

Wheeled Loading Shovel

A21

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 loading shovel?
	A
	11. The operator has to fit and use a new bucket using a quick-hitch coupler 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. Give TWO examples of where The Work at Height Regulations 1995 may apply to loading shovel operations.
	A
	14. How can a qualification or card benefit a plant operator?
	A
	15. Name THREE ways that a plant operator can contribute in ensuring repeat business with the client or main contractor.
	A
	Preparing for work
A	
17. If the operator has to top-up the hydraulic oil, state TWO precautions to ensure cleanliness of the system.	
A	
18. What is the purpose of a roll or ROPS frame?	
A	

continued...

For questions 19 and 20 the Operator's Manual for the machine being used for the test MUST be available for reference by the candidate	
Preparing for work continued	19. Using the Operator's Manual, state the figure for the tyres' operating pressure.
	A
	20. Using the Operator's Manual, state the cold-starting procedure for the machine.
	A
	21. Many loading shovels have 'limited-slip' axles. How can this help production?
	A
	22. If checking the oil level using a dipstick, why must gloves be worn?
	A
	23. How are loading shovel bucket sizes calculated?
	A
	24. Apart from the operator, who else may need to use the machine's Operator's Manual?
	A
Travelling and manoeuvring	25. What is the purpose of the counterweight of the machine?
	A
	26. During work, the engine starts to overheat. Explain the danger if someone tries to remove the radiator or expansion tank cap.
	A
	27. Most loading shovels have an articulated chassis that swivels or pivots in the centre. One pivot plane or angle (looking from the top) provides the steering (articulation), what is the function of the other pivot plane or angle i.e. looking from the front (oscillation)?
A	
Travelling and manoeuvring	28. a) Give ONE advantage and b) TWO disadvantages of rear mounted cameras.
	A

continued...

Travelling and manoeuvring continued	29. An operator has been asked to carry some material down a small section of the public highway, for which the Road Traffic act applies. What are the implications for the operator and machine?
	A
	30. If the loading shovel is being travelled or working on the public highway, including adjacent pavement 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
	31. Name THREE conditions that mirrors must be in, on the machine.
	A
	32. Why must the seat belt be worn, even with the cab door closed?
	A
	33. What problems and hazards can soft ground cause to a loaded loading shovel?
	A
	34. a) Name THREE purposes of the raised lugs on tyres and b) what can happen to a loading shovel if the lugs are severely worn?
	A
	35. When travelling on wet clay or rock, what effect does this have on the loading shovel?
	A
36. a) What is the minimum distance allowed near open trenches when travelling with a loaded loading shovel and b) explain why.	
A	
37. Give FOUR reasons that may cause the loading shovel to tip over sideways.	
A	

continued...

Setting up for work	38. Whenever possible, who should decide the positioning of the dump truck when being loaded?
	A
	39. Explain ALL visual checks that must be carried out on all types of quick-hitch bucket attaching systems before use.
	A
	40. On a semi-automatic quick-hitch bucket attaching system: a) what is the purpose of the safety pin and b) what checks MUST be made to the pin before use?
	A
	41. Give THREE possible reasons why loading shovels should not stray off the designated travel routes.
	A
	42. Describe ONE physical method of checking that the attachment is fully secured to the coupler prior to work.
	A
	43. If setting up to work in a pedestrianised area, state THREE factors that need to be taken into account?
	A
	44. What is regarded as the most productive position for the dump truck to be in when being loaded by a wheeled loading shovel working from a stockpile?
	A
45. Before manually changing any bucket: a) where should the bucket be positioned (in relation to the ground) before removing the final pin and b) why?	
A	

continued...

Setting up for work continued	46. Give TWO reasons why the loading shovel operator should have an understanding of the type of material being loaded.
	A
Working tasks	47. When working in a confined area or space: a) what danger can be present with regards to the counterweight of the machine, b) what is the recommended minimum distance and c) what measures must be implemented if the gap is less?
	A
	48. The operator is asked to tip material into a trench. State FIVE different requirements that must be considered or implemented before tipping commences.
	A
	49. Why should different materials be segregated during extracting?
	A
	50. Who should determine the maximum load that should be placed into the body of the dump truck?
	A
	51. If a load has to be tipped on a slope, what may happen if the load is tipped downhill and why?
	A
52. When working in a confined area or space, name THREE hazards that can occur.	
A	
53. a) What is the recommended minimum distance to be kept away from overhead power lines mounted on wooden poles when tipping loads and b) explain why a distance should be kept.	
A	

continued...

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Technical Test – Theory

Working tasks continued	54. State TWO requirements of using a stop block or earth bank (berm) at a trench discharging point.
	A
	55. When constructing a ramp to load a crusher, name THREE considerations to take into account.
Working tasks continued	A
	56. Smaller loading shovels may be equipped with a clamshell bucket. Name TWO functions of this type of bucket.
Working tasks continued	A
	57. Many loading shovels have a turbo-charged engine. a) What is the normal procedure before switching off the engine after working and b) what happens if the procedure is not followed?
Completing work	A
	58. Before leaving the cab for a rest break, after parking and switching off the machine, what final action must be carried out?
Completing work	A
	59. When parking the machine at the end of the shift, name THREE places where the machine should NOT be parked.
Shutdown	A
	60. 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.
Shutdown	A
	61. 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 cab?
Shutdown	A
	62. Why should a loading shovel be re-fuelled at the end of the day?
Shutdown	A

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Technical Test – Practical

RESOURCES

	Required
Machine	<ul style="list-style-type: none"> • Wheeled Loading Shovel with: <ul style="list-style-type: none"> – a general purpose bucket
Area	<ul style="list-style-type: none"> • Ground, clear of hazards which must include: <ul style="list-style-type: none"> – rough terrain – slope or slopes – mound or bank of material suitable for extraction – a straight run for reversing
Other equipment	<ul style="list-style-type: none"> • Load-carrying vehicle for spoil/material • Items to create restrictions for manoeuvring
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 machine • 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 must be rear tipping, have a minimum capacity equivalent to 4 full bucket loads of the loading shovel being used for the test • There must be sufficient quantity of material from the bank or mound for all the activities

ACTIVITY

Instructions

Sequence	<ul style="list-style-type: none"> • Activity 1 must be undertaken at the start of the test • Activity 2 can be undertaken at any time during the test • Activities 4 and 5 can be undertaken in any order • Activity 7 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>
Preparing for work	1. Complete all manufacturers' pre-start and running checks and prepare the loading shovel for travel
Travelling & manoeuvring (refer to specifications)	2. In a loaded and unloaded state: <ul style="list-style-type: none"> – travel up and down the slope – stop and start on the slope in the up direction – stop and start on the slope in the down direction – travel over rough terrain – reverse (loaded only) in a straight line for a minimum of 30 metres and pass through a restriction at the end of the run
Setting up for work	3. Prepare and set the loading shovel for the relevant work
Working tasks (refer to specifications)	4. Using material from the bank, create an upward ramp 5. Load material into a vehicle
Completing work	6. Clean and tidy the work area
Shutting down	7. Park the loading shovel 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"> • 800 mm
Ramp length	<ul style="list-style-type: none"> • 1.5 times the length of the loading shovel
Ramp width	<ul style="list-style-type: none"> • At least 1.5 times the width of the bucket
Ramp incline	<ul style="list-style-type: none"> • Minimum of 18% (1. 5.5)
Loading vehicle	<ul style="list-style-type: none"> • Minimum of eight full bucket loads (vehicle can be re-loaded to achieve this figure)
Test timings	<ul style="list-style-type: none"> • The test must be completed within 1 hour and 45 minutes

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Technical Test – Practical

Basic details	Test ref.	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 Loading shovel set for travel		
Travelling	3 Restrictions and hazards cleared		
	4 Full control maintained when ascending and descending slopes		
	5 No opposite movement of intended direction when restarting on slopes		
	6 Travel direction on slopes		
	7 Straight line kept during reversing activity		
Setting up	8 Allocated area checked and clear of hazards prior to extracting and loading		
Working	9 Ramp created to specification		
	10 Loading vehicle positioning prior to loading		
	11 Vehicle loaded to specification		
	12 Vehicle evenly loaded but not overloaded		
	13 Spillage of material kept to minimum		
14 Loading shovel stable during activities			
Completing	15 Working area cleaned after loading		
Shutdown	16 All shutdown and securing procedures		
Other	17 Legislation, manufacturers' and health and safety requirements complied with		
	18 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 Loading shovel mounting and dismounting		1	
	2 Full observation before moving and reversing		2	
	3 Full observation whilst travelling		3	
	4 Transmission drive engaged smoothly		1	
	5 Travel speed matched to the ground type and conditions		2	
Working	6 Bucket kept low at all times (except during loading work)		2	
	7 Wheel spin minimised		1	
	8 Full bucket loads maintained (except for cleaning work)		2	
	9 Material cleanly placed into the loading vehicle		2	
	10 Contact with vehicle avoided when loading		2	
	11 Use of steering/braking/hydraulic controls		1	
Not exceeded 8 penalties		Total penalties		
		Achieved / Not achieved		

