"> • Shut down procedures • Parking and positioning 	<ul style="list-style-type: none"> • Security

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

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Safety critical

Emphasis to be placed on the following topics:

Topic	Emphasis
<ul style="list-style-type: none"> Quick-hitch bucket systems 	<ul style="list-style-type: none"> Manufacturer's procedures must be strictly adhered to Security of bucket to be fully checked (physically) prior to use Guidance issued by the Health and Safety Executive (HSE), The Construction Plant-hire Association (CPA) and the Off-highway and Plant Equipment Research Centre (OPERC) should be followed and recommended to candidates
<ul style="list-style-type: none"> Manoeuvring 	<ul style="list-style-type: none"> Facing the direction of travel and no reversing unless authorised by a nominated vehicle marshaller
<ul style="list-style-type: none"> Machine isolation 	<ul style="list-style-type: none"> When exiting the cab, attachment must be grounded and machine switched off with the key removed before exiting the cab at any time When attaching lifting accessories to the suitable lifting attachment point
<ul style="list-style-type: none"> Working/ danger/hazard zone 	<ul style="list-style-type: none"> Ensuring that all personnel are out of the machine's working radius whilst hydraulically active (unless hydraulic-operated restrictors are fitted and active) Controls must be isolated when loads are being attached/detached

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
<ul style="list-style-type: none"> Endorsement C Lifting operations additional learning duration 	7
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 : 1 machine: 1 instructor

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Resources

Practical equipment

- Excavator 360 capable of lifting slung loads, fitted with check valves, an RCI/ LMI and have a suitable lifting attachment point
- Operator's manual for the machine(s)
- Load A 1 X Load, able to be slung and weighing not less than 60% of the machine's maximum lifting handling capacity at full radius
- Load B 1 x load able to be slung at least 3 m in length
- Load C 1 x Load able to be placed behind a structure or below ground level
- Multi-legged lifting accessories suitable for each load
- Measuring tape for measuring the maximum radius
- Slinger and signaller assistance
- A structure or below-ground level location for placing a load out-of-sight of the operator
- Items to facilitate the loading handling

PLUS

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

Theory equipment

- PUWER 1998 Regulations
- LOLER 1998 Regulations
- HSE GS6
- Lift plan for Excavator Lifting Operations
- Risk Assessments/ Method Statements
- Operator's manual
- Specifications for types of 360 excavators

PLUS

- Suitable room for theory training purposes
- Welfare and rest facilities during training
- Note: ISO 7130 – 1981 / BS 6264: 1982 – 'Earth Moving Machines – Guide to Procedure for Operator Training' provides sound advice on training and assessment matters for 360 excavators
- Guidance for lifting operations using excavators is downloadable from www.cpa.uk.net

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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. Endorsements are sub-categories that reflect the variations for this category by chassis type. This category has one endorsement.

To identify a machine within this category, a typical 360 excavator would normally have the listed features and be used within the described characteristics.

Category features

- Tracks or wheel-mounted chassis
- 360 degree rotating upper structure containing the operating position; power, hydraulic and electrical units and excavating components
- Boom (one or two-piece) with attached dipper arm and bucket, all hydraulically operated
- Machine operating weight of 10 tonnes or above
- Fitted with check valves, an RCI/ LMI and have a suitable lifting/ accessory attachment point

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
- Can lift and place materials using a combination of slew and linear motions within the confines of the operating radius, depth and height

Endorsements

Endorsement characteristics

- **Endorsement C:** Lifting operations – Able to lift, move, travel and place a variety of slung loads