



# Loadshifting Equipment

**LL. LB. LE. LS.**

## Model Answers

**National OHS Certificates of Competency**

**NOHSC 7019**

**Assessment Criteria based on Units of Competencies,  
OHSCER202A., OHSCER203A., OHSCER204A., OHSCER205A.**

**July 2006 v 4-1**

Yellow cover



## **Contents - Model Answers**

<b>Part One – OH&amp;S Questions (Knowledge Written/Oral)</b>	<b>5</b>
• <b>To be completed by all Applicants</b>	
<b>Part Two – Shift Load (Knowledge Written/Oral)</b>	<b>21</b>
• <b>To be completed by LL. LB. &amp; LE Applicants</b>	
<b>Part Three – Unit One (Knowledge Written/Oral)</b>	
• <b>Skid steer</b>	<b>Applicants only 27</b>
• <b>Front End Loader</b>	<b>Applicants only 29</b>
• <b>Front End Loader/Backhoe</b>	<b>Applicants only 33</b>
• <b>Excavator</b>	<b>Applicants only 37</b>





# Loadshifting Equipment

## Part One

### OH&S Questions

To be answered by all applicants

### (Knowledge)

### Model Answers

OHS Certificates of Competence

National Assessment Instrument (NOHSC 7019)

Assessment Criteria based on Units of Competencies,

OHSCER202A, OHSCER203A, OHSCER204A, OHSCER205A.

July 2006 v 4-1



**OH&S QUESTIONS. And Model answers.**

**TO BE ANSWERED BY ALL LL. LE. LS. LB. APPLICANTS**

**UNIT 1: CONDUCT ROUTINE CHECKS:**

**Performance criteria 1.1.1**

1. What precaution must be taken when inspecting under a raised bucket?

***Chocks ,Blocks or safety bars must be used to prevent the bucket from falling***

2. Name three defects to look for in the hydraulic system.

***Oil leaks, Loose connections, Splits, fractures or bulges in hoses,  
Bent piston rods. Damaged rams.***

3. List six defects that would condemn a lifting chain and hook from safe use?

***Cracks in links, Over 10% wear., Over 10% elongation, Over 5% wear or stretch  
throat of hook, twisted or damaged links, No SWL tag. Rusted. Spot welded  
links.***

4. What defects would you look for when carrying out the external check on the bucket of your equipment. List three items.

***Worn or missing teeth. Worn cutting edge. Damage to bucket and pivot points.***

5. Why are you not permitted to join a chain sling with a bolt?

***Because a bolt is not an approved joining method and does not have a load  
rating.***

6. How would you know the machine that you are operating should be serviced?

***By the hour meter, manufacturer's recommendation and log book.***

7. What safety precautions should be taken when checking the tyre pressure or inflating/deflating a tyre fitted to a wheel that has a split safety-locking rim?

***Use a cage and inflate the tyre in a cage (if available) or by standing to the side.  
Do not stand in front of the wheel.***

8. What shall be provided on your machine before it can be used as a crane?

***manufacturer's approved lifting lug with the SWL marked on the machine***

a. When should slings be inspected?

***Daily or before use.***

b. What % wear in a shackle would it caused before discarded?

***10%.***

c. Why are you not permitted to join a chain sling with a bolt?

***Because the bolt is not an approved joining method and does not have a load rating.***

d. What percentage of broken wires within a lay or eight diameters of a rope sling would cause it to be discarded?

***10 % of wires.***

e. List six defects that would condemn a flexible steel wire rope (FSWR)?

***One wire immediately below or above a terminal or end fitting  
Abrasion and core collapse. Corrosion. Kinks and fractures. Birdcaging.  
Damaged splices. 10% of broken wires in 8 diameter of rope.  
Stretched. Affected by heat.***

f. What defects would you look for on the hydraulic rams and high pressure hydraulic hoses?

***Leaks from seals, split or fractured hoses and bent or damaged rams.***

g. When would you check the transmission fluid inequipment?

***When the transmission is cold and after the transmission is hot,  
Or in accordance with the manufacturer's specifications.***

h. If the single wire strand is broken, could you use the sling? Explain tour answer.

***Yes. You could use a wire rope provided that no more than 10% of the wires  
are broken in a length 8 times the diameter of the rope, unless the broken wire  
is immediately above or below a terminal or end fitting, then it cannot be used.***

i. What would you do if a strand were broken in a (FSWR) sling?

***It must never be used and must be discarded.***

j. Why is it important that the front end loader tyres are of equal pressure?

***If the tyre pressure is not equal the weight of the load would transfer to the side of  
less pressure, which may cause the front end loader to overturn.***

- k. What must you do if the SWL tag is missing from a chain sling?

***Check for grade markings, if grade markings are not clear, calculate for mild steel chain, then return to manufacturer for re-tagging.***

***Note: Unless you have a riggers ticket, you cannot calculate and use sling.***

**Performance criteria 1.1.2**

9. What would you look for to make sure that the bucket is securely attached to the machine?

***That the safety pins and keepers are in place.***

10. What would you look for on the attachment pins to ensure they will not fall out?

***Ensure that all pins, clips and keeper plates are not worn, damaged or missing.***

11. What action would you take if during the routine check you found excessive wear in the power arms and connections that made the machine dangerous to operate?

***Inform supervisor, tag equipment and refrain from operating the machine until repairs are carried out***

**PLAN WORK:**

**Performance criteria 1.2.1**

12. What underground services would you look for before starting to excavate? List 4 items.

***Check for power, gas, telephone, water, sewer, drainage, fibre-optic cables***

13. Who should you contact in order to find out the location of underground service

***The site supervisor who will contact the supply authorities or council for maps of the site. Dial – a – dig***

14. If you accidentally damaged an underground electrical cable, who would you immediately contact to render the power supply safe?

***Supervisor who would contact the electrical supply authority.***

15. Name two methods that should be used to prevent a cave in of a trench or excavation?

***Shoring, battering, benching, trench shields.***

16. What is the minimum distance any part of your machine is allowed to operate from:
- (a) Distribution power lines: **6.4 meter**
  - (b) High voltage transmission lines: **10 meter**

**Assessors must ensure that the applicant is aware of Statutory Authority Regulations.**

17. Name six possible hazards that may be found on a work site that you must check for before operating equipment?

***Uneven/unstable ground. Personnel. Powerlines. Trees. Overhead service lines. Bridges. Surrounding buildings, structures. Obstructions. Other equipment. Dangerous materials. Underground services. Recently filled trenches.***

18. If your machine came in contact with power lines, what should you do?

***Stay calm, remain in seat, warn others to keep away, try to break contact by lowering bucket, Disconnect power if possible, Don't climb down off the machine. If you do have to dismount machine, leap clear, ensuring not to touch the machine and ground together.***

19. Why is it dangerous to drive on the high side of a trench?

***The trench could cave in or the machine could roll over.***

20. What is the danger of using equipment on soft or sloping ground?

***The machine could overturn.***

21. What is the danger of starting and running an internal combustion engine in an enclosed space?

***Exhaust fumes given off by an internal combustion engine in a confined space can kill.***

22. What action must be taken before starting up and whilst operating an internal combustion engine in an enclosed space?

***The closed space must be adequately ventilated.***

- a. What must be provided and maintained on the exhaust system of an internal combustion engine operated in a confined space such as a shaft or tunnel?

***An approved exhaust control unit, catalytic converter (scrubber)***

### **Knowledge criteria 1.2.2**

23. What must be provided to prevent a person from falling into a trench?

***Barricades, guard rails or fencing***

24. When should hearing protection been worn?

***When the noise levels could contribute to loss of hearing  
. (approx 85 db and above)***

25. When should an operator wear a safety helmet?

***When there is a possibility of that person being struck on the head.***

26. When would you be required to shore an excavation?

***Excavations over 1.5 meters deep.***

27. You have to load a truck with large boulders. You are on the same level as the truck.  
What are the dangers?

***As you raise the bucket the boulders could tip out of the bucket onto the truck,  
or onto the operator.***

- a. What is the minimum type of foot wear that an operator should wear to operate load shifting

***Foot wear that encloses the foot and has a non slip sole.***

- b. What must be provided for a passenger to ride on a machine with the operator?

***A special seat and seat belt must be provided within the safety confines of the  
machine for the passengers.***

### **Knowledge criteria 1.2.3**

28. Which is the preferred route of travel, on a sloping surface?

***Directly up or down the sloping surface.***

29. What hazards would you check for on a travel route before moving your equipment to perform work? List 4.

***Personnel. Hidden holes. Drop offs. Embankments. Overhead obstructions. Underground services. Overhead power lines. Telephone lines. Other obstructions that could be dangerous.***

#### **Knowledge criteria 1.2.4**

30. What documentation would you be required to obtain from the Relevant Authority to operate the Front End Loader in a hazardous working area?

***The requires safe work permits. (eg. confined space entry permit, Hot work permit, particular excavations)***

#### **Knowledge criteria 1.2.5**

31. When earth moving equipment is used in a demolition process, what must be provided on the machine to protect the operator?

***A falling object protective structure ( FOPS)***

32. What attachment would you fit to break up reinforced concrete?

***Hydraulic hammer attachment.***

33. Name four types of attachments that may be used on earth moving equipment?

***Excavating bucket. Rock bucket. Hydraulic hammer. Magnetic attachment. Trench bucket. Mower attachment. Approved lifting lug. Log grapple. Blade grader***

34. On a construction site who would you contact to confirm the job requirements for the work to be performed?

***The person in charge on the site or other person authorized to confirm job requirements.***

35. How do select the appropriate bucket to perform the excavation work?

***Type of material to be excavated.  
Size of excavation or trench to be considered.***

## **CHECK CONTROLS AND EQUIPMENT:**

### **Knowledge Criteria 1.3.1**

36. What action would you take if you noticed a bulge form in a hydraulic hose?

***Stop operating, tag the machine and make sure the hose is replaced before the machine is used.***

37. When should the operator complete tests, checks and inspections on equipment that is to be operated?

***Daily before use.***

38. Describe how to safely mount/dismount your equipment?

***Facing the machine use the grab rail or hand rail and steps to mount/dismount the machine. (Three point contact)***

39. Before performing any work on a machine you are not familiar with, what should you do first?

***Read the operators manual, familiarize yourself with the machine. Seek training***

40. On mounting your machine, what should you check before attempting to start the engine?

***Make sure the controls are in neutral or park and the park brake is on.***

41. What should be referred to for the correct start up and shut down procedure for your equipment?

***Always refer to the manufacturer's operating manual for the correct procedure.***

42. Before moving off, where should your bucket or attachments be positioned and why would you place it in this position?

***Attachments should be raised to the correct travel height or stowed. If stabilizers are fitted, ensure they are fully raised.***

43 Name the important items that should be tested after moving off?

***Brakes. Steering.***

44. Before reversing your machine, what action should you take?

***Look back over both shoulders to ensure the path of travel is clear.  
Sound horn if no there is no reverse/motion alarm.***

45. Your diesel engine has run out of fuel, you refill the tank but the engine will not start. What could be the possible cause?

***Air in the fuel system and the fuel system will need bleeding.***

a. Once sitting in the machine and before moving off, what should you do for safety and comfort?

***Adjust until comfortable, adjust mirror ( if applicable) and secure safety belt.***

b. For travel and particularly whilst loaded, why should the bucket be as close as possible to the ground and tilted back?

***For greater stability, better vision and to contain the load in the bucket.***

### **Knowledge criteria 1.3.2**

46. What action would you take if you found damage or a defect on the equipment you are using?

***Tag out machine, put it out of service and report damage or defects to the authorized person.***

a. What must be provided on equipment before it is used as a crane?

***A manufacturer's approved lifting lug with the SWL marked on the machine.***

## **UNIT 2: SHIFT LOAD:**

### **Knowledge criteria 2.1.1**

47. Why are you not allowed to hoist persons with the bucket of your earth moving equipment?

***The manufacturer did not design the machine to hoist persons, and is against safe operating procedures.***

48. Why are you not allowed to attach a sling or slings to the teeth of the bucket?

***You may break off the teeth and/or sling could slip off the teeth and cause the load to fall. It is against regulations to sling a load without an approved lifting lug.***

49. The load you are going to lift is likely to swing, how would you prevent this from happening?

***Attach a tag line to control the swing.  
A tag line must be a minimum of a 16 mm diameter fibre rope.***

### **Knowledge criteria 2.1.2**

50. You are required to operate equipment on soft and uneven ground. What effect would this have on the load capacity that you could raise and carry?

***It will reduce the weight of the load that could be safely carried.***

51. How you calculate the cubic capacity of a bucket on your earth moving equipment?

***Multiply the length x width x height of the bucket then divide by two.  
 $LxWxH \div 2$***

52. How would you determine the maximum weight that can be safely lifted with your equipment?

***By the load chart or your operators manual.***

53. What is the weight of one cubic meter of concrete?

***2.4 tonnes***

- a. Of top soil and clay, which is more cohesive and harder to excavate, push and spread?

***Clay.***

- b. List two ways of assessing the weight of a load to be hoisted?

***By calculating the weight. Delivery dockets.  
Weigh bridge dockets. Weight marked on item.***

### Knowledge criteria 2.1.3

54. What precautions would you take if a person was in a trench (in excess of 1.5m deep) while you are lowering pipes into that trench?

***Ensure the trench is shored and the person is standing well clear of either end of the pipes being lowered.***

55. How far away from an excavation must materials be dumped?

***A minimum distance of 1 meter, the toe of the repose angle of spoils, no closer than .5 of a meter.***

56. List three precautions that must be taken when dumping materials into a truck?

***The truck must be correctly positioned. No load must pass over the cabin of the truck.***

***A layer of soil must be laid first to take the impact if large rocks are being loaded.***

***The loaded bucket must be within the SWL of the machine.***

57. What is the danger of loading a truck across a sloping surface?

***The machine could overturn.***

58. What are the dangers of driving your equipment close to the edge of an excavation?

***The excavation could collapse, causing the equipment to overturn , or fall in the excavation.***

- a. When filling a trench, what direction should you approach the trench?

***Square on to the trench.***

- b. What precautions would you take if a person was in a trench (in excess of 1.5meters deep) while you are lowering pipes in the trench?

***Ensure the trench is shored and the person is standing well clear of either end of the pipes being lowered.***

- c. How high must the bucket be kept above the ground when driving forward?

***Only high enough to provide ground clearance.***

- d. How do you stop vehicles/machines from coming too close to an excavation?

***By using barricades and warning signs.***

- e. What action should be taken if you discover a large rock in the side of a trench you are digging?

***Remove the rock.***

**Performance criteria 2.1.5**

59. Interpret the following signal.



**STOP**

60. Interpret the following signal.



**BOOM UP**

61. Interpret the following signal.



**TRAVEL and TRANSVERSE**

### **Knowledge criteria 2.1.6**

62. What are the dangers of undercutting a bank or stockpile?

*The bank or stockpile could collapse causing the machine to overturn or the operator being trapped under the collapse*

63. What are the dangers of dumping spoils too close to the edge of an excavation?

*The bank or stockpile could collapse causing the machine to overturn or the operator could be trapped under the collapse.*

### **Knowledge criteria 2.1.7**

64. You are excavating, what would be the indications that you are excavating quite close to an underground service?

*Observe the spoil, the appearance of any of the following would be an indication of previous excavation work:*

*Crushed blue metal. Plastic tape. Clean sand. Sand bags. Broken tiles. Moisture. Any other unusual material*

65. The machine you are operating overheats and the coolant level requires checking, what precautions would take prior to removing the radiator cap and topping up the coolant?

*Allow the machine to cool down, loosen radiator cap to release pressure using a cloth to protect you from hot coolant, then remove cap slowly. Top up using the manufacturer's recommended coolant. Check hoses, belts and radiator or other components for leaks.*

66. If the slings shifted on a load being hoisted, what action would take?

*Carefully lower the load and have the slings re-positioned and secured.*

## **UNIT 3: SHUT DOWN EQUIPMENT**

### **Knowledge criteria 3.1.1**

67. What type of surface is the ideal type to park your equipment on?

*A firm level surface*

68. When leaving your machine, what should be done with all hydraulically raised attachments?

*Attachments should be lowered with the cutting edge flat on the ground and the pressure be removed from the lines.*

69. What is the danger of parking near an excavation?

*The weight of the machine could the excavation to cave in, particularly if the ground is effected by rain.*

- a. Name three areas where you would not park equipment?

*Access ways. Near overhangs. Refueling sites. Tidal or flood areas Adjacent to excavations. Clear of fire hazards. Clear of firefighting and electrical equipment.*

### **Knowledge criteria 3.1.3**

70. What post-operational checks should the operator carry out on the equipment you were using to prepare it for the next operator?

*Check the machine and equipment for defects and wear.  
Check fuel level and oil level*

### **.SECURE SITE:**

### **Knowledge criteria 3.2.1**

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

*To prevent unauthorized use.*

72. Before leaving the site what must be provided to restrict access to the site?

*Barricades and fencing.*

- a. List 5 procedures that must be followed when parking your equipment?

*Park on firm level ground. Lower bucket/blade with cutting edge on the ground. Engine is stopped according to manufacturer's specifications. (Always idle engine down to allow to cool off). Secure parking devices, leave controls in park position or neutral. Remove keys and lock up.*

# **END PART ONE**





# **Loadshifting Equipment**

## **Part Two - Shift Load**

### **Knowledge Elements**

**2.1.2**

**Applicants For**

**Excavator**

**Front End Loader/ Backhoe**

**Front End Loader**

## **Model Answers**

OHS Certificates of Competence

National Assessment Instrument (NOHSC 7019)

Assessment Criteria based on Units of Competencies,

OHSCER202A, OHSCER203A, OHSCER204A, OHSCER205A.

July 2006 v 4-1

## UNIT 2 – SHIFT LOADS

### Performance Criteria 2.1.2

(All questions must be answered correctly to be deemed competent)

1. What effect does a choker hitch around a square load have on the WLL of the sling?

*The WLL is reduced by half.*

2. State the rule of thumb formula to calculate the WLL of flexible steel wire rope (FSWR).

*Diameter in mm. squared x 8 = WLL. in kg.*

3. What is the formula for determining the WLL of a grade 80 chain?

*Diameter in mm. squared x 32 WLL. in kg.*

4. What is the formula for determining the WLL of a grade 30 to 75 lifting chain?

*Diameter squared in mm. x grade of chain x .3 = WLL. in kg.*

5. What is the WLL of a 12mm diameter, mild steel 30 grade chain?

**(Workings to be shown)**

*12 x 12 30 x .3 = 1296 kg.*

6. What is the WLL of a 7.1mm diameter, grade 80 chain?

**(Workings to be shown)**

*7.1 x 7.1 x 32 = 1613 kg.*

For variation of question 6. Use:

- 8mm grade 80 chain *8 x 8 32 = 2048 kg.*
- 10mm grade 80 chain *10 x 10 x 32 = 900 kg.*
- 13mm grade 80 chain *13 x 13 x 32 = 5408 kg.*

7. What is the formula for calculating the diameter grade 80 chain required to lift a load?

*Square root of the load in kg.  $\div$  32 = diameter.*

8. What diameter grade 80 chain is required to lift a load of 4.5 tonne? (In a direct lift)

**(Workings to be shown)**

*Load in kg.  $\div$  32*

*4500  $\div$  32 = 140.625*

*Square root of; 140.625 = 11.858 mm.*

9. What size diameter FSWR sling would you need to lift a load of 2 tonne? (in a direct lift)

**(Workings to be shown)**

**Load in kg.  $\div$  8 = WLL.**

**2000  $\div$  8 = 250**

**Square root of 250 = 15.8 mm.**

10. What is the WLL of an 8mm diameter flexible steel wire rope (FSWR)

**(Workings to be shown)**

**8 x 8 x 8 = 512 kg.**

For variation of question 10 Use.

- 10mm. **10 x 10 x 8 = 800kg.**
- 12mm. **12 x 12 x 8 = 1152 kg.**
- 16mm. **16 x 16 x 8 = 2048 kg.**

11. What effect does reeving or using a choker hitch around a large water pipe have on the WLL of a sling?

***It reduces the WLL by 25%. The sling will only be safe to lift 75% of its rate capacity.***

12. How do you calculate the cubic capacity of the bucket of your equipment?

***Length x width x height ÷ by 2.***

13. Load Charts.

From excavator load chart “Appendix A” what is the SWL to be hoisted over the side at a Radius of 3.0 metre and at a hook height of 3.0 meters?

**Appendix A – Load Chart Next Page.**

***10750 kg.***

- a. When a sling is reeved around a square load how is the WLL altered?

***Reduced WLL by 50 %.***

- b. State the rule of thumb formula to work out the size diameter of a flexible steel wire rope (FSWR) to safely lift a load?

***Square root of the load in kg. ÷ 8 = diameter.***

## **END PART TWO**

## Appendix A

### Load Chart for Excavator – Stationary on firm level ground

#### EXCAVATOR LOAD CHART

22 Tonne Excavator fitted with a 3.05m long arm, 1m<sup>3</sup> bucket 600mm shoes

Radius	Max reach		7.6m		6.1m		4.6m		3.0m	
	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
6.1m	*3100	*3100	*3450	*3250						
4.6m	*3150	2650	*3950	3250	*4100	*4100				
3.0m	*3300	2400	*4450	3050	*5050	4500	*6450	*6450	*10750	*10750
1.5m	3550	2300	4550	2950	*6050	4200	*8300	*6450	85450	*5450
0m	3600	2300	4450	2850	6200	400	*9650	6050	*6900	*6900
-1.5m	3900	2500	4350	2750	6100	3850	*9650	5900	*10200	*10200
-3.0m	4654	2950			6100	3900	9650	6000	*14900	12300
-4.6m	6650	4250					9200	6100	*13800	12700

The ratings are based on 75% of tipping load, stationary on firm level ground as per AS 1418.5

\* The ratings do not exceed 87% of hydraulic lifting capacity or 75% of tipping load.

For “pick and carry loads” on firm level ground the load shall not be greater than 66.7% of tipping load as per AS 1418.5 or 88.9% of the SWL.

Where ground is sloping, rough or not firm, the load must be dramatically reduced.





# **Loadshifting Equipment**

## **Part Three - Unit One**

### **Skid Steer**

#### **Knowledge Elements**

**1.2.3., 1.2.4., 1.2.5., 2.1.3.**

## **Model Answers**

OHS Certificates of Competency

National Assessment Instrument

(NOHSC 7019)

Assessment Criteria based on Units of Competencies,

OHSCER202A, OHSCER203A, OHSCER204A, OHSCER205A.

JULY 2006 V4-1

# SKIDSTEER – Knowledge Model Answers

## UNIT 1 – PLAN WORK

### Knowledge criteria 1.2.3., 1.2.4., 1.2.5.,

(All 3 questions must be answered correctly to be deemed competent)

1. For stability, which direction and how should a rubber tyred skid steer loader be driven up a steep ramp onto a truck?

*In reverse. Load must face up hill*

2. What must be obtained to drive an unregistered rubber tyred load shifting equipment along a public road?

*Relevant permit.*

3. Why would you select a loader of a skid steer type instead of a conventional front end loader to work in a confined space?

*For better maneuverability.*

## UNIT 2 – SHIFT LOAD

### Knowledge criteria 2.1.3.

(This question must be answered correctly to be deemed competent)

4. Why should a seatbelt be worn or the pull down bars be in place before operating the loader?

*To prevent being bounced out of machine.*

5. How do you calculate the cubic capacity of the bucket on a front end loader of a skidsteer type?

*Length x height x width ÷ by 2 = cubic capacity*

- a. Name two types of buckets used on a skid steer?

*General purpose (Fixed type). 4 in 1 bucket.*

# END - SKIDSTEER



# **Loadshifting Equipment**

## **Part Three - Unit One**

### **Front End Loader**

#### **Knowledge Elements**

**1.1.1., 1.2.3., & 1.2.5.,**

### **Model Answers**

OHS Certificates of Competency

National Assessment Instrument

(NOHSC 7019)

Assessment Criteria based on Units of Competencies,

OHSCER202A, OHSCER203A, OHSCER204A, OHSCER205A.

JULY 2006 V 4-1

# FRONT END LOADER – Knowledge Model

## Answers

### UNIT 1 – CODUCT ROUTINE CHECKS

#### Knowledge criteria 1.1.1

(All 4 questions must be answered correctly to be deemed competent)

1. Briefly describe how you would check air pressure of a water filled tyre?

*Check with the valve at the top of the wheel or when using a glycerine gauge, the wheel can be in any position.  
Always check the operators manual for correct procedure.*

2. What safety precautions should be taken when inflating tyres fitted with demountable split rims?

*Do not stand in front of the wheel and inflate in a cage if available,  
And ensure all split rim bolts are secure.*

3. How would you know that the tyres on a front end loader are water ballast?.

*There would be a warning riveted or screwed on the loader near  
The drivers station. Also when the valve is at it's lowest point,  
Water would appear when checking tyre pressure.*

4. What happens when you add ballast to the tyres of a front end loader?

*Increases weight and the stability of the loader and provides  
Better traction as the tread is embedded.*

### PLAN WORK

#### Knowledge criteria 1.2.3., 125.

(All 2 questions must be answered correctly to be deemed competent)

5. What government license do you require to drive a front end loader over 4.5 tones on a public road? (Check with your relevant regulations)

*The appropriate license as required by the relevant state vehicle  
licensing authority*

*Victoria - car license. Some states require a heavy vehicle equivalent to  
the weight of machine.*

6. Name 4 operations that may be performed by a 4 in 1 bucket?

***Scraping. Loading. Clam-shelling. Dozing.***

- a. Name two types of buckets used on a front end loader?

***General purpose (fixed type). 4 in 1 bucket.***

- b. Where a front end loader has two for independent rear brakes, what must be done to these pedals before the loader is driven on the road?

***The pedals must be connected together.  
These independent brakes assists in maneuverability in tight areas.***

- c. You have to travel a front end loader, which is fitted with very large balloon tyres on the road, what are the dangers?

***At speed, wheel bounce will develop making it more difficult to control.  
Front tyre pressures should be lowered before travelling on the road.***

## **END - FRONT END LOADER**





# Loadshifting Equipment

## Part Three - Unit One

### Front End Loader/Back Hoe

#### Knowledge Elements

1.1.1., 1.2.3

## Model Answers

OHS Certificates of Competency

National Assessment Instrument

(NOHSC 7019)

Assessment Criteria based on Units of Competencies,

OHSCER202A, OHSCER203A, OHSCER204A, OHSCER205A.

JULY 2006 V 4-1

# FRONT END LOADER/BACKHOE – Knowledge Model Answers

## UNIT 1- CONDUCT ROUTINE CHECKS

### Knowledge Criteria 1.1.1.,

(All 5 questions must be answered correctly to be deemed competent)

1. What precautions must be taken when inspecting under a raised attachment?  
*Provision provided to prevent the attachment from descending.*
2. Briefly describe how you would check air pressure of water filled tyres?  
*Wheel jacked up with the valve at the top, fill with water to the recommended quantity, (refer to operators manual) add anti-freeze if required and then add air.*
3. What safety precautions should be taken when inflating tyres fitted with demountable split rims?  
*Do not stand in front of the wheel and inflate in a cage if available, And ensure all split rim bolts are secure.*
4. How would you know that the tyres on a front end loader are water ballast?.  
*There would be a warning riveted or screwed on the loader near The drivers station. Also when the valve is at it's lowest point, Water would appear when checking tyre pressure.*
5. What happens when you add ballast to the tyres of a front end loader?  
*Increases weight and the stability of the loader and provides Better traction as the tread is embedded.*

## **PLAN WORK**

**Knowledge criteria 1.2.3., 1. 2. 5.**

**(All 2 questions must be answered correctly to be deemed competent)**

6. What government license do you require to drive a front end loader over 4.5 tones on a public road? (Check with your relevant regulations)

*The appropriate license as required by the relevant state vehicle licensing authority*

*Victoria - car license. Some states require a heavy vehicle equivalent to the weight of machine.*

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

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

# **END - FRONT END LOADER/BACKHOE**





# Loadshifting Equipment

## Part Three - Unit One

### Excavator

#### Knowledge Elements

1.1.1., 2.1.3

### Model Answers

OHS Certificates of Competency

National Assessment Instrument

(NOHSC 7019)

Assessment Criteria based on Units of Competencies,

OHSCER202A, OHSCER203A, OHSCER204A, OHSCER205A.

JULY 2006 V 4-1

# EXCAVATOR - Knowledge Model Answers

## UNIT 1 – CONDUCT ROUTINE CHECKS

### Knowledge Criteria 1.1.1., 2.1.3

(All Questions must be answered correctly to be deemed competent)

1. What action should you take with tracks that are loose?

*Have the track tensions adjusted.*

2. What checks would you conduct on the tracks of an excavator?

*Check for any visual damage to the track and the track tension.*

3. How would you check the tension on the tracks of an excavator?

*By placing a straight edge on the track from the roller to the drive wheel and measure the distance from the straight edge to the track.*

4. What is the minimum and the maximum track sag?

*Not less than 2.5 cm and not more than 3.8 cm.*

### Knowledge criteria 1.1.2.

5. What must be provided on an excavator before it can be used as a crane?

*A manufacturer's approved lifting lug with SWL marked on the machine.*

### Knowledge criteria 2.1.3

(This question must be answered correctly to be deemed competent)

6. As an operator of an excavator are you permitted to dog a load?

*No – as you do not hold the appropriate license.*

## END - EXCAVATOR



