Australian Government

Assessment Requirements for TLILIC0017 Licence to operate a derrick crane

Release: 1

Assessment Requirements for TLILIC0017 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

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:

- 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
  - line pull
  - type of hook
- applying relevant communication signals from associated personnel
- applying relevant crane movements, including:
  - boom/jib up and down (luffing)
  - catching load swing appropriately
  - positioning and using main hook and lifting gear to connect to load safely
  - raising and lowering hoist
  - slew boom/jib
- 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 to ensure they are functional, including:
    - lights
    - warning devices/horns
    - anti-two block alarms (where fitted)
  - start-up is in accordance with manufacturer requirements and safe work procedures
  - there are no unusual noises
- 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 worksite procedures, including:

  - two-way radio
  - active listening
  - demonstrating and interpreting hand signals
  - questioning to confirm understanding
  - signage/visual aids
  - whistles
  - written instructions
- 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
  - asymmetric loads
  - overhead hazards
  - restricted and poorly ventilated areas
  - risk of collision with people, moving plant and fixed structures
  - adequate lighting
  - weather conditions
- conducting pre-start checks, including:
  - 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
  - fire extinguisher
  - 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
  - updating records as required
  - visual damage or equipment faults
- confirming and following traffic management plan procedures relevant to their role in the work area
- determining any defects or faults with operation of crane and reporting to relevant person/s
- ensuring risk control measures within the work area are effective in accordance with workplace procedures
- following directions of dogger or rigger
- interpreting and confirming relevant documentation for the work task and relevant area

- monitoring load disconnection from hook is safe and ensuring no movement of controls
- operating a slewing derrick crane to lift and move three different loads using the main hook that:
  - is 25% of the maximum working radius with a load weighing at least 25% of the crane's Rated Capacity (RC) at that radius, and
  - is 40% of the maximum working radius with a load weighing at least 40% of the crane's RC at that radius, and
  - is 50% of the maximum working radius with a load weighing at least 50% of the crane's RC at that radius
- positioning derrick crane in relevant area for next task
- positioning the derrick crane for safe operation for:
  - application of the task
  - manoeuvring loads in the workplace
  - stability of the derrick crane and the load
- 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 and validating an exclusion zone
- shutting down a derrick crane in accordance with manufacturer requirements and safe work procedures
- 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
- using 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
  - slew left - hand and whistle and radio
  - slew right - hand and whistle and radio

- stop - hand and whistle and radio.

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
- 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
- crane configuration and set-up of:
  - boom/jib
  - back stays
  - counterweights
  - guys
- derrick crane characteristics and capabilities to allow crane configuration to suit a range of loads
- hazards, including:
  - erection, pack-up and crane stability, crane tipping and demolition sites
  - ground stability, including ground condition, recently filled trenches
  - 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/deflection of boom
  - length
  - radius of lift
  - weight
- manufacturer requirements and instructions on shutting down and packing up crane
- 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 derrick crane
- problems and appropriate response procedures to unplanned and/or unsafe situations and environmental conditions
- 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
- 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 to minimise load swing
    - lowering load safely onto appropriate dunnage taking into consideration swing and restrictions of area
    - using handheld tag lines
- starting procedure of crane in accordance with manufacturer requirements
- typical routine problems encountered operating a crane and equipment, and adjustments required for correction
- weather bureau forecasts and associated information and environmental conditions that could impact operation, including:
    - lightning
    - wind
    - water impacted ground
    - ultraviolet (UV) exposure
- 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
- workplace standards, requirements, policies and procedures for conducting operations for the derrick crane.

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:

- appropriate derrick crane, lifting gear and associated equipment in safe/serviceable condition in accordance with manufacturer specifications 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 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 personal protective equipment (PPE)
- relevant documentation for operating a derrick crane, 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