



Australian Government

TLIS3011 Test rail using nondestructive testing equipment

Release: 2

TLIS3011 Test rail using nondestructive testing 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 switches, crossings and other special components in turnouts using ultrasonic and other nondestructive testing equipment in accordance with rail industry standards, safeworking and regulatory requirements, and workplace procedures.

It includes determining test requirements, conducting ultrasonic testing using hand directed equipment, conducting nondestructive testing, 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 turnouts using nondestructive testing 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

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Determine test requirements

- 1.1** Location and type of test is identified
- 1.2** Hazards are identified, risks are assessed and control measures are implemented
- 1.3** Test site is prepared using appropriate procedures and materials
- 1.4** 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 ultrasonic 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 standards and/or workplace procedures
- 2.3** Ultrasonic testing equipment is checked for proper function, maintained and stored in accordance with procedures, WHS/OHS requirements and manufacturer instructions
- 2.4** Ultrasonic test is carried out in accordance with relevant standards, specifications and WHS/OHS requirements

3 Conduct nondestructive testing

- 3.1** Most appropriate test for the application is selected
- 3.2** Testing equipment is selected and prepared in accordance with standards and/or procedures
- 3.3** Nondestructive test is carried out in accordance with relevant standards, specifications and WHS/OHS requirements
- 3.4** Nondestructive testing equipment is cleaned and stored in accordance with procedures, WHS/OHS requirements and manufacturer instructions

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| 4 Identify and classify defects | 4.1 Crossings and switches are visually assessed for defects in accordance with standards and/or procedures |
| | 4.2 Indications are assessed and defects are detected in accordance with standards and workplace procedures |
| | 4.3 Defects are classified in accordance with standards and/or procedures |
| | 4.4 Defective components 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 requirements |
| | 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 TLIS3011A Test rail using nondestructive testing 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 TLIS3011 Test rail using nondestructive testing 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 three separate occasions and include:

- adapting to differences in equipment in accordance with operating procedures
- applying relevant workplace procedures
- checking and maintaining nondestructive testing equipment
- checking turnouts for observable faults
- conducting visual examinations
- identifying job hazards and taking required actions to minimise, control or eliminate identified hazards
- identifying types of rail defects in switches and crossings
- implementing contingency plans
- interpreting and following relevant operational instructions and prioritising work
- 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 technical data, drawings, instructions and manuals
- reporting and/or rectifying identified problems, test results, faults or malfunctions, in accordance with workplace procedures
- 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:

- hazards that may exist when testing turnouts and rail using nondestructive testing equipment,

and ways of controlling the risks involved

- problems that may occur when testing turnouts and rail using nondestructive testing equipment, and actions that can be taken to report or resolve these problems
- 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
- relevant workplace technical manuals and instructions required to test switches, crossings and other special components in turnouts using ultrasonic and other nondestructive testing equipment
- special inspection requirements for alloy hardened crossings
- types of rail defects found in turnouts and rail defect classification
- ultrasonic testing requirements for turnouts and special trackwork
- workplace procedures for testing turnouts and rail using nondestructive testing equipment.

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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