



Australian Government

Assessment Requirements for TLILIC0021 Licence to operate a slewing mobile crane (up to 100 Tonnes)

Release: 1

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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 must include:

- applying relevant mathematical calculations in conjunction with lift plan and load chart to determine radius requirements and relevant lifting gear to perform work/task to enable crane to be configured for load, including:
 - boom
 - counterweight/s
 - fly jib
 - line pull
 - outrigger positioning
 - type of hook
- applying relevant crane movements, including:
 - boom/jib up and down (luffing)
 - catching load swing appropriately
 - positioning and using main and auxiliary hook and lifting gear to connect to load safely
 - raising and lowering hoist
 - slew boom/jib
 - telescope in and out
- carrying out 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 for to ensure they are functional, including:
 - reversing beepers
 - lights
 - horns
 - crane computer alarm (where fitted)
 - anti-two block alarms (where fitted)

- start-up is in accordance with manufacturer requirements and safe work procedures
- there are no unusual noises
- steering, transmission and brake functions comply with operating requirements
- complying with Commonwealth, state and territory work health and safety (WHS)/occupational health and safety (OHS) legislation and safe work procedures
- communicating with other associated personnel through using appropriate workplace procedures, including:
 - two-way radio
 - active listening
 - demonstrating and interpreting hand signals
 - questioning to confirm understanding
 - signage/visual aids
 - verbal language
 - whistles
 - written instructions
- completing pre-start checks, including:
 - boom wiring harness connection
 - engine/mechanical fluid level checks as required by manufacturer requirements
 - ensure rungs/steps are free of hazards
 - fire extinguisher
 - fluid leaks
 - lights work effectively
 - locating, identifying and confirming all controls
 - mirrors and seat are adjusted appropriately for the operator
 - presence of correct logbook
 - 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
 - updating records as required
 - visual damage or equipment faults
- conducting and applying hazard and risk assessment strategies, including:
 - confirming work area operating surface suitability based on crane and task requirements
 - dynamic loads
 - load swing
 - overloading
 - lifting and placing load
 - tyre pressures or track condition
 - asymmetric loads

- overhead hazards
- restricted and poorly ventilated areas
- risk of collision with people, moving plant and fixed structures
- adequate lighting
- weather conditions
- confirming and following traffic management plan procedures relevant to their role in the work area
- determining any defects or faults with operation of crane, recording in relevant documentation and reporting to relevant person/s
- ensuring risk control measures within the work area are effective in accordance with safe work procedures
- following directions of dogger or rigger
- inputting crane configuration into crane computer (where fitted) and checking operation to accurately reflect crane configuration
- interpreting and acting on communication 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
 - slew left - hand and whistle and radio
 - slew right - hand and whistle and radio
 - stop - hand and whistle and radio
 - telescope in - hand and whistle and two-way radio (where manufacturer requirements allow)
 - telescope out - hand and whistle and two-way radio (where manufacturer requirements allow)
- interpreting and confirming relevant documentation for the work task and relevant area
- maintaining three points of contact whilst accessing crane
- monitoring load disconnection from hook is safe and ensuring no movement of crane operational controls
- operating a slewing mobile crane configured with at least four parts of line greater than 60 tonnes and up to 100 tonnes to lift and move four different loads using the main hook through an obstacle course, including a 180-degree minimum slew using all crane operational controls while the load is in full view of the crane operator. Loads must consist of:
 - a load of >50% of the Rated Capacity (RC) of the crane with a boom length of >75%, and
 - stillage containing at least ten scaffolding standards or containing a load of steel pipes of equivalent weight that requires a dogger to sling, and
 - an asymmetrical load that requires a dogger to sling, and
 - a round load with a minimum diameter of 300 mm and minimum length of three m that requires a dogger to sling
- positioning the mobile crane for safe operation for:
 - application of the task/s

- manoeuvring in the workplace
- the stability of the mobile crane and the load
- recording and maintaining accurate information relating to crane operations
- reporting to relevant person/s on workplace control measures that are not in place or deficient
- setting up and validating an exclusion zone in accordance with the lift plan
- shutting down a slewing mobile crane in accordance with manufacturer requirements and safe work procedures
- stabilising a slewing mobile crane for operation by:
 - correctly positioning plates or packing
 - deploying outriggers
 - establishing correct size plates or packing in accordance with the lift plan
 - checking levels
- 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
 - identifying 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
- 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 crane computer (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 workplace communication procedures, including:
 - listening
 - hand signals
 - questioning techniques
 - signage
 - two-way radios
 - written instructions
 - whistles
- characteristics and impact of factors affecting non-slewing articulated mobile crane stability

whilst mobiling loads compared to slewing crane, including:

- articulation of crane
- correct tyre pressure (inflation/condition)
- driving safely on public and private roadways
- unique handling characteristics of a mobile articulated crane and the emergency procedures in the event of loss of control in accordance with manufacturer recommendations
- pick and carry the load
- side slope derations
- characteristics and impact of factors affecting vehicle loading crane stability whilst mobiling loads compared to slewing crane, including:
 - correct tyre pressure (inflation/condition)
 - emergency procedures in the event of an incident
 - position of operator
 - use of stabilisers
- characteristics and impact of factors affecting reach stacker stability whilst mobiling loads compared to slewing crane, including:
 - correct tyre pressure (inflation/condition)
 - driving safely on roadways
 - emergency procedures in the event of an incident
 - impact of boom height and steering on stability
 - use of stabilizers
- crane configuration mathematical calculations to:
 - estimate loads
 - establish counterweight/s requirements
 - establish radius requirements
- relevant lifting gear to perform work/task
- crane, lifting gear load chart/s and manufacturer requirements
- hazards, including:
 - erection and pack up
 - crane stability
 - ground stability and condition, including recently filled trenches and slopes
 - insufficient lighting
 - obstacles or obstruction
 - other specific hazards and dangerous materials
 - overhead hazards, including:
 - electric lines
 - service pipes
 - structures
 - vegetation (trees)

- traffic, including pedestrians, vehicles and other plant
- operations on unusual, uneven or difficult terrains
- lift-impacting factors, including:
 - centre of gravity
 - dynamic nature of load
 - flex/deflexion of boom
 - length of load
 - radius of boom during lift
 - weight
- manufacturer requirements on outrigger procedures
- manufacturer requirements and instructions on shutting down and packing up crane
- mobile slewing crane characteristics and capabilities to allow crane configuration to suit a range of loads
- relevant workplace instructions, safety information and emergency procedures
- relevant documentation requirements and procedures for recording, reporting and maintaining workplace records and information
- 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, safe work and workplace procedures
- pre-start and operational checks required for a slewing mobile crane
- problems and appropriate response procedures to unplanned and/or unsafe situations and environmental conditions, including:
 - wind, lightning and storms
 - failure of equipment including hydraulic system
 - failure/loss of control including brakes and steering
 - obstacles and obstructions
 - unusual or difficult terrains
- hazards commonly encountered while preparing load:
 - instability of landing surfaces
 - overhead and underground hazards
 - insufficient lighting
 - traffic
 - weather
 - pedestrian traffic
 - work at heights

- selection, inspection, care, handling, application, limitations and storage of lifting equipment and gear:
 - flexible steel wire rope (FSWR) sling
 - synthetic sling
 - chain sling (including shortener)
 - spreader bar or lifting beam
 - tag line
 - shackles
 - eyebolts
 - plate clamps
- methods of making temporary connections to loads using fibre and synthetic ropes:
 - single sheet bend
 - clove hitch
 - rolling hitch
 - bowline
- stability of load and avoidance of hazards, including:
 - allowing for boom deflection
 - boom/jib as low as possible
 - carrying load near to ground surface
 - crane stability
 - gently accelerating and braking on slew/boom to minimise load swing
 - lowering load safely onto appropriate dunnage taking into consideration swing and restrictions of area
 - minimum boom/jib length
 - minimum speed
 - using handheld tag lines as required
 - identification of incorrect sling of load
- set up of:
 - jib
 - fly jib/luffing fly
 - counterweight/s
- starting procedure of crane as per manufacturer requirements
- weather bureau forecasts and associated information and environmental conditions that could impact operation, including:
 - lightning
 - rain
 - wind
 - water impacted ground
 - ultraviolet (UV) exposure
- workplace standards, requirements, policies and procedures for conducting safe work

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

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.

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

Resources for assessment must include access to:

- slewing mobile crane with an MRC greater than 60 tonnes and up to 100 tonnes in safe/serviceable working order in accordance with manufacturer specifications
- appropriate loads as outlined in the Performance Evidence requirements
- appropriate personnel to sling and direct loads, including:
 - licenced dogger or rigger
- communication equipment, including:
 - two-way radios
 - whistles
- relevant PPE
- relevant documentation for operating a slewing mobile crane with an MRC up to 100 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>