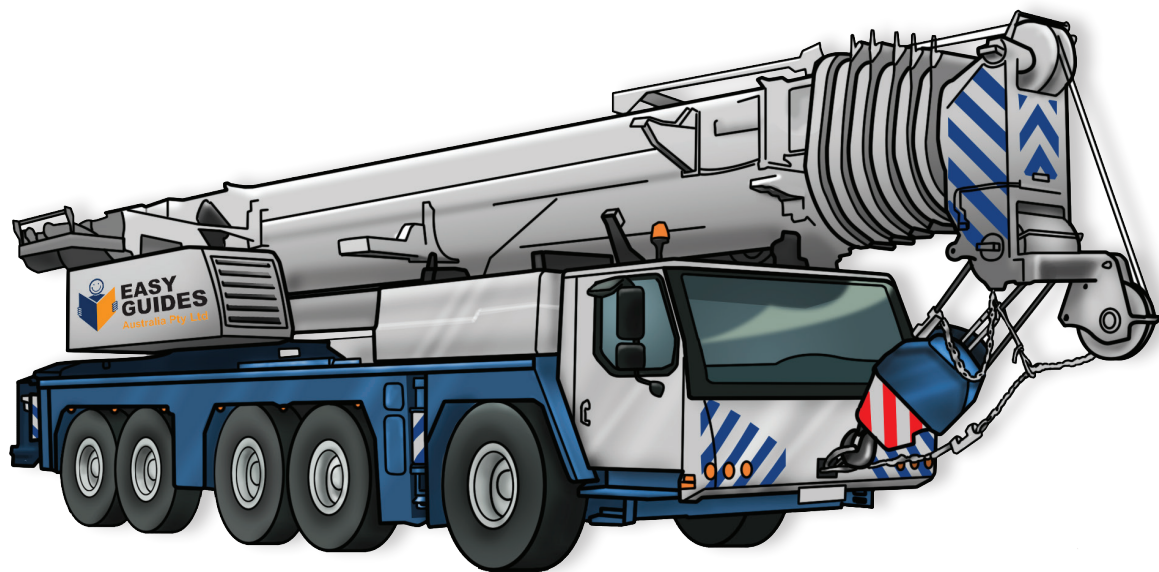


SLEWING MOBILE CRANE LEARNER WORKBOOK

TLILIC0023 Licence to operate a slewing mobile crane (up to 60T)

**With load chart calculations
similar to NAI**



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GUIDES**
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www.easyguides.com.au



Learner name:

Student number:

Date:

Contents

Language – Literacy – Numeracy (LLN)	1
How to get the most out of this book	2
Things to consider when learning.....	3
Learning support materials	4
Learning and practical tasks.....	5
What is a slewing mobile crane?	6
Introduction to high risk licensing	8
National Vocational Education and Training (VET) Licensing Pathway.....	9
Training and assessment requirements	10
Record of training logbook	11
Who has a duty of care?.....	12
Where to find licensing information	14
Introductory training exercise	15
Part 1 – Prepare for hazards	18
Practical Task 1	25
Practical Task 2	26
Part 2 – Communicate clearly	30
Practical Task 3	34
Part 3 – Check the crane	36
Practical Task 4	46
Part 4 – Plan the lift	48
Load Charts	55
Practical Task 5	64
Part 5 – Set up the crane	67
Practical Task 6	74
Part 6 – Do the lift	77
Practical Task 7	89
Part 7 – Shut down and pack up	93
Practical Task 8	99
Beaufort Wind Scale – Flash/bang rule	101
Acknowledgements.....	103
Continuous improvement page	104

Learning and practical tasks

If you can, have your students train with other learners. Learning is more powerful when you and your learners share ideas and experiences. Below is a brief explanation of how you can use the training tasks in this workbook. Please advise your students if they are to fill in tasks on their own at home or wait until they are in the training room with you.



Theory training tasks

These tasks help the learner understand the underpinning knowledge to safely operate a vehicle loading crane. To help them complete these tasks the learner can use the Information Book and speak to other learners and you, the licensed operator/trainer.



Thinking questions

Thinking questions train your learner to think for themselves. For example, the Information Book does not directly state the answer.



Practical training tasks

These tasks help the learner acquire the practical skills to safely operate a vehicle loading crane. The tasks use high-risk equipment or machinery. Only a licensed operator/trainer can supervise the learner's practical training tasks.



Review

At the end of each element in the workbook, the learner gets to review their training. The review gives the learner a chance to talk with classmates and you about what they learned. Sharing their learning experiences with others helps them learn.



Review questions

You'll find the review questions on the Trainer's Resource CD. Give the questions to the learner toward the end of training to determine if they understand the information they have covered. You can ask your learner to fill in these questions alone or as a group by using the matching questions in the PowerPoint quiz section.



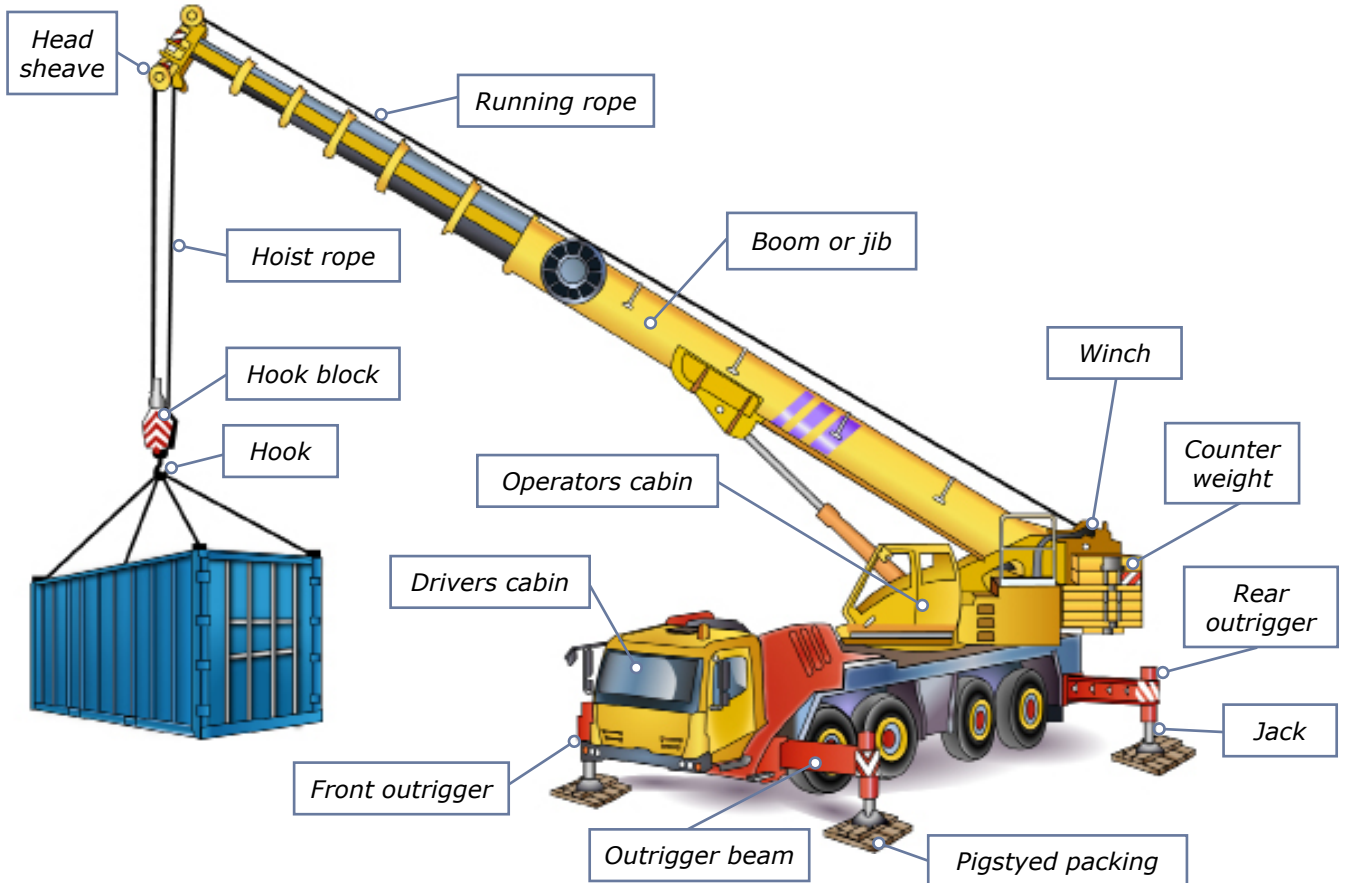
Review—practical tasks




The practical tasks handout is on the Trainer's Resource CD. There is one task for each element and the learner should do all tasks under your supervision.

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.

Part 1

Prepare for hazards



Performance Criteria: 1.5, 2.2

Hazard control measures

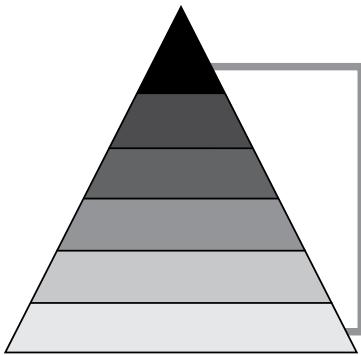
Hazard control measures are actions you take to control or prevent a danger that can injure or hurt you. You use the actions to lower the risk to people and property. Set up the hazard controls before you start work.



Theory Training Task 5

Performance Criteria: 1.5, 2.2

a) List the **six** levels of the Hierarchy of Hazard Control.



1.
2.
3.
4.
5.
6.



b) What is the first thing you should try if you find a hazard?



Theory Training Task 6

Performance Criteria: 1.5

Tick the **hazard control measures** you may need to put in place when using a slewing mobile crane.

- Warning signs and barriers
- Flag person
- Traffic control
- Flashing hazard and lights
- Wash the crane so it looks nice
- Pedestrian exclusion zone
- A hoarding, gantry or scaffolding
- Recharge the battery so it works





Theory Training Task 7

Performance Criteria: 1.5

List the things you may need to do when working near powerlines.

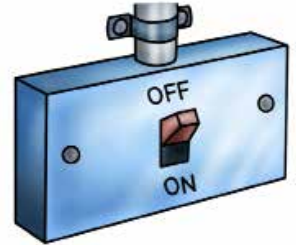
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Theory Training Task 8

Performance Criteria: 1.5

Look at the picture below.

List the hazard control measures you could use to make the job safer.

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Fencing is not shown in this picture

Practical Training Task 1

Part 1 — Prepare for hazards

Performance Criteria 1.1, 1.5, 2.2

Prepare for hazards

Learners: You **must** do this task under the **control of a licensed operator**.
Please wait for your trainer to advise you before trying the task.

In this activity your trainer will set up the worksite for you. The worksite will have a few hazards in it. Identify the hazards, assess the risk of the hazard hurting you, and work out how to control the hazards.



- Task requirements are identified from work orders or equivalent and a lift plan is confirmed with associated personnel and a site inspection is conducted in accordance with workplace procedures
- Potential workplace hazards are identified. This means you look out for anything that can harm you or others while you work.
- Hazard prevention/control measures are identified consistent with appropriate standards to ensure the safety of personnel and equipment. This means you try to find the best way to control or prevent a hazard if you find a hazard in the workplace.
- Appropriate hazard prevention/control measures are applied to the work area in accordance with procedures. This means you can use many different ways to control hazards on a work site.

Part 1 - PC 1.1, 1.2, 3.6:

Competent

Not yet competent

Signature (licensed operator/trainer) Date

Practical Training Task 2

Part 1 — Prepare for hazards
Performance Criteria 1.5, 2.2

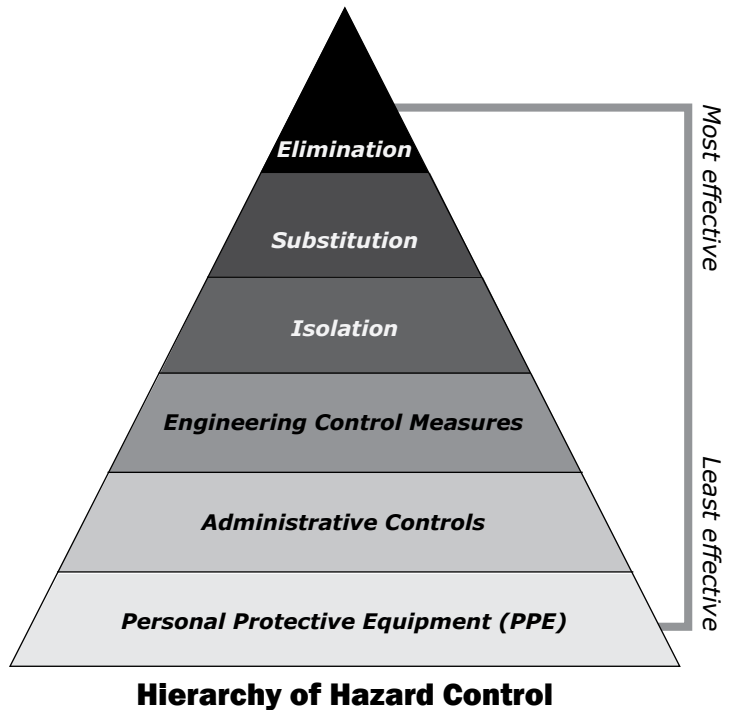
Applying the Hierarchy of Hazard Control

Learners:

You **must** do this task under the **control of a licensed operator**. Please wait for your trainer to advise you before trying the task.

Your trainer will help you to choose a common hazard that may be found in the area where you work.

In this training task you will put the hierarchy of hazard control into action!



Go through as many steps as you need to until you eliminate (get rid of) or control the hazard.

HAZARD:

Step 1: Elimination

Can you remove or take away the hazard?

Yes / No

.....

.....

.....

Step 2: Substitution

Can you use a safer method if you cannot remove the hazard?

Yes / No

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.....

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Part 3

Check the crane





Theory Training Task 14

Performance Criteria: 2.4

Choose two of the areas you circled and explain why you think it's important to make the check.

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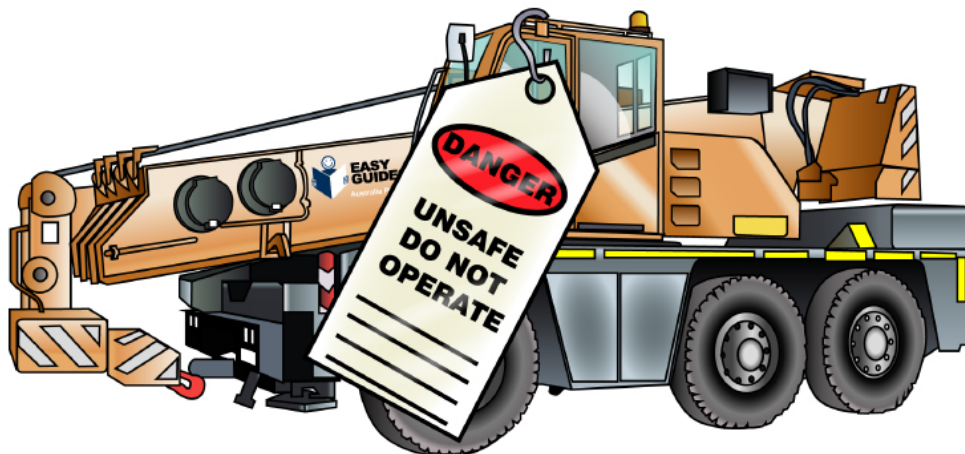


Theory Training Task 15

Performance Criteria: 2.4

Who is allowed to remove a danger tag?

- Anyone involved in the work
- Anyone with a dogging licence
- The person who signed the tag
- The supervisor of the person who signed the tag



Part 4

Plan the lift



Performance Criteria: 1.3

Find out the weight of the load

You are planning the lift. Find out or estimate the weight and size of the load you are going to lift.



Theory Training Task 26

Performance Criteria: 1.3

Give some examples of how you find the weight of an unmarked load.

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Theory Training Task 30

Performance Criteria: 1.3

- a) You are doing a multiple crane lift with two cranes.
The load is 20 tonnes.
How much capacity does each crane need to lift this load safely?

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- b) How much extra capacity (safety margin) do you need for a three crane lift?

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Performance Criteria: 1.4

Plan your path

Plan the path you will take to move the load,
and look out for hazards.



Theory Training Task 31

Performance Criteria: 1.4

Check the path of movement of loads to avoid hazards.
Circle the **hazards** you should look out for when moving a load.



Performance Criteria: 1.2

Check the ground conditions

Before you set up the crane in the work area, check that the ground can support the crane and the load.



Theory Training Task 32

Performance Criteria: 1.2

Do you think the following **ground conditions** are safe to set up a slewing mobile crane or need further checking to make sure they are stable?

Circle the correct answer.

Recently flooded ground	Safe	Needs further checking
Hard compact soil	Safe	Needs further checking
Bitumen road	Safe	Needs further checking
Swamp area	Safe	Needs further checking
Soft soil	Safe	Needs further checking
Uneven ground	Safe	Needs further checking



Theory Training Task 33

Performance Criteria: 1.2

What might happen if you set up the slewing mobile crane over underground services?

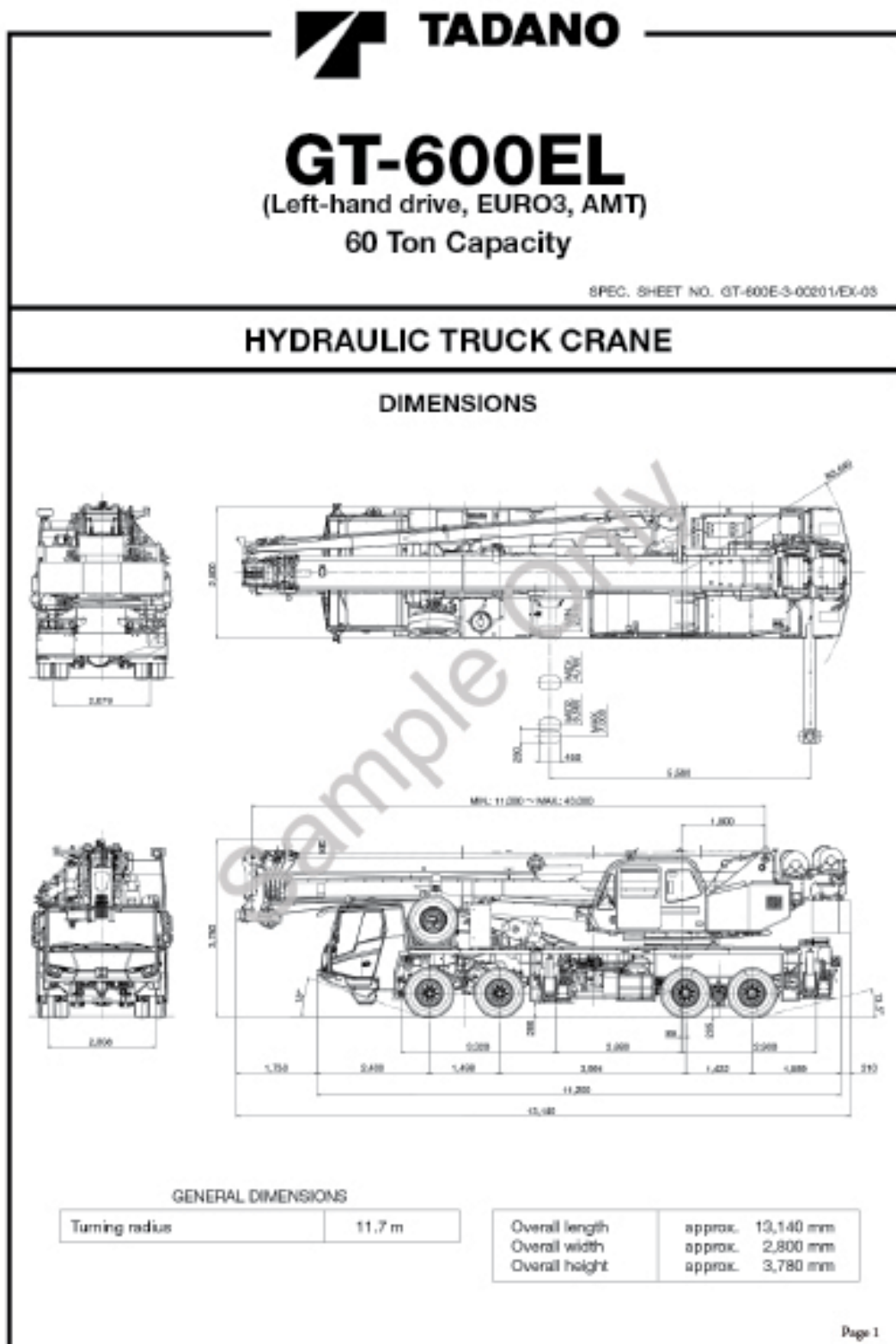


Slewing mobile crane charts (up to 60 tonnes)

Answer these questions if you are studying the **TLILIC0013 Licence to operate a slewing mobile crane (up to 60 tonnes)**.

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

Note: For the following crane exercises us the TADANO GT-600EL 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.



Specifications are subject to change without notice.



Load Chart Activity 1

Performance Criteria: 2.7, 3.1

Note: Use the TADANO GT-600EL load charts

Scenario 1

Now that you have setup the Tadano GT-600EL with a 6.5m outrigger spread, you extend the boom to 19m in Telescoping Mode I and lower the 60T hook block to unload a machine motor from a truck

a) How many boom sections are extended with a 19m boom length in tele mode 1?

Answer: =

b) What is the maximum parts of line can the 60T hook block be configured in with the configuration listed in scenario 1?

Answer: =

c) What is the rated capacity at a 14m radius?

Answer: =

d) You receive a weighbridge certificate that shows that the machine motor weighs 4.1t. Can you lift the panel off the truck at a 14m radius? Show working

Answer: =
.....
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Calculations:

Rated capacity at 14m radius with boom length of 19m in telescoping mode I is = 4.5 tonnes.

Deductions:

Hook block 430 kg

Maximum load that can be lifted = Rated capacity – deductions =

(4.5 tonnes - 0.43 tonnes) = 4.07 tonnes.

Answer: =

[Continued next page]

Slewing mobile crane charts (up to 60 tonnes)

e) How could you re-configure the crane to pick up the machine motor and keeping a main boom length of 19m? show reasoning why?

Answer: =

Scenario 2

Now that you have setup the Tadano GT-600EL with a 6.5m outrigger spread, you extend the boom to 35m in Telescoping Mode II and lower the 60T hook block to unload a precast panel from a truck.

f) What is the rated capacity of the winch in a single fall composition?

Answer: =

g) How many boom sections are extended with a 35m boom length?

Answer: =

h) How many parts of line should the 60T hook block be configured in?

Answer: =

i) On 4.7m spread outriggers, what is the rated capacity at a 10m radius?

Answer: =

j) You receive a precast panel certificate that shows a weight of 6.6T. Can you lift the panel off the truck at a 10m radius? Show working

Calculations:

Rated capacity at 10m radius with boom length of 35m in telescoping mode II is 6.8 tonnes.

Deductions:

Hook block 430 kg

Maximum load that can be lifted = Rated capacity – deductions =

(6.8 tonnes - 0.43 tonnes) = 6.37 tonnes.

Answer: =

Mobilkran • Mobile Crane LTM 1055-3.2

Grue mobile • Autogrù
Grúa mòvil • Мебилярый кран

Technische Daten • Technical Data
Caractéristiques techniques • Dati tecnici
Datos tècnicos • Техническиè данные



LIEBHERR

General Questions

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

Answer: =

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

Answer: =

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

Answer: =

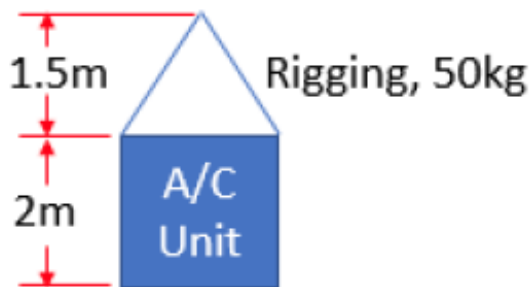
d) The working radii on the LTM 1055 3.2 is measured from where on crane?

Answer: =

Scenario 1

A Liebherr LTM 1055-3.2 is used to lift an air conditioner to the top of a 30m building. The crane is set up such that the edge of the building is 8m away from the slew centre of the crane. The centre of the air conditioner needs to be landed 2m from the edge of the building.

Dimensions of the air conditioner and rigging are shown below:



e) What is the minimum boom length you should use to lift this air conditioner unit?

Answer: =

[Continued next page]

Set up the crane



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

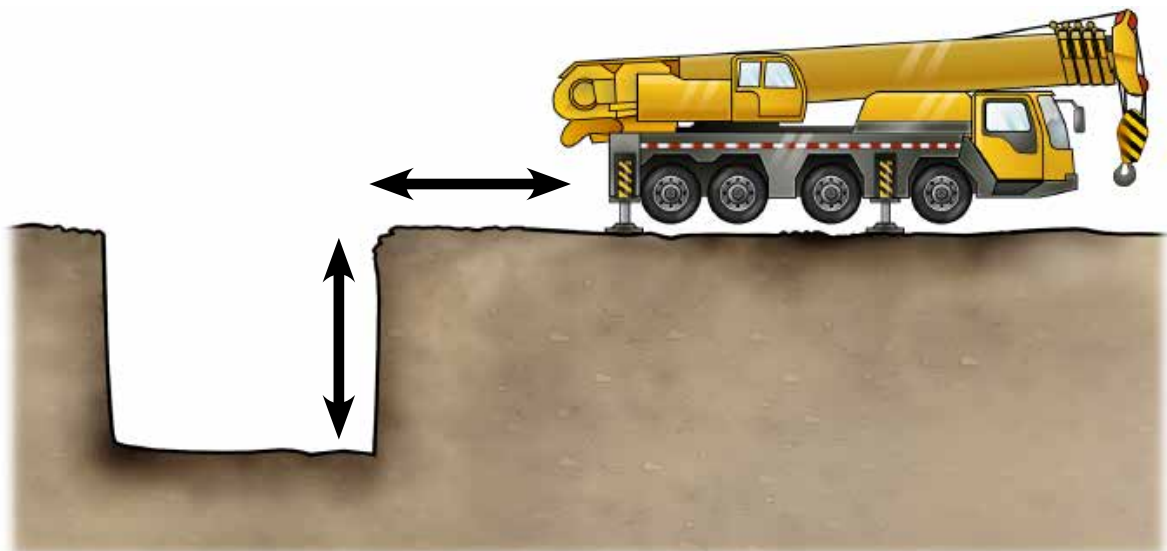
- a) How far away should you set up your crane from a 4 metre deep trench or excavation?

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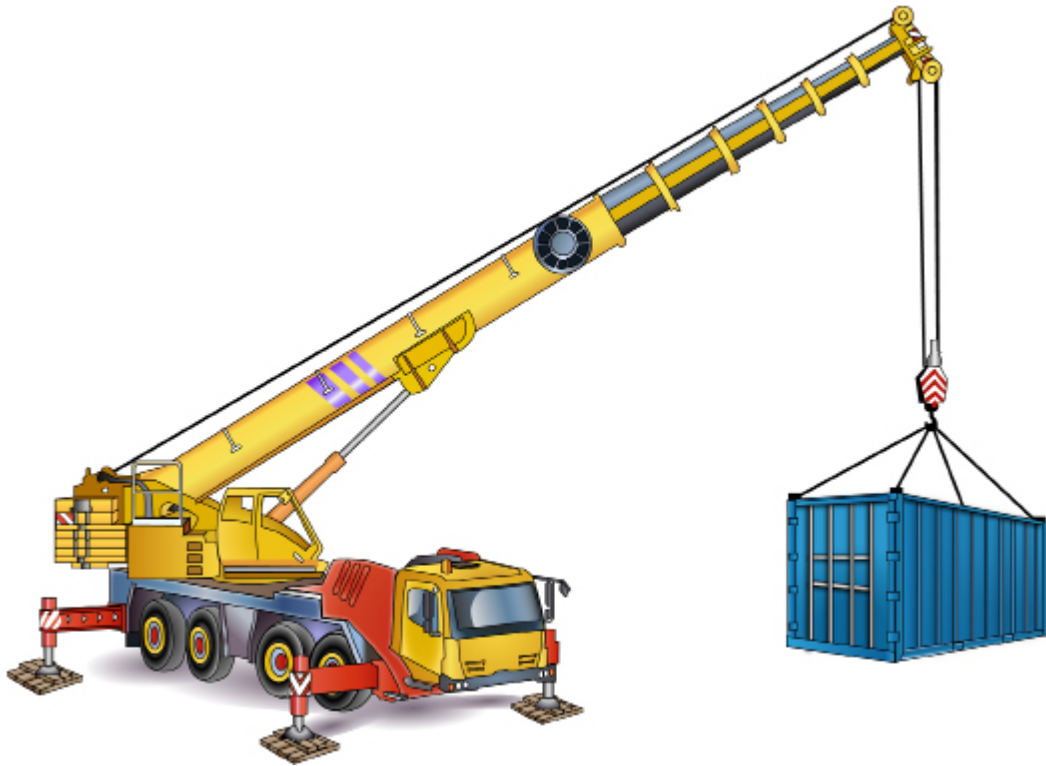
- b) If the ground is soft near the trench, what should you do?

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Part 6

Do the lift



Performance Criteria: 2.3

Access the crane safely

Climb in and out of the crane's cabin safely.



Theory Training Task 47

Performance Criteria: 2.3

How should you get in and out of the crane's cabin?

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Performance Criteria: 1.3, 2.5, 2.6

Check the crane's capacity

Check the crane's load capacity, and always stay within the safe working limit (SWL) of the crane and boom.



Theory Training Task 48

Performance Criteria: 1.3, 2.5, 2.6

How do you know that the load is within the limits of the crane?

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A detailed load chart for a crane, titled "LOAD CHART 'Z1'". It contains a large table with columns for "LIFTING CAPACITY", "BOOM LENGTH", "LIFTING HEIGHT", and "LIFTING SPEED". Below the table are several sections of text providing technical specifications, safety warnings, and operational instructions. A prominent note at the bottom states: "NOTE: OPERATION OF THIS EQUIPMENT IN EXCESS OF RATED LOADS AND DISREGARD OF INSTRUCTIONS VOIDS WARRANTY".