



Australian Government

TLILIC3003 Licence to operate a bridge and gantry crane

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.

Application

This unit specifies the skills and knowledge required to operate bridge cranes and gantry cranes safely.

Bridge crane means a crane that:

- consists of a bridge beam or beams, that are mounted to end carriages at each end, and
- is capable of travelling along elevated runways, and
- has 1 or more hoisting mechanisms arranged to traverse across the bridge.

Gantry crane means a crane that:

- consists of a bridge beam or beams supported at one or both ends by legs mounted to end carriages, and
- is capable of travelling on supporting surfaces or deck levels, whether fixed or not, and
- has a crab with 1 or more hoisting units arranged to travel across the bridge.

This unit applies to the activities of a person operating bridge crane or gantry crane that is:

- controlled from a permanent cabin or control station on the crane, or
- remotely controlled and having more than 3 powered operations, including the application of load estimation and slinging techniques to move a load.

A person performing this work is required to hold a bridge and gantry crane high risk work (HRW) licence

This unit requires a person operating a bridge crane or gantry crane to plan the work, conduct routine checks, transfer loads, and shut down and secure crane after completing the operation.

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 (mass) of load is estimated in consultation with associated personnel 1.4 Appropriate paths for moving load/s in work area are determined 1.5 Crane is appropriate to the load/s 1.6 Appropriate communication methods are identified in consultation with associated personnel
2 Conduct routine checks	2.1 Appropriate hazard prevention/control measures are applied to work area in accordance with procedures 2.2 Crane is accessed in a safe manner 2.3 Crane is visually checked for any damage or defects 2.4 All signage and labels are checked to ensure they are visible and legible, in accordance with the appropriate standard 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 Crane safety devices are tested in accordance with procedures
- 2.10 Post-start operational checks are carried out in accordance with procedures
- 2.11 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 loads

- 3.1 Hoist block is positioned over load following directions from associated personnel, as required
- 3.2 Test lift is carried out in accordance with procedures to allow for checks to be safely made, in consultation with relevant personnel
- 3.3 Loads are transferred using all relevant crane movements in accordance with procedures and appropriate standard
- 3.4 All required communications signals are interpreted correctly in accordance with procedures and appropriate standard
- 3.5 Crane is operated in accordance with procedures
- 3.6 Load movements are monitored constantly, to ensure safety of personnel and load, and structural stability
- 3.7 Unplanned and/or unsafe situations are responded to in accordance with procedures

4 Shut down and secure crane

- 4.1 Crane is parked in accordance with procedures
- 4.2 Crane and equipment are stowed and secured in accordance with procedures and appropriate standard
- 4.3 Relevant motion locks and brakes are applied as required
- 4.4 Crane is shut down in accordance with procedures
- 4.5 Routine post-operational crane checks are carried out in accordance with procedures

- 4.6 Hazard prevention/control measures are removed as required
- 4.7 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 bridge gantry crane in different types of workplaces transferring key principles of safe operation to different contexts - improve own performance in safely and efficiently operating a bridge gantry crane by incorporating learnings from different workplaces and different conditions into current performance
Numeracy skills to:	- interpret numerical information including: - selecting appropriate bridge gantry crane in accordance with load and workplace conditions - load weight assessment, to ensure compliance with bridge gantry crane data plate specifications - controlling and monitoring instrument readings
Language skills to:	- use and interpret vocabulary specific to bridge gantry 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: - bridge gantry 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 gantry 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 TLILIC3003A Licence to operate a bridge and gantry 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 TLILIC3003 Licence to operate a bridge and gantry crane

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Performance Evidence

A person who demonstrates competency in this unit must provide evidence safely operating a bridge and gantry 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
- 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
- completing pre- and post-operational checks of a bridge and gantry crane
- 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 work health and safety (WHS)/occupational health and safety (OHS) licensing legislation

- operating a bridge and gantry crane including all functions to their maximum for lifting and moving loads to the maximum rated capacity in conjunction with other personnel while applying relevant crane movements including:
 - hoisting (raising and lowering)
 - traversing (moving hoisting mechanisms along bridge)
 - travelling (at minimum speed, gentle acceleration and braking, to minimise load swing)
- receiving and interpreting workplace instructions, safety information, emergency procedures
- recording and maintaining accurate information relating to bridge and gantry crane operations
- shutting down bridge and gantry crane in accordance with manufacturer specifications and workplace procedures including:
 - isolating power to crane
 - locking and securing cabin as required
 - removing key from control panel as required
 - retracting hoist rope and hook block
 - travelling crane to park position
- 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 crane
- using and interpreting crane manufacturer specifications and data, including maximum load to ensure crane is not overloaded
- using communications signals including:
 - hoist up – hand
 - hoist up –whistle
 - hoist down - hand
 - hoist down- whistle
 - stop – hand
 - stop – whistle
 - traverse – hand
 - travel – hand
 - creep - hand
- 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 loads
- Australian and industry standards relevant to operating a bridge and gantry crane
- bridge and gantry crane characteristics and capabilities to allow for operating a crane to suit the range of loads
- Commonwealth, state or territory WHS/OHS legislation, standards and codes of practice relevant to the full range of processes for the crane class
- emergency procedures including escape routes
- 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, access to cabin, vehicles and clear access while travelling
- systematic process of eliminating or reducing risk to personnel and property through the application of controls
- typical routine problems encountered operating 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

Bridge and gantry 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 bridge crane, a bridge beam mounted at each end to an end carriage, capable of travelling along elevated runways and having one or more hoisting mechanisms arranged to traverse across the bridge
- appropriate gantry crane, a bridge beam, supported at each end by legs mounted on end carriages, capable of travelling on supported surfaces or deck levels, whether fixed or not, which has a crab with one or more hoisting units arranged to travel across the bridge
- appropriate personnel to sling and direct loads including:
 - doggers
 - riggers
- communications equipment including:
 - bells
 - buzzers
 - two-way radios
 - whistles
- controls including:
 - cross travel levers

- hoisting and lowering levers
- long travel levers
- rotating hook levers (where applicable)
- required personal protective equipment (PPE) for the purpose of the Performance Assessment
- safety devices including:
 - audible and visual reversing devices
 - horns/sirens
 - lights
- operator restraint devices
- where appropriate, relevant workplace procedures and standards for operating a bridge and gantry crane including:
 - approved codes of practice and guidance
 - Australian standard
 - 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 the Performance Assessment
 - safe work method statement (SWMS), as required
 - service logbook
 - signage and labels
 - workplace procedures (work instructions, operating procedures, checklists).

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