

Trencher

A37

Technical Test – Theory

Roles and responsibilities	1. What is the definition of, or how can a hazard be described?
	A
	2. What is the purpose of a risk assessment?
	A
	3. List SIX typical subject areas that should be covered in a site induction.
	A
	4. What THREE main duties of the Health and Safety at Work Act must employees follow?
	A
	5. What does the Health and Safety at Work Act require employers to do with regards specifically to plant?
	A
	6. a) What is the purpose of a Method Statement and b) what is required of the operator?
	A
	7. Name FOUR different types or levels of sanctions that can be applied (by employers and judicial bodies) to plant operators who do not comply with, or follow legislation and regulations.
	A
	8. Plant operators are generally regarded as 'safety-critical' workers. What does this mean?
	A

continued...

Roles and responsibilities continued	9. Name THREE ways in which an operator can minimise their impact upon the environment whilst using the machine.
	A
	10. In what situation does a hard hat NOT need to be worn when operating a trencher?
	A
	11. The operator has to use a new type trencher that they are unfamiliar with. What do Regulations (i.e. PUWER 98) and other guidance require the operator to have?
	A
	12. What are the possible outcomes if being prosecuted (by judicial bodies) for not complying with legislation and regulations?
	A
	13. How can a qualification or card benefit a plant operator?
	A
Preparing for work	14. Name THREE ways that a plant operator can contribute in ensuring repeat business with the client or main contractor.
	A
	15. Where should the trencher's Operator's Manual be kept and why?
	A
	16. If the operator has to top-up the hydraulic oil, state TWO precautions to ensure cleanliness of the system.
	A

continued...

For questions 17 and 18 the Operator's Manual for the machine being used for the test MUST be available for reference by the candidate	
Preparing for work continued	17. Using the Operator's Manual, state the figure for setting the digging chain tension.
	A
	18. Using the Operator's Manual, state the cold-starting procedure for the machine.
	A
	19. What is the purpose of a roll or ROPS frame?
	A
	20. If checking the oil level using a dipstick, why must gloves be worn?
	A
	21. What is the purpose of the 'creep speed' transmission?
	A
	22. Apart from the operator, who else may need to use the machine's Operator's Manual?
	A
	23. What is the purpose of the crumber?
	A
	24. Name the main parts of the trenching unit.
A	
25. Why do most trenchers use hydrostatic transmission drive?	
A	
25. During work, the engine starts to overheat. Explain the danger if someone tries to remove the radiator or expansion tank cap.	
A	
Travelling and manoeuvring	27. If the machine is being travelled or working on the public highway, including adjacent pavements and verges, the Road Traffic Act applies. a) What type of licence and which classes should the operator hold and b) what is the minimum age allowed?
	A

continued...

Travelling and manoeuvring continued	28. Name: a) TWO advantages of using a wheeled-chassis trencher and b) TWO advantages of using a tracked-chassis trencher.
	A
	29. What problems and hazards can soft ground cause to a trencher?
Travelling and manoeuvring continued	A
	30. Why must the seat belt be worn, even though a ROPS frame or cab is fitted?
	A
Setting up for work	31. Name FIVE possible underground services that may be encountered prior to excavating.
	A
	32. What sort of spoil can be extracted if there is one tooth for every second chain segment on the digging chain?
	A
	33. What may happen if the digging chain tension is too tight?
	A
	34. Give TWO instances of using the off-set position of the trenching unit.
	A
	35. How is the spoil prevented from falling back into the trench?
	A
36. Give TWO reasons why the operator should have an understanding of the type of spoil being excavated.	
A	
37. Cable avoidance tools (CATs) can detect a variety of buried services. What type of material do they have limitations in locating?	
A	
38. Name TWO types of equipment used to ensure that excavation levels, measurements and positions are to the required specification.	
A	

continued...

Setting up for work continued	39. If setting up to excavate in a confined area, name TWO things that should be taken into account before starting.
	A
	40. What particular and specific hazards can affect the stability of the machine when working on old industrial (Brownfield) sites?
	A
	41. If setting up to work in a pedestrianised area, state THREE factors that need to be taken into account.
	A
	42. The operator is asked to excavate a new trench. State FIVE different requirements that must be considered or implemented before work commences.
	A
Working tasks	43. Before manually changing the chain: a) where or how should the frame be positioned (in relation to the ground) and b) why?
	A
	44. a) What is the recommended minimum distance to be kept away from overhead power lines mounted on wooden poles when setting up the machine and b) explain why a distance should be kept.
	A
	45. If the teeth become blunt, what effect does it have on trenching operations?
	A
	46. Why do sticky or wet materials normally require a higher chain wheel speed?
	A
47. What would be the procedure to start the cut on a tarmac surface road?	
A	
48. If allowed, what is the effective way to create a cut during a turn?	
A	

continued...

Working tasks continued	49. If an object becomes jammed in the chain, what procedures would be used?
	A
	50. When cutting concrete, name ONE danger to the operator and others in the working area.
	A
	51. If fitted, what is the purpose of the flywheel on the digging chain?
	A
	52. What TWO ways are there of keeping the cut vertical on uneven ground on a tracked trencher?
	A
	53. If a yellow coloured marker tape is unearthed during excavating, which two types of services could this indicate?
	A
Completing work	54. What is the nearest distance allowed to gas pipes when excavating with the machine?
	A
	55. What is the meaning of this hand signal (being demonstrated by the tester)?
A	
Shutdown	56. Describe TWO actions to be taken for an open trench at the end of a working day.
	A
	57. Before leaving the cab for a rest break, after parking and switching off the machine, what final action must be carried out?
A	
Shutdown	58. When parking the machine at the end of the shift, name THREE places where the machine should NOT be parked.
	A
	59. The operator has been asked to drive the machine onto a transporter/trailer. a) Who is responsible for the loading operations and b) state FOUR actions to be considered by the operator before loading commences.
A	

continued...

Shutdown continued	60. If the operator has loaded the machine onto a transporter/trailer on behalf of a driver, what checks must be carried out before they leave the machine?
	A
	61. Why should a trencher be re-fuelled at the end of the day?
	A

Trencher

A37

Technical Test – Practical

RESOURCES

Required

Machine	<ul style="list-style-type: none"> • Trencher
Area	<ul style="list-style-type: none"> • Ground, clear of hazards which must include: <ul style="list-style-type: none"> – level area and inclines to allow excavations up to 2.0 metres deep – rough terrain – slope or slopes
Other equipment	<ul style="list-style-type: none"> • Load-carrying vehicle for spoil/material (optional) • 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 load-carrying vehicle, if used, must be able to accommodate all the spoil extracted whilst excavating one of the trenches

ACTIVITY

Instructions

Sequence	<ul style="list-style-type: none"> • Activities 1 – 7 to be undertaken in a sequential order except • Activity 6 to be undertaken with activities 4 and 5 • Activity 2 can be undertaken at any time during the test • Activity 7 must be undertaken on completion of the test <p>The test must be completed within a given time. The specifications' section gives further information.</p>
Preparing for work	1 Complete all manufacturers' pre-start and running checks and prepare the trencher for travel
Travelling & manoeuvring (refer to specifications)	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
Setting up for work	3 Prepare and set the trencher for the relevant work
Working tasks (refer to specifications)	4 Complete 2 x vertical trenches in a 'T' formation 5 Complete a straight excavation with vertical sides along the sloping ground 6 Load material into a vehicle or in windrows
Shutting down	7 Park the trencher and carry out shut-down and securing procedures
Notes	<ul style="list-style-type: none"> • If the machine is hot, checks unable to be carried out (i.e. coolant) may be assessed by the Tester using verbal questions

Activity measurements

Travel restrictions	<ul style="list-style-type: none"> • 600 mm
Trench depth	<ul style="list-style-type: none"> • 1.0 metre ± 35 mm and straight within ± 60 mm
Trench lengths	<ul style="list-style-type: none"> • Each trench to be a minimum of 10 metres long
Test timings	<ul style="list-style-type: none"> • The test must be completed within 1 hour and 15 minutes

Trencher

A37

Technical Test – Practical

Basic details	Test reference	Candidate name
	Tester name	Candidate ref.
	Tester ref.	Date of test
	Make and model	Start time of test
		Duration

MANDATORY		Correctly carried out during the test?	Y / N
Preparing	1 All pre-start and running checks (or responses to relevant questions)		
	2 Trencher set for travel		
Travelling	3 Restrictions and hazards cleared		
	4 Maintained control on inclines		
Setting up	5 Allocated area checked and clear of hazards prior to excavating		
	6 Trencher laterally level whilst excavating		
Working	7 Chain/wheel sequence of events for ground engagement followed		
	8 Excavated material clear of trench		
	9 Trenches conform to the stated sizes and tolerances		
	10 Conveyer(s) set to remove spoil clear of cut		
	11 Cutting speed matched to load		
Shutdown	12 Depth controlled on sloping ground		
	13 All shutdown and securing procedures		
Other	14 Legislation, manufacturers' and health and safety requirements complied with		
	15 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 Trencher mounting and dismounting			1	
	2 Full observation before moving			2	
	3 Full observation whilst travelling			2	
	4 Full observation before reversing			3	
	5 Observation maintained whilst excavating			2	
	6 Drive sprockets kept to the rear when travelling (tracked units only)			1	
	7 Travel speed matched to the ground type and conditions			1	
	8 Tight turns avoided when travelling (tracked machines only)			1	
Working	9 Site and set for excavating			2	
	10 Edges of the excavations clean and clear			2	
	11 Material cleanly placed into the loading vehicle (where applicable)			2	
	12 Use of steering/hydraulic controls			2	
Not exceeded 8 penalties			Total penalties		
			Achieved / Not achieved		

