



Australian Government

**TLILIC0040 Licence to operate a
non-slewing mobile crane (greater than 3
tonnes capacity)**

Release: 1

TLILIC0040 Licence to operate a non-slewing mobile crane (greater than 3 tonnes capacity)

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit specifies the skills and knowledge required to operate a non-slewing mobile crane with a Rated Capacity (RC) 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. Competence in this unit does not allow for driving an articulated mobile crane on a main or public road. In order to drive on a main or public road, a valid heavy vehicle licence, issued by a transport regulator, is required.

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 an RC 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.

Licensing/Regulatory Information

Legislative and regulatory requirements are applicable to this unit of competency. This unit is based on the licensing requirements of Part 4.5 of the Model Work Health and Safety (WHS) Regulations and meets Commonwealth, state and territory HRWL requirements.

The National Assessment Instrument (NAI) is the mandated assessment for the HRWL to operate the relevant licensing class as detailed in this unit.

Pre-requisite Unit

Not applicable.

Competency Field

LIC - Licencing Units.

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan work/task

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1 Task requirements are identified from work orders or equivalent, a lift plan is confirmed with associated personnel and a site inspection is conducted in accordance with workplace procedures
- 1.2 Work area operating surface is confirmed to determine the quality of ground suitability for operational use of non-slewing mobile crane in accordance with workplace procedures
- 1.3 Non-slewing mobile crane RC and the lifting gear working load limit (WLL) are established for the load/s and work/task requirements in accordance with manufacturer requirements and workplace procedures
- 1.4 Appropriate paths for operating the mobile crane and moving and placing load/s in work area are assessed and determined in accordance with workplace procedures
- 1.5 Relevant hazard identification and risk elimination/control measures are applied and advised to associated personnel in accordance with workplace procedures
- 1.6 Traffic management plan implementation is confirmed and followed in accordance with workplace procedures
- 1.7 Appropriate communication procedures are identified and tested with associated personnel in accordance with workplace procedures

- 1.8** All tasks are confirmed to ensure requirements for the relevant work area in accordance with a lift plan and workplace procedures
 - 1.9** Information required to ensure that lifting equipment and gear inspection, use, maintenance and storage complies with manufacturer requirements is obtained and interpreted
- 2 Prepare for work/task**
 - 2.1** Consultation with workplace personnel is established and maintained to ensure lift plan is clear and consistent with site requirements in accordance with a lift plan and workplace procedures
 - 2.2** Risk control measures for hazards identified are checked for implementation in accordance with the lift plan and safe work procedures
 - 2.3** Non-slewing mobile crane is accessed safely in accordance with manufacturer requirements and safe work procedures
 - 2.4** Pre-start crane checks are carried out and any damage and defects are reported, recorded and appropriate action is taken in accordance with manufacturer requirements and safe work procedures
 - 2.5** Mobile crane is set up correctly with any lifting gear in accordance with lift plan, relevant manufacturer requirements, including load charts, and safe work procedures
 - 2.6** Fly jib (if fitted) is set up as required in accordance with specific manufacturer requirements and safe work procedures
 - 2.7** Operational checks are carried out and any damage and defects are reported, recorded and appropriate action is taken in accordance with manufacturer requirements and safe work procedures
 - 2.8** Crane logbook is checked to confirm current compliance is correct for the crane type, is completed and signed and required rectifications have been signed-off in accordance with manufacturer requirements and safe work procedures
 - 2.9** Weather and work environment conditions are assessed to determine any impact on mobile crane operations in

accordance with manufacturer requirements and safe work procedures

2.10 Weight of load is identified, calculated or estimated

2.11 Derated WLL of lifting equipment resulting from selected slinging techniques is calculated

2.12 Suitable lifting points and slinging techniques are identified

2.13 Lifting equipment and gear are prepared for safe use

2.14 Load destination is confirmed for stability ensuring it is able to bear the load and is prepared for safe access and landing

3 Perform work/task

3.1 Lifts are determined within the RC of the non-slewing mobile crane in accordance with the load chart/s and lift plan

3.2 Boom/jib and hook block are safely positioned over the load following directions from associated personnel in accordance with the lift plan and safe work procedures

3.3 Lifting equipment and gear, where required, are connected to the load and used safely in accordance with the lift plan, safe work procedures and manufacturer requirements

3.4 Test lift is carried out in accordance with safe work procedures

3.5 Loads are transferred using relevant crane movements and tag lines, as required, in accordance with lift plan and safe work procedures

3.6 Load and crane movement is monitored constantly and crane is operated safely in accordance with lift plan and safe work procedures

3.7 All required communication signals are correctly interpreted and followed whilst crane is operated in accordance with the lift plan and safe work procedures

3.8 Load is lowered and landed safely in accordance with lift plan and safe work procedures

3.9 Lifting gear is disconnected from load and crane is positioned safely and efficiently for next task in

- accordance with lift plan and safe work procedures
- 3.10** Lifting equipment and gear are inspected for defects, and defective items are isolated, tagged and reported
- 4 Prepare to drive an articulated mobile crane**
- 4.1** Any items on the crane body are safely and effectively restrained and loose components are stored in storage areas
- 4.2** Pre-operational checks, including registrations and approvals, are completed for driving according to manufacturer instructions
- 4.3** Tyre pressures and suspension settings are checked and set for driving and counterweights are positioned for road travel
- 4.4** Boom and fall block are positioned for driving
- 4.5** Appropriate signage, lights and equipment are checked for operational effectiveness and for conformity to prescribed traffic regulations or site traffic management plan
- 5 • Drive an articulated mobile crane**
- 5.1** Articulated mobile crane is started, steered, manoeuvred, positioned and stopped in accordance with regulations, manufacturer instructions and relevant vehicle handling procedures and allowing for forward overhang of the boom
- 5.2** Steering is maintained utilising ‘turn-in-turn-out’
- 5.3** One-handed steering techniques are applied
- 5.4** Braking system of articulated mobile crane is managed and operated efficiently to ensure effective control of vehicle under all conditions and allowing for greater stopping distance due to size, weight and forward projection of the boom
- 5.5** Driving hazards are identified and/or anticipated and avoided or controlled through low risk driving
- 6 Pack up**
- 6.1** Crane boom/jib, lifting gear and associated equipment are stowed and secured as required in accordance with manufacturer requirements and safe work procedures
- 6.2** Relevant motion locks and brakes are applied as required in accordance with manufacturer requirements and safe

work procedures

- 6.3 Crane is shut down and secured to prevent unauthorised access/use in accordance with safe work procedures
- 6.4 Post-operational crane checks are carried out in accordance with legislative responsibilities, safe work procedures and manufacturer requirements

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the TLI Transport and Logistics Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces but is not equivalent to TLILIC0018 Licence to operate a non-slewing mobile crane (greater than 3 tonnes capacity).

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLILIC0040 Licence to operate a non-slewing mobile crane (greater than 3 tonnes capacity)

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and include:

- anticipating and monitoring hazards particular to driving an articulated mobile crane and taking appropriate actions
- applying precautions and required actions to eliminate, minimise or control identified hazards
- applying relevant mathematical calculations in conjunction with lift plan and load chart, radius requirements and relevant lifting gear to perform work/task to enable crane to be configured for load, including:
 - boom
 - fly-jib (where fitted)
 - line pull
 - travelling
 - type of hook
 - side slope derations
 - articulation derations
- applying relevant crane movements, including:
 - boom/jib up and down (luffing)
 - positioning and using main and auxiliary hook and lifting gear to connect to load safely
 - raising and lowering hoist
 - telescope in and out
 - travelling and articulating (as required)
- applying relevant procedures that reflect legislative requirements
- carrying out pre-operational vehicle checks for road driving including:
 - brakes
 - operation of vehicle lights and indicators
 - tyre pressures
 - items on the crane restrained
 - boom and hook
 - visually checking vehicle for roadworthiness
 - checking Certificate of Registration for currency

- communicating effectively with others
- communicating with other workplace personnel through using appropriate worksite procedures, including:
 - two-way radio
 - listening
 - making and interpreting hand signals
 - questioning to confirm understanding
 - signage
 - verbal language
 - visual aids
 - whistles
 - written instructions
- complying with Commonwealth, state and territory work health and safety (WHS)/occupational health and safety (OHS) legislation and safe work procedures
- completing pre-start checks, including:
 - battery power level as required by manufacturer requirements
 - engine/mechanical fluid level checks as required by manufacturer requirements
 - presence of correct logbook
 - evidence of damage
 - fluid leaks
 - lights work effectively
 - locating, identifying and confirming all controls
 - mirrors and seat are adjusted appropriately
 - safety equipment checks
 - signage and labels to ensure they are visible and legible
 - checking for signs of paint separation and stressed welds indicating potential structural weakness
 - tyres and wheels for damage/wear and correct inflation (water/air)
 - updating records as required
 - visual damage or equipment faults
- conducting and applying risk and hazard strategies, including:
 - confirming work area operating surface suitability based on crane and task requirements
 - articulation of crane
 - dynamic loads
 - ground conditions, including surface and slopes
 - impact of tyre inflation/condition
 - load swing
 - overloading
 - pick and placement of load
 - asymmetric loads

- overhead hazards
- restricted site/s and poorly ventilated area/s
- risk of collision with people, moving plant and fixed structures
- adequate lighting
- weather conditions
- completing operational checks ensuring:
 - all controls are located, identified and tested for functionality
 - all hydraulic functions are operational
 - lifting gear movements and control functions are smooth and comply with lift plan
 - hazard warning systems, safety, audible and visual warning devices are checked to ensure they are functional, including:
 - reversing beepers
 - lights
 - horns
 - rated capacity (RC) indicator alarm (where fitted)
 - anti-two block alarms (where fitted)
 - start-up is in accordance with manufacturer requirements and workplace procedures
 - there are no unusual noises
 - steering, transmission and brake functions comply with operating requirements
- confirming and following traffic management plan procedures relevant to crane operator role in the work area
- confirming appropriate lifting gear and slinging techniques to the type of load, its mass and centre of gravity
- confirming the working load limit (WLL) tags of the lifting equipment and gear and calculating the deration of the WLL resulting from the slinging techniques applied
- determining any defects or faults with operation of crane and reporting to relevant person/s
- driving without a load, including handling an articulated mobile crane set up for road driving through an obstacle course on a private road or premises, which includes:
 - observation techniques, including:
 - compensating for blind spots
 - ensuring that you have clear view
 - use of a spotter
 - left and right turns
 - accelerating and braking
 - operating vehicle controls, instruments and indicators where relevant
 - positioning for stopping and stopping safely
 - reversing
 - steering and manoeuvring
 - accounting for forward projection
- ensuring risk control measures within the work area are effective in accordance with workplace procedures

- ensuring stability of load and avoidance of hazards, including:
 - allowing for boom deflection
 - boom/jib as low as possible
 - boom/jib in line with crane
 - carrying load near to ground surface
 - crane stability whilst manoeuvring load into position with drive/steering wheels and articulating as required
 - gently accelerating and braking to minimise load swing
 - lowering load safely and stably onto appropriate dunnage taking into consideration swing and restrictions of area
 - minimum boom/jib length
 - minimum speed
 - using handheld tag lines/bridling
- following directions of dogger or rigger
- identifying hazards and using appropriate risk controls and safety measures and equipment relevant to slinging loads
- interpreting and confirming relevant documentation for the work task and relevant area
- inputting crane configuration into RC indicator (where fitted) and checking operation to accurately reflect crane configuration
- interpreting and acting on communications signals, including:
 - hoist down - hand and whistle and radio
 - hoist up - hand and whistle and radio
 - luff boom down - hand and whistle and radio
 - luff boom up - hand and whistle and radio
 - articulate left - hand and whistle and radio
 - articulate right - hand and whistle and radio
 - stop - hand and whistle and radio
 - telescope in - hand and whistle and two-way radio
 - telescope out - hand and whistle and two-way radio
 - travel - hand and radio
- maintaining three points of contact whilst accessing crane and ensure rungs/steps are free of hazards
- monitoring load disconnection from hook is safe and ensuring no movement of controls
- observing relevant communication signals from relevant person
- operating an articulated non-slewing mobile crane with a RC of 12 tonnes or greater to lift four different loads using the main hook of which three are through an obstacle course using all crane operational controls while the load is in full view of the crane operator. Loads must consist of:
 - a stationary load of >50% of the RC of the crane with a boom length of >75%, and
 - mobile a round load with a minimum diameter of 300 mm and minimum length of 3 metres that requires a dogger to sling, and

- mobile an asymmetrical load that requires a dogger to sling, and
- mobile with a load of stillage containing at least 10 scaffolding standards or containing a load of steel pipes of equivalent weight that requires a dogger to sling and a boom length of <75%
- planning for and managing load stability, including:
 - confirming and inspecting appropriate lifting gear and applying slinging techniques appropriate to the type of load, its mass and centre of gravity
 - confirming the WLL tags of the lifting equipment and gear and calculating the deration of the WLL resulting from the slinging techniques applied
- positioning the non-slewing mobile crane for safe operation for:
 - application of the task
 - manoeuvring in the workplace
 - aligning of crane boom to the load
 - stability of the non-slewing mobile crane and the load whilst driving to load set-down position
- preparing vehicle for on-road driving
- reading and interpreting relevant instructions, procedures, information and signs
- recording and maintaining accurate information relating to crane operations
- reporting to relevant person/s on-site risk control measures that are not in place or deficient
- setting up of:
 - fly jib (where fitted)
 - manual boom section (where fitted)
- setting up and validating an exclusion zone
- shutting down a non-slewing mobile crane in accordance with manufacturer requirements and workplace procedures
- stabilising a non-slewing mobile crane for operation by ensuring level and articulation (if required) is checked and within deration load chart requirements
- test-lifting load just clear of lifting plane to allow for checks to be safely made in consultation with associated personnel to ensure:
 - slinging is correct
 - all crane equipment is functioning properly
 - load centre of gravity is correct
 - loads of unusual shape or weight distribution are correctly slung
- test-lifting load just clear of lifting plane to allow for checks of RC indicator (where fitted) to ensure:
 - load measuring equipment can be used to verify calculated weight of load
 - near capacity loads do not overload crane.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- appropriate worksite communication procedures, including:
 - listening
 - hand signals
 - questioning techniques
 - signage
 - two-way radios
 - written instructions
 - whistles
- characteristics and impact of factors affecting non-slewing mobile crane stability whilst mobilising loads, including:
 - side slope derations
 - articulation derations of crane
 - correct tyre pressure (inflation/condition)
 - driving safely on roadways
 - pick up and carry the load
- confirming and following a traffic management plan, pre-operational checks carried out on articulated mobile crane prior to driving on road and related actions
- crane and lifting gear load chart/s and manufacturer requirements
- crane configuration mathematical calculations to:
 - estimate loads
 - establish counterweight/s requirements (where fitted)
 - establish radius requirements
- driving hazards related to the vehicle characteristics of articulated mobile cranes and related low risk driving techniques
- hazards commonly encountered while slinging:
 - instability of landing surfaces
 - overhead and underground hazards
 - insufficient lighting
 - traffic
 - weather
 - pedestrian traffic
 - work at heights
- hazards, including:
 - pack up and crane stability, crane tipping and demolition sites
 - ground stability, including ground condition, recently filled trenches and slopes
 - insufficient lighting
 - obstacles or obstruction
 - catching load swing appropriately
 - other specific hazards and dangerous materials
 - overhead hazards, including:

- electric lines
- service pipes
- fixed structures
- vegetation (trees)
- traffic, including pedestrians, vehicles and other plant
- operations on unusual, uneven or difficult terrains
- operators under instruction
- impact of factors affecting non-slewing mobile crane stability, including:
 - overloading
 - pick up and placement of load
 - unbalanced loads
 - articulation of crane
 - correct tyre pressures (inflation/condition)
 - side slope derations
- lift-impacting factors, including:
 - centre of gravity
 - dynamic nature of load
 - deflection of boom
 - length
 - radius of lift
 - weight
 - side slope derations
 - articulation derations of crane
 - tyre inflation pressures
- manufacturer requirements and instructions on shutting down and packing up crane
- methods of making temporary connections to loads using fibre and synthetic ropes:
 - single sheet bend
 - clove hitch
 - rolling hitch
 - bowline
- mobile non-slewing crane characteristics and capabilities to allow crane configuration to suit a range of loads
- relevant documentation requirements and procedures for recording, reporting and maintaining workplace records and information
- relevant lifting gear to perform work/task
- relevant national and state/territory driver licensing authority road rules, regulations, permit and licence requirements related to articulated mobile crane operation
- relevant workplace instructions, safety information and emergency procedures
- risk assessment management and mitigation strategies, including hierarchy of control:
 - elimination

- substitution
- isolation
- engineering controls
- administrative controls
- personal protective equipment (PPE)
- roles and responsibilities of duty holders in accordance with legislative obligations of WHS/OHS requirements and safe work/workplace procedures
- selection, inspection, care, handling, application, limitations and storage of lifting equipment and gear:
 - chain sling (including shortener)
 - eyebolts
 - flexible steel wire rope (FSWR) sling
 - lifting clutches
 - shackles
 - spreader bar or lifting beam
 - synthetic sling
 - tag line
- pre-start and operational checks required for a non-slewing mobile crane
- principles of driving an articulated mobile crane on roads including:
 - operational principles of an articulated mobile crane
 - driving hazards related to the vehicle characteristics of articulated mobile cranes
 - articulated mobile crane vehicle controls, instruments and indicators, and their use
 - safe driving strategies:
 - emergency stopping
 - forward projection of the boom
 - lateral instability
 - manage vehicle speed
 - positioning and stopping
 - reversing
 - steering and manoeuvring
 - steering oscillation (in the event of speed wobbles)
- problems and applying appropriate response procedures to unplanned and/or unsafe situations and environmental conditions
- starting procedure of crane in accordance with manufacturer requirements
- set up of:
 - jib
 - fly jib (where fitted)
 - manual boom section (where fitted)
- weather bureau forecasts and environmental conditions that could impact operation
- workplace standards, requirements, policies and procedures for conducting operations for the mobile non-slewing crane

- work area suitability based on relevant ground reports including:
 - backfilled ground
 - bitumen
 - concrete
 - hard compacted soil
 - pre-contaminated soils
 - rock
 - rough, uneven ground
 - soft soils.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Simulators must not be used in the practical assessment of this unit of competency.

Resources for assessment must include access to:

- adequate area to allow for manoeuvring through an obstacle course as defined within the Performance Evidence
- appropriate loads as outlined in the Performance Evidence requirements
- associated personnel to sling and direct loads, including:
 - licenced dogger or rigger
- communications equipment, including:
 - two-way radios
 - whistles
- non-slewing articulated mobile crane with an RC 12 tonnes or greater in safe/serviceable/roadworthy working order in accordance with manufacturer specifications (side by side seats is preferred)
- personal protective equipment (PPE)
- relevant documentation for operating a non-slewing mobile crane over 3 tonnes, including:
 - approved codes of practice and relevant guidance material
 - relevant Australian technical standards
 - manufacturer guidelines (instructions, requirements or checklists), relevant industry standards and operating procedures (where applicable).

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>