

VEHICLE LOADING CRANE LEARNER WORKBOOK

TLILIC0002

Licence to operate a vehicle loading crane
(capacity 10 metre tonnes and above)



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National Licence
RTO-VET Learning Materials

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Chapter 1

Plan Work





Theory Training Task 1

Performance Criteria: 1.5

Identify (know) workplace hazards. A hazard is anything that can harm you or others while you work. You need to identify (know) workplace hazards before you start work. Look for hazards. Look above you, look around you and check the ground below you.

a) Give examples of hazards you should look for before you begin work.

Above head height

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Ground level to eye level

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Ground level (and below)

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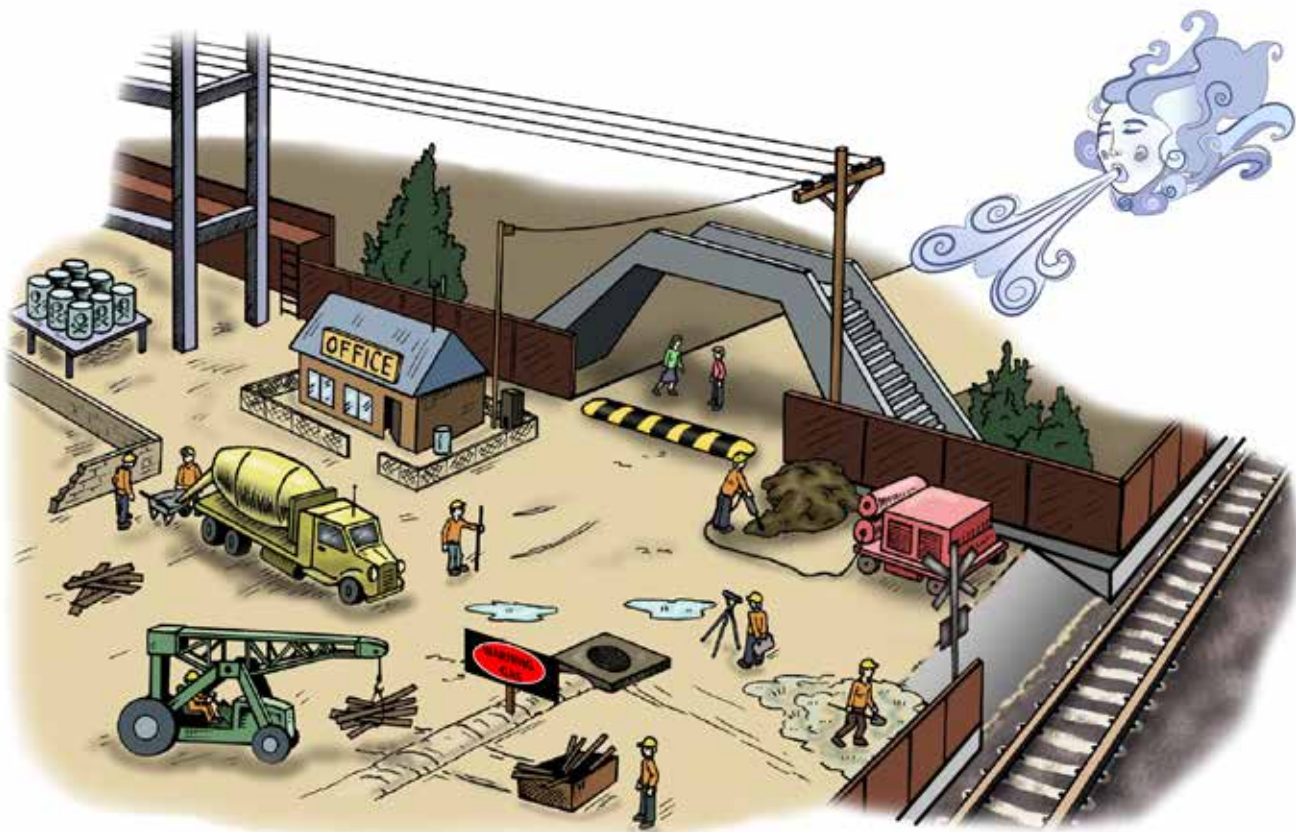
b) Tick any of these hazards you may have come across in past or present workplaces.



Theory Training Task 2

Performance Criteria: 2.2

a) **Circle** all the hazards you can find in the picture below.



b) Can you explain why the people in this picture might be a hazard if you were to operate a vehicle operated crane nearby?

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c) Can you think of ways to make sure these people do not get in the way of the vehicle loading crane?

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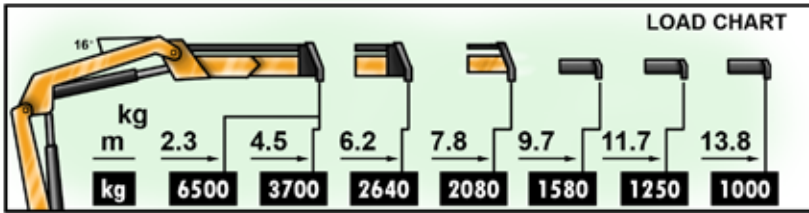
b) How much do 12 of the same beams you just calculated weigh in tonnes?

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c) Look at the load chart below. Can you safely lift this load?
Use the lower reading on the load chart.



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Theory Training Task 8

Performance Criteria: 1.3

What is the total weight of the following load in kilograms?

- 12 × 6 m scaffold planks (1 m scaffold plank = 7 kg)
- 5 × 9 m universal beams (1 m universal beam = 125 kg)
- 2 × 3 m long and 2 m wide mild steel plates (1 m² mild steel plate = 156 kg)
- Total weight = length × number of parts × weight

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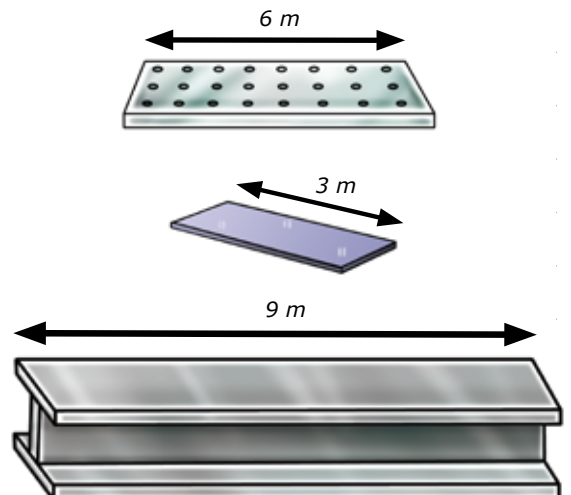
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Load charts

This workbook covers TLILIC0002 Licence to operate a vehicle loading crane (capacity 10 metre tonnes and above).

Read this page, and answer the questions about the crane capacity you are studying for.

Introduction to load charts

All cranes have their own load chart. The load chart gives information about the load capacity of the crane in a given configuration (set up). The crane's capacity changes depending on how the crane is set up.

The configuration of the crane includes:

- the outrigger set up
- the length and angle of the main boom
- maximum line load and winch capacity
- fly jib and hook attachments.

Other important information can include:

- specific limitations of boom angles
- operational condition such as wind speed.

Read all of the information on the load chart.



How to read load chart

To calculate the maximum load that you can safely lift, there are some basic rules for all load charts.

1. Outriggers

Work out the outrigger set up. This will help you know which section of the load chart to look at.

2. Boom length

Work out the length of the boom. This will help you know which column to look at.

3. Operating radius

Work out the operating radius. This will help you know which row to look at.

4. Capacity

The figure in the box will state the capacity of the crane.

5. Hook block/s

The weights of hook block(s) are part of the load. Deduct the weight from the capacity. These weights are on the load chart.

6. Jib weight

The weight of the jib (fly), either fitted or stowed are part of the load and may be a deduction from the capacity. This information is on the load chart.

7. Line (hoist rope)

Look at the hoist rope reeving to determine how many parts of line (hoist rope) are needed to support the load. For example, if the load you will lift is 5 tonnes and if the hoist rope has a capacity of 3 tonnes then 2 parts of line are required to safely hoist the load.

8. Jib configuration

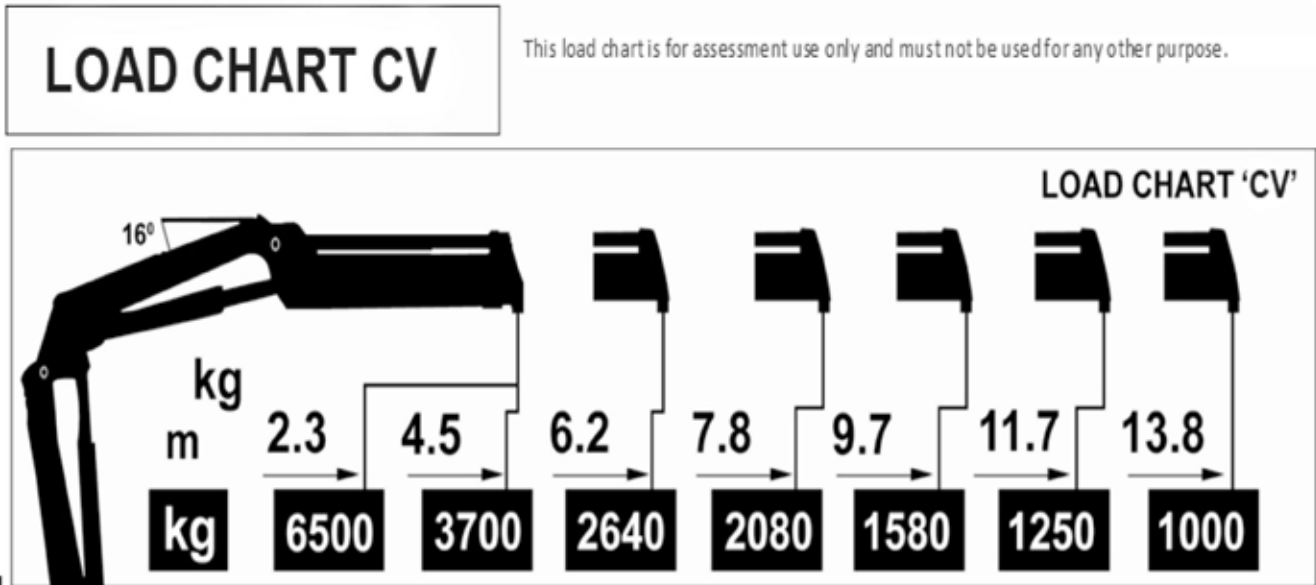
Information about the load capacity of the different jib configurations (exclusive jib load chart).

Vehicle loading crane charts (capacity 10 metre tonnes and above)

Answer these questions if you are studying the **TLILIC0002 Licence to operate a vehicle loading crane (capacity 10 metre tonnes and above)**.

If you are studying for a different licence, skip to that section.

Note: For the following crane exercises use the Calculations- CV 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.



EXAMPLE OF CALCULATIONS

Question 1

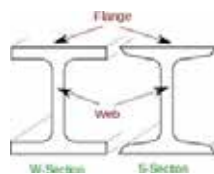
Method used to calculate the approximate weight of a steel universal beam.

You need to calculate the cubic meter of steel for the two components that make up the beam. These are the "Flange" and the "Web" (See diagram 1b)

This done by using the following formula; Width x Depth x Length (W x D x L)



(Diagram 1a)



(Diagram 1b)

Example: Top and Bottom Flanges:

- Width – 250 millimetres
- Depth – 12 millimetres
- Length – 12.5 metres

Web:

- Width – 350 millimetres
- Depth – 35 millimetres
- Length – 12.5 millimetres

Calculation:

Make sure to convert all measurements to metres because volume is measured in cubic metres (m3).

Note: Structural steel weighs 7840kg/m3.

Remember to calculate what is in the brackets first.

Continued on next page

Transfer Loads



Performance Criteria: 1.3

Check crane's load capacity

Always stay within the safe working load (SWL) of the crane. For example, you may change the boom radius during a lift. Ensure the **whole** lift stays inside the boom's limits and **never** exceeds the SWL.



Theory Training Task 53

Performance Criteria: 1.3

What is the load chart and what does it tell you?

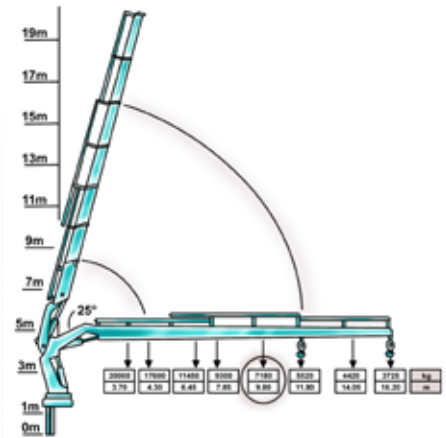
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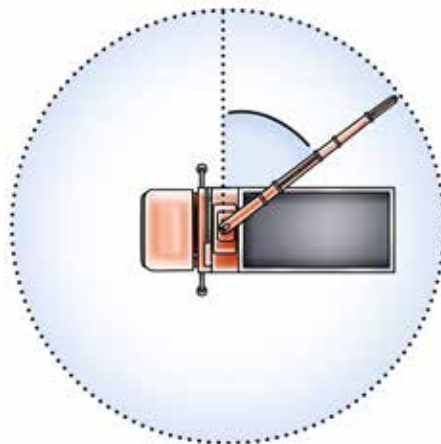


Theory Training Task 54

Performance Criteria: 1.3

Can you exceed the safe working load (SWL) at a given radius of the crane?

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Performance Criteria: 2.6

Position boom/jib and hoist block over load

You need to position the boom/jib and hoist block over the load.
This means you put the lifting hook over the load's centre of gravity.



Theory Training Task 55

Performance Criteria: 2.6

Why is it important to put the lifting hook over the load's centre of gravity?

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Performance Criteria: 2.6

Attach and secure lifting equipment

Make sure you use the correct fixed lifting points.



Theory Training Task 56

Performance Criteria: 2.6

What is the load factor for a straight lift?

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Performance Criteria: 3.4

Do a test lift

Before you use the crane to move a load, do a test/trial lift.



Theory Training Task 59

Performance Criteria: 3.4

Why should you do a test/trial lift?

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Theory Training Task 60

Performance Criteria: 3.4

Explain the procedure for doing a test lift.

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