ELLANICO EARTHMOVERS

Mobile Crane
Theory Notes & Student Notebook

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Mobile crane lifting principles

A mobile crane is designed to lift and position loads. Theory includes crane configuration, rated capacity charts, boom length, radius, counterweight, ground bearing pressure, rigging, communication and lift planning.

1. Learning objectives

By the end of this introductory theory topic, a learner should be able to:

- Describe the main purpose and common applications of a mobile crane.
- Identify major machine systems and explain their general functions.
- Recognise common workplace hazards and the importance of pre-use checks.
- Explain why manufacturer instructions, site rules and supervised practical training are essential.

2. Main components and terminology

boom, jib, hook block, hoist line, outriggers, counterweight, slew system, load chart

3. Safety and responsible work practices

Every lift requires a competent lift plan and approved load information; never guess a crane's capacity; use suitable ground support; inspect rigging; maintain exclusion zones; stop if wind, visibility or communication conditions are unsafe.

4. Before practical training

Before any practical session, learners should receive a site induction, understand emergency procedures, wear the required personal protective equipment, identify exclusion zones and know who is supervising the activity. A pre-use inspection must follow the machine manufacturer's checklist and the employer's approved procedure. Defects must be reported and unsafe equipment must not be used.

5. Knowledge check

1 What are the main tasks a mobile crane is designed to perform?

2 Name at least four important components or systems.

3 Why must the operator understand the machine's rated limits and manufacturer instructions?

4 Give three hazards that may be present in the work area.

5 What should a learner do if a machine appears defective or an unsafe condition is identified?

Learner notes

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IMPORTANT TRAINING NOTICE

This notebook is introductory educational theory material. It is not an operator licence, competency assessment, manufacturer manual or substitute for supervised practical training. Machine models and procedures differ. Always follow the specific manufacturer's operating manual, applicable Zimbabwean laws and site safety requirements. Do not operate machinery unless properly trained, authorised and supervised as required.