WorkCover
NEW SOUTH WALES

NON-SLEWING MOBILE CRANES

NATIONAL CERTIFICATE OF COMPETENCY

ASSESSMENT INSTRUMENT 1995

WorkCover. **Watching out for you.**

New South Wales Government

Cranes

Non-Slewing Mobile Cranes

ASSESSMENT

Part 1 – Performance

Part 2 – Oral/Written

Part 3 – Written

June 1995

CONTENTS

NOTE:

PART 3 – WRITTEN ASSESSMENT FOR CRANES
– PROVIDED AS A SEPARATE DOCUMENT

ASSESSOR GUIDELINES – GENERAL

1. INTRODUCTORY NOTES

1.1 Scope

These general guidelines apply to all the assessment instruments for the certificates of competency prescribed by Schedule B of the *National Occupational Health and Safety Certification Standard for Users and Operators of Industrial Equipment*.

Assessors should also be familiar with the publication *Assessment guidelines for National Occupational Health and Safety Certification Standard for users and operators of industrial equipment*.

1.2 Additional guidelines

Guidelines which provide additional specific information to certificate 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 competence

Evidence of competence is established in a number of ways. The methods used in the following instruments involve:

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

2. PREPARING FOR THE ASSESSMENT

2.1 Study the instruments

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

2.2 Confirm appointments

Prior to an 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 and processes vary greatly between workplaces, it is important for assessors to plan their approaches to meet the requirements of the individual workplace.

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 applicants what is required of them. Check that applicants have 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 a normal working environment. Do not ask the applicant questions while he or she is performing a task, as this can be distracting and may affect the time taken to complete the assessment.

If, at any time, the applicant is endangering 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 also 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 necessarily exhaustive. Use your own judgement when scoring alternative answers.

3.4 Recording responses

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

✔	CORRECT PERFORMANCE/ANSWER
✗	NOT YET ACHIEVED
N/A	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 certificate class. This is to be filled in and signed by the assessor and countersigned by the applicant.

The original and duplicate are given to the applicant. The applicant provides the original to the certifying authority. The triplicate is retained by 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 for each instrument is specified in the specific guidelines and/or on the summary page at the end of each assessment.

In the case of a repeat assessment, the assessor can decide to apply the whole or only part of the assessment.

4.3 Additional comments

Where an applicant fails to meet the standard of competence, 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 future 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 knowledge or performance, ask additional questions and obtain additional evidence before making your final decision.

National Occupational Health and Safety
Certification Standard for Users
and Operators of Industrial Equipment

Non-Slewing Mobile Cranes

Part 1

PERFORMANCE ASSESSMENT

June 1995

ASSESSOR GUIDELINES – SPECIFIC

1. The performance assessment comprises 10 items covering the following operating areas:

   1. Pre-operational checks
   2. Site/job planning
   3. Set up crane
   4. Operate crane
   5. Shut down and dismantle crane
   6. Special operations.

   The applicant must undertake all performance items. All critical components must be demonstrated/answered correctly. An assessor must use his/her discretion in assessing competence of non-critical items, at least 75 per cent being ticked for a competent person.

2. The answers provided are only typical of this type of equipment, eg in shutdown the sequence varies between different types of crane.

3. The assessment should be conducted in an area:

   - with sufficient space to operate freely, without obstruction
   - with normal ground conditions.

4. The applicant should provide (or be provided with) appropriate personal protective equipment and clothing.

5. In item 9, the assessor is to use the load chart for the crane being used for the assessment and to select either:

   - the working conditions of the crane including number of counterweights and ask the applicant to determine the maximum permissible load, or
   - the load and crane configuration and ask for number of counterweights, or
   - another load chart problem typically encountered for three different crane configurations that cover the scope of operations for that crane. The applicant should be able to identify whether the load is limited by structural strength or stability.

6. In items 5 and 10, the assessor shall review the applicant's record of training to ensure that adequate training/experience has been gained in the assembly and dismantling of a mobile crane.

PRE-OPERATIONAL CHECKS:

1. Demonstrate checks that should be made before you start the motor (walk around check).
   - *Visual check if motor is OK* ☐
   - *Radiator water* ☐
   - *Fuel level* ☐
   - *All oil levels, eg motor, gearbox, hydraulic* ☐
   - *Lubrication (grease)* ☐
   - *Battery water* ☐
   - *Oil/water leaks* ☐
   - *Communication system* ☐
   - *All notices eg, SWL, manufacturer's data plate of crane, powerlines* ☐
   - *Load radius indicator (where applicable)* ☐
   - *Load chart* ☐
   - *Truck in neutral gear* ☐
   - *All ropes, wires, anchorages and splices where practicable (where applicable)* ☐
   - *Stabilisers and packing* ☐
   - *Lifting hook* ☐
   - *Any structural damage to crane* ☐
   - *Rope drums (where applicable)* ☐
   - *Examine all brake mechanisms* ☐
   - *Tyre condition, pressure and obstruction between wheels* ☐
   - *Controls identified and use explained* ☐
   - *Fire extinguisher* ☐
   - *Hydraulic hoses are not damaged or leaking* ☐
   - *Power take off is not engaged* ☐
   - *Crane attachment to the truck has no loose belts or damaged parts* ☐
   - *Crawler track and mechanisms (where applicable)* ☐
   - *Articulating mechanisms including rams, hinge pins etc.* ☐
2. Demonstrate checks that should be made after you start the motor.
   - *Throttle control* ☐
   - *Communication system* ☐
   - *Steering if mobile* ☐
   - *Travel brakes if mobile* ☐
   - *Hand brakes if mobile* ☐
   - *Horn/lights/drive indicator* ☐
   - *Clear vision* ☐
3. What is the function of the service log book?

   It explains the service maintenance carried out and any defects found and repaired. ☐
4. Produce the service logbook and explain critical entries.

   Log book produced and explained. ☐

SITE/JOB PLANNING:

Covered in knowledge assessment.

SET UP CRANE:

5. Set up and prepare your crane as if this was a new site (where applicable).

- *The position of the crane is satisfactory in relation to the task to be undertaken* ❑
- *Stabilisers extended and set up as per manufacturer's specifications (where applicable)* ❑
- *Crane level (where applicable)* ❑
- *Tyres clear of ground (where applicable)* ❑
- *Correct packing (where applicable)* ❑
- *Counterweight adequate as per load chart requirements* ❑
- *Hoist brake (where applicable)* ❑
- *Luff brake (where applicable)* ❑
- *Maximum radius* ❑
- *Minimum radius luff limit* ❑
- *Hoist limit (where applicable)* ❑
- *Boom assembly completed in record of training – multiple sections (where applicable)* ❑
- *Warning systems/devices* ❑
- *Set up manual boom extension (where applicable)* ❑

Note: Record of training shows set up of crane

OPERATE CRANE:

6. Demonstrate all of the following signals.

- *Stop – hand* ❑
- *Stop – whistle* ❑
- *Hoist up – hand* ❑
- *Hoist up – whistle* ❑
- *Hoist down – hand* ❑
- *Hoist down – whistle* ❑
- *Luff boom down – hand* ❑
- *Luff boom down – whistle* ❑
- *Luff boom up – hand* ❑
- *Luff boom up – whistle* ❑
- *Travel – hand* ❑
- *Creep – hand* ❑
- *Telescope* ❑

7. Demonstrate all crane movements (where applicable).

- *Secure load* ❑
- *Load correctly slung* ❑
- *Conduct trial lift* ❑
- *Lift conforms with load chart* ❑
- *Jib positioned over load correctly* ❑
- *Hoist* ❑
- *Move load* ❑
- *Lower* ❑
- *Luff up* ❑
- *Luff down* ❑
- *Articulate (where applicable)* ❑
- *Telescope (where applicable)* ❑
- *Travel with load* ❑
- *All movements smooth/adequate speed* ❑
- *Tag line used (where applicable)* ❑
- *Signals interpreted correctly* ❑
- *Load placed correctly on dunnage (where applicable)* ❑
- *Load unslung* ❑
- *Hook and attachment raised to safe height.* ❑

8. Explain the configuration of the load radius indicator and how it works (where applicable).

   Applicant shows all connections from base of boom to final position of radius indicator. ❑

9. Explain the load chart and its capabilities at the following three boom angles/ configurations.

   LOAD _____ ❑

   Working Radius _____

   Boom/Jib Configuration _____

   Mass (weight) of Counterweight _____

   LOAD _____ ❑

   Working Radius _____

   Boom/Jib Configuration _____

   Mass (weight) of Counterweight _____

   LOAD _____ ❑

   Working Radius _____

   Boom/Jib Configuration _____

   Mass (weight) of Counterweight _____

   LOAD _____ ❑

   Working Radius _____

   Boom/Jib Configuration _____

   Mass (weight) of Counterweight _____

   Note: An assessor can give the load and ask for the other items to be calculated or else give the working radius boom and jib configurations and ask for the load to be calculated.

   Ensure understanding of structural and stability aspects of the load chart are covered.

SHUT DOWN AND DISMANTLE CRANE:

10. Demonstrate the stowing of the crane.

    - Lowering/retracting boom in accordance with the manufacturer's specifications. ❑
    - Retracting stabilisers (where applicable) ❑
    - Prepare for road travel ❑

    Note: Record of training shows dismantling of crane. ❑

SPECIAL OPERATIONS:

Covered in knowledge assessment.

NON-SLEWING MOBILE CRANES – PERFORMANCE RELATIONSHIP TO THE NATIONAL CERTIFICATION STANDARD

THE UNITS OF COMPETENCE

The items in the practical performance assessment are intended to assess the competencies of the applicant in the safe use of Non-Slewing Mobile Cranes as described in Schedule B of the *National Occupational Health and Safety Certification Standard for Users and Operators of Industrial Equipment.*

These are as follows:

1.0 Assess and secure equipment and work area.

2.0 Secure and transfer load.

3.0 Set up and dismantle mobile cranes.

4.0 Carry out special operations with mobile cranes.

Each unit of competence is subdivided into elements of competence for which performance criteria are prescribed. The questions in each section of the assessment cover the following competencies.

1. **Pre-operational checks**

   Performance Criteria 1.1.1, 1.1.2, 1.1.3, 1.3.1, 1.3.2, 1.3.3.

2. **Site/job planning**

   Covered in knowledge assessment.

3. **Set up crane**

   Performance Criteria 1.2.1, 1.2.2, 1.2.3, 1.2.6, 3.1.1, 3.1.2, 3.1.4, 3.2.1, 3.2.2, 3.2.3, 3.2.4.

4. **Operate crane**

   Performance Criteria 1.2.1, 1.2.2, 1.2.4, 1.2.6, 1.2.7, 1.3.1, 1.3.2, 1.3.5, 2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 4.2.3.

5. **Shut down and dismantle crane**

   Performance Criteria 1.4.1, 1.4.2, 1.4.3, 1.4.6, 3.1.1, 3.1.2, 3.1.4, 3.3.1, 3.3.2, 3.3.3.

6. **Special operations**

   Covered in knowledge assessment.

THE RANGE STATEMENT

The performance assessment takes into account factors described in the range statements, including relevant standards and relevant State/Territory occupational health and safety legislation.

National Occupational Health and Safety
Certification Standard for Users
and Operators of Industrial Equipment

Non-Slewing Mobile Cranes

Part 2

ORAL/WRITTEN ASSESSMENT

June 1995

ASSESSOR GUIDELINES – SPECIFIC

1. The knowledge assessment consists of 76 questions with 18 compulsory questions. The compulsory questions are identified under each operational area heading.

   Compulsory questions have part or all of the answers identified as critical. All critical components must be answered correctly, and at least 75 per cent of other components answered correctly, for the applicant to be assessed as competent.

2. Fifteen questions from the other 58 questions are to be randomly selected (manually or by computer) with at least one question from each of the following operational areas:

   1. Pre-operational checks
   2. Site/job planning
   3. Start up crane
   4. Operate crane
   5. Shut down and dismantle crane
   6. Special operations

   The number of questions asked from each operational area should be in proportion to the overall number of non-critical questions in each area and are as follows:

Operational area	No. critical questions	No. non-critical questions to select	Total questions selected
1	1	3	10
2	6		
3	0	2	2
4	9	8	17
5	1	1	2
6	1	1	2
Total	18	15	33

3. The knowledge assessment may be given orally or as a mixture of oral and written.

PRE-OPERATIONAL CHECKS:

Question 2 is compulsory

1. On checking the hydraulic systems, you notice a leak at one of the hose connections. Who would you report this to for rectification?

   To the Supervisor or authorised person who would then contact the mechanic for corrective action. ❑

2. Why should the maintenance service logbook be used?

   This gives all persons concerned an accurate account of all services, maintenance repairs and the full service history of the crane. ❑

SITE/JOB PLANNING:

Questions 3, 4, 5, 12, 13 and 14 are compulsory

3. What procedures should you follow in preparing an operational plan for cranes?

   Job requirements, priorities, workplace rules, procedures, identified hazards and hazard control measures. ❑

4. What types of hazards would you consider for incorporation into your work plan when setting up on site?

   - *Powerlines* ❑
   - *Trees* ❑
   - *Overhead service lines* ❑
   - *Bridges* ❑
   - *Surrounding structures* ❑
   - *Obstructions* ❑
   - *Facilities* ❑
   - *Other equipment* ❑
   - *Dangerous materials* ❑
   - *Underground services* ❑
   - *Recently filled trenches* ❑

5. What hazard control strategies would need to be included in the plan for the elevation procedures?

   - *Task being performed* ❑
   - *Any site hazard* ❑
   - *PPE required by crane personnel* ❑
   - *Warning signs* ❑
   - *Barriers* ❑
   - *Traffic control* ❑
   - *Lighting* ❑
   - *Dangerous/hazardous materials* ❑

6. Why is it important to consult with relevant workplace personnel, OHS officers, before commencing work on sites?

   To ensure that the crane driver is aware of any workplace rules and procedures developed in that workplace are adhered to. ❑

7. What is the importance of having workplace emergency procedures?

   In the case of an emergency that may arise in the workplace (fire, collapses, serious accident to individual/s) a plan should be developed and put in place in the workplace that lays out a sequence that should be followed in case of an emergency. ❑

8. In the case of an emergency situation, a set of procedures should be developed specifically relating to your crane. Why?

   Note: Assessor may need to give an example of emergency situation.

   Mobile cranes in most cases are set up in one position. The crane driver's means of escape in an emergency is in most cases by climbing down to ground level. It is essential to notify the person dogging the load prior to leaving the crane cabin. ❑

9. In the case of an emergency why is it important to communicate with the person dogging the load prior to leaving the crane?

   To find out the area or areas that may be unsafe for the crane driver to pass. The person dogging the load will inform the driver as to the nature of the emergency and also make someone aware in the workplace that you are making your way to a pre-designated meeting point. The person dogging the load can give instructions as to whether it may be safer to stay in the cabin until the situation has eased. ❑

10. What is the importance of having an operations plan that ensures the correct lighting for the workplace?

    The importance of having an operations plan with regards to lighting is task/job scheduling. Taking environmental factors into account can greatly improve conditions in the workplace.

    - Working directly into the sun, which includes the hottest hours of the day ❑
    - Working at night using artificial light sources ❑
    - Access and exit. ❑

11. What should be provided for the crane operations working at night or in darkened areas?

    There should be sufficient lighting over the whole work area. ❑

12. What precautions must be observed when working near overhead powerlines?

    Never work closer than the minimum distance specified in AS2550. Ensure the crane is correctly earthed and that barriers/ barricades are erected around the work area for public safety. Safety helmets need to be worn. Traffic signs/cones should be placed around the work site. ❑

13. a. What is the minimum distance any part of a crane and load is allowed to set-up near overhead powerlines?

    2 metres from distribution lines on poles, 6 metres from transmission lines on towers, closer if lines are covered. ❑

    b. If you want to work closer than these distances what can you do?

    Must seek an exemption from the relevant authority. ❑

14. A person dogging a load puts a hand on the hook and starts to jump as though they are getting an electric shock. What should you do?

    If possible lift the hook clear of the person dogging the load to break contact with the earth. Follow relevant first aid procedure as required. If possible, get somebody to assist. ❑

15. What communication equipment does the operator have other than the two way radio?

    Telephone, PA, whistle and hand signal. ❑

16. Who should be involved in the process of assessing the load?

    The person dogging a load (where applicable) and crane driver; relating to system of work to be used. ❑

17. What is the minimum size diameter of tag line to be used?

    16 mm minimum diameter, dry and of a non conductive material. ❑

18. What factors should also be considered when using tag lines? Applicant should give at least four examples.

    Weather conditions, electrical hazards, tag line changeover may be required at designated point in the lift regarding scheduled works so as not to lift over head. Person holding tag line should wear PPE and ensure that the line is not fouled. ❑

19. You noticed that one of the boom section connection pins was loose. What would you do?

    Immediately stop work and contact the authorised person who should arrange for a competent person to inspect the remainder of the connection pins. ❑

20. Your mobile crane is set up on a ground floor suspended concrete slab. What precautions should be made prior to undertaking any lifts?

    - *It should be noted that propping should be as per engineer's specifications and located in identical position to each floor and should ultimately bear on the ground* ❑

    Note: Prior to undertaking lift, the crane driver should seek the following information:

    - *Structural strength of slab, taking into account the mass of the crane with the load* ❑
    - *Age in relation to how long the slab has been in place* ❑
    - *Whether back propping or shoring is required on the floors beneath the crane's set up point* ❑

    Note: Confirmation in writing from a suitably qualified engineer.

21. You are required to mobile a load down the hill. What are the critical factors involved?

    - *Mobile the crane with the load facing up the hill* ❑
    - *Other considerations regarding mobiling* ❑

SET UP CRANE:

22. Who would be responsible for checking all lifting gear, eg chains and slings?

    The crane driver in conjunction with the person dogging the load. ❑

23. Who would be responsible for checking all the lifting equipment throughout the crane?

    The crane driver. ❑

24. Why is it important to separate defective equipment?

    To eliminate the possibility of further re-using the faulty or defective equipment. ❑

25. Should a crane be set up next to open trenches or excavations?

    What general rule/principle would apply regarding safe distances?

    Note: This rule may not be applicable to all soil types.

    No. The crane should not be set up close to an excavation as the weight of the crane causes added pressure to the adjoining soil and can cause the excavation to collapse and result in the crane overturning. As a general rule, the distance of the crane from the edge of the excavation should be at least the same as the depth of the hole. In other words, one metre of depth equals one metre from the edge (1:1). ❑

26. The crane is to be set up on a level, clear site adjoining a four storey building. You are aware that the building has two floors of car park below ground level. What hazard can arise when working close to the building?

    It should be obvious that the ground abutting the outer wall of the building has been filled, whether it has been compacted is unknown. There is a good chance that the crane will overturn or even crack the wall in the under ground car. ❑

27. Why is it important to check the hoist limit (where applicable)?

    If the hoist limit switch or cut out is malfunctioning, double blocking can occur, where the hook/block assembly is dragged into the head sheaves, causing crane failure and possible occurrence of a serious accident. ❑

28. If the ground in which you are required to set the crane up on is especially soft or waterlogged, what steps can be taken to improve the load distribution under the crane?

    Steel plates, mats on timber pads or even concrete rafts will assist in distributing loads under the crane. ❑

29. If the back wheels sink into the ground or surface, what has the crane driver failed to do prior to commencing work?

    - *The crane driver has failed to assess ground footing and provide the appropriate packing under the stabiliser footplates, ie plate or pig sty packing* ❑
    - *Failed to assess properly any site hazards* ❑
    - *Failed to identify unstable soil – backfilled trenches or excavations.* ❑

30. Why must the crane be set up level? (Where applicable.)

    - *Radius increases for the same boom angle* ❑
    - *Additional side loading on boom.* ❑

31. You are operating a non-slewing crane and you are required to remove a large steel vessel from the top of a structure.

    What precautions must be taken to ensure a safe lift?

    - *Estimate the weight of the vessel, ensuring it is empty and the thickness and constructions of the walls* ❑
    - *Identify what substance was contained in the vessel prior to its removal, eg flammable or toxic substances* ❑
    - *Position crane on stable work surface, packing stabiliser (where applicable) to help distribute load of crane and loads being applied* ❑
    - *Ensure rigger and person dogging the load are involved in planning stage of lift* ❑
    - *Progress with lift slowly until crane has full control and weight of the load* ❑
    - *Have adequate supply and packing handy when grounding load to protect slings* ❑
    - *Trial lift where possible.* ❑

OPERATE CRANE:

Questions 33, 43, 44, 45, 47, 52, 54, 55 and 69 are compulsory

32. When interference (tampering) is identified, to whom should the crane driver report any faults?

    To an authorised person. ❑

33. Give three different ways in which the mass (weight) of a "load" can be determined?

    - *The truck driver who delivers the "load" may have the weight of the "load" documented, either by delivery dockets or from a public weigh bridge*
    - *The manufacturer of the "load" may also have relevant information relating to the weight of the item*
    - *The load's weight may appear on the "load" itself or on the packaging in which it is delivered/transported*
    - *Calculate.* ❑

34. If the load to be lifted has an uneven mass (weight) distribution, how would you check to ensure that the load has been slung correctly?

    Lift the load to a position where it is suspended just off the lifting plane and check that the lifting slings or chains have been positioned correctly to ensure even weight distribution. ❑

35. With the load suspended just off the lifting plane, what observations and checks need to be made?

    - *That the load is correctly slung.*
    - *All crane equipment is functioning properly for example:*

      Hoist Brake

      Luff System ❑

36. Where the trial lift reveals there is problems with the lift, what should be done?

    Immediately lower the load back down and take the necessary corrective action. Do not proceed any further until situation has been rectified. ❑

37. When lifting a load where its mass (weight) is approaching the maximum working capacity of the crane, what procedure would you implement?

    Lift the load to a position where it is suspended just off the lifting plane and identify its weight from the load weight measuring device (if fitted) to ensure the safe working load is not being exceeded. ❑

38. What is the mass (weight) of a cubic metre of hardwood?

    - *1t or 1,100 kg* ❑

39. What is the mass (weight) of a cubic metre of water?

    - *1t or 1,000 kg* ❑

40. What is the mass (weight) of a cubic metre of aluminium?

    - *2.7t or 2,700 kg* ❑

41. What is the mass (weight) of a cubic metre of mild steel?

    - *7.85t or 7,850 kg* ❑

42. What is the mass (weight) of a cubic metre of concrete?

    - *2.4t or 2,400 kg* ❑

43. If you heard a loud noise and felt vibration coming from the boom section, what would you do?

    Lower the load, cease operation immediately and notify the person dogging the load. Have an inspection carried out to identify whether damage has occurred during the lift. ❑

44. What limits are on the luff and where are they located (where applicable)?

    Luff-in limits, the exact locations vary according to the manufacturer of the crane. ❑

45. What happens if you override the luff up limit?

    Damage may be caused to the structure of the crane and also the boom may bend. ❑

46. What limits are on the hoist wire rope and where are they located?

    A vertical hoisting limit switch, which is located beneath the head sheaves of the boom (if fitted). ❑

47. If you found a defect in one of the main controls that would place the crane and/or personnel at risk, what would you do?

    Cease operations, secure area and report to an authorised person. ❑

48. If any signals are observed through warning lights, cut outs or alarms, what action would you take to have the defect rectified?

    Assess the situation and take appropriate corrective action. ❑

49. How do you dis-engage the pawl (where applicable)?

    By depressing the luff pawl button and luffing up extremely slowly to disengage the pawl before luffing out. ❑

50. Why do you have to luff out with extreme care when you have the luff pawl button depressed (where applicable)?

    If you luff out too quickly the pawl could be broken or bent by the impact as it engages the ratchet. ❑

51. Why is it important to have the lifting point positioned correctly over the load?

    To reduce the risk of overloading or collapsing the crane and prevent load from swinging on lift. ❑

52. State the reasons why you are not permitted to drag or snig a load?

    - *Could cause structural damage to crane by exceeding the SWL of the crane* ❑
    - *Could cause load to swing* ❑
    - *Could cause load to topple.* ❑

53. What action would you take if you found a limiting device was damaged or not operating?

    Cease work and report the defect to the authorised person for corrective action. ❑

54. Are you permitted to allow a person to ride upon the lifting hook, sling attachment or suspended load?

    No, unless a person is secured in a suspended work box which meets all necessary requirements. ❑

55. Explain the requirements that would permit you to lift personnel, using the crane?

    - *Any requirements specified by crane manufacturer*
    - *Any requirements covered by workplace conditions*
    - *Applicant to explain requirement for the work box – Refer Clause 7.16.2 – Part 1 of AS 2550*
    - *Applicant to explain requirements for the crane – Refer Clause 7.16.3 – Part 1 of AS 2550*
    - *Applicant to explain the operator requirements - Refer Clause 7.16.4 – Part 1 of AS 2550.* ❑

    Note: Statutory authorities may have other conditions.

56. What is the maximum wind speed that mobile cranes can work in?

    As per manufacturer's recommendations and the operating conditions are taken into consideration. ❑

57. You can see a very bad wind storm blowing up. It is going to blow across where you are to work. The wind seems to push the boom sideways. What should you do?

    If the crane cannot be controlled, lower the load to the ground, then lower the boom where possible. ❑

58. You have some formwork shutters to lower from aloft. While the carpenters are freeing them a strong wind blows up. What should you do?

    Shutters are large in area but light in weight, therefore they could flap around in the wind so will need to be secured. Also, the wind loading with such a large surface area will over load the crane. Inform the supervisor that you will resume work when the wind drops. ❑

    Note: Some applicants may place them together and bring them down on the flat. This is a correct method if the wind is not too strong.

59. You are operating the crane and have been engaged in the erection of a structural steel extension. The work is scheduled to be carried out at night, whilst night shift is working. The structure being erected is located over a main access route for staff going to and from crib, toilet and first aid facilities. What would you do prior and during the erection process?

    A work plan should be developed prior to the erection of steel. It should address:

    - *Overhead protection*
    - *How rigger will connect sections, elevated work platforms and harnesses*
    - *Access and exit from the workplace to amenities, fencing/barricades around the work site. Alternative routes of access for night shift personnel*
    - *Lighting of the workplace*
    - *Relevant personnel to assist.* ❑

60. You are operating a crane which is to lift a load out of the water.

    State any special precautions to be taken?

    - *The working surface on which the crane is set up or is to drive over must be adequate in strength to support the crane.* ❑
    - *A structural assessment of the working surface by engineering personnel may be necessary.* ❑
    - *Assess the load and slinging.* ❑
    - *When taking a load from the water the load's potential can double as it breaks clear or the seal with water is broken.* ❑
    - *Wind, wind gusts and direction, should also be a vital consideration.* ❑

61. When mobiling a crane around a work site what assessments need to me made?

    - *Check for overhead powerlines, overhead pipes and any projecting obstructions* ❑
    - *Check the ground for pot holes, any recently backfilled trenches and any slopes for direction of travel.* ❑

62. Why is it important to mobile a crane on firm and level surfaces wherever possible?

    To prevent the load from swinging while mobiling and make the crane more stable. ❑

63. Can you mobile a crane across the side of a hill? Give reasons for your answer.

    No, it will put side pull on the boom and overturn the crane. ❑

64. When mobiling a load up a hill which direction should the load face?

    Up hill. ❑

65. You are operating a long boom crane and have to back up a hill, boom first. The boom is at a 700 degree angle. What is the danger?

    There is a danger that the boom angle will become too high or near vertical. The boom will overturn backwards (in this situation the operator would have to boom down first). ❑

66. When mobiling a crane with a long boom length, what speed would you travel at?

    At creeping or extremely slow speeds.

    Refer to manufacturer's operator manual. ❑

67. When mobiling a crane in gusting wind conditions, what measures would you ensure are undertaken to control the load?

    Load must be attached to a tag line and tied back to the crane. ❑

68. How close to the ground would you keep the load when mobiling?

    As close as possible. ❑

69. If the crane was to come into contact with the power lines, what must be done?

- *Remain in crane cabin until power is disconnected* ❑
- *Warn all other people nearby* ❑
- *Try to move the crane away from conductors using crane controls* ❑
- *If you have to leave the crane in an emergency, jump clear avoiding contact with ground and crane at same time* ❑
- *Machine checked prior to future use.* ❑

70. Explain the use of packing or dunnage, when slinging a load.

- *To protect the load* ❑
- *To facilitate the connection/ disconnection* ❑
- *To prevent damage to lifting gear.* ❑

SHUT DOWN AND DISMANTLE CRANE:

Question 73 is compulsory

71. When shutting down the crane, what check is most important with regards to the pawl (if fitted) on the luffing drum and how would you ensure this procedure was done?

Always ensure the pawl is locked or engaged. Try to lower the boom to ensure pawl is engaged. ❑

72. What is the safe position to leave the boom during shut down (eg gale force winds have been forecast)?

Hook tied down, boom secured, lock pawl if fitted. ❑

73. Can any loads remain suspended from the hook following shut down or when crane is unattended?

No. If during the course of a lift the crane driver must leave the controls, the load should be placed on the ground and crane shut down in the prescribed manner (no driver, no load). ❑

SPECIAL OPERATIONS:

Question 74 is compulsory

74. What are the key elements involved in AS2550 related to multiple crane lifts?

- *The size and characteristics of the load* ❑
- *The mass (weight) of the load* ❑
- *Centre of gravity* ❑
- *Mass of lifting gear* ❑
- *Number of cranes involved* ❑
- *Calculated share of the load to be handled by each crane* ❑
- *Synchronisation of the crane motions:*
  - *raised in a vertical plane* ❑
  - *lowered in a vertical plane* ❑
  - *speed of operation* ❑
- *Pick and carry* ❑
- *Wind/weather conditions* ❑
- *Supervision – one person to be in overall control of the operation.* ❑

75. When changing the boom in a pin boom mobile crane, which way are the pins inserted – from the inside or the outside?

From the inside. ❑

76. When dismantling the boom of a pin boom mobile crane with erection pendants attached to the butt, which pins are removed first, the top pins or the bottom pins?

If the erection pendants have the weight of the whole boom, the bottom pins can be removed first. ❑

NON-SLEWING MOBILE CRANES – ORAL/WRITTEN RELATIONSHIP TO THE NATIONAL CERTIFICATION STANDARD

THE UNITS OF COMPETENCE

The items in this part of the knowledge assessment are intended to assess the competencies of the applicant in the safe use of Non-Slewing Mobile Cranes as described in Schedule B of the *National Occupational Health and Safety Certification Standard for Users and Operators of Industrial Equipment.*

These are as follows:

1.0 Assess and secure equipment and work area.

2.0 Secure and transfer load.

3.0 Set up and dismantle Mobile Cranes.

4.0 Carry out special operations with Mobile Cranes.

Each unit of competence is subdivided into elements of competence for which performance criteria are prescribed. The questions in each section of the assessment cover the following competencies.

1. **Pre-operational checks**

   Performance Criteria 1.1.1, 1.1.2, 1.1.3, 1.3.1, 1.3.2, 1.3.3.

2. **Site/job planning**

   Performance Criteria 1.2.1, 1.2.2, 1.2.3, 1.2.5.

3. **Set up crane**

   Performance Criteria 1.2.1, 1.2.2, 1.2.3, 1.2.6, 1.3.5, 1.3.6, 1.4.4, 1.4.5, 2.1.1, 2.1.2, 2.2.1, 3.1.2, 3.2.2, 3.2.3.

4. **Operate crane**

   Performance Criteria 1.2.1, 1.2.2, 1.2.4, 1.2.6, 1.2.7, 1.3.1, 1.3.2, 1.3.5, 2.1.1, 2.1.2, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.3.2, 2.3.3, 2.3.5, 4.2.1, 4.2.2, 4.2.3.

5. **Shut down and dismantle crane**

   Performance Criteria 1.4.1, 1.4.2, 1.4.3, 1.4.6, 3.3.1.

6. **Special operations**

   Performance Criteria 4.3.1, 4.3.2, 4.3.3.

THE RANGE STATEMENT

The performance assessment takes into account factors described in the range statements, including relevant standards and relevant State/Territory occupational health and safety legislation.

Catalogue No. **WC00853** WorkCover Publications Hotline **1300 799 003**

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Website **www.workcover.nsw.gov.au**

ISBN 0 7310 5133 5