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1.1 INTRODUCTION

This training course is based on the National High Risk Work Licence Unit of Competency **TLILIC0040: Licence to operate a non-slewing mobile crane (greater than 3 tonnes capacity)**.

This unit specifies the skills and knowledge required to operate a non-slewing mobile crane with a maximum Rated Capacity (MRC) exceeding three tonnes safely, in accordance with all relevant legislative responsibilities. Competence in this unit, does not in itself result in a High-Risk Work Licence (HRWL) to operate this plant.

Non-slewing mobile crane means a mobile crane incorporating a boom or jib that cannot be slewed, and includes:

- an articulated mobile crane
- a locomotive crane
- but does not include vehicle tow trucks.

A person performing this work is required to hold a non-slewing mobile crane HRWL.

This unit requires a person operating non-slewing mobile crane with a MRC exceeding three tonnes to:

- plan the work/task
- prepare for the work/task
- perform work/task
- prepare to drive an articulated mobile crane on road
- drive an articulated mobile crane
- pack up.

1.1.1 COURSE OVERVIEW

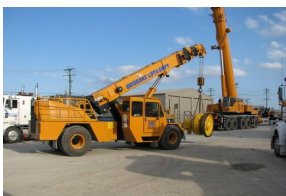
Throughout this unit you will learn about:

- ▶ Planning the work.
- ▶ Conducting routine checks.
- ▶ Transferring loads.
- ▶ Mobilising loads.
- ▶ Shutting down and securing the crane.

Upon successful completion of this course participants will be eligible to be assessed for a National High Risk Work Licence.

1.1.2 WHAT IS A NON-SLEWING MOBILE CRANE?

A **non-slewing mobile crane** is a powered mobile crane with a capacity of more than 3 tonnes and which incorporates a boom or jib that is not capable of being slewed. A non-slewing mobile crane may be an articulated type or a locomotive crane but not a crane engaged in vehicle tow truck operations.



1.1.3 HIGH RISK WORK AND WHS LEGISLATION

Once you pass your assessment you will have **60 days** to apply for your licence.

Under the WHS regulations a trainee is defined as a person who is enrolled in a course of HRW training, and **being supervised at a workplace by a person with a current HRW licence for the work.**

As a trainee you are learning (either on the job or in a simulated classroom environment) everything you need to know to ensure that you are going to be working safely and efficiently. Once you have completed your training and have been assessed, you will be able to make your application for a high risk work licence.

If you hold a HRW licence, your employer is expected to provide you with information on how to operate any equipment you may be unfamiliar with. This may be, but is not limited to: provision of verbal or written instruction, practical training or potentially supervision while becoming comfortable with the equipment.

1.1.5 HIGH RISK WORK LICENCES

The holder of a HRW licence is responsible for taking reasonable care and not to adversely affect the health and safety of other persons while performing high risk work.

Failing to work safely when performing high risk work can lead to the licence holder being penalised under WHS regulations:

1. Their licence may be **suspended**; or
2. Their licence may be **cancelled**; or
3. The regulator may **refuse to renew the licence** (if the matter is raised at the time of renewal). High risk work licences will need to be renewed **every 5 years**; or
4. The regulator may direct you to obtain a re-assessment to determine competency.
5. Take **legal action to prosecute** you.

Under no circumstances may an employer/PCBU (person conducting business or an undertaking) allow a person to conduct high risk work if they are not competent to do so. If a holder of a high risk work licence is no longer competent to carry out the work they hold a licence for, they must stop doing the work.

****The only circumstance where a person can perform HRW is if they are enrolled in a registered training organisation course for that class and be under the supervision of a person that holds a HRW licence for that work for the purpose of training.****

1.2.2 DUTY OF CARE

Duty of care involves:

- ▶ Employers/PCBUs and self-employed persons.
- ▶ Persons in control of the workplace.
- ▶ Supervisors.
- ▶ Designers.
- ▶ Manufacturers.
- ▶ Suppliers.
- ▶ Workers.
- ▶ Inspectors.

The main types of WHS/OHS legislation, requirements and guidelines (where you can **source OHS information** including your duty of care) include:

- ◆ **OHS Acts.**
- ◆ **OHS Regulations.**
- ◆ **Australian Standards.**
- ◆ **Codes of Practice/Compliance Codes.**
- ◆ Management plans.
- ◆ Workplace OHS policy and procedures.
- ◆ **Manufacturer's instructions.**
- ◆ **Logbook.**
- ◆ **Load chart.**
- ◆ **Operations manual.**

All workers must do **everything reasonably practicable** to ensure **their own health and safety** and to **ensure others are not harmed by their (worker's) actions or errors or omissions**. All workers must perform their work with due diligence.

1.5.2 RISK/HAZARD IDENTIFICATION

HAZARDS CREATE RISK. CHECK FOR HAZARDS.

A **HAZARD** is the thing or situation that causes injury, harm or damage.

A **RISK** is the chance of a hazard hurting you or somebody else or causing some damage.

If you can remove or at least control a **HAZARD** you can reduce the **RISK** involved.

Each worksite has its own specific risks and hazards.

Common workplace hazards related to non-slewing crane operations include:

- ▶ Electric/Power lines.
- ▶ Overhead service lines/pipes.
- ▶ Trees.
- ▶ Buildings, facilities and other surrounding structures.
- ▶ Obstructions.
- ▶ Pedestrians and personnel/workers.
- ▶ Dangerous materials.
- ▶ Bad weather conditions such as dangerously strong winds.
- ▶ Insufficient lighting.
- ▶ Circumstances that may cause potential crane instability.



- ▶ Vehicle traffic.
- ▶ Plant and equipment
- ▶ Ground stability and condition.
- ▶ Recently filled trenches.
- ▶ Slopes.
- ▶ Ground/floor surfaces that may not bear the weight of the crane or other equipment.
- ▶ Underground services.
- ▶ Site-specific hazards, e.g. those associated with demolition sites such as rubble and other obstacles.

- ▶ Ultraviolet radiation.










Hazards commonly encountered while preparing load and slinging include:

- ◆ instability of landing surfaces or load destination
- ◆ Overhead hazards such as power lines, service lines, and service pipes.
- ◆ Underground services.
- ◆ Insufficient lighting/lack of illumination
- ◆ Vehicle traffic
- ◆ Plant and equipment.
- ◆ Pedestrians and workers
- ◆ Bad weather conditions such as strong winds, lightning or storms
- ◆ working at heights

1.7 COMMUNICATIONS

As a crane operator you need to be able to communicate effectively with those around you while you work. This may include personnel/workers such as doggers and riggers.

Shown here are the hand signals used in Australia:

HAND SIGNALS			
Motion	Signal	Motion	Signal
Hook up		Hook down	
Luff up/ Boom up/ Jib up		Luff down/ Boom down/ Jib down	
Slewing Right		Slewing Left	
Jib/Trolley Out; Telescoping Boom Extend		Jib/Trolley In; Telescoping Boom Retract	
		Stop	

Creep Speed: Appropriate hand signal for motion with hand opening and closing

2.3.3.6 LIFTING EQUIPMENT

The following table outlines the **suggested lifting equipment/gear** for different types of loads.

Load	Suggested Lifting Gear
A pallet of bricks.	A brick or block cage.
Steel plates.	Plate or lifting clamps.
A single gas bottle.	A suitable stillage or lifting box that ensures the load is stable and secure.
A load of loose pipes.	Suitable stillage, pallets or slings.
Pre-cast panels.	Lifting clutches.
A timber truss.	Lifting beam and/or long sling or wire.
A load that is easily damaged.	Synthetic webbing slings.
A bulky load or a load with uneven weight disbursement.	Lifting beam.

2.10.1 REPORT ANY FAULTS

If you find any faults or the crane cannot function to the full range of its movements you must report and record the details according to workplace and industry procedures.

To do this you may be required to:

1. Immediately **stop operating** the crane or using the equipment.
2. **Isolate** the crane/equipment and attach a **danger tag** to it.
3. **Record** the fault as per site procedures, such as in the crane logbook or service logbook.
4. Report the fault to an authorised person for corrective action. **Report any evidence of tampering or interference with the crane to your supervisor or other responsible person.**
5. **DO NOT** use the crane or equipment until it **has been fixed** or replaced and returned to service.

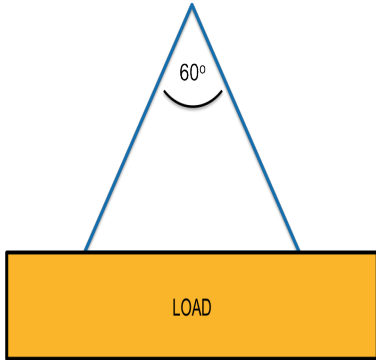


Remember **STIRR**

1. **Stop**
2. **Tag out**
3. **Isolate**
4. **Report**
5. **Record**

3.2.2 LOAD FACTORS AND SLINGING

The lifting capacity of a sling for a straight lift is the WLL. Once the WLL has been altered due to a particular slinging method, such as an increase in the angle between two legs or a reeve, it is then referred to as the safe working load (SWL).



The lifting capacity decreases as the angle between the legs of the sling attachment increases. Different methods of slinging will also alter the lifting capacity.

A simple rule of thumb for a good safe working angle is to make sure that the horizontal distance between the points of attachment of the load does not exceed the length of the slings.

This will ensure that the angle between the two legs of the sling **does not exceed 60°**. At 60° the slings will lift only 1.73 the WLL of one sling. **The recommended safe angle between two legs of a sling is 60°.**

When two slings are used to lift a load, in order to determine the length and capacity of the slings required, consider:

- The weight of the load.
- The reeve factors.
- The angle factors.
- The size of the load.
- The slinging method.
- The clearance required to make the lift.



The **recommended maximum angle between the two legs of a sling is 120°** (consistent with AS/NZS 1353. 1997).

When slinging a rigid object with a multi-legged sling it must be assumed that only two of the sling legs are taking the load.

Additional legs do not increase the SWL of the sling assembly, therefore each leg has to be capable of taking half of the weight of the load.

The maximum angle of a four-legged sling is the greatest angle between any two of the four slings. This is generally between the diagonally opposite legs. The SWL is assessed through the largest included angle in the multi-legged sling assembly.

The SWL of slings decreases as the angle between the slings increases or if the slings are nipped or reeved. All factors must be considered when determining which sling is the correct one to lift a given load.

Included Angle	Load Factor
60 degrees	1.73
90 degrees	1.41
120 degrees	1

Remember that the rule of thumb method of working out the SWL of slings is not completely accurate. For an accurate SWL, refer to the manufacturer's load charts and SWL tags.

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