

CONSTRUCTION
Training Group

LEARNER GUIDE

Dozer - LZ

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Assessor Guidelines – Specific (Performance Assessment)

ASSESSMENT INSTRUMENT – SPECIATIONS

The performance assessment covers the following Loadshift elements:

1.1, 1.2, 1.3, 2.1, 3.1 & 3.2

1. This assessment requires the operator to check the equipment, plan the work and to safely and competently operate the Dozer.

The Assessment is performed in ten sections:

- 1.1 Conduct routine pre-operational check on Dozer/equipment and the security of attachments.
 - 1.2 Inspect the site, plan work
 - 1.3 Conduct pre-operational and post start up checks.
 - 1.4 Drive to the work area.
 - 1.5 Use rippers to loosen soil
 - 1.6 Excavate and stockpile soil
 - 1.7 Use the Dozer in the crane mode
 - 1.8 Spread soil, consolidate and level the site
 - 1.9 Load or simulate loading Dozer on a float
 - 1.10 Shut down equipment and secure site
2. Prior learning & experience
 - 2.1 An applicant who holds a front-end loader/backhoe, front end loader, excavator or dragline certificate do not require assessment in sections 2, 3 and 4.
 - 2.2 Applicant who produces satisfactory documentary evidence (such as a log

book) which establishes 50 days experience in Dozer operations specifically covering competencies tested in sections 2, 3, and 4 does not require assessment in these sections.

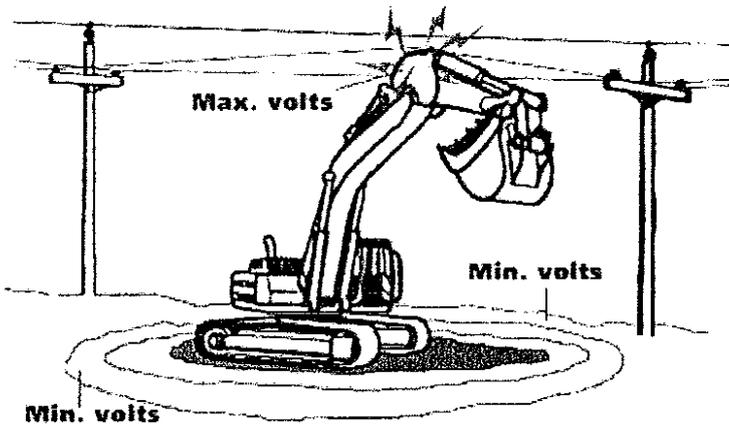
3. The performance assessment can be conducted at any location which has:
 - Sufficient clear space to operate the machine
 - Ground suitable for excavating
4. Equipment and Resources Required:
 - Dozer & equipment
 - Suitable site on which to use the Dozer and equipment to rip, excavate, stockpile and to load or simulate loading the Dozer on a float.
5. Unless other arrangements are agreed to by the assessor, it will be responsibility of the applicant, applicant's employer or trainer to provide the required equipment and resources.

6. To be assessed, an applicant must wear:
 - Safety helmet (where required)
 - Appropriate footwear
 - Other protective clothing and equipment as appropriate
7. The performance of each applicant is to be recorded to the assessor's checklist.
8. Safety of personnel:
When an applicant is working dangerously, recklessly or without the necessary co-ordination, the assessor must direct the applicant to cease work and terminate those parts of the assessment immediately.
9. The items in the shaded boxes are critical importance. Failing to get any of these correct means that the competency has not been achieved.
10. Where an applicant is assessed as 'Not Yet Competent' he/she must be informed of the reason(s) in order to gain further appropriate training.
11. The full performance assessment can take up to 1 hour.
12. The general assessment requirements are set out in the Assessor's guidelines – general.

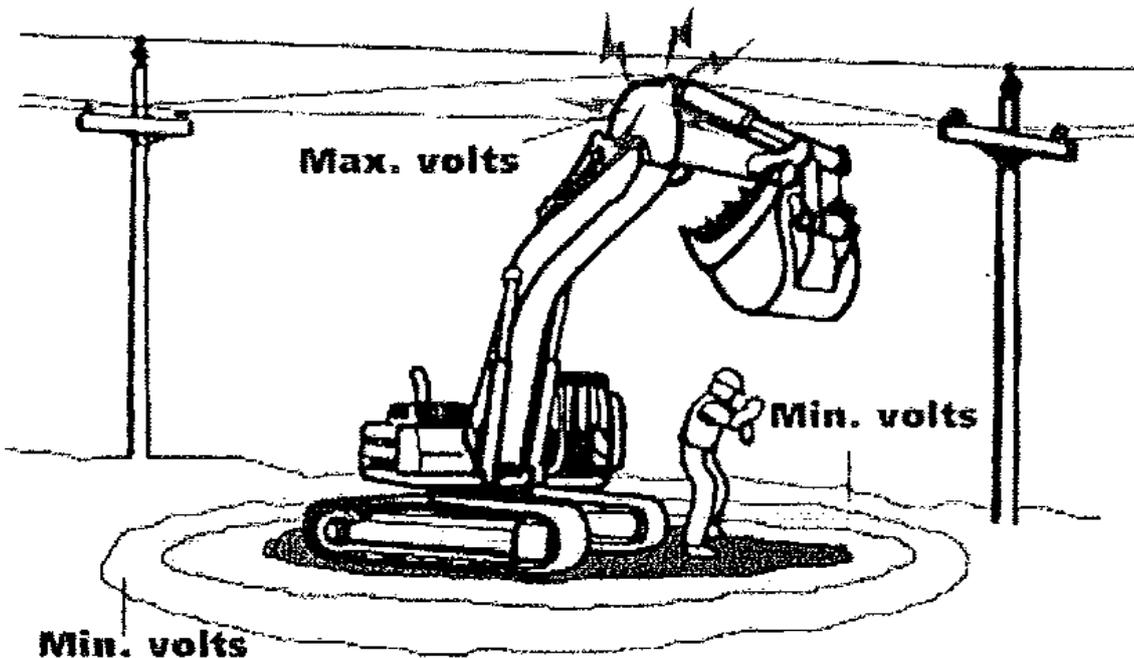
13. The applicant's competence in each unit is to be summarised for both performance and knowledge on the summary sheet. Competence is achieved for a unit when the required number of boxes for that unit have been ticked or marked as 'NA'.

Overall competence is achieved when competence in all units has been assessed.

Diagram 1:



If anything touches a high-voltage power line or if a power line falls to the ground, electricity will flow to the ground energising the tree or equipment and anything in contact with it. The surrounding ground may be extremely hazardous. The voltage gradually decreases from the point of contact until it reaches zero. The safe distance shown here—10 metres — is for line voltages up to and including 66 kV (66,000 V).

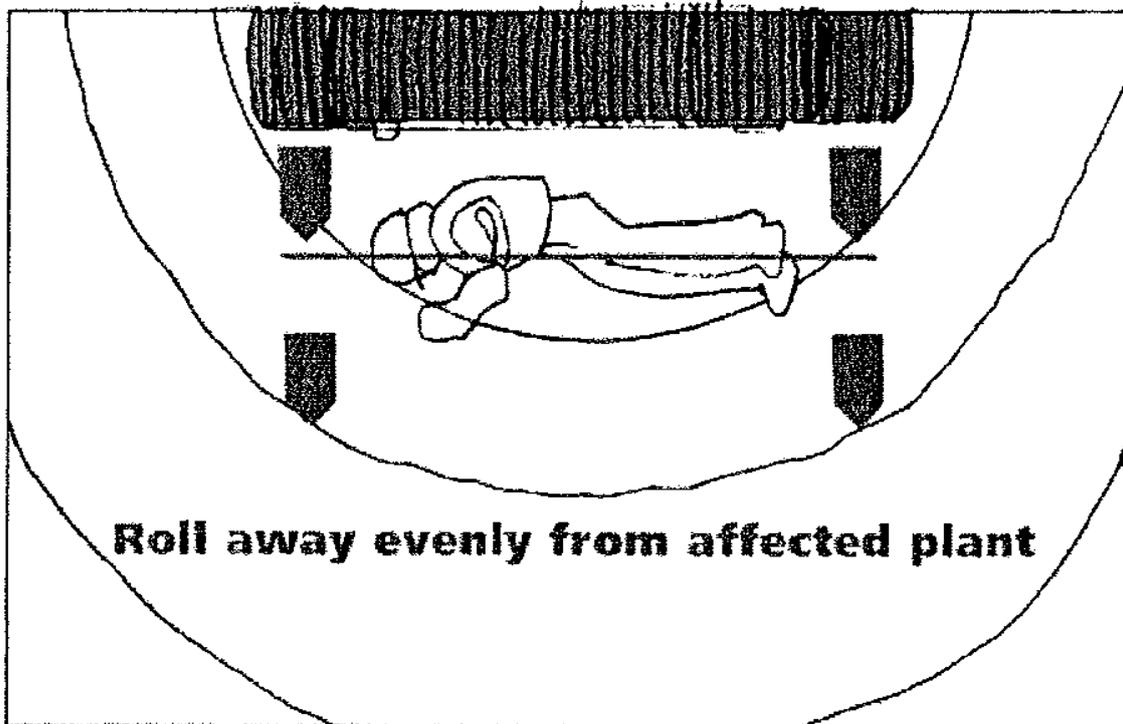
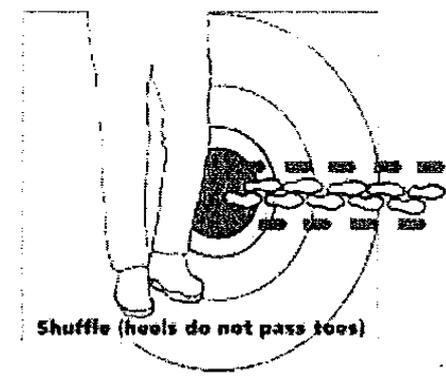
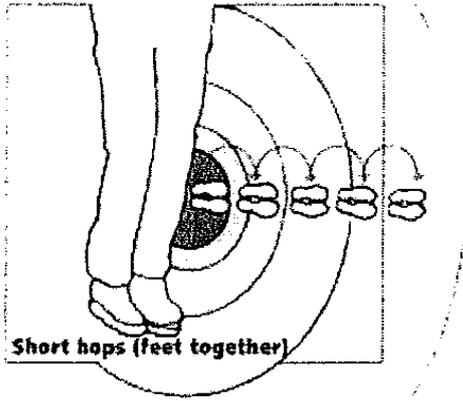


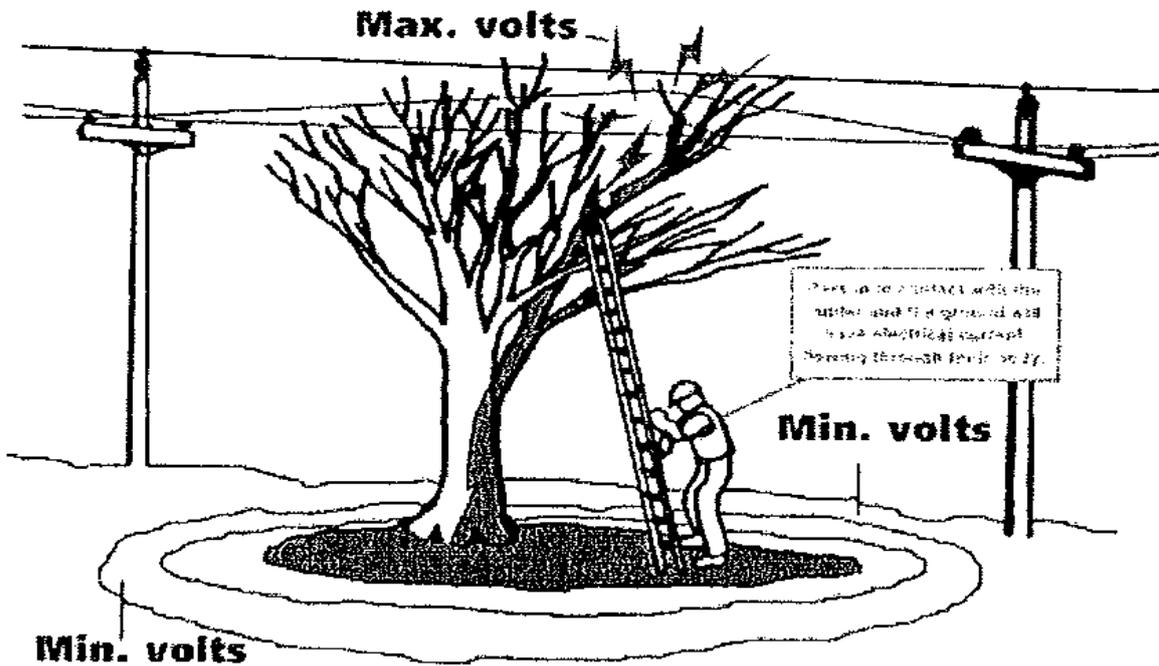
Step potential

Step potential is the voltage difference between two places that are a step apart on energised ground. For example, if you are standing on energised ground, there could be a significant difference in voltage between where one foot and the other are placed, and an electric current could flow up one leg and down the other.

Step potential. If your feet are spread apart on energised ground, electricity can flow through your body from the area of higher voltage to the area of lower voltage

If your feet are close together and touching, you are fairly safe. Since there is almost no voltage difference between the places your feet stand, there is little reason for electricity to seek a path through your body.





Touch potential

Touch potential is another danger that comes from the difference in voltage. It occurs when you touch something that is energised while standing on the lower voltage ground. For example, if some equipment is in contact with a power line, it will be energised to the same voltage as the power line; the surrounding ground will be energised to a lower voltage. If you touch the energised equipment or tree at the same time as you touch the ground with your feet, electricity will flow through your body from the higher voltage equipment to the lower voltage ground.

Touch potential: Trees and equipment become energised when they contact a power line. Electricity can flow through a worker who touches the energised tree or equipment, often causing serious injury or death.

Currents greater than 75 mA can cause ventricular fibrillation (rapid, ineffective heartbeat) and will cause death in a few minutes.

Conduct Routine Checks:

Performance Criteria 1.1.1 and 1.1.2

1. Conducts routine checks on vehicle equipment:

- Tyre condition & tension
- or
- Tyre condition & inflation

Checks liquid levels:

- Fuel
- Hydraulic Oil
- Engine Oil
- Battery
- Coolant

Checks structure for defects:

- Damaged or broken parts
- Loose nuts, bolts and couplings

Checks attachment for defects:

- Damage to blade
- Rippers for missing, worn or loose tips
- Hoses, fittings, hydraulic rams for oil leaks
- Connections for missing pins or keepers
- Grease holes and grease pins
- Checks attachments for security

PLAN WORK AND CHECK EQUIPMENT

Performance Criteria 1.2.1, 1.2.3 and 1.2.5

2. Inspects site and plans work:

Identifies Hazards:

- Power lines
- Phone Lines
- Service drains
- Obstructions

Access and path of movement is indicated:

- To work area
- Working direction

Fits appropriate equipment:

- Suitable tools used
- Correct procedure adopted
- Works safely

Performance Criteria 1.3.1

3. Conducts pre-operations and post start-up checks in accordance with manufacturers specifications/operating manual

- Mounts correctly
- Adjusts seat
- In neutral
- Warning device
- Engine start
- Gauges

- Warm-up allowed
- Attachment movement
- Clear for travel
- Foot brake
- Holding brake
- Steering

- Reverses in higher gear or speed
- Maintains level working surface
- Travels at an acceptable and safe speed

SHIFT LOAD:

Performance Criteria 2.1.1 & 2.1.3

4. Drives to the work area:

- Raises attachments smoothly
- Blade low to allow clear vision
- Ensures travel direction clear
- Selects appropriate route
- Travels at safe speed

Performance Criteria 2.1.2

5. Use rippers to loosen soil

- Lowers rippers while moving
- Rips straight, with grain and down slope
- Uses sufficient speed and revs for work
- Does not turn while ripper is penetrated
- Retracts rippers at completion of run

6. Excavates and stockpiles spoil:

- Uses blade at correct depth and angle
- Pushes full blade of soil
- Uses appropriate path of travel
- Ensures direction of travel is clear

7. Spreads, consolidates soil and levels the site:

- Uses blade at correct level and angle
- Pushes sufficient soil to level surface
- Uses appropriate path of travel
- Ensures direction of travel is clear
- Reverses in higher gear or speed
- Travels at an acceptable and safe speed

8. Loads or simulates loader a Dozer:

- Checks the float is ready
- Approaches at correct angle and speed
- Positions Dozer on float
- Lowers blade and rippers
- Secures Dozer

**Performance criteria 2.1.1, 2.1.4,
2.1.5 and 2.1.6**

**General performance sections of 4,
5, 6, 7 and 8**

- Equipment suitable for work
- Machine suitable for ground conditions
- Competently shifts material
- Equipment operated at a safe speed
- Signals are interpreted and observed
- Loads pushed to ensure stability
- Loads pushed to avoid causing hazard.

**SHUT DOWN EQUIPMENT AND
SECURE SITE**

**Performance Criteria 3.1.1, 3.1.2,
3.1.3 and 3.2.1**

**9. Shuts down equipment and
secures site:**

Parks equipment:

- Machine parked in suitable area
- Attachments lowered to ground

Shuts down equipment:

- Neutralises controls
- Applies holding break
- Idles to stop, locks ignition

Post Operational check:

- Minor service
- Checks and reports any damage

Avoid hazards:

- Parks away from danger areas
- Removes keys
- Locks cabin (if applicable)

National Guidelines for OHS Competency Standards

Loadshifting Equipment

Dozer

ORAL/WRITTEN ASSESSMENT

July 1998

Assessor Guidelines – Specific (Knowledge Assessment)

ASSESSMENT INSTRUMENT – SPECIFICATIONS

The performance assessment covers the following Load shift elements:

1.1, 1.2, 1.3, 2.1, 3.1 & 3.2

1. Knowledge assessment for Dozer is divided into three units and seventeen sections (performance criteria 1.1.1, 1.1.2 etc).
2. To satisfy the requirements for competency the applicant must correctly answer (either in writing or orally) the specified number of questions in each of the following sections:

Unit 1.0

- 1.1 Conduct routine checks
 - 1.1.1 (select 4)
 - 1.1.2 (select 1)
- 1.2 Plan work
 - 1.2.1 (select 2)
 - 1.2.2 (select 3)
 - 1.2.3 (select 1)
 - 1.2.4 (select 1)
 - 1.2.5 (select 2)
- 1.3 Check controls and equipment
 - 1.3.1 (select 1)
 - 1.3.2 (select 1)

Unit 2.0

- 2.1 Shift load
 - 2.1.1 (select 1)
 - 2.1.2 (select 1)
 - 2.1.3 (select 3)
 - 2.1.5 (select 1)
 - 2.1.7 (select 2)

Unit 3.0

- 3.1 Shut down equipment
 - 3.1.1 (select 1)
 - 3.1.3 (select 1)
 - 3.2 Secure site
 - 3.2.1 (select 1)
3. Prior learning and experience:
An applicant who holds a front end loader/backhoe, front-end loader, excavator or dragline certificate who answers questions for performance criteria 1.1.1, 2.1.2 and 2.1.5 satisfactorily is not required to complete the rest of the assessment.
 4. The full knowledge assessment of twenty one questions can take up to thirty minutes.

5. The items in the shaded boxes are of critical importance. Failing to get any of these correct means that competency has not been achieved.

6. The applicant's competence in each unit is to be summarised for both performance and knowledge on the summary sheet. Competence is achieved for a unit when the required number of boxes for that unit have been ticked or marked 'N/A'.

Overall competence is achieved when competence in all units has been assessed.

CONDUCT ROUTINE CHECKS:

Performance criteria 1.1.1 (select 3 including 1 with a shaded box)

1. What precaution must be taken when an inspection or work has to be performed under a raised blade or attachment?

Provision provided to prevent the blade or attachment from descending

2. Name three defects to look for when conducting a routine check on the hydraulic system of the Dozer

Hydraulic oil leaks, loose connections, and hoses for splits, fractures or bulges,

3. Why shouldn't the hydraulic oil storage tank be filled above the $\frac{3}{4}$ full or dipstick level?

Space in the tank is needed for expansion and displacement in the system.

4. What problems could be indicated by bubbles or milky engine oil in the sump?

Water leaking into the sump

5. When changing the battery, which battery clamp should be removed first?

The earth battery clamp

6. Briefly describe how you would check the air pressure of water filled tyres on a rubber tyred Dozer?

Check with the valve at the top of the wheel

7. What fluid levels should be checked on the machine before it is used?

Fuel, engine oil, radiator coolant, hydraulic oil level, transmission oil and battery

8. How would you establish the service and frequency of the service to be carried out on the machine you are required to operate?

By the service manual provided by the manufacturer

9. What should be the first check of your machine at the start of your shift?

Walk around the machine looking for visual defects

10. Name five pre-operational checks that should be carried out on the loadshifting equipment before the unit is started

Radiator, battery, fuel, oil, hydraulic lines, tyres or tracks, structure etc

Performance criteria 1.1.2 (select 1)

11. What would you look for to ensure that the Dozer attachments are securely attached to the machine?

Ensure that all moving joints are not worn and that safety pins or clips are not damaged, loose or lost.

PLAN WORK:

Performance criteria 1.2.1 (select 1)

12. In built-up areas what checks should be made under the ground before excavation commences?

Check for power, telephone, gas or drainage lines.

13. What would you refer to in order to establish the location of underground services?

Supply authority or council maps.

14. What is the main danger associated with pushing a large dead tree over with the blade of a Dozer?

Limbs of the dead tree could break off and fall backwards onto the Dozer

15. If you accidentally damaged an underground electrical cable who would you immediately contract to render the power supply safe?

The electrical supply authority

Performance criteria 1.2.2 (select 3 including 1 with a shaded box)

16. What shall be provided to prevent a person falling into a trench or excavation?

Barricades, guardrails or fencing

17. When should an operator wear ear protection?

Where the noise could contribute to the loss of hearing

18. What must be provided to protect the operator when a dozer is used for clearing trees or demolition?

An over head protective structure (AS2601)

19. When should a person wear a safety helmet?

Where the person could be struck on the head

20. What is the minimum type of footwear that an operator should wear to operate loadshifting equipment?

Non-slip footwear that encloses the foot

Performance criteria 1.2.3 (select 1)

21. Which is the preferred route of travel, diagonally across or directly down sloping surface?

Directly down the sloping surface.

22. What gear should be selected to travel down a steep sloping surface?

A low gear. The gear required to climb the sloping surface

Performance criteria 1.2.4 (select 1)

23. What would you be required to obtain from the Relevant Authority to operate a machine in a hazardous working area?

The required permits.

24. What government licence do you require to drive a rubber tyred Dozer on the road?

The appropriate licence

Performance criteria 1.2.5 (select 2)

25. What is the appropriate equipment to use on a Dozer a loosen hard rock?

Rippers

26. What specific type of Dozer blade would you use for dozing coal?

A coal blade

27. Name four attachments that may be used on the front of a Dozer

Bull blade, angle blade, coal blade, root rake, stick rake, tree pusher or pusher blade (for scrapers)

28. Other than the blade of the Dozer what attachment would you use to push over a tree?

A tree pusher

**CHECK CONTROLS AND EQUIPMENT:
Performance Criteria 1.3.1 (select 1)**

29. On the post start-up check you notice a bulge from in a hydraulic hose. What action would you take?

Switch off the machine and have the hose replaced.

30. When should tests, checks and inspections be made by the operator on the loadshifting equipment that is to be operated?

Daily before use.

Performance criteria 1.3.2 (select 1)

31. What action would you take with damage and defects found on the machine?

Report the damage and defects to authorised person and ensure safety is not jeopardised.

**SHIFT LOAD:
Performance criteria 2.1.1 (select 1)**

32. Is it permissible to hoist persons with the bucket of load shifting equipment?

No.

33. How can traction be improved if the tracks of the Dozer are slipping on the hard smooth rock being ripped?

Loosen the surface and leave a layer of loose material on the surface being ripped

34. When dozing on a soft muddy material what action would you take to get traction if the tracks start to spin?

Get traction by dropping the load being pushed.

Performance criteria 2.1.2 (select 1)

35. How would you establish the SWL for a side boom (pipe layer) attached to the Dozer?

By the load plate attached to the side of the boom

Performance criteria 2.1.3 (select 3)

36. In relation to the grain of rock, which direction should ripping be performed?

In the direction of the grain of the rock

37. On a sloping surface, which direction is the most economical and appropriate direction to perform the dozing?

Down the slope

38. Which is easier to control downhill, a full blade, or a part blade of material?

A full blade of material

39. Of topsoil or clay, which is more cohesive and harder to excavate, push and spread?

Clay

40. How would you establish the capabilities and limitations of the equipment?

By information provided by the employer and documented by the manufacturer

41. Before reversing a machine what precaution should be taken?

Ensure the direction of travel is clear

Performance criteria 2.1.5 (select 1)

42. Applicant to state the meaning of the hand signal for "stop" demonstrated by the assessor.

Stop

Performance criteria 2.1.7 (select 2)

43. If a hydraulic hose sprung a leak when a loaded bucket was raised what action would you take?

Lower bucket and have repairs carried out.

44. How would you dismantle a machine that contacted live power lines where the machine could not be released of the power turned off?

Jump clear ensuring contact with the ground and machine is not at the same time.

45. How would you counter a sideways slide of a Dozer on a sloping surface?

Turn the Dozer down the grade and drop the blade

SHUT DOWN EQUIPMENT:

Performance criteria 3.1.1 (select 1)

46. Name three areas where you would not park the Dozer

Access ways, near overhangs, refuelling sites, tidal or flood areas, adjacent to an excavation.

47. When leaving the Dozer what should be done with all hydraulically raised attachments?

Attachments lowered and pressure removed from hydraulic lines.

Performance criteria 3.1.3 (select 1)

48. What post-operational checks should be carried out by the operator on the Dozer to prepare it ready to be reoperated?

Check the structure and equipment for defects and wear and the oil, fuel and water levels.

SECURE SITE:

Performance criteria 3.2.1 (select 1)

49. What shall be provided when a Dozer has to be parked on or protrudes onto an access way?

Barricades, lights and signs.

50. For what reason should the key be removed from the ignition of the machine?

To prevent unauthorised movement.

Unit	Form of assessment	Total number of boxes in the assessment	Number of boxes given or NA	Number of boxes required to meet standard	Were all critical boxes given or NA?		Assessment standards achieved *		
					Yes	No	Yes	No	
1	Performance	39		35	Yes	No	Yes	No	
	Knowledge	16		9	Yes	No	Yes	No	
	Assessment completed within time allowed							Yes	No
2	Performance	46		41	Yes	No	Yes	No	
	Knowledge	8		5	Yes	No	Yes	No	
	Assessment completed within time allowed							Yes	No
3	Performance	10		9	Yes	No	Yes	No	
	Knowledge	3		2	Yes	No	Yes	No	
	Assessment completed within time allowed							Yes	No

*Performance standard = Number of items required to meet standard (including all critical boxes)
 Knowledge standard = Number of questions required to meet standard (including all critical boxes)

Summary

Candidate is:

- COMPETENT**
 NOT YET COMPETENT

Date: _____

Name of Assessor: _____ Signature: _____

Name of Candidate _____ Signature: _____

Comments/feedback:
