SLEWING MOBILE CRANE (20T)
SAFETY AND LICENCE GUIDE

EASY GUIDES

EASY GUIDES
Australia Pty Ltd

CONTENTS

Introduction to Slewing Mobile Crane (up to 20 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
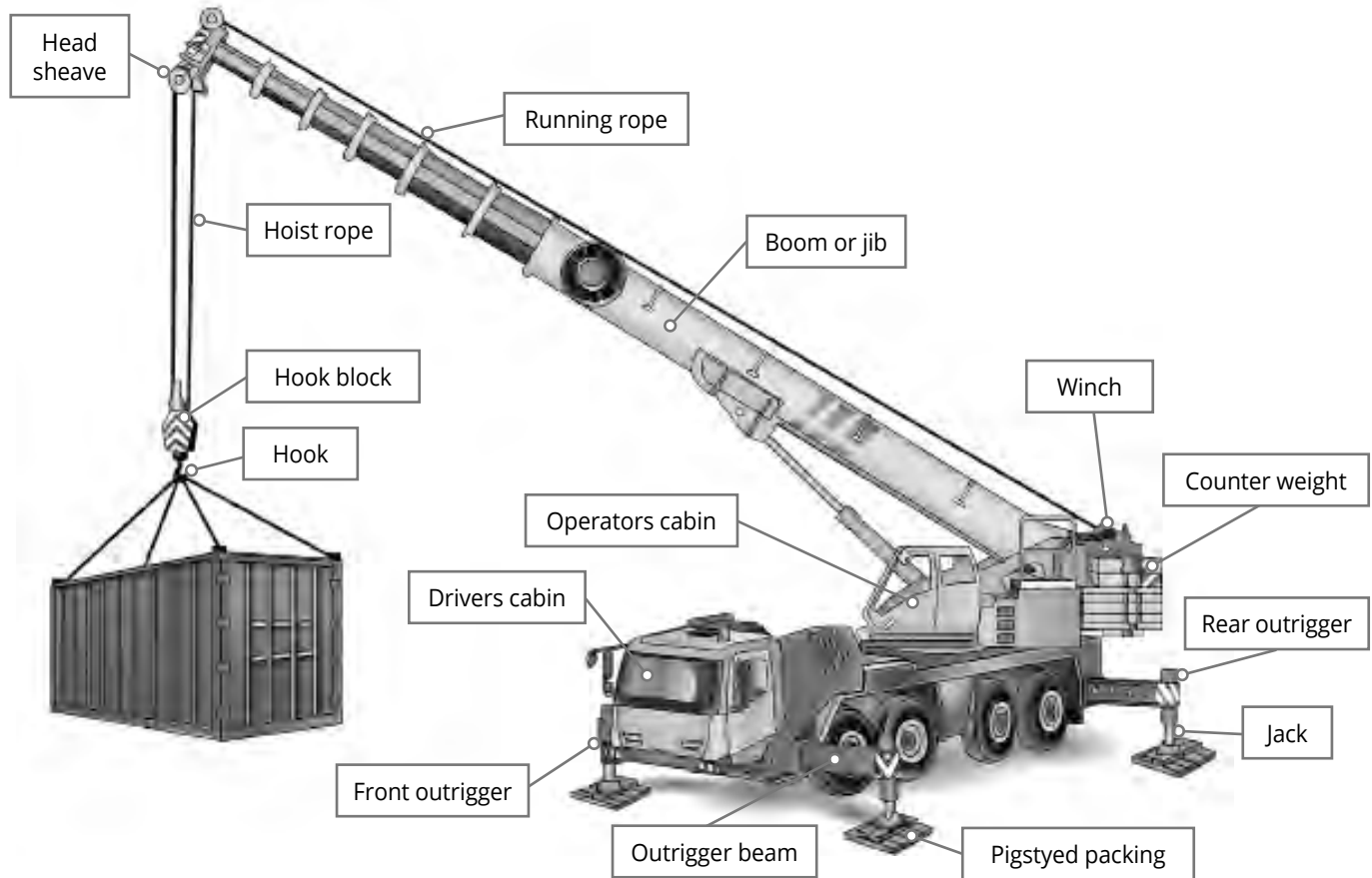

Crawler crane

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

Head sheave

Running rope

Hoist rope

Boom or jib

Hook block

Winch

Hook

Counter weight

Operators cabin

Drivers cabin

Rear outrigger

Jack

Front outrigger

Outrigger beam

Pigstyed packing

Element 1 – Plan work / task

Set up the crane for the task

The configuration (set up) of the crane determines how much you can lift.

Set up the crane so the load will **never** be more than the Safe working load (SWL) of the crane.

Setting up the crane includes:

- Positioning the boom/ over the load correctly
  – boom length and radius

- Working out the centre of gravity

- Looking at the load chart to see if the crane can support the load

- Checking the rated capacity of the crane

- Setting up the counterweights to keep the crane balanced.

Note:

A licenced dogger is responsible for selecting, inspecting and setting up the lifting gear.

QUESTION 34

What hazards (dangers) are there if people work near the outriggers or chassis of a slewing crane?
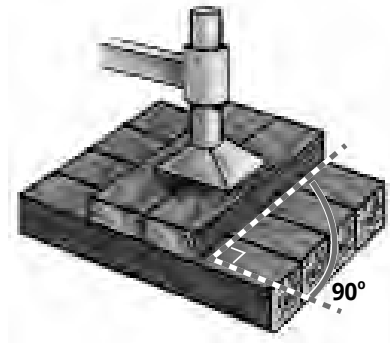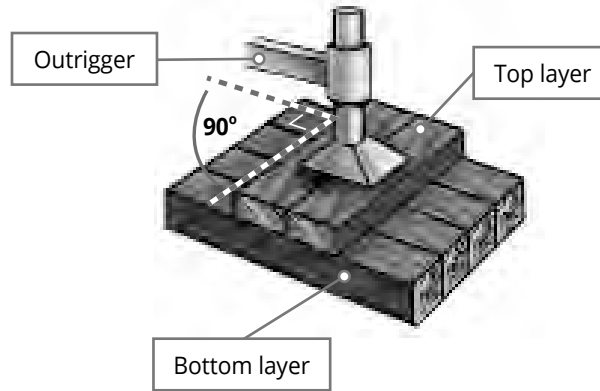
The crane or load could hit or crush a person between the crane and outrigger. Individuals should stay **outside** the exclusion zone.

Exclusion zones are to keep people out.
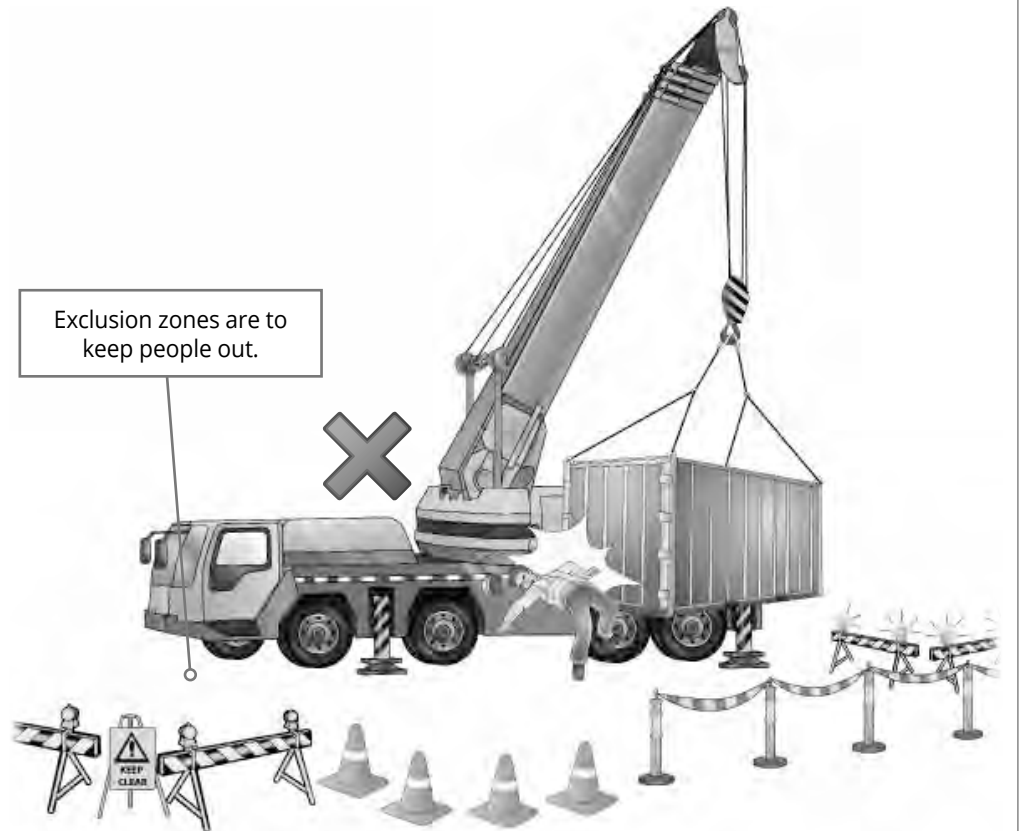
QUESTION 89

What should the angle between the first (bottom) and second (top) layer of pigstying be?

The angle should be 90 degrees between layers of pigstying.

QUESTION 90

What information does a load chart usually have on it?

The load chart shows:

• The winch line pull

• The crane's rated capacity

• The hook block's mass

• Rope fall capacities. Multiple rope fall capacities (eg. 4-fall hook block).

• Operating radius of the crane

• Rubber ratings. The chart will tell you the most stable side to lift the load over. This will be part of the manufacturer's specifications.

CRANE LOAD CHART

Showing Rated Lifting Capacity (in tonnes) on Fully Extended Outriggers

| Radius	10.1m Boom		18.1m Boom		26.0m Boom	
(m)	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side
3.0	25.00	25.00	14.00	14.00		
3.5	21.70	21.70	13.40	13.40		
4.0	18.50	18.50	12.75	12.75		
4.5	15.50	15.50	12.15	12.15		
5.0	12.80	12.80	11.60	11.60	7.40	7.40
5.5	10.50	10.50	10.00	10.00	7.10	7.10
6.0	8.80	8.80	8.70	8.70	6.65	6.65
6.5	7.70	7.55	7.70	7.70	6.40	6.40
7.0	6.85	6.60	6.85	6.60	6.10	6.10
7.5	6.20	5.70	6.20	5.70	5.75	5.75
8.0	5.60	4.95	5.60	4.95	5.40	5.40
8.5	5.05	4.36	5.05	4.35	5.00	4.80
9.0			4.60	3.85	4.60	4.35
10.0			3.90	3.10	3.90	3.50
11.0			3.30	2.65	3.30	2.95
12.0			2.80	2.25	2.80	2.50
13.0			2.40	1.95	2.40	2.15
14.0			2.10	1.55	2.10	1.80
16.0					1.55	1.30
18.0					1.20	0.95
20.0					0.90	0.60
22.0					0.70	0.40
24.0					0.55	0.25

QUESTION 91

You are looking at the crane load chart.

What does operating radius mean?

The operating radius tells you how much weight the crane can lift, depending on the boom length and height.

The operating radius is the distance from the hoist line to the crane's centre of rotation. If the working radius is not shown on the load chart, use the longer operating radius as this reduces the rated capacity.

Crane's centre of rotation

Hoist line

Operating radius

Hoist line

Crane's centre of rotation

Operating radius
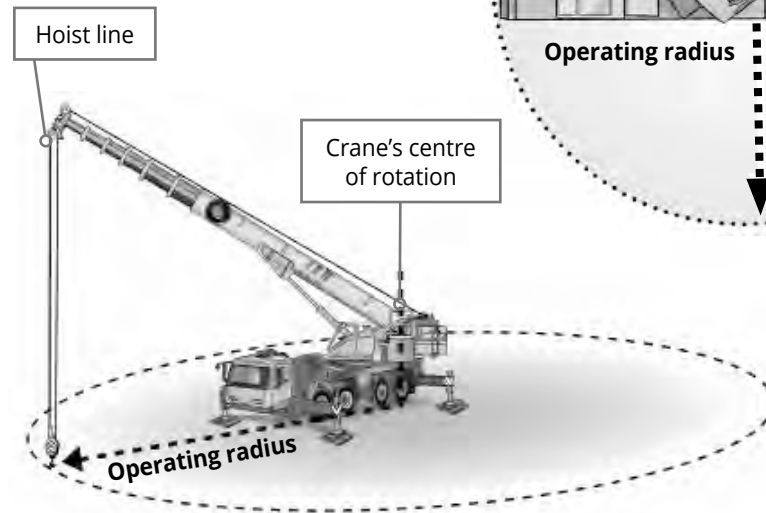
READING LOAD CHARTS
FOR CRANES UP TO 20 TONNES

Load Chart - Up to 60 Tonne (A)

Maximum Jib Load Ratings Deductions

Deductions apply when lifting from beam point with jib erected use ratings for 36 metre boom and apply appropriate deductions for lengths less than 36 metres use boom angle to determine load rating in 36 metre column for angles not shown using rating of next Tower boom angle.

Maximum Jib load ratings in kilograms (KGs)

Jib Length in metres (M)

Minimum Boom Angle	9 Radius (M)	9 KGs	12 Radius (M)	12 KGs	15 Radius (M)	15 KGs	18 Radius (M)	18 KGs	21 Radius (M)	21 KGs
10 Offset										
80.00	7.6	8,700	8.4	7,395	9.8	4,437	10.9	2,884	12.0	2,019
75.00	11.1	7,800	11.9	6,630	12.9	3,978	13.0	2,586	15.5	1,810
70.00	14.0	7,100	14.8	6,035	16.2	3,621	17.3	2,354	18.4	1,648
65.00	17.4	4,600	18.2	3,910	19.6	2,346	20.7	1,525	21.8	1,067
60.00	20.2	3,400	21.0	2,890	22.4	1,734	23.5	1,127	24.6	918
55.00	23.5	2,500	24.3	2,125	25.7	1,275	26.8	1,020	27.9	
20 Offset										
80.00	8.8	8,200	9.6	6,970	11.0	4,182	12.1	2,718	13.2	2,175
75.00	12.3	7,300	13.1	6,205	14.5	3,723	14.0	2,420	16.7	1,936
70.00	15.2	6,600	16.0	5,610	17.4	3,366	18.5	2,188	19.6	1,750
65.00	18.6	4,100	19.4	3,485	20.8	2,091	21.9	1,359	23.0	1,087
60.00	21.4	2,900	22.2	2,900	23.6	1,479	24.7	1,183	25.8	947
55.00	24.7	2,000	25.5	1,700	26.7	1,020	28.0	918	29.1	734
30 Offset										
80.00	10.0	7,700	10.8	6,545	12.6	5,236	13.7	3,403	14.8	2,382
75.00	13.5	6,800	14.3	5,780	16.1	4,624	17.2	3,006	18.3	2,104
70.00	16.4	6,100	17.2	5,185	19.0	4,148	20.1	2,696	21.2	1,887
65.00	19.8	3,600	20.6	3,060	22.4	2,448	23.5	1,591	24.6	1,114
60.00	22.6	2,400	23.4	2,040	25.2	1,632	28.2	1,061		
55.00	25.9	1,500	26.7	1,275	30.7	1,020				

Hook block weight - (KGs)

Single Line Weighted Hook	200 kg
1 Sheave Hook Block	360 kg
3 Sheave Hook block	450 kg
5 Sheave Hook Block	500 kg

NOTE:
Please read the 'Reading Load Charts for all crane classes' before reading this section.