

CONSTRUCTION TRAINING INTERNATIONAL

A.C.N. 069 758 023 A.B.N. 49 069 758 023

PO Box 311, Riddells Creek, Victoria 3431

Phone: 5428 6790

fax: (03) 5428 6317 E-mail: constructiontraining@bigpond.com

Website: www.constructiontraining.com.au

GRADER (LG)



ASSESSMENT INSTRUMENT

Loadshifting Equipment

GRADER

ASSESSMENT

Part 1 Performance

Part 2 Oral/Written

July 1994

Contents

	<i>Page</i>
Assessor guidelines-general	i
Part one-Performance Assessment	1
Part two-Oral/Written Assessment	7
Assessment Summary	14

Assessor guidelines – general

1. Introduction

1.1 Scope

These general guidelines apply across all the assessment instruments for the certificates of competencies for loadshifting equipment prescribed by the Workplace Health and Safety Act which are not included in the scope of the *National Guidelines for Occupational Health and Safety Competency standards for the operation of Loadshifting and Other Types of Specified Equipment*.

As the Assessment Instruments follow the guidelines set down by the *National Guidelines for Occupational Health and Safety Competency Standards for the operation of Loadshifting and Other Types of Specified Equipment*, Assessors should be familiar with the publication.

1.2 Additional guidelines

Guidelines which provide additional specified information to assessors are also included in each assessment instrument. Included where appropriate, are specific instructions on the usefulness of training records (such as log books) and other certificates with overlapping competencies.

1.3 Evidence of competency

Evidence of competency is established in number of ways. The method used in the following instrument involve:

- assessment of practical performance
- written and or/oral answers to questions on underpinning knowledge

2. Prepare for the assessment

2.1 Study the instrument

You need to read the assessment instrument and specific instructions carefully before beginning the assessment.

2.2 Confirm appointments

Prior to the assessment, you need to confirm the date, time and location of the assessment with the applicants and any other relevant people.

2.3 Equipment availability

The availability of equipment, materials and a suitable working area must be organised and confirmed, prior to the assessment.

2.4 Workplace factors

Because procedures vary greatly between workplaces, it is important for assessors to plan their approaches to meet the requirements of individual workplaces.

Make sure you take the time frame into account when planning the assessment and also make applicants aware of any time limits.

2.5 Selecting questions

Questions for the written/oral assessment should be randomly selected, either by hand or using the computer system, if applicable.

3. Conducting the assessment

3.1 Provide an explanation

Begin by explaining clearly to the applicant what is required of them. Check that the applicant has provided (or have been provided with) the necessary tools and equipment.

3.2 Practical performance

Complete the performance checklist, as the applicant works through the required tasks. Wherever possible, this should be done in the normal working environment.

Do not ask the applicant questions while he or she is performing a task, as this can distract, and may affect the time taken to complete the assessment.

If, at any time the applicant is endangered himself/herself or others, stop the assessment immediately.

This indicates that the applicant is not yet competent and may require further training, before being reassessed.

Assessments should be stopped, if equipment or property are likely to be damaged.

3.3 Knowledge

The knowledge assessment covers both oral and written exercises. The model answers provided with the knowledge assessment instruments are not necessary exhaustive. Use your own judgement when scoring alternative answers.

3.4 Recording responses

Each item and question on the assessment form you use is accompanied by a box. Assessors must complete every box as follows:

- CORRECT PERFORMANCE/ANSWER
- NOT YET ACHIEVED
- NOT APPLICABLE

If a box is marked incorrectly, cross out the mistake, mark the correct response alongside, and initial the change.

4 **Determining competencies**

4.1 Assessment summary

A specific assessment summary is given for each equipment class. This is to be filled in and signed by the assessor, and countersigned by the applicant.

The original and duplicate is given to the applicant. The applicant provides the original to the certifying authority. The triplicate remains with the assessor.

4.2 Competency requirements

In order for you to deem an applicant competent, he or she must have completed each section of the assessment to the standard required. You should note any time constraints when arriving at your decision.

The standard required in each instrument is specified in the specific guidelines and/or on the summary page at the end of each assessment.

4.3 Additional comments

Where a applicant fails to meet the standard of competency, you should add a written comment on the Assessment Summary, which briefly explains the problem.

Advice to the applicant, on the appropriate remedial action should also be included. This will also assist the certificate assessor, in the event that the applicant undergoes further reassessment.

Likewise, if an applicant demonstrates outstanding or remarkable performance, this should be noted.

4.4 Further investigation

As a certificate assessor, it is your role to determine whether or not an applicant has achieved the standard necessary for the certifying authority to be able to grant a certificate of competency.

Whenever you are unsure of the applicant's performance or knowledge ask additional questions, and obtain additional evidence, before making your decision.

Guidelines for OHS Competency

Loadshifting Equipment

Grader

Performance Assessment

July 1994

GRADER

(Performance assessment)

Assessor guidelines - specific

ASSESSMENT INSTRUMENT – SPECIFICATIONS

The following performance assessment covers the Loadshifting standard elements from [NOHSC: (1992)] which apply to a Grader.

1.1, 1.2, 1.3, 2.1, 3.1 & 3.2

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

The assessment is performed in eight sections:

- 1.1 Conduct routine pre-operational check on grader.
- 1.2 Inspect the site and plan the work.
- 1.3 Conduct pre-operational and post start up checks on the grader.
- 1.4 Drive the grader to the work area.
- 1.5 Scarifies, grades, spreads soil and levels surface.
- 1.6 Tilts blade and finishes road with a camber.
- 1.7 Tilts blade to cleans and cuts a ditch.

- 1.8 Shut down the equipment and secure the site.

2. Prior learning and experience

- 2.1 Applicant who produces satisfactory documentary evidence (such as a log book) which establishes 50 days experience in the operation of a grader does not require assessment in sections 1.1, 1.3, 1.4 and 1.8.

3. The performance assessment can be conducted at any location which has:

- sufficient clear space to operate the machine
- ground suitable for scarifying, grading, spreading and levelling soil and to cut a ditch.

4. Equipment and Resources Required:

- A grader.
- Suitable site on which to use the grader to scarify, grade, spread and level soil and to cut a ditch.

5. Unless other arrangements are agreed to by the assessor, it will be the 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 on 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 of critical importance. Failing to get any of these correct means that competency has not been achieved and the applicant must be failed.
10. Where an applicant is 'not yet competent' he/she must be informed of the reason(s) for the failure 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 Assessors guidelines - general.
13. The applicant's competence in each unit is to be summarised for both performance and knowledge on the summary sheet. Competency is achieved for a unit when the required number of boxes for the unit have been ticked or marked "N/A".

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

CONDUCT ROUTINE CHECKS:

Performance Criteria 1.1.1. and 1.1.2

1.1 Routine checks on vehicle/equipment:

- Tyre condition and inflation

Checks liquid levels -

- Fuel
- hydraulic oil
- engine oil
- battery
- coolant

Checks equipment for defects -

- damaged, worn or broken parts
- loose nuts, bolts and couplings
- hoses, fittings, hydraulic rams for oil leaks
- connections for missing pins or keepers
- grease holes and grease pins

PLAN WORK AND CHECK EQUIPMENT:

Performance Criteria 1.2.1, 1.2.3 and 1.2.5

1.2 Inspects site and plans work:

Identify Hazards -

- power lines
- phone lines
- service drains

- obstructions

Access and path of movement is indicated -

- to work area
- for work

Appropriate equipment for the task -

- equipment is appropriate for the task

Performance Criteria 1.3.1.

1.3 Conducts pre-operational and post start-up checks in accordance with manufacturer's specifications/ operating manual:

- mounts correctly
- adjusts seat secures safety belt
- in neutral
- warning device
- starts engine
- gauges
- warm up allowed
- attachment movement
- clear for travel
- foot brake
- holding brake
- steering

SHIFTS LOAD:

Performance criteria 2.1.1 and 2.1.3

1.4 Drives to the work area:

- raises blade and attachments to clear obstructions
- blade stowed within limits of machine
- ensures travel direction clear
- selects appropriate route
- travels at safe speed

1.5 Scarifies, grades, spreads soil and levels surface:

- loosens surface by scarifying
- grades, spreads soil and levels surface
- blade used at correct angle and pitch
- uses sufficient revs and speed for work
- acceptable and safe speed

1.6 Tilts blade and finishes surface with a camber:

- blade used at correct angle and pitch
- soil moves across blade to form windrow
- correct camber formed to requirements

Cleans or cuts ditch:

- tilts front wheels to compensate for slope
- blade extended & at correct slope & pitch
- cleans or cuts ditch
- windrow between formed between back wheels

Performance criteria 2.1.1, 2.1.4, 2.1.5 and 2.1.6

General performance of sections 1.4, 1.5, 1.6, 1.7, and 1.8.

- equipment is suitable for the work
- machine suitable for ground conditions
- competently shifts and levels material
- equipment operated at a safe speed
- signals are interpreted & observed
- soil is placed to avoid causing a hazard

**SHUTS DOWN EQUIPMENT AND SECURES
SITE:**

Performance criteria 3.1.1, 3.1.2 and 3.2.1

**1.8 Shuts down equipment and secures
site:**

Parks equipment -

- machine parked in suitable area
- attachments lowered to ground

Shuts down equipment -

- neutralises controls
- sets parking brake
- idles to stop and locks ignition

Avoiding hazards -

- parks away from danger areas
- removes keys

Guidelines for OHS Competency Standards

Loadshifting Equipment

Grader

Oral/Written Assessment

July 1994

Grader (Knowledge)

Assessor guidelines - specific

ASSESSMENT SPECIFICATIONS	INSTRUMENT	–
---------------------------	------------	---

The Following knowledge assessment covers the Loadshifting standard elements from [NOHSC: (1992)] which apply to a Grader:

1.1, 1.2, 1.3, 2.1, 3.1 & 3.2

1. Knowledge assessment for grader 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)

1.2 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 1)

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 scraper, scraper, dozer, front-end loader/backhoe, front-end loader, skid steer loader, excavator or dragline certificate and who answers questions for performance criteria 1.1.1, 1.2.2, 1.3.2 and 2.1.5 satisfactorily, is not required to complete the rest of the assessment.

4. The full knowledge assessment of twenty six 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 and the applicant must be failed

CONDUCT ROUTINE CHECKS

**Performance criteria 1.1.1
(select 4 including 1 with a shaded box)**

- 1. What precautions must be taken when an inspection or work has to be performed under a raised blade or attachment?
(Provision provided to prevent the bowl from descending.)
- 2. What should be provided on the grader to prevent the operator from being dislodged from the seat of the grader?
(A safety belt.)
- 3. Name three defects that you would look for when conducting a routine check on the hydraulic system of the grader.
(Hydraulic oil leaks, loose connections and hoses for splits, fractures or bulges.)
- 4. Why shouldn't the hydraulic oil storage tank be filled above the filled mark?
(Space in the tank is needed for displacement in the system.)
- 5. What problem could be indicated by bubbles or milky engine oil in the sump?
(Water leaking into the sump.)
- 6. When changing a battery which battery clamp should be removed first?
(The grounded battery clamp.)
- 7. Briefly describe how you would check the air pressure of water filled tyres on a grader.
(Check with the valve at the top of the wheel)

- 8. Why shouldn't tyres be checked while they are still heated from effect of travelling?
(The pressure in the tyres would be increased by the heat.)
- 9. How would you establish the service and the frequency of the service to be carried out on the machine you are required to operate?
(By the service manual provided by the manufacturer.)
- 10. What should be the first check of your machine at the start of your shift?
(Walk around it looking for visual defects.)
- 11. 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.)
- 12. To establish if the required service had been conducted what document would you refer to?
(The log book.)

PLAN WORK

Performance criteria 1.2.1 (select 2)

- 13. Why should side hill travel be avoided where possible?
(There is a greater risk of turning the machine over with side hill travel.)
- 14. In built-up areas what checks should be made under the ground before the soil is cut and removed?
(Checks for power, gas telephone, water and sewerage services etc.)

15. Where a danger exists, what should be posted or positioned to warn persons of a danger?
(Warning signs.)

16. When grading the edges of a public road where should warning signs be positioned to advise of a potential hazard or condition?
{(At the approach to the work area.)(Approximately 30M before.)}

17. What should be erected where a dangerous obstruction is caused by grading.
(Barricades)

18. How should the flow of road traffic be controlled where signs and barricades are considered inadequate to control a potential hazard?
{(By a flagman.)(Or by police officer)}

19. What is the danger of travelling near the edge of fill with a grader?
(The edge fill may collapse.)

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

20. Under what conditions should a grader operator wear respiration equipment?
(Where there is a health risk to the operator from dust or contamination in the air.)

21. When should ear protection be worn?
(Where the noise could contribute to the loss of hearing)

22. If there is a likelihood of the grader being overturned what must be provided on the grader to protect the operator?

23. When should a person wear a safety helmet?
(Where the person could be struck on the head.)

24. 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)

25. Which is the preferred route of travel, diagonally across or directly down a sloping surface?
(Directly down the sloping surface)

26. 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)

27. In hazardous working areas where permission is required to work what must the operator ensure before the work is commenced?
(That the required permits have been obtained)

28. What is required to be obtained before unregistered rubber tyred grader is driven along a public road?
(An unregistered vehicle permit.)

29. What government licence do you require to drive a rubber tyred grader on the road?
(A class licence for plant up to 4.5 tonnes or other jurisdiction as applicable. ie Australian heavy vehicle licence.)

Performance criteria 1.2.5 (select 1)

30. Name three operations that a grader is designed to perform?
(Trimming or grading, spreading soil, cutting a ditch, cleaning a ditch, ripping and scarifying.)
31. For what purpose are the scarifiers on a grader used for?
(To loosen or rip up hard surfaces.)
32. What safety measure would you adopt before changing a cutting edge and end bits on a raised grader blade?
(Support the raised grader blade.)

CHECK CONTROLS AND EQUIPMENT

Performance Criteria 1.3.1 (select 1)

33. What controls would you test to ensure that the grader grades at a constant speed?
(The governor control lever and accelerator.)
34. On the post start-up check you notice a bulge form in a hydraulic hose. What action would you take?
(Switch off the machine and have the hose replaced.)
35. 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)

36. What action would you take with damage and defects found on the machine?
(Report the damage and defects to the authorised person or to site requirements and refrain from operating if a danger exists.)

SHIFT LOAD

Performance criteria 2.1.1 (select 1)

37. Vertically across the grader blade what is the best blade position to perform spreading or dragging of the soil?
(Tilted foreword and at a angle.)
38. Vertically across the grader blade what is the best blade position to cut hardpan clay?
(Set back at the top and at a angle.)
39. Vertically across the grader blade what is the best blade position to perform normal grading?
(Set back at the top and at a angle.)
40. While grading what action can be taken to avoid an obstruction to the blade which is outside the path of the wheels?
(Use the side shift to the blade to avoid the obstruction.)

Performance criteria 2.1.2 (select 1)

41. Of topsoil and clay which is more cohesive and harder to trim and spread?
(Clay.)

Performance criteria 2.1.3 (select 3 including 1 with a shaded box)

42. When scarifying across a sloping surface where should the blade be positioned to provide some protection against tipping?
(On down hill side, crossways and low.)
43. Is it permissible to carry a passenger on the grader?
(No.)
44. As an operator would you leave an unattended grader engine running?
(No.)

45. What device should function on the grader to inform other persons that the grader is to travel or is travelling in reverse?
(A reverse warning device.)
46. What is the danger of slipping tyres on shale or rock?
(The tyres may be cut and blow out.)
47. How would you establish the capabilities and limitations of the equipment?
(By information provided by the employer and documented by the manufacturer.)
48. Before reversing a machine what precaution should be taken?
(Ensure the direction of travel is clear.)
49. What "right of way rule" should be adopted for loaded machinery working in the area?
(Always yield right of way to a loaded machine and if in doubt yield right in any case.)
50. When roading where should the grader blade be positioned?
(High as possible and inside the wheels.)
51. For stability where should the grader blade be to grade on side slopes?
(The blade should be extended on the down slope side.)
52. When cutting or cleaning out a ditch how should the front tilting wheels of the grader be tilted?
(Top of wheels tilted away from the ditch so that the wheels are vertical.)
53. Would you coast the grader downhill?
(No.)
54. Which direction should the front tyres be leaned when grading across a sloping surface?
(Towards the uphill side.)
55. What direction would you approach and how would you cross a ditch?
(At an angle and slowly.)
56. When travelling what would you do before travelling down a steep grade?
(Reduce speed with service brake and select the appropriate gear for the grade.)
- Performance criteria 2.1.5 (select 1) (Oral)**
57. Applicant to state the meaning of the hand signal of "stop" demonstrated by the examiner.
(Stop)
- (Written)**
58. State the meaning of the illustrated diagram.
(Stop)
- Performance criteria 2.1.7 (select 1)**
59. While operating the grader what action would you take if a hydraulic hose sprung a leak?
{Have repairs carried out. (Replace hose.)}
60. How would you dismount a machine that contacted live power lines?
(Jump clear ensuring contact with the ground and machine is not at the same time)
61. If the brakes (including holding brake) failed while travelling downgrade what action would you take to stop the grader?
(Lower the blade or rippers to stop the grader.)

SHUT DOWN EQUIPMENT

Performance criteria 3.1.1 (select 1)

62. Name three areas where you would not park the grader.
(Access ways, near overhangs, refuelling sites, tidal or flood areas, adjacent to an excavation)
63. When leaving the loadshifting equipment what should be done with the raised blade or attachments?
(The blade and attachments lowered)
64. Where possible what type of surface should be selected to park the grader on?
(A level surface.)
65. Which direction should the grader face if it has to be parked on a sloping surface?
(Across the slope.)

Performance criteria 3.1.3 (select 1)

66. How would you remove the radiator filler cap of a grader that has not completely cooled off?
(Slightly loosen cap to release pressure and then slowly remove cap.)
67. What post-operational checks should be carried out by the operator on the loadshifting equipment 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)

68. What shall be provided when a grader has to be parked on or protrudes onto an access way?
(Barricades, lights and signs)
69. For what reason should the key be removed from the ignition of the machine?
(To prevent unauthorised movement)

Assessment summary

Grader

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 standard requirements achieved *		
					Yes	No	Yes	No	
1	Performance	30		27	Yes	No	Yes	No	
	Knowledge	14		8	Yes	No	Yes	No	
	Assessment completed within time allowed							Yes	No
2	Performance	23		20	Yes	No	Yes	No	
	Knowledge	10		6	Yes	No	Yes	No	
	Assessment completed within time allowed							Yes	No
3	Performance	7		6	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** Date:
(circle the result obtained) • **NOT YET COMPETENT**

Name of assessor Name of candidate

Signature Signature

Comments/feedback
 (assessors to make any additional comments which clarify the assessment)

.....

.....

.....

.....