

SLEWING MOBILE CRANE (100T) SAFETY AND LICENCE GUIDE

Training support material for:

TLILIC0021

Licence to operate a slewing mobile crane
(up to 100 tonnes)



Produced by:



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Introduction to Slewing Mobile Crane (up to 100 tonnes)

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.

Slewing mobile crane



Crawler crane

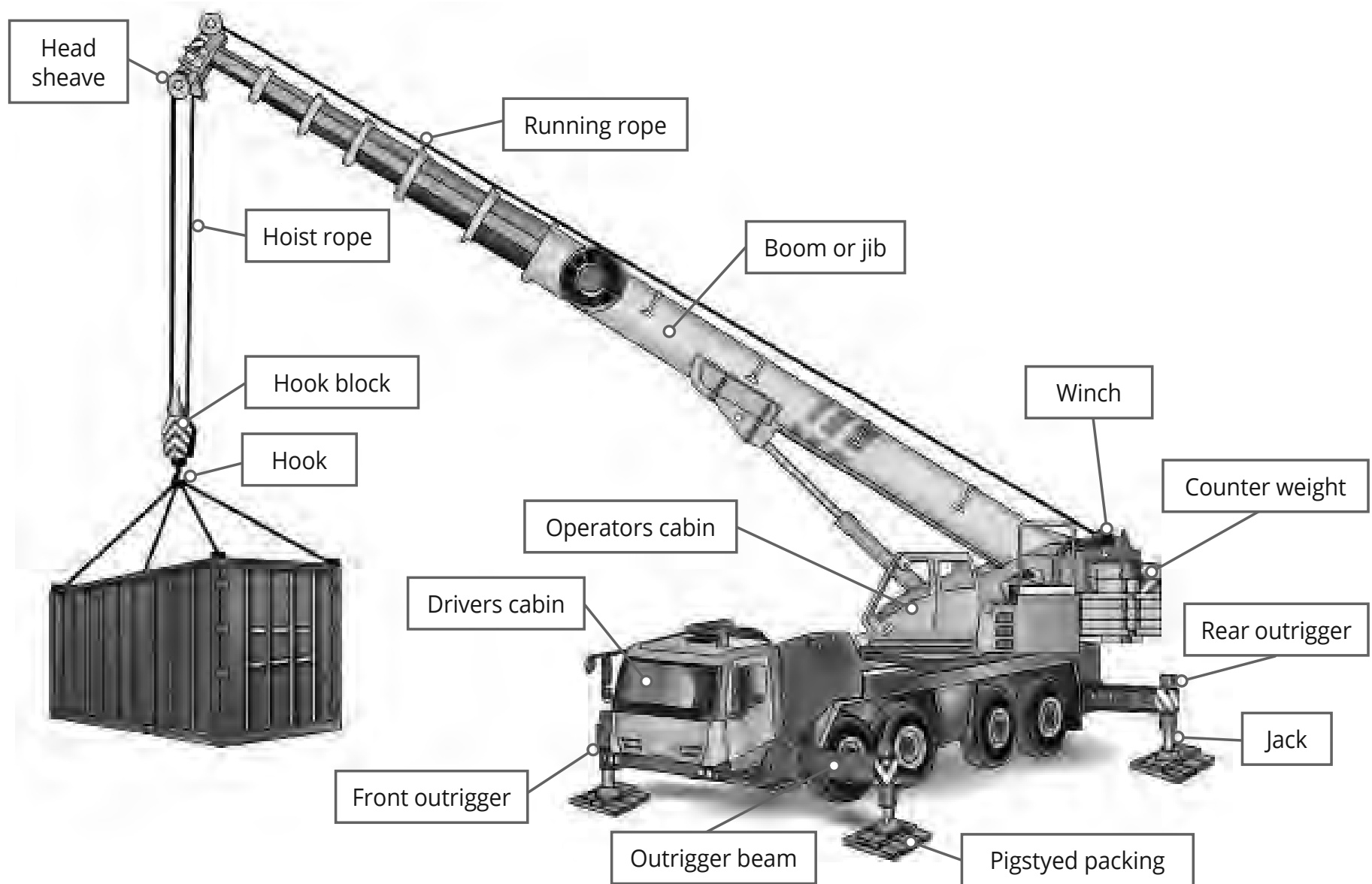


Rough terrain slewing crane



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

Parts of a slewing mobile crane



Element 1 – Plan work / task

Convert m² to find the dimensions of the packing pad

Now you know how many square metres of packing you need. If you need to calculate the measurements of the packing pad to use you simply square root the square metres.

$$\sqrt{0.2166}$$

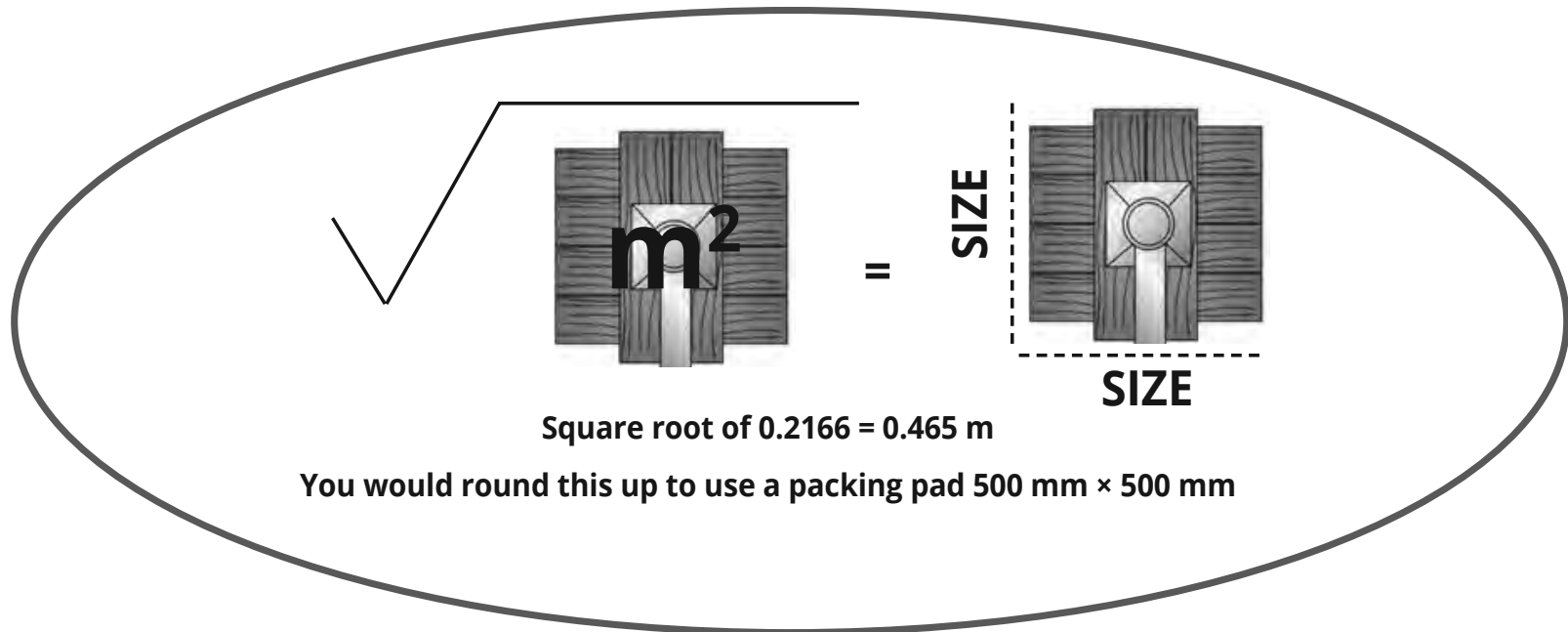
= 0.465 metres

Minimum packing size = 0.465 m × 0.465 m

Round up the size = 500 mm × 500 mm

Note:

0.465 m or 465 mm is an uncommon size so the 465 mm is rounded up to a common size of 500 mm × 500 mm



Types of packing

Types of packing you may use include:

Steel plates



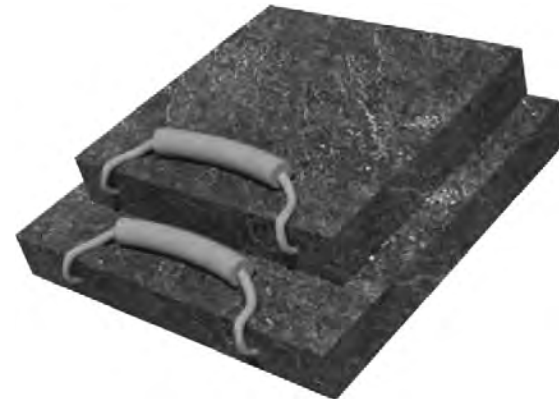
Hardwood packing



Sleeper mats



Concrete rafts



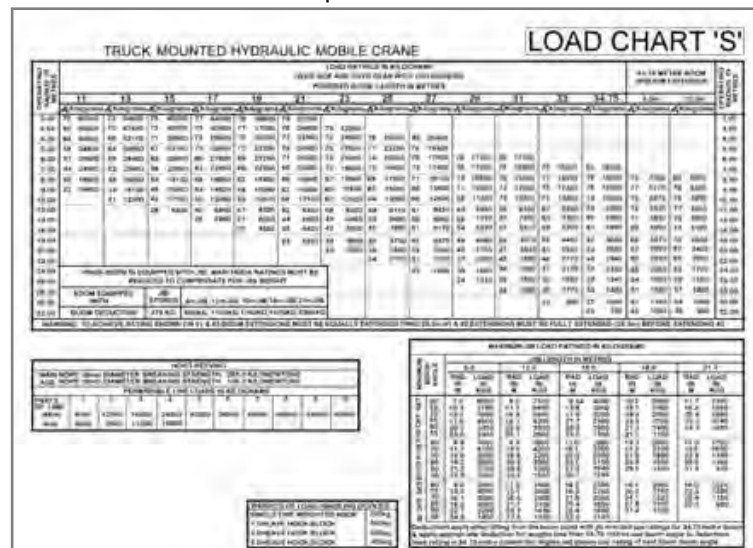
Packing is placed under the outriggers to distribute the weight of the crane and load.

Element 2 – Prepare for work / task

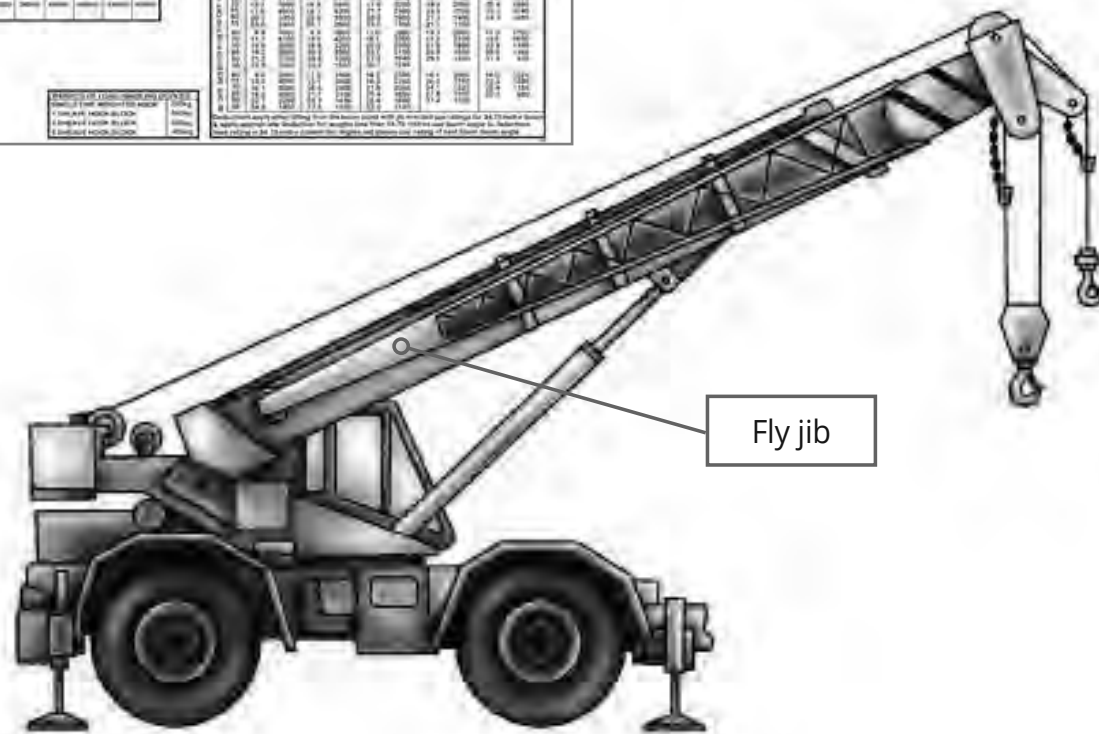
QUESTION 101

What happens to the WLL when the fly jib is stowed on the main boom section?

The WLL is reduced (lowered). To find out if the crane can be mobilized with a load on the jib, check the crane chart/ specifications.



Load chart

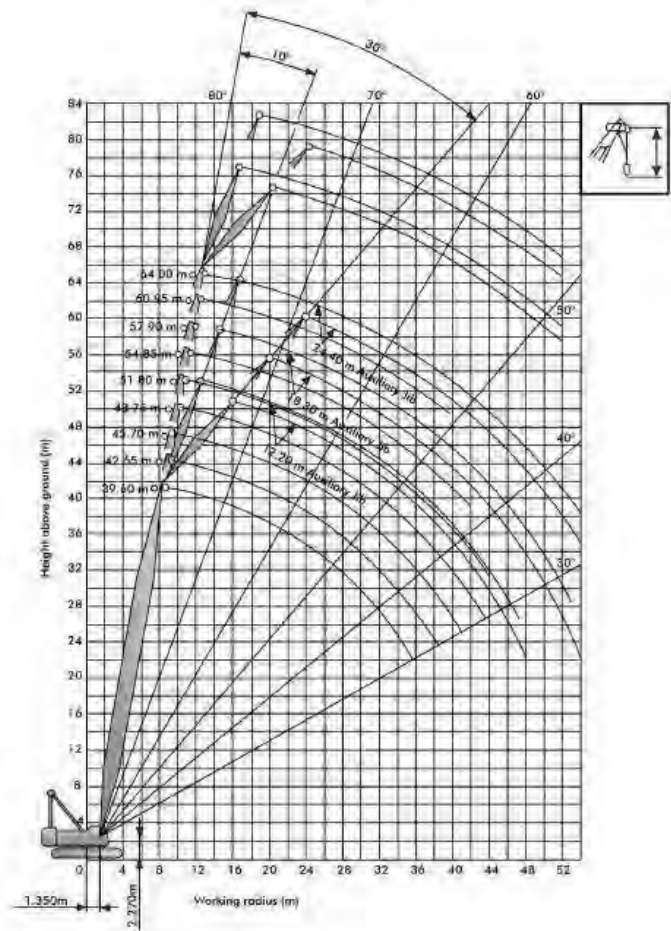


Fly jib

QUESTION 102

How can you find out the load rating when the fly jib is set up?

Check the load chart or the angle of the jib.



READING LOAD CHARTS

FOR CRANES UP TO 100 TONNES

Load Chart - 100 Tonne (A)

WARNING

1. Boom backstops are required for all boom lengths.
2. Gantry must be in a raised position for all operating conditions.
3. Boom inserts must be arranged as shown in the 'Boom Insert Arrangement Chart'.
4. Mid-point suspension (centre hitch) required when boom length is 55.5m or longer.
5. Safe loads depend up on ground conditions, boom length, radius of operation and proper handling. All of which must be taken into account by the user.
6. Standard boom hoist reeving is 12 parts line.
7. Ratings are based on crawler extended to a fulcrum point. Crawler frames must be fully extended for all crane operations.
8. For main boom ratings, with jib erected not shown, use rating for next longer boom.

Operating Radius (M)	Main boom in 360° work area - rated crane loads in kilograms (KGs)										Operating Radius (M)	
	Powered boom lengths in metres											
	34	36	40.5	43	46	49	52.5	55.5				
	KGs	KGs	KGs	KGs	KGs	KGs	KGs	KGs	KGs	KGs		
4.00											4.00	
5.00											5.00	
5.50											5.50	
6.00											6.00	
7.00											7.00	
8.00	80	22,900									8.00	
9.00	78	23,000	78	22,900	79	22,800					9.00	
10.00	76	19,800	76	19,700	77	19,600	78	19,500	78	19,400	10.00	
12.00	73	15,400	74	15,300	75	15,200	76	15,100	76	15,000	12.00	
14.00	69	12,500	71	12,400	72	12,300	74	12,200	74	12,100	14.00	
16.00	65	10,400	67	10,300	68	10,200	71	10,100	71	10,000	16.00	
18.00	61	8,800	63	8,700	64	8,600	67	8,500	67	8,400	18.00	
20.00	57	7,600	59	7,500	60	7,400	63	7,300	63	7,200	20.00	
22.00	53	6,700	55	6,600	56	6,500	59	6,400	59	6,300	22.00	
24.00	49	5,900	51	5,800	52	5,700	55	5,600	55	5,500	24.00	
26.00	44	5,200	47	5,100	48	5,000	51	4,900	51	4,800	26.00	
28.00	35	4,700	42	4,600	43	4,500	47	4,400	47	4,300	28.00	
30.00	31	4,200	33	4,100	34	4,000	40	3,900	40	3,800	30.00	
32.00			29	3,600	31	3,500	35	3,400	35	3,300	32.00	
34.00					30	2,900	33	2,800	33	2,700	34.00	
36.00						29	2,400	29	2,300	29	2,200	36.00
38.00									1,900	29	1,750	38.00
40.00											1,550	40.00

NOTE: Please read the other 'Reading Load Charts' section before reading this section.

Step 1 - Find the right load chart

The first step in reading a load chart is to make sure the load chart you have matches the crane you are using.

You should check the heading on the load chart and make sure it matches the type of crane you are using.

For example, this chart is for a crane which can lift up to 100 tonnes.

GR-800EX RATED LIFTING CAPACITIES

OPERATING CAPACITY FULLY EXTENDED 7.0m SPREAD
280° ROTATION (LINE 4) (100t)

Lift Height (m)	2.0m		3.0m		4.0m		5.0m		6.0m		7.0m		8.0m		9.0m		10.0m	
	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)	Capacity (t)
10.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
9.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
8.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
7.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
3.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1.0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

CRANE CHART CALCULATIONS

Look at crane charts in the Trainer's Resources in the Easy Guides 'Start-up Pack for Mobile Slewing Cranes (up to 100T)'.

The crane charts include:

- C1 LOAD CHART_LIEBHERR LTM1100-5.2
- C1 LOAD CHART_TADANO GR800 (002)

Answer the questions related to these crane charts. Your trainer will check your answers.

EXAMPLES OF READING CRANE CHARTS

Note: The following crane chart exercises us the C1 LOAD CHART_LIEBHERR LTM1100-5.2 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.



General Questions

a) What counterweight is fitted to the crane to allow it to have on-road axle weights of 12t?

Answer = 7t counterweight

b) What is the rated capacity of the 7-sheave hook block?

Answer = 55t

c) What is the tare weight of the 30.2t rated capacity hook block?

Answer = 260kg

d) The working radii on the LTM 1055 3.2 is measured from where on crane?

Answer = From centre of slew