

Technical test - Practical

Excavator 360 – A58 below 10 tonnes



Resources required

Machine	<ul style="list-style-type: none"> • 360 excavator equipped with a grading blade and fitted with a standard excavating bucket or quick hitch (endorsements A and B)
Area	<ul style="list-style-type: none"> • Ground, clear of hazards, which must include: <ul style="list-style-type: none"> - level area for excavating (A and B), and lifting operations (C) if applicable - rough terrain (A - C) - slope or slopes (A and B) - spoil/material to load vehicles (A and B)
Other equipment	<ul style="list-style-type: none"> • Load-carrying vehicle for spoil/material • A replacement bucket for reinstating and changing activities • 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 meet the specification for the required endorsement, be in serviceable condition and conform with current legislation • The operator's manual must be with the excavator • The slope 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 have a minimum capacity equivalent to six full bucket loads of the excavator being used for the test • The same bucket may be used for reinstating and changing purposes

Additional resources required – Endorsement C

Machine	<ul style="list-style-type: none"> • 360 excavator capable of lifting the requisite slung loads, fitted with check valves*, an RCI/LMI* and have a suitable lifting/accessory attachment point
Loads (Optional)	<ul style="list-style-type: none"> • LOAD A 1 x load, able to be slung and weighing not less than 60% of the machine's maximum lifting/object handling capacity at full radius • LOAD B 1 x load able to be slung being at least: <ul style="list-style-type: none"> - 1 m in length for machines up to 5 tonnes - 2 m in length for machine 5 tonnes and above • LOAD C 1 x load able to be placed behind a structure or below ground level

<p>Other equipment</p>	<ul style="list-style-type: none"> • Multi-legged lifting accessories suitable for each load • Measuring tape for measuring the maximum radius of the excavator • 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 load handling exercise in Activity 12
<p>Notes Lifting Operations only</p>	<ul style="list-style-type: none"> • All lifting accessories must be fit for purpose and certificated • The weight of all loads must be known • The rated load/object handling capacity chart must be available for reference by the candidate • The slinger/signaller must be certificated and competent • The width of the obstacle for Activity 12 must be minimal allowing the load to be returned to ground level before full radius is reached • The structure or below-ground level location chosen for LOAD C 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 • Care must be taken if the machine is fitted with a quick-hitch type coupler as the accessory attachment point may extend the working radius of the machine and exceed the manufacturer’s maximum rated lift/object handling capacity • If the rated lifting capacity for the excavator on the test is greater than 1 tonne (or the overturning moment is greater than 40,000 Nm) then the machine must be fitted with: <ul style="list-style-type: none"> a) a boom lowering control device on the raising (main) boom cylinder(s) and meet the requirements of ISO8643:1997 b) an RCI* or LMI* <p>* An RCI is deemed as a device that meet the requirements of LOLER 1998 in terms of a device that provides acoustic or visual warnings, which indicates to the operator when the object handling capacity or corresponding load moment is reached</p>

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Activity instructions – Endorsements A and B



<p>Sequence</p>	<ul style="list-style-type: none"> • Activity 1 must be undertaken at the start of the test. • Activities 2, 4 and 5, 6, and 7 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 specifications section gives further information</p>
<p>Preparing for work</p>	<ol style="list-style-type: none"> 1. 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
<p>Travelling & manoeuvring <i>(refer to specifications)</i></p>	<ol style="list-style-type: none"> 2. Travel to the work area and: <ul style="list-style-type: none"> - travel up and down the slope - pass through a restriction - travel over rough terrain
<p>Setting up for work</p>	<ol style="list-style-type: none"> 3. Prepare and set the excavator for the relevant work
<p>Working tasks <i>(refer to specifications)</i></p>	<ol style="list-style-type: none"> 4. Produce a vertical trench to the specified dimensions 5. Produce 2 x straight trenches to form a 'T' pattern with square starts and finishes 6. Load material into a vehicle 7. Change the bucket 8. Reinststate the work area back to the original state
<p>Shutting down</p>	<ol style="list-style-type: none"> 9. Park the excavator and carry out shut-down and securing procedures
<p>Notes</p>	<ul style="list-style-type: none"> • For Activity 2 wheeled excavators must pass through the restriction in a forward and reverse direction • For Activity 7 the dipper must be raised and slewed away from the bucket before attaching, if using the same bucket • For Activity 8 the grading blade shall be employed • If the machine is hot, any checks that are unable to be carried out (i.e. coolant) may be assessed by the tester using verbal questions

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Activity measurements – Endorsements A and B



Travel restrictions	<ul style="list-style-type: none"> • 600 mm (Activity 2)
Trench depths	<ul style="list-style-type: none"> • 0.5 m ± 35 mm and straight within ± 60 mm
Trench length	<ul style="list-style-type: none"> • Up to 5 tonnes = 5 m and 2 m • Above 5 tonnes = 10 m and 4 m
Test timings	<ul style="list-style-type: none"> • The test must be completed within two hours and 30 minutes

Activity measurements – Endorsement C

Sequence	<ul style="list-style-type: none"> • Activities 11 to 15 can be undertaken in any order during the test.
Preparing for work	10. Prepare and set the excavator for each lifting operation
Lifting Operations	<p>11. Lift LOAD A from minimum radius, position the load at 75% of full radius and rotate for a minimum of 180 degrees. On completion, land the load at a different radius</p> <p>12. Lift LOAD A and place at minimum radius. Reposition the load to full radius whilst following ground contours. At a point halfway along the load travel route, pass over an obstacle whilst following the contours of that obstacle. When at full radius, slew the load for approximately 10 degrees (left or right) and return the load to the start point following ground contours</p> <p>13. Lift LOAD A and travel for a minimum given distance following a route that includes:</p> <ul style="list-style-type: none"> - passing through a restriction - travelling over rough terrain - executing right and left hand turns <p>14. Lift LOAD B and position the dipper arm vertically. Rotate the load for a minimum of 180 degrees and return back to the start point via the same route</p> <p>15. Lift LOAD C and place at a given point, which is below ground level or behind a structure. Once landed return to the original start point</p>
Notes	<ul style="list-style-type: none"> • Activities 1 and 9 need to be undertaken by existing CPCS cardholders holding category A58 seeking Endorsement C in addition to Activities 10 to 15.

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Activity measurements – Endorsements C



Load movement	<ul style="list-style-type: none"> Maximum height of underside of the load = 1 m (except Activity 12)
Load movement (Activity 12)	<ul style="list-style-type: none"> Maximum height of underside of the load from ground contours = 100 mm Maximum distance from obstacle = 500 mm
Obstacle Height (Activity 12)	<ul style="list-style-type: none"> Minimum of 1 m (adjustments may be made for smaller excavators if the reach is limited)
Load placing	<ul style="list-style-type: none"> 100 mm of a given position
Travelling with load	<ul style="list-style-type: none"> At least 8 m distance
Test timings	<ul style="list-style-type: none"> The test must be completed in a total time of 3 hours if combining Endorsement C with Endorsements A or B, or 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:
Endorsement: A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>	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)	
Travelling	2. Restrictions cleared	
	3. Excavator set for travel	
	4. Encountered hazards cleared	
	5. Boom/dipper arm position when ascending and descending inclines	
	6. Faced direction of travel whilst moving	
Setting up	7. Allocated area checked and clear of hazards prior to each activity	
Working	8. Excavator laterally level whilst excavating	
	9. Excavated material clear of trench	
	10. Trenches conform to the stated sizes and tolerances	
	11. Full bucket loads when excavating (except for finishing work) and loading	
	12. Loading vehicle and excavator position prior to loading	
	13. Vehicle evenly loaded but not overloaded	
	14. Existing bucket removed and replacement bucket installed	
	15. Excavated area reinstated back to the original contours	
Shutdown	16. Grading blade utilised for reinstating work	
Other	17. All shutdown and securing procedures	
	18. Legislation, manufacturers' and health and safety requirements complied with	
	19. 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		2	
	4. Full observation whilst travelling		2	
	5. Observation before slewing upper structure		2	
	6. Drive sprockets kept to the rear when travelling		1	
	7. Travel speed matched to the ground type and conditions		1	
	8. Minimising ground damage when turning (tracked machines only)		1	
Working	9. Site and set for excavating		2	
	10. Trench excavated in layer.		1	
	11. Sideswiping with bucket		1	
	12. Edges of the excavations clean and clear		2	
	13. Material cleanly placed into the loading vehicle		1	
	14. Contact with vehicle avoided when loading		1	
	15. Use of steering/hydraulic controls		1	
Not exceeded eight penalties			Total penalties	
				Achieved / Not achieved <input type="checkbox"/>

Note: Mandatory item 17 – the candidate must ground the bucket, stop the engine and remove the key before exiting the cab; this must be adhered to at all times during the test.

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Basic details – Endorsement C



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

Mandatory	Correctly carried out during the test?	Y/N
Preparing	20. All pre-start and running checks (or responses to relevant questions)	
Travelling with load	21. Excavator set for travel	
	22. Encountered hazards cleared	
	23. Boom/dipper arm position when ascending and descending inclines	
Setting up	24. Faced direction of travel when moving	
	25. Allocated area checked and clear of hazards prior to lifting activity	
	26. Communication arrangements confirmed with slinger/signaller	
	27. Excavator positioning correct prior to lifting loads	
Lifting operations	28. Excavator level prior to lifting and placing loads	
	29. No contact between load and excavator and/or other obstructions	
	30. Lifted, moved and lowered load in a controlled manner	
	31. Route assessed and travelled with the slung load in a controlled manner	
	32. Instructions conformed with	
	33. Stability of the machine maintained at all times	
	34. SWL not exceeded at any time	
	35. Load remains freely suspended (except during lifting and placing)	
Shutdown	36. Machine controls isolated when loads being attached/disconnected	
	37. Personnel clear of the 'danger' zone when lifting and moving loads	
Other	38. All shutdown and securing procedures	
	39. Legislation, manufacturers', and health and safety requirements complied with	
	40. 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 with loads	16. Excavator mounting and dismounting		1	
	17. Identify information from the Operator's Manual		2	
	18. Full observation before moving		2	
	19. Full observation whilst travelling with slung load		2	
	20. Observation before slewing upper structure		2	
	21. Drive sprockets kept to the rear when travelling		1	
	22. Travel speed matched to the ground type and conditions		1	
	23. Minimising ground damage when turning with slung load (tracked machines only)		1	
Lifting operations	24. All loads vertically lifted (for example load not dragged)		2	
	25. Each load lifted clear of surface and checked for integrity		1	
	26. Load swings minimised during travel and static lifts		2	
	27. Keeping load height within given tolerance		1	
	28. All loads placed at given points within the given tolerance		2	
	29. Use of steering/hydraulic controls		1	
Not exceeded eight penalties			Total penalties	
				Achieved / Not achieved <input type="checkbox"/>

Note:

- Mandatory items 20, 38 and 40, and item 15 in the faults section need not be marked if combining Endorsement C with Endorsements A or B.
- Existing CPCS cardholders holding Category A58 seeking Endorsement C need to be measured against all marking items in Endorsement C.
- Mandatory item 36 – If the candidate does not isolate the operating controls during the load attaching/detaching activity, the tester must immediately inform the candidate to do so. The candidate has the option to continue the test but be informed they have not achieved on the test at this time.