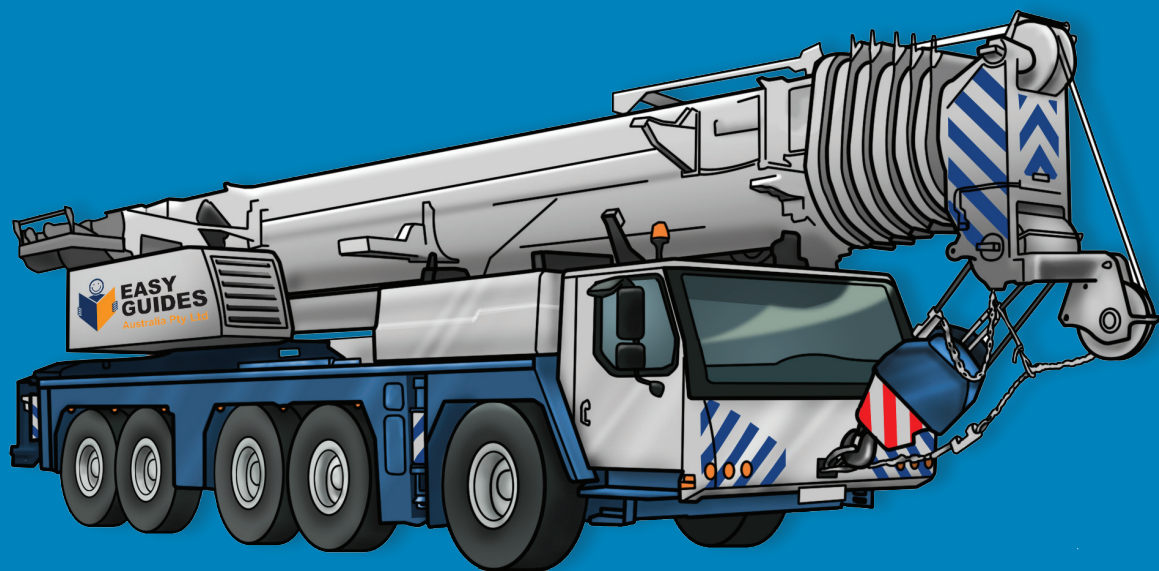


SLEWING MOBILE CRANE LEARNER WORKBOOK

TRAINER'S MARKING GUIDE WITH MODEL ANSWERS

TLILIC0022 Licence to operate a slewing mobile crane

**With load chart calculations
similar to NAI**



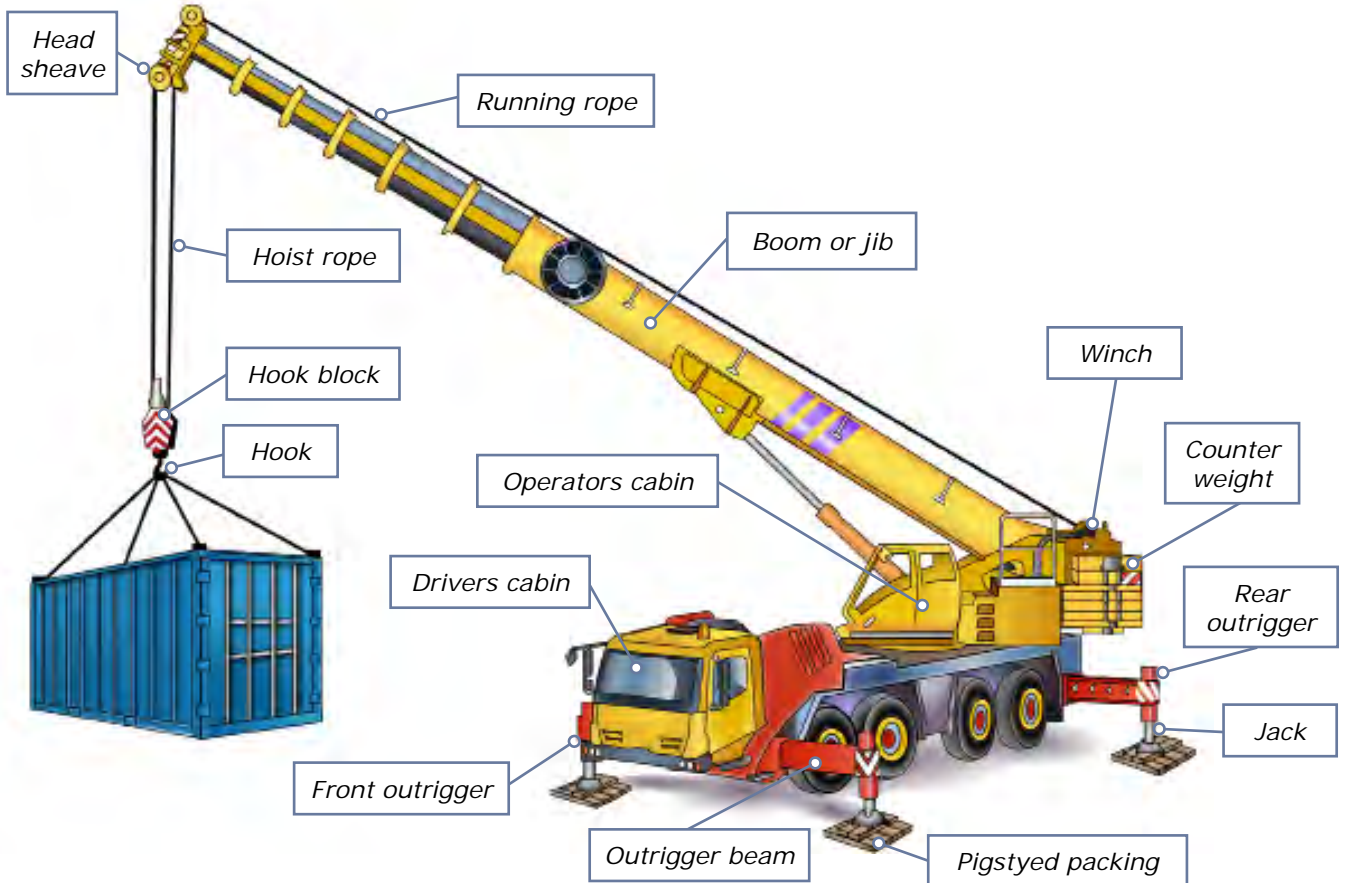
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What is a slewing mobile crane?

A slewing mobile crane is a powered crane which features a boom or jib that can slew from front to back. The crane is mounted on a vehicle.

Parts of a slewing mobile crane



<p>Slewing mobile crane</p>		<p>Crawler crane</p> 
<p>Rough terrain slewing crane</p>		

This learner resource does not cover front-end loader, backhoe, excavator or similar equipment when configured (arranged or set up) for crane operations.

Communicate clearly



Trainers please note:

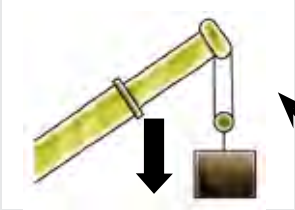



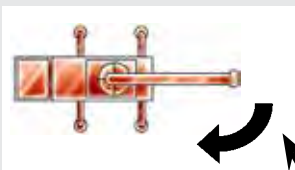






The answers in this book are in no way conclusive and are to be used as a guide only. Use your own knowledge and experience to correct the variation of answers that may be given by learners.



Theory Training Task 12

Performance Criteria: 3.4, 3.7

Match the crane boom motion on the left with the correct hand or whistle signals on the right.

<p>Hoisting down</p> 	
<p>Stop</p> 	 <p>1 long</p>
<p>Slewing right</p> 	
<p>Travel and transverse Indicate the direction you want the crane to go</p>	
<p>Luffing boom up</p> 	 <p>1 long, 2 short</p>
<p>Telescoping boom retract. Jib-trolley in.</p> 	

Part 3

Check the crane



Trainers please note:

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Performance Criteria: 2.4

Do visual checks

Before you start working, there are important crane safety checks you need to do first. Start with the visual check. Look around the crane for obvious problems such as leaks and damage.



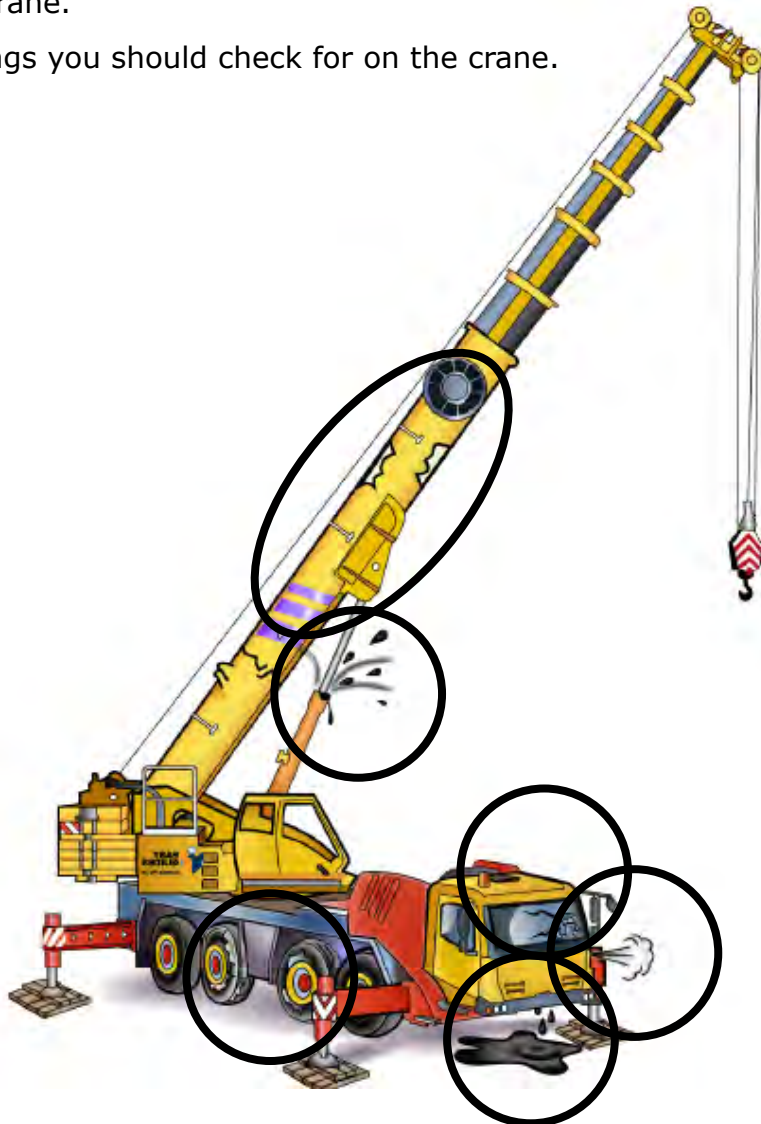
Theory Training Task 13

Performance Criteria: 2.4



Look at this crane.

Circle the things you should check for on the crane.



Performance Criteria: 2.4

Check signs and labels

Check the signs, labels and decals on the crane. These will tell you the crane's load limits and what it can and can't do. All signs and labels must be readable and clear.



Theory Training Task 16

Performance Criteria: 2.4

List at least 2 things you should be able to read on a data plate.

Answer may include:

- Weight (GVM)
- Dimensions
- WLL/SWL
- Model number
- Date of manufacture
- Serial number



Performance Criteria: 2.4

Do the pre-operational checks

Do the pre-operational checks to make sure the crane is safe to use.



Theory Training Task 17

Performance Criteria: 2.4, 2.12

What are four (4) pre-operational checks you need to do on the crane?

Answer may include:

- No safety tags on the crane
- Load charts
- Tyres (condition, pressure)
- Ropes, wires and anchorages
- Fluid levels and leaks (oil, water)
- Logbook is present and in good condition
- Structural damage to crane (including boom/jib)
- Signage (including manufacturer's data plate and working load limit)
- Rope drums
- Lifting hook
- Communication system

Set up the crane



Trainers please note:

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Performance Criteria: 1.4, 1.6

Follow safety procedures

Follow all of the safety procedures when you drive the crane to the work area.



Theory Training Task 36

Performance Criteria: 1.4, 1.6

Circle the correct answer for the following statements.

a) When driving a crane you do not have to obey road signs.

True

False

b) When driving a crane you must check for clearances below tunnels and powerlines.

True

False

c) When driving a crane outriggers/stabilisers do not have to be retracted.

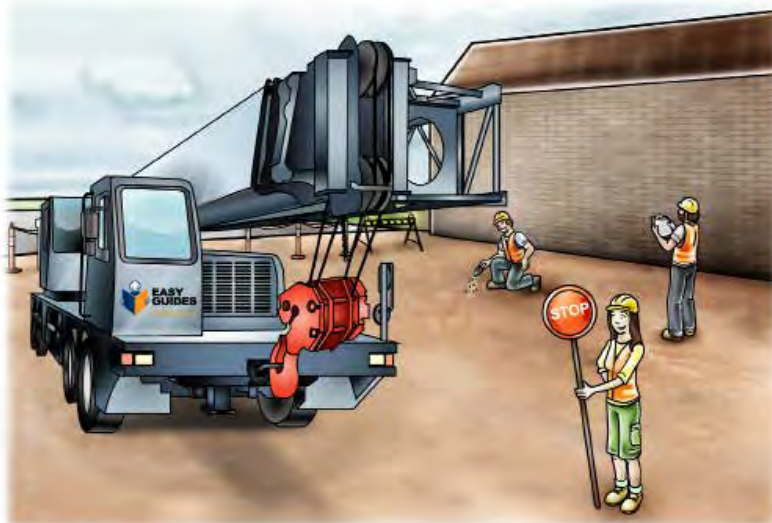
True

False

d) Pedestrians don't need to be a safe distance from the crane.

True

False



Performance Criteria: 1.2, 2.1

Position the crane

Position the crane in a spot which is good for balance and the lift.



Theory Training Task 37

Performance Criteria: 1.2, 2.1

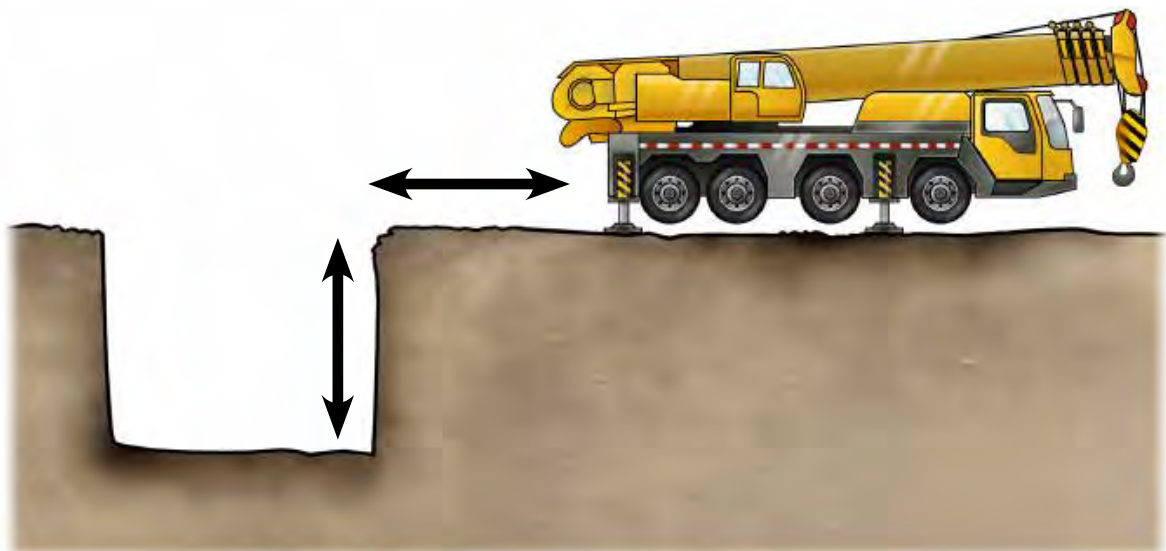
- a) How far away should you set up your crane from a 4 metre deep trench or excavation?

At least four metres away.



- b) If the ground is soft near the trench, what should you do?

You might need to set up further away from the trench.





Theory Training Task 38

Performance Criteria: 1.2

Write a number in each box to show the right order in which you **set up** a slewing mobile crane on **sloping ground**.

2

Chock the wheels

1

Put on the parking brake

3

Set up the outriggers on the lowest side to level the truck



Theory Training Task 39

Performance Criteria: 3.3



Why are outriggers and packing important when you use a slewing mobile crane?

- Outriggers help keep the crane stable.
- Packing distributes the weight of the crane and load over a bigger area.





Theory Training Task 40

Performance Criteria: 1.8, 1.9, 3.3

a) What is the formula for calculating packing?

$$\text{Area} = \frac{0.65 \times (\text{Cm} + \text{L})}{\text{V}}$$

b) Use the figures below to estimate the area needed for packing.

Cm (crane mass) = 42 t

L (load mass) = 21 t

V (bearing pressure of the ground in tonnes m²) = 25 t

Round up to the nearest whole centimetre.

$$\text{Area} = 1.638 \text{ m}^2$$

Round up to the nearest whole centimetre

$$\text{Area} = 1.64 \text{ m}^2$$



c) What is the length of one side of packing?

$$\sqrt{1.64} = 1.28 \text{ m}$$



Theory Training Task 41

Performance Criteria: 1.2

Label the types of packing shown below.



Pigsty timber packing

Sleeper mats

Steel plates