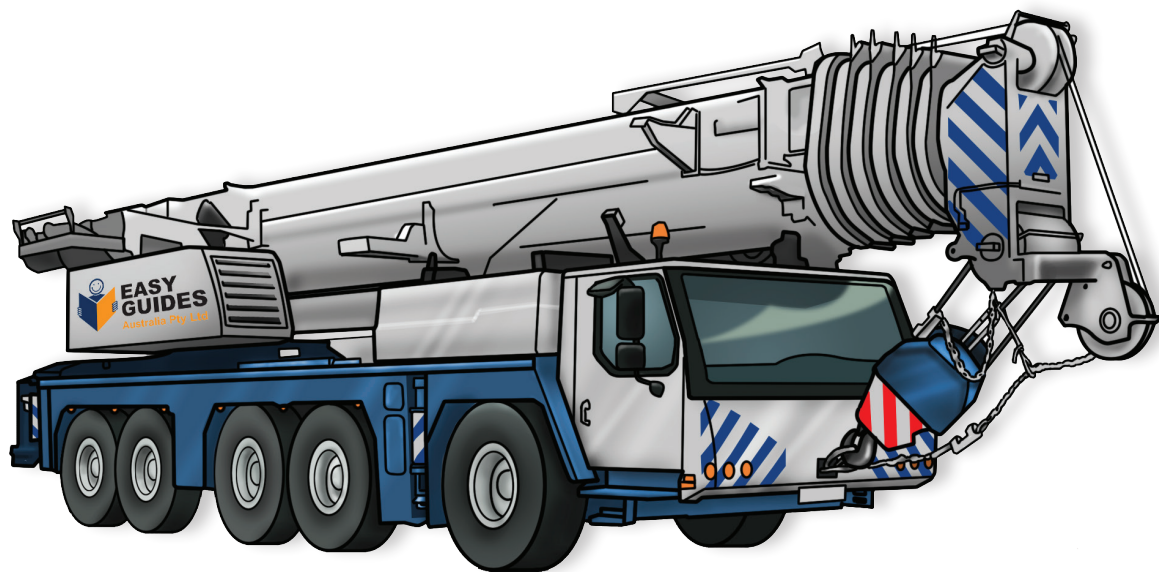


SLEWING MOBILE CRANE LEARNER WORKBOOK

TLILIC0022 Licence to operate a slewing mobile crane (up to 20T)

**With load chart calculations
similar to NAI**



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Learner name:

Student number:

Date:

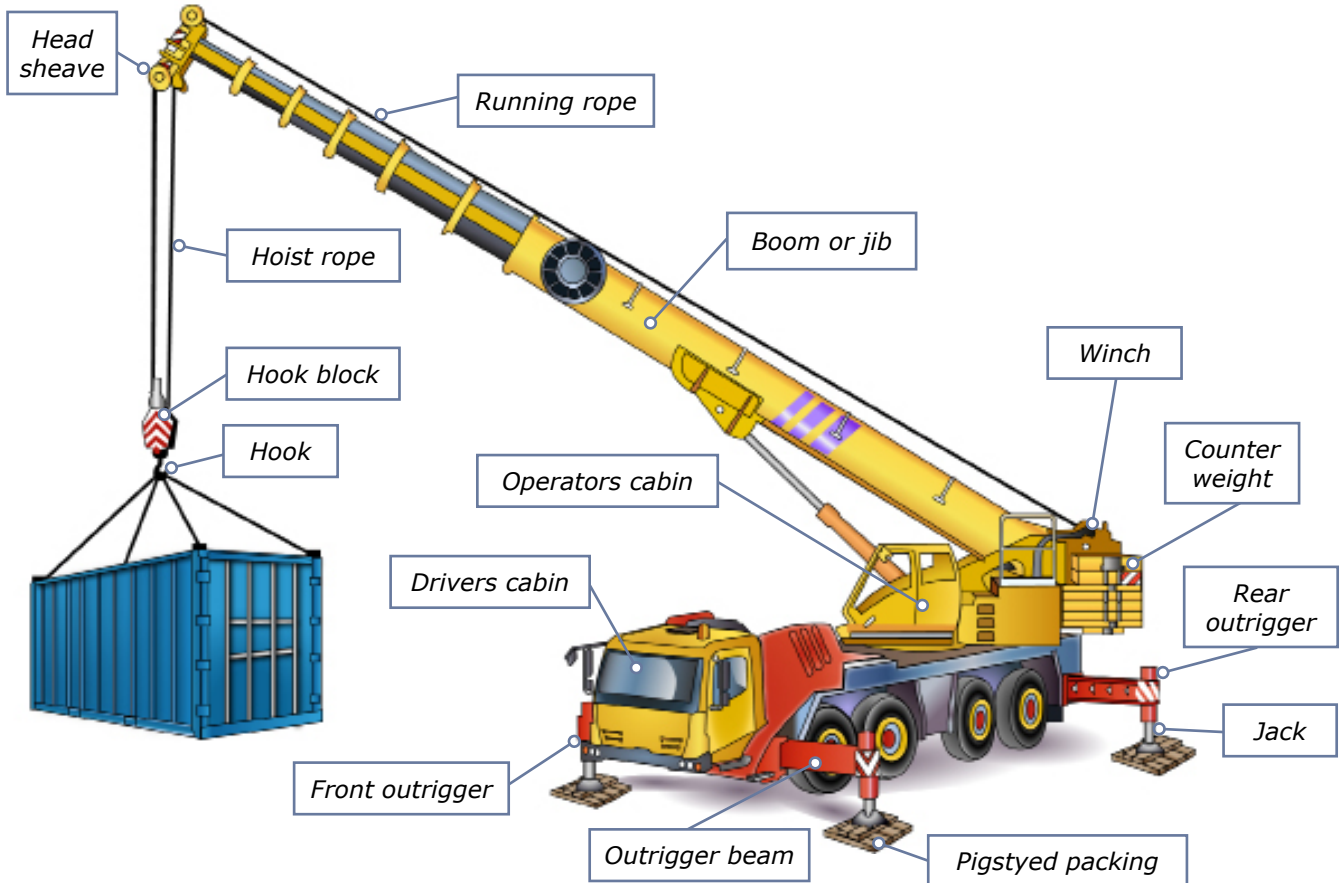
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What is a slewing mobile crane?

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



Slewing mobile crane



Crawler crane



Rough terrain slewing crane



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

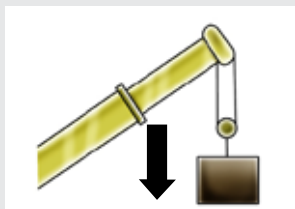


Theory Training Task 12

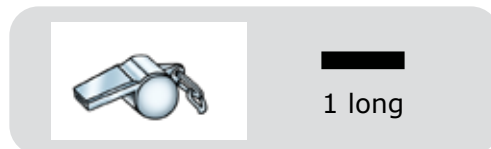
Performance Criteria: 3.4, 3.7

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

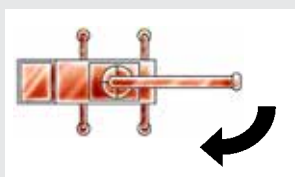
Hoisting down



Stop



Slewing right

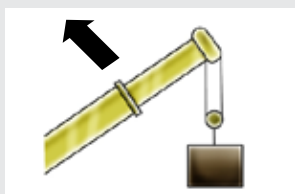


Travel and transverse

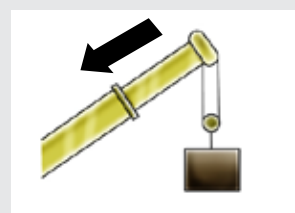
Indicate the direction you want the crane to go



Luffing boom up



Telescoping boom retract. Jib-trolley in.



Part 3

Check the crane



Performance Criteria: 2.7

Record and report faults




If you find any faults with the crane, follow the tag out procedure and do not use the crane.



Theory Training Task 25

Performance Criteria: 2.7

Label and explain the steps you must take if you find a fault or have any problems with the slewing mobile crane you use.

<p>1.</p> 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>2.</p> 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>3.</p> <div data-bbox="146 1550 687 1671" style="border: 1px solid black; padding: 5px;"><p>Fault Reported By: Date: .../.../.....</p><p>Description of fault:</p><p>NOTE: Operator to TAG OUT machine if needed.</p></div>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>4.</p> 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

Part 4

Plan the lift



Slewing mobile crane charts (up to 20 tonnes)

Note: For the following crane exercises us the C2 LOAD CHART_MAEDA MC285-3 load chart. This is located in the 'Trainer's Resource' of the Easy Guides training material. Your trainer will provide you with this crane chart.



Load Chart Activity 2

Performance Criteria: 2.6, 3.1

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MC-285C-3 Working Range Chart

1. This chart does not reflect any loading of booms.
 2. Case 1 represents the case where one-half of mark is exposed from 3rd stage boom.
 3. Case 2 represents the case where second of mark is exposed from 2nd stage boom.

WARNING

- Use a leveling instrument to position your machine horizontally on level and hard ground.
- Use outriggers extended to the maximum, in principle.
- For setting insert retainer pins for positioning pins.
- For travelling, be sure to stow outriggers.

CAUTION

- For crane work, extend four outriggers so that load is uniformly applied and tracks are lifted off the ground by about 80mm.
- Do not perform crane work with tracks grounded, because it may cause damage to undercarriage. Do not lift your machine excessively for increasing the lifting height over the ground level, which will cause the stability to be reduced. Work within the specified values.

MC-285C-3 Rated Total Load Chart

Rated Total Load Chart with outrigger extended to maximum								Rated Total Load Chart with outrigger extended to other than maximum							
2.535m/4.075m Boom		5.575m Boom		7.075m Boom		8.575m Boom		2.535m/4.075m Boom		5.575m Boom		7.075m Boom		8.575m Boom	
Working Radius (m)	Rate Total Load (t)	Working Radius (m)	Rate Total Load (t)	Working Radius (m)	Rate Total Load (t)	Working Radius (m)	Rate Total Load (t)	Working Radius (m)	Rate Total Load (t)	Working Radius (m)	Rate Total Load (t)	Working Radius (m)	Rate Total Load (t)	Working Radius (m)	Rate Total Load (t)
1.4 or shorter	2.82	1.0 or shorter	1.22	0.8 or shorter	0.82	0.5 or shorter	0.55	0.5 or shorter	1.72	1.0 or shorter	0.51	0.8 or shorter	0.40	0.6 or shorter	0.33
1.5	2.52	3.5	0.97	4.0	0.74	4.5	0.4	2.0	1.07	3.5	0.41	4.0	0.33	4.5	0.28
2.0	1.92	4.0	0.78	4.5	0.58	5.0	0.34	2.5	0.63	4.0	0.33	4.5	0.28	5.0	0.23
2.5	1.57	4.5	0.63	5.0	0.48	5.5	0.5	3.0	0.52	4.5	0.28	5.0	0.23	5.5	0.18
3.0	1.22	5.0	0.53	5.5	0.43	6.0	0.27	3.5	0.39	5.0	0.20	5.5	0.18	6.0	0.16
3.5	0.97	5.205	0.53	6.0	0.38	6.5	0.23	3.705	0.35	5.205	0.20	6.0	0.18	6.5	0.13
3.705	0.82			6.5	0.35	7.0	0.12					6.5	0.18	7.0	0.10
				6.705	0.33	7.5	0.18					6.705	0.12	7.5	0.08
						8.0	0.15							8.0	0.07
						8.205	0.15							8.205	0.06

1. The Rated Total Load Chart is based on actual working radius with the bending of boom attributable to load reflected and is shown with the mass of hook (20kg) included when.
 2. If third stage boom is extended to any extent, work should be performed within the capacity for "Boom 5.575m".
 3. If one half or more of the mark is exposed from second boom, work should be performed within the capacity for "Boom 7.075m".
 4. If one half or more of the second mark is exposed from second stage boom, work should be performed within the capacity for "Boom 8.575m".
 5. Rough operation of crane is extremely dangerous. Stick to safe operation.

OUTRIGGERS EXTENDED TO MAXIMUM

With the inner box pulled out to the position of Maximum Extension, positioning pin for outrigger base is set Maximum Position.

- If the position of inner box or outrigger base positioning pin is retracted by even one step, your work should be performed in accordance with the value for other than maximum extension.
- When swinging with a load suspended, stability may vary between the front and rear or right and left side of the machine. Perform your work with the working radius reduced to as short as possible and paying attention to a possibility of tipping over.
- For any crane work, use outriggers to maintain the machine body horizontally.
- When setting up outrigger excepting for above disaving, work should be performed in accordance with the "Zone where crane work is prohibited".
- Maximum stretch the pull 700kg.
- Loads are based upon 75% tipping.

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Set up the crane





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**.

Chock the wheels

Put on the parking brake

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?

.....

.....

.....

.....





Theory Training Task 40

Performance Criteria: 1.8, 1.9, 3.3

a) What is the formula for calculating packing?

.....
.....



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

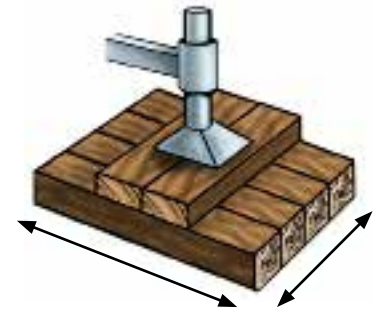
Cm (crane mass) = 42 t

L (load mass) = 21 t

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

Round up to the nearest whole centimetre.

.....
.....
.....
.....



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

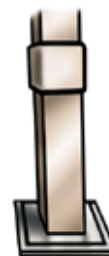
.....



Theory Training Task 41

Performance Criteria: 1.2

Label the types of packing shown below.



.....

