



Australian Government

TLIS3010 Test rail using ultrasonic equipment

Release: 2

TLIS3010 Test rail using ultrasonic equipment

Modification History

Release 2. This is the second release of this unit of competency in the TLI Transport and Logistics Training Package:

- Minor statement changes in Assessment Conditions.

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

Application

This unit involves the skills and knowledge required to test plain rail and field welds using ultrasonic equipment in accordance with rail industry standards, safeworking and regulatory requirements, and workplace procedures.

It includes determining test requirements, conducting testing using hand directed equipment, conducting visual examination and measurement of welds, identifying and classifying defects, and completing all required documentation.

People achieving competence in this unit will need to fulfil the applicable state/territory legislated rail safety requirements and to comply with relevant codes of practice and/or guidelines.

Work is performed under some supervision, generally within a team environment. It involves the application of routine operational principles and procedures when testing rail using ultrasonic equipment, as part of workplace activities across a variety of operational contexts within the Australian rail system.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

S – Construction and Installation

Unit Sector

Rail sector.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

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|---|---|
| 1 Determine test requirements | 1.1 Hazards are identified, risks are assessed and control measures are implemented |
| | 1.2 Test site is identified and prepared using appropriate procedures and materials |
| | 1.3 Preparation processes are carried out in accordance with relevant procedures, statutory and work health and safety (WHS)/occupational health and safety (OHS) requirements |
| 2 Conduct testing using hand directed equipment | 2.1 Most appropriate ultrasonic test for the application is selected |
| | 2.2 Testing equipment is selected and prepared in accordance with rail industry standards and workplace procedures |
| | 2.3 Ultrasonic test is carried out in accordance with relevant standards, specifications and WHS/OHS requirements |
| | 2.4 Ultrasonic testing equipment is checked for proper function, maintained and stored in accordance with procedures, WHS/OHS requirements and manufacturer instructions |
| 3 Conduct visual examination and measurement of rail and welds | 3.1 Rail and welds are visually assessed for obvious defects |
| | 3.2 New welds are assessed for alignment and adjustment tolerance in accordance with standards and/or procedures |
| | 3.3 Weld repairs are assessed for alignment tolerance in accordance with standards and/or procedures |
| 4 Identify and classify defects | 4.1 Indications are assessed and defects detected in accordance with standards and/or procedures |
| | 4.2 Defects are classified in accordance with standards |

and/or procedures

- 4.3** Defective welds and weld repairs are marked in accordance with standards and/or procedures

- 5 Complete documentation 5.1** Test results are reported in accordance with standards and/or procedures

- 5.2** Documentation requirements are confirmed, in accordance with workplace procedures

- 5.3** Documentation is filled in legibly and proofread

- 5.4** Documentation is processed in accordance with workplace procedures

Foundation Skills

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

Range of Conditions

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

Unit Mapping Information

This unit replaces and is equivalent to TLIS3010A Test rail using ultrasonic equipment.

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 TLIS3010 Test rail using ultrasonic equipment

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Performance 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 on at least five separate occasions and include:

- adapting to differences in equipment in accordance with operating procedures
- applying relevant workplace procedures
- assessing inspection areas visually and identifying and classifying obvious discontinuities
- carrying out additional visual and geometry assessments for field welds
- classifying defects in accordance with workplace procedures
- completing documentation related to ultrasonic testing rail and welds
- conducting testing in accordance with rail industry standards and/or workplace procedures
- conducting visual examination and measurement of rail and welds
- determining test requirements
- identifying and preparing inspection areas for testing using appropriate procedures and materials
- identifying hazards associated with ultrasonic testing and taking required actions to minimise, control or eliminate identified hazards
- identifying types of rail defects and classifications in accordance with standards and/or procedures
- implementing contingency plans
- interpreting and following operational instructions and prioritising work
- interpreting screen indications in accordance with manufacturer instructions and workplace procedures
- locating, measuring and assessing defect size for all defect types
- modifying activities depending on operational contingencies, risk situations and environments
- monitoring work activities in terms of planned schedule
- reading and interpreting relevant instructions, procedures, information, technical data, standards and drawings
- reporting and/or rectifying identified problems, faults or malfunctions, in accordance with

workplace procedures

- selecting and setting up probes to use to locate each type of defect
- working systematically with required attention to detail without injury to self or others, or damage to goods or equipment.

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:

- beam angles and probes required to locate various defect types
- fundamentals of rail and rail defects
- hazards that may exist when ultrasonic testing rail and welds, and ways of controlling the risks involved
- mechanical information relevant to ultrasonic testing rail and welds
- principles of ultrasonic testing
- problems that may occur when ultrasonic testing rail and welds, and actions that can be taken to report or resolve these problems
- rail defects and rail defect classification
- relevant rail danger zones
- relevant recording and documentation procedures
- relevant rail safety, work health and safety (WHS)/occupational health and safety (OHS) and environmental procedures and regulations
- ultrasonic probes, beam, their characteristics and screen display
- workplace procedures when ultrasonic testing rail and welds.

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 must occur in workplace operational situations or, where this is not available, in simulated workplace operational situations that replicate rail corridor workplace conditions.

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.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation including workplace procedures, regulations, rail industry standards, codes of practice and operation manuals.

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