

Excavator 360° below 10 tonnes - A58

Learning for CPCS



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Outcomes

Through a combination of targeted training and experience, an individual with 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• 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 up for excavating duties• Explain actions required for hazards, underground and overhead services
Working tasks	<ul style="list-style-type: none">• Excavate differing types of excavations in various types of ground• Place materials into transporting vehicles and hoppers• Grade, spread and level ground and materials• Attach and remove buckets• 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• Explain the loading and unloading procedures for machine transporting

* Applicable to units of 5 tonnes and above.

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 Lifelong skills Working practices Social responsibilities 	<ul style="list-style-type: none"> Communication with colleagues / management / other trades Health and Safety at Work etc. Act. Environmental issues 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 Functions and applications Power units Hydraulic systems Undercarriage Wheels / tracks Dozing blades 	<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 handbook, 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 set for travel 	<ul style="list-style-type: none"> Travel controls Attachments /accessories Travel position 	<ul style="list-style-type: none"> Site travel Visibility Road travel
<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

Syllabus (continued)

Learning outcome	Training content	
<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
<ul style="list-style-type: none"> • Configure and set up for excavating duties 	<ul style="list-style-type: none"> • Type of ground • Required specification • Equipment / bucket size / type • Machine positioning 	<ul style="list-style-type: none"> • Spoil placing • Site markings • Loading vehicles' positioning • Spoil segregation
<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 • Reporting procedures for damage to services 	<ul style="list-style-type: none"> • Minimum distances and clearances • Explain actions required for hazards, underground and overhead services
<ul style="list-style-type: none"> • Excavate differing types of excavations in various types of ground 	<ul style="list-style-type: none"> • Non-complex and complex trenches • Disposal of spoil • Machine positioning • Segregation of spoil 	<ul style="list-style-type: none"> • Environmental factors • Productive cycles of operation • Measuring levels and centres
<ul style="list-style-type: none"> • Place materials into transporting vehicles and hoppers 	<ul style="list-style-type: none"> • Machine positioning • Signals / communication • Loading vehicle stability 	<ul style="list-style-type: none"> • Minimum overspill • Cleaning loading area
<ul style="list-style-type: none"> • Grade, spread and level ground and materials 	<ul style="list-style-type: none"> • Specification • Attachments 	<ul style="list-style-type: none"> • Dozing blade
<ul style="list-style-type: none"> • Attach and remove buckets 	<ul style="list-style-type: none"> • Preparation • Types of bucket • Quick-hitch systems • Manual handling 	<ul style="list-style-type: none"> • Security • Manufacturer's procedures
<ul style="list-style-type: none"> • Lift, move and place a variety of slung loads (Endorsement C) 	<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

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Syllabus (*continued*)

Learning outcome	Training content	
<ul style="list-style-type: none"> • Travel with slung loads (Endorsement C) 	<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 • Regulations / legislation
<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
<ul style="list-style-type: none"> • Explain the loading and unloading procedures for machine transporting 	<ul style="list-style-type: none"> • Compatibility • Positioning 	<ul style="list-style-type: none"> • 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.

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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.
<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">• Novice operators with no industry or machine experience	70
<ul style="list-style-type: none">• Novice operators with industry experience but no machine experience	62
<ul style="list-style-type: none">• Operators with unrelated (earthmoving) machine experience	42
<ul style="list-style-type: none">• Operators with similar (earthmoving) machine experience	28
<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 : 2 machines: 1 instructor

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Resources

Practical equipment

- Excavator 360 that meets current legislation
- Operator's manual for the machine(s)
- Replacement buckets for changing purposes
- Measuring equipment to ensure levels and centres
- Sufficient area of ground suitable for excavating
- Slopes/stockpiles of materials
- Tipping vehicle or trailer for loading into
- Loads and lifting accessories

PLUS

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

Theory equipment

- PUWER 1998 Regulations
- LOLER 1998 Regulations
- HSE GS6
- Operator's manual
- Specifications for types of 360 excavators

PLUS

- Suitable room for theory training purposes
- Welfare and rest facilities during training
- Guidance for lifting operations using excavators is downloadable from www.cpa.uk.net
- 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

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 three endorsements.

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 wheeled-mounted chassis
- 360 degree rotating upper structure containing a side-mounted operating position; power, hydraulic and electrical units, and excavating components
- Boom (one or two-piece) with attached dipper arm and bucket, all hydraulically operated
- Chassis-mounted dozing blade
- Machine operating weight of 10 tonnes or less

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
- Carry out excavation and extraction duties in a linear motion using a bucket within the confines of the operating radius, depth and height
- 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 A:** Tracked – Chassis has reversible crawler hydraulically-driven tracks for mobility
- **Endorsement B:** Wheeled – Chassis has multi (usually twin) driven axles with rubberised tyres, and hydraulically-driven for mobility
- **Endorsement C:** Lifting operations – Able to lift, move, travel and place a variety of slung loads