



Australian Government

MEM11023 Operate a bridge and gantry crane

Release: 1

MEM11023 Operate a bridge and gantry crane

Modification History

Release 1. Supersedes and is equivalent to MEM11023A Operate a bridge and gantry crane

Application

This unit of competency defines the skills and knowledge required for the operation of bridge and gantry cranes that are operated from a permanent cabin/control station on the crane in a manufacturing related environment, including a factory, raw material or finished goods store.

While this unit applies to work covered by licensing requirements, it also includes other manufacturing related skills, including integrating crane operations with production, jobbing, maintenance or warehouse operations.

This unit does not cover the bridge and gantry crane types that are controlled from a location remote to a permanent cabin/control station on the crane and that have three or less powered operations, i.e. hoist/raise and lower in one operation and also does not cover the slinging or rigging of loads.

This unit is not recognised by regulators for licensing requirements. In order to satisfy licensing requirements, the imported unit TLILIC3003 Licence to operate a bridge and gantry crane will be required.

Where the selection and use of tools is required unit MEM18001 Use hand tools and unit MEM18002 Use power tools/hand held operations, should also be selected as appropriate.

Band A

Unit Weight 4

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Materials handling

Elements and Performance Criteria

Elements describe the essential outcomes.

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

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|---|-----------------------------------|-----|--|
| 1 | Determine job requirements | 1.1 | Follow standard operating procedures (SOPs) |
| | | 1.2 | Comply with work health and safety (WHS) requirements at all times |
| | | 1.3 | Use appropriate personal protective equipment (PPE) in accordance with SOPs |
| | | 1.4 | Obtain load transfer authorisation, including lift time and load destination |
| 2 | Plan work | 2.1 | Identify potential hazards for load lift and transfer |
| | | 2.2 | Identify hazard control measures consistent with appropriate standards to ensure the safety of personnel and equipment |
| | | 2.3 | Estimate weight (mass) of the load in consultation with associated personnel |
| | | 2.4 | Determine appropriate paths for the movement of loads in the work area |
| | | 2.5 | Check crane capacity to the load, as appropriate |
| | | 2.6 | Identify appropriate communication methods with associated personnel |
| 3 | Conduct routine checks | 3.1 | Apply appropriate hazard prevention/control measures to the work area according to procedures |
| | | 3.2 | Access crane in a safe manner |
| | | 3.3 | Check crane visually for any damage or defects |
| | | 3.4 | Ensure all signage and labels are visible and legible according to the appropriate standard |
| | | 3.5 | Carry out routine pre-operational crane checks according to SOPs |

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	3.6 Locate and identify all controls
	3.7 Check crane service logbook for compliance
	3.8 Start crane and check for any abnormalities according to SOPs
	3.9 Test crane safety devices according to SOPs
	3.10 Carry out post-start operational checks according to SOPs
	3.11 Check all communication equipment for serviceability
	3.12 Report all damage and defects and record according to SOPs, and take appropriate action
4 Transfer loads	4.1 Position hoist block over load following directions from associated personnel
	4.2 Carry out test lift according to SOPs
	4.3 Transfer loads along planned path
	4.4 Ensure all crane movements are according to SOPs and the appropriate standard
	4.5 Interpret communication signals according to SOPs and the appropriate standard
	4.6 Operate crane according to SOPs
	4.7 Monitor load movements constantly ensuring safety to personnel and load, and structural stability
	4.8 Respond to unplanned and/or unsafe situations in accordance with SOPs
5 Shut down and secure crane	5.1 Park crane according to SOPs
	5.2 Stow crane and equipment and secure according to SOPs and the appropriate standard

Elements describe the essential outcomes.

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

- 5.3 Apply all relevant motion locks and brakes, as applicable
- 5.4 Shut down crane according to SOPs
- 5.5 Carry out routine post-operational crane checks according to SOPs
- 5.6 Remove hazard prevention/control measures, where applicable
- 5.7 Report all damage and defects and record according to SOPs, and take appropriate action

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

- Hazards include one (1) or more of the following:**
- ground stability (e.g. ground condition or slopes for load placement)
 - overhead hazards (e.g. powerlines and service pipes)
 - insufficient lighting
 - traffic (e.g. pedestrians, vehicles and plant)
 - environmental conditions (e.g. dust, wind, lightning and storms)
 - other specific hazards (e.g. dangerous materials)

- Hazard control measures include the following:**
- the systematic process of eliminating or reducing the risk to personnel and property through the application of controls consistent with appropriate standards
 - the application of the hierarchy of control, the six-step preference of control measures to manage and control risk:

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1. elimination
2. substitution
3. isolation
4. engineering control measures
5. using safe work practices
6. personal protective equipment (PPE)

Appropriate standards include one (1) or more of the following:

- codes of practice and legislation
- Australian Standards
- crane manufacturer specifications
- industry and workplace standards, as applicable

Appropriate paths include one (1) or more of the following:

- ensure clearances of fixed machinery, equipment, fixtures and work in progress
- minimise transfers across workstations and walkways
- minimise disruption to work unrelated to the load transfer
- minimise transfer time and distance subject to safety and disruption assessments

Associated personnel include the following:

- riggers and doggers
- supervisory and expert personnel to advise on any special features of the load or transfer

Cranes are operated from a permanent cabin/control station on the crane and include one (1) or more of the following:

- 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
- 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 and which has a crab with one or more hoisting units arranged to travel across the bridge

Communication methods include one (1) or more of the following:

- verbal and non-verbal language
- written instructions
- signage

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- hand signals
- listening
- questioning to confirm understanding
- appropriate worksite protocol

Signage and labels include one (1) or more of the following:

- crane data plates/labels
- load charts
- crane decals
- control labels

Procedures include one (1) or more of the following:

- manufacturer guidelines (instructions, specifications or checklists)
- industry operating procedures
- workplace procedures (work instructions, operating procedures and checklists)

Controls include one (1) or more of the following:

- long travel levers
- cross travel levers
- hoisting and lowering levers
- rotating hook levers, where applicable

Service logbook includes one (1) or more of the following:

- service book and any logbook
- history record system where the service and maintenance history is kept

Safety devices include the following:

- horns/sirens and lights
- audible and visual motion devices
- operator restraint devices, where applicable

Communication equipment includes one (1) or more of the following:

- two-way radios
- whistles
- bells and buzzers

Hazard prevention/control

- safety tags on electrical switches/isolators
- insulated powerlines

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measures include one (1) or more of the following:

- safety observer used inside exclusion zone
- disconnected power
- traffic barricades and controls
- pedestrian controls
- movement of obstructions
- PPE
- adequate illumination

Test lift includes the following:

- lifting the load just clear of the lifting plane to allow for checks to be safely made in consultation with associated personnel to ensure that:
 - near capacity loads do not overload the crane
 - loads of unusual shape or weight distribution are correctly slung
 - load measuring equipment can be used to verify the calculated weight of the load
 - all crane equipment is functioning properly
 - adjustments to the slinging can be made in a safe manner

Relevant crane movements include the following:

- hoisting (raise and lower)
- traversing (moving hoisting mechanisms along bridge)
- travelling (at minimum speed, gentle acceleration and braking, to minimise load swing)

Communication signals include the following:

- stop – hand and whistle
- hoist up – hand and whistle
- hoist down – hand and whistle
- traverse - hand
- travel - hand
- creep - hand

Unplanned and/or unsafe situations include the following:

- failure/loss of control (e.g. brakes and steering)
- failure of equipment (e.g. hydraulic system)
- environmental conditions (e.g. wind, lightning and storms)

Shutdown includes the

- retracting hoist rope and hook block

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following:

- travelling crane to park position
- removing key from control panel, as applicable
- locking and securing cabin, as applicable
- isolating power to crane

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>