

Technical test - Practical

Excavator 180° above 5 tonne – A12



Resources required

Machine	<ul style="list-style-type: none"> • 180° Excavator with: <ul style="list-style-type: none"> - A standard excavating bucket on the backhoe - Multi-purpose (clamshell) loader bucket
Area	<ul style="list-style-type: none"> • Ground, clear of hazards, which must include: <ul style="list-style-type: none"> - level area for excavating - level area for lifting operations (C) - rough undulating terrain - slope or slopes - spoil/material to load vehicles
Other equipment	<ul style="list-style-type: none"> • Load-carrying vehicle for spoil/material • A replacement backhoe bucket (for changing task) • Items to create restrictions for manoeuvring • Laser-equipped measuring equipment to ensure trench specifications are met
Notes	<ul style="list-style-type: none"> • The machine selected for the test must be in serviceable condition and conform with current legislation • The operator’s manual must be with the excavator • The incline must have at least an 18% (1:5.5) incline with sufficient manoeuvring room at the top, or a straight ramp with an up and down route with a flat area at the summit • The nominated area must be safe to allow excavations up to 2 m deep • The load-carrying vehicle must require at least 4 x backhoe buckets and 2 x front loader buckets to be filled to capacity • The vehicle must be loaded and discharged at least twice

Additional resources required – Endorsement C

Machine	<ul style="list-style-type: none"> • 180° Excavator capable of lifting the requisite slung loads, and have a suitable lifting/ accessory attachment point
Loads	<ul style="list-style-type: none"> • LOAD A 1 x load, able to be slung and weighing between 0.6 tonne and 1.0 tonne or 75% of the rated capacity at full reach (excluding the extending dipper), whichever is the greater • LOAD B 1 x load able to be placed behind a structure or below ground level

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<p>Other equipment</p>	<ul style="list-style-type: none"> • Lifting accessories suitable for each load • Measuring tape for measuring the maximum radius of the excavator • Slinger and signaller assistance
<p>Notes Lifting Operations only</p>	<ul style="list-style-type: none"> • The machine selected for the test must be in serviceable condition and conform with current legislation • All lifting accessories must be fit for purpose and certificated • The weight of all loads must be known • Manufacturer's data must be checked to ensure the machine is capable of lifting the specified load to the required radius • The slinger and signaller must be certificated and competent • The structure or below-ground level location chosen for LOAD B must be suitable for landing the load but must be of sufficient height or depth so that the whole of the load and portion of the lower part of the lifting accessory cannot be seen from the operating position. If a below-ground landing place is chosen, it must be a safe environment for the slinger/ signaller to handle • The load: if a ground level structure is chosen, it must be of sufficient strength to resist movement should the load inadvertently contact the structure

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Activity instructions

Sequence	<ul style="list-style-type: none"> Activity 1 must be undertaken at the start of the test. Activities 2, 4, 5, and 6, can be undertaken at any time during the test. Activity 9 must be undertaken at the end of the test. <p>The test must be completed within a given time. The specification section gives further information</p>
Preparing for work	<ol style="list-style-type: none"> Complete all manufacturers' pre-start and running checks and prepare the excavator for travel as detailed in the operator's manual which must be referred to by the candidate during the activity <ul style="list-style-type: none"> Additional information to be identified by the candidate referring to the operator's manual. Tester to decide what information will be identified
Travelling & manoeuvring (refer to specifications)	<ol style="list-style-type: none"> Travel to the work area and: <ul style="list-style-type: none"> travel up and down the slope Stop and start on the gradient whilst travelling uphill Stop and start on the gradient whilst travelling downhill Travel through a chicane which requires left and right hand turns pass through a restriction in forward and reverse travel over rough terrain
Setting up for work	<ol style="list-style-type: none"> Prepare and set the excavator for the relevant work
Working tasks (refer to specifications)	<ol style="list-style-type: none"> Produce a vertical trench to the specified dimensions Complete a square excavation with vertical sides at the end of the dug trench Load material into a vehicle Change the (backhoe) bucket
Completing work	<ol style="list-style-type: none"> Reinstate the work area back to the original using all the functions of the multi-purpose bucket
Shutting down	<ol style="list-style-type: none"> Park the excavator and carry out shut-down and securing procedures
Notes	<ul style="list-style-type: none"> For Activity 6, at least four loads must be placed by the backhoe, which can be loaded whilst excavating the trench. The remaining capacity to be loaded with the front loader using spoil from the stockpile If the machine is hot, checks unable to be carried out (such as coolant) may be assessed by the tester using verbal questions

Activity measurements

Travel restrictions	<ul style="list-style-type: none"> 800 mm
Trench depth	<ul style="list-style-type: none"> 1 m ± 35 mm and straight within ± 60 mm
Trench length	<ul style="list-style-type: none"> 15 – 20 metres The excavation must be straight within +/- 60 mm
Square excavation	<ul style="list-style-type: none"> 3 x buckets wide and a depth of 1.5 m ± 35 mm
Loading vehicle	<ul style="list-style-type: none"> The loading vehicle must require at least 4 x backhoe bucket and 2 x front loader to be filled to capacity The vehicle must be loaded and discharged at least twice

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Test timings	<ul style="list-style-type: none"> The test must be completed within 2 hours and 5 minutes
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Activity Instructions – Endorsement C

Preparing for work	10. Prepare and set the excavator for each lifting operation
Travelling & manoeuvring (refer to specifications)	11. Lift LOAD A from minimum radius, position the load at 75% of full radius and rotate for 180°. On completion land the load at a given point and detach 12. Lift LOAD B and place at a given point, which is below ground level or behind a structure. Once landed return to the original start point
Notes	<ul style="list-style-type: none"> The backhoe must be used for Activity 11 and 12 Activities 10, 11 and 12 need to be undertaken by existing CPCS cardholders holding category A12 seeking Endorsement C

Activity measurements – Endorsements C

Load movement	<ul style="list-style-type: none"> Maximum height of underside of the load = 1 m
Load placing	<ul style="list-style-type: none"> 100 mm of a given position
Test timings	<ul style="list-style-type: none"> The test must be completed in a total time of 2 hours and 45 minutes if combining Endorsement C with A12 The test must be completed within 40 minutes if a stand-alone test for existing cardholders adding Endorsement C only

Note: The lifting operations activities must follow the requirements laid out in the joint industry 'Guidance on Lifting Operations in the Construction Sector When Using Excavators', published by the Construction-plant Association and can be downloaded free-of-charge from www.cpa.uk.net

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Basic details

Test ref:	Candidate name:
Tester name:	Candidate ref:
Tester ref:	Date of test:
	Start time of test:
Make and model:	Duration:

Mandatory	Correctly carried out during the test?	Y/N
Preparing	1. All pre-start and running checks (or responses to relevant questions)	
	2. Identify and select correct PPE and weather-related equipment to be worn	
Travelling	3. Excavator set for travel	
	4. Restrictions cleared	
	5. Encountered hazards cleared	
	6. Travel direction on slopes	
Setting up	7. Full control maintained when travelling on slopes	
	8. Allocated area checked and clear of hazards prior to each activity	
Working	9. Excavator laterally level whilst excavating	
	10. Excavated material clear of trench	
	11. Trenches conform to the stated sizes and tolerances	
	12. Full bucket loads when excavating (except for finishing work) and loading	
	13. Establish communication with supporting workers	
	14. Loading vehicle and excavator position prior to loading	
	15. Functions of the multi-purpose (clamshell) bucket	
	16. Excavator stability maintained	
	17. Vehicle evenly loaded but not overloaded	
Shutdown	18. Existing bucket removed and replacement bucket installed	
	19. Excavated area reinstated back to the original contours	
Other	20. All shutdown and securing procedures	
	21. Legislation, manufacturers' and health and safety requirements complied with	
	22. Test completed within the given time	

All of these items must be awarded Achieved / Not achieved

Faults	Candidate incorrectly carried out the following:	Fault	Mark	Penalty
Travelling	1. Excavator mounting and dismounting		1	
	2. Identify information from the Operator's Manual		2	
	3. Full observation before moving and reversing		3	
	4. Maintain full observation whilst travelling and reversing		2	
	5. Matching travel speed to the ground type and conditions		1	
	6. Select appropriate gear ratios		1	
	7. Front loader low but clear of ground when travelling		2	
	8. Boom and dipper extension locked		2	
Working	9. Positioning and setting for excavating		1	
	10. Trench excavated in layers		1	
	11. Sideswiping with bucket		2	
	12. Edges of the excavations clean and clear		1	
	13. Material cleanly placed into the loading vehicle		2	
	14. Not using front loader below ground level when loading		2	
	14. Minimising contact with vehicle when loading		2	
15. Smooth use of steering, hydraulic, braking and transmission controls		2		
Not exceeded eight penalties		Total penalties		
Achieved / Not achieved				

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Basic details – Endorsement C

Test ref:	Candidate name:
Tester name:	Candidate ref:
Tester ref:	Date of test:
Endorsement: C <input type="checkbox"/>	Start time of test:
Make and model:	Duration:

Mandatory		Correctly carried out during the test?	Y/N
Preparing	23. All pre-start and running checks (or responses to relevant questions)		
	24. Identify and select correct PPE and weather-related equipment to be worn		
Setting up	25. Allocated area checked and clear of hazards prior to lifting activity		
	26. Communication arrangements confirmed with slinger/signaller		
	27. Excavator positioning prior to lifting loads		
	28. Excavator level prior to lifting and placing loads		
Lifting operations	29. No contact between load and excavator and/or other obstructions		
	30. Lifted, moved and lowered load in a controlled manner		
	31. Instructions conformed with		
	32. Stability of the machine maintained at all times		
	33. SWL not exceeded at any time		
Shutdown	34. Load remains freely suspended (except during lifting and placing)		
	35. Personnel clear of the 'danger' zone when lifting and moving loads		
Other	36. All shutdown and securing procedures		
	37. Legislation, manufacturers' and health and safety requirements complied with		
	38. Test completed within the given time		

All of these items must be awarded		Achieved / Not achieved		
Faults	Candidate incorrectly carried out the following:	Fault	Mark	Penalty
Travelling	16. Excavator mounting and dismounting		1	
	17. Identify information from the Operator's Manual		2	
	18. Full observation before moving and reversing		2	
	19. Travel speed matched to the ground type and conditions		1	
Lifting operations	20. All loads vertically lifted (load not dragged)		2	
	21. Each load lifted clear of surface and checked for integrity		1	
	22. Load swings minimised during static lifts		2	
	23. Keeping load height within given tolerance		1	
	24. All loads placed at given points within the given tolerance		2	
	25. Smooth use of hydraulic controls		1	
Not exceeded eight penalties		Total penalties		
		Achieved / Not achieved		

Note:

- Existing CPCS cardholders holding Category A12 seeking Endorsement C need to be measured against all marking items in Endorsement C.