



Australian Government

TLILIC3004 Licence to operate a derrick crane

Release: 1

TLILIC3004 Licence to operate a derrick crane

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 derrick crane safely.

Derrick crane means a slewing strut-boom crane with its boom pivoted at the base of a mast that is:

- capable of luffing under load
- guyed (guy-derrick) or held by backstays (stiff-legged derrick).

This unit applies to the activities of a person operating a derrick crane.

A person performing this work is required to hold a derrick crane high risk work (HRW) licence.

This unit requires a person operating a derrick crane to plan work, conduct routine checks, transfer a load, and shut down and secure a crane.

Licensing/Regulatory Information

This unit is based on the licensing requirements of Part 4.5 of the Model Work Health and Safety (WHS) Regulations, HRW and meets Commonwealth, state and territory HRW licensing requirements.

Any alteration to this unit would result in a unit that would not be acceptable to work health and safety (WHS)/occupational health and safety (OHS) regulators for the purpose of licensing.

Pre-requisite Unit

Not applicable.

Competency Field

LIC – Licensing

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Plan work

- 1.1 Potential workplace hazards are identified
- 1.2 Hazard control measures are identified consistent with appropriate standards to ensure the safety of personnel and equipment
- 1.3 Weight of load is identified and estimated in consultation with associated personnel
- 1.4 Appropriateness of crane to load/s and workplace conditions is confirmed
- 1.5 Appropriate path for moving loads in work area is determined and inspected
- 1.6 Appropriate communications methods are identified in consultation with associated personnel

2 Conduct routine checks

- 2.1 Ground stability is checked
- 2.2 Crane is visually checked for damage or defects
- 2.3 All signage and labels are checked to ensure they are visible and legible, in accordance with the appropriate standard
- 2.4 Appropriate crane configuration for work task is determined in accordance with procedures
- 2.5 Routine pre-operational crane checks are carried out in accordance with procedures
- 2.6 All controls are located and identified
- 2.7 Crane service logbook is checked for compliance
- 2.8 Crane is started in accordance with procedures and is checked for any abnormal noises
- 2.9 All crane safety devices are tested in accordance with procedures
- 2.10 Post-start operational checks are carried out in accordance with procedures
- 2.11 All communications equipment is checked for serviceability
- 2.12 All damage and defects are reported and recorded in

accordance with procedures, and appropriate action is taken

3 Transfer load

- 3.1 Lifts are determined within crane capacity
- 3.2 Appropriate hazard prevention/control measures are applied to work area in accordance with procedures
- 3.3 Boom/jib and hoist block is positioned over load following directions from associated personnel
- 3.4 Test lift is carried out in accordance with procedures to allow for checks to be safely made, in consultation with relevant personnel
- 3.5 Loads are transferred using all relevant crane movements, in accordance with procedures and the appropriate standard
- 3.6 All required communications signals are interpreted correctly in accordance with procedures and the appropriate standard
- 3.7 Crane is operated in accordance with procedures
- 3.8 Load movement is monitored constantly, to ensure safety of personnel and load, and structural stability
- 3.9 Unplanned and/or unsafe situations are responded to in accordance with procedures

4 Shut down and secure crane

- 4.1 Relevant motion locks and brakes are applied as required
- 4.2 Crane equipment is stowed and secured as required, in accordance with procedures and the appropriate standard
- 4.3 Crane is shut down in accordance with procedures
- 4.4 Routine post-operational crane checks are carried out in accordance with procedures
- 4.5 All damage and defects are reported and recorded in accordance with procedures, and appropriate action is taken

Foundation Skills

The language, literacy, numeracy and employment skills that are essential to performance that are not explicit in the unit are listed below.

Skill	Performance feature
Employment skills to:	- operate a derrick crane in different types of workplaces transferring key principles of safe operation to different contexts - improve own performance in safely and efficiently operating a derrick crane by incorporating learnings from different workplaces and different conditions into current performance
Numeracy skills to:	- interpret numerical information including: - selecting appropriate derrick crane in accordance with load and workplace conditions - load weight assessment, to ensure compliance with derrick crane data plate specifications - controlling and monitoring instrument readings
Language skills to:	- use and interpret vocabulary specific to derrick crane operations and workplace procedures to communicate with other workplace personnel - use non-verbal feedback to support effective communication - use relevant two-way radio conventions
Literacy (reading) skills to:	- interpret documentation that includes technical specificity including: - derrick crane data plate - plant operation manuals and manufacturer specifications - workplace procedures, including emergency plan - workplace signage and labels
Literacy (writing) skills to:	- accurately record and maintain information relating to operating a derrick crane, including: - incident reports - vehicle checking and maintenance records
Self-management skills to:	- implement risk control measures - initiate emergency management strategies

Range of Conditions

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

Non-essential conditions can be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit is equivalent to TLILIC3004A Licence to operate a derrick crane.

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 TLILIC3004 Licence to operate a derrick crane

Modification History

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

Performance Evidence

A person who demonstrates competency in this unit must provide evidence of safely operating a derrick crane and satisfy all of the elements, performance criteria and foundation skills requirements of the unit on at least one occasion including:

- applying appropriate mathematical procedures to estimate loads
- applying hazard prevention/control measures including:
 - adequate illumination
 - disconnected power
 - insulated electric lines
 - moving obstructions
 - pedestrian barricades
 - personal protective equipment
 - safety tags on electrical switches/isolators
 - using safety observer inside exclusion zone
 - traffic barricades and control
 - trench covers
- applying risk assessment and hazard control strategies, including hierarchy of control as applied to the safe operation of the crane
- applying risk assessment and management procedures
- communicating with other workplace personnel through:
 - appropriate worksite protocols
 - bells
 - buzzers
 - listening
 - making and interpreting hand signals
 - questioning to confirm understanding
 - signage
 - two-way radios
 - verbal and non-verbal language
 - written instructions
- complying with WHS/OHS licensing legislation
- operating a derrick crane for lifting and moving loads to the safe working rated capacity in

conjunction with other associated personnel while applying relevant crane movements including:

- hoisting and lowering loads
- luffing
- slewing
- receiving and interpreting workplace instructions, safety information, emergency procedures
- recording and maintaining accurate information relating to crane operations
- shutting down derrick crane in accordance with manufacturer specifications and workplace procedures including:
 - idling engine to stabilise temperature as required
 - isolating power supply to crane
 - locking and securing cabin as required
 - raising boom/jib to clear buildings and structures as required
 - removing key as required
 - retracting hoist rope and hook block
 - securing crane for travel
 - turning off engine as required
- test-lifting load just clear of lifting plane to ensure:
 - adjustments to slinging can be made in a safe manner
 - all crane equipment is functioning properly
 - load measuring equipment can be used to verify calculated weight of load
 - loads of unusual shape or weight distribution are correctly slung
 - near capacity loads do not overload the crane
- using and interpreting crane manufacturer specifications and data, or engineer specifications, assessments or designs, including load charts, or load limits at various radii, to enable crane to be configured for load
- using communications signals including:
 - hoist up – hand
 - hoist up – whistle
 - hoist down – hand
 - hoist down – whistle
 - luff boom down – hand
 - luff boom down – whistle
 - luff boom up – hand
 - luff boom up – whistle
 - stop – hand
 - stop – whistle
 - slew left – hand
 - slew left – whistle
 - slew right – hand

- slew right - whistle
- verifying problems and equipment faults, and applying appropriate response procedures to unplanned and/or unsafe situations including:
 - environmental conditions (e.g. wind, lightning, storms, etc.)
 - failure/loss of control (e.g. brakes and steering)
 - failure of equipment (e.g. hydraulic system)
 - obstacles and obstructions
 - unusual or difficult terrains.

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 mathematical procedures for estimating and measuring loads
- Australian and industry standards relevant to operating a derrick crane
- Commonwealth, state or territory WHS/OHS legislation, standards and codes of practice relevant to the full range of processes for the crane class
- crane configuration including:
 - backstays and counterweights
 - boom/jib
 - guys
- derrick crane characteristics and capabilities to allow for operating the crane to suit the range of loads
- ground suitability including:
 - backfilled ground
 - bitumen
 - concrete
 - hard compacted soil
 - rock
 - rough uneven ground
 - soft soils
- hazards including:
 - environmental conditions (e.g. wind, lightning, storms)
 - ground stability (e.g. ground condition or slopes for load placement)
 - insufficient lighting
 - other specific hazards (e.g. dangerous materials)
 - overhead hazards (e.g. electric lines, service pipes)

- traffic (e.g. pedestrians, vehicles, plant)
- hierarchy of hazard identification and control:
 - elimination
 - substitution
 - isolation
 - engineering controls
 - administrative controls
 - personal protective equipment (PPE)
- organisational and workplace standards, requirements, policies and procedures for conducting operations for the crane class
- procedures for recording, reporting and maintaining workplace records and information
- rated capacity and working load limits (including use of crane load charts)
- risks associated with overhead electric lines/electrical cables, ground conditions, crane tipping and demolition sites, and other personnel or vehicles
- systematic process of eliminating or reducing risk to personnel and property through the application of controls
- typical routine problems encountered operating a crane and equipment, and adjustments required for correction.

Assessment Conditions

Assessments must be conducted by an assessor accredited for this high risk work (HRW) licence class in the Commonwealth/state/territory where the licence will be obtained (i.e. an assessor authorised by a Commonwealth/state/territory WHS/OHS regulator).

As a minimum, assessors must satisfy applicable regulatory requirements, which may include requirements in 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 all assessment must be conducted in the English language.

Assessment of performance must be undertaken in the workplace and/or under realistic workplace conditions which typically reflect:

- performing tasks/activities within timelines that would be expected in a workplace
- standard and authorised work practices, safety requirements and environmental constraints
- using full-scale equipment.

Derrick crane operation assessment must be conducted in a working zone in accordance with state/territory arrangements.

If the working zone is located at a 'live' site, assessment should continue in all weather conditions unless the safety of the candidate or others could be compromised.

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

Accredited assessors are responsible for ensuring candidates have access to:

- appropriate derrick crane and associated equipment in safe condition comprising a strut-boom crane with its boom pivoted at the base of a mast which is either guyed (guy-derrick) or held by backstays (stiff-leg derrick) and which is capable of luffing under load
- appropriate personnel to sling and direct loads including:
 - doggers
 - riggers
- communications equipment including:
 - bells
 - buzzers
 - two-way radios
 - whistles
- controls including:
 - hoisting and lowering levers
 - luffing levers
 - slewing levers including brake
- required personal protective equipment (PPE) for the purpose of Performance Assessment
- safety devices including:
 - audible and visual warning devices
 - function limits
 - lights
- signage and labels including:
 - crane data plates/labels
 - load charts
 - crane decals
 - control labels
- where appropriate relevant workplace procedures and standards for operating a derrick crane including:
 - approved codes of practice and guidance
 - Australian Standards
 - checklists
 - control labels
 - crane data plates/labels
 - crane decals
 - history record system where service and maintenance history is kept
 - industry operating procedures
 - relevant industry standards (where applicable)
 - load charts

- logbook
- manufacturer guidelines (instructions, specifications or checklists) for the purpose of Performance Assessment
- safe work method statement (SWMS), as required
- service logbook.

Links

Companion Volume implementation guides are found in VETNet -

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