



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **AURM340550B Conduct non-destructive testing**

**Release: 1**

## AURM340550B Conduct non-destructive testing

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	<p>This unit of competency describes the skills and knowledge required to perform non-destructive testing on competition vehicle components and materials.</p> <p>It requires the ability to use technical skills to prepare for and conduct non-destructive testing.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
------------------------	---

### Application of the Unit

<b>Application of the unit</b>	<p>This unit applies to individuals who conduct non-destructive testing of competition vehicle components in order to determine component serviceability by checking for material defects and malfunctions in a motorsport environment.</p> <p>It also applies to workplaces involved in the design, development, manufacture and maintenance of performance vehicles or performance vehicle components and assemblies used in motorsport.</p>
--------------------------------	--

### Licensing/Regulatory Information

Refer to Unit Descriptor

### Pre-Requisites

<b>Prerequisite units</b>	

<b>Prerequisite units</b>		

### **Employability Skills Information**

<b>Employability skills</b>	This unit contains employability skills.
-----------------------------	--

### **Elements and Performance Criteria Pre-Content**

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
---	--

## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for non-destructive testing	1.1. Use team instructions, controlling body rules, category rules, supplementary regulations and component supplier specifications to determine job requirements, including quality, materials, equipment and quantities 1.2. Observe occupational health and safety (OHS) requirements, including regulatory requirements and personal protection needs, throughout the work 1.3. Clean and prepare inspection areas for testing using procedures and materials 1.4. Check tooling and equipment for safe and effective operation 1.5. Prepare test equipment for non-destructive testing in accordance with equipment manufacturer/supplier instructions and team requirements 1.6. Report problems with the work area or the operation of equipment to appropriate persons
2. Perform non-destructive testing	2.1. Specify testing methods using standard operating procedures and team requirements 2.2. Identify hazards associated with testing and identify safety requirements 2.3. Carry out testing in accordance with task instructions, team procedures and OHS requirements 2.4. Identify non-conformance and defects against component manufacturer/supplier specifications and team standards 2.5. Verify test results 2.6. Document test results in accordance with team procedures
3. Clean up work area	3.1. Maintain and store testing equipment in accordance with team procedures and OHS requirements 3.2. Clean and prepare work area for subsequent use

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

**REQUIRED SKILLS AND KNOWLEDGE****Required skills**

Required skills include:

- technical skills to the level required to use workplace technology related to non-destructive testing, including tooling, equipment and measuring devices, and to use pre-checking and inspection techniques to anticipate issues to avoid reworking and wastage
- communication skills to the level required to communicate ideas and information to enable confirmation of work requirements, coordination of work with technical supervisors, other technicians and workers, and to report work outcomes and problems
- literacy skills to the level required to collect, analyse, organise and understand information related to non-destructive test results
- numeracy skills to the level required to use mathematical ideas and techniques to correctly complete measurements and estimate material requirements required for the work
- problem-solving skills to the level required to anticipate changing information requirements or influences
- team skills to the level required to work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- planning skills to the level required to plan and organise activities, including the preparation and layout of the work area, and obtaining equipment and material to avoid backtracking, workflow interruptions or wastage

**Required knowledge**

Required knowledge includes:

- principles and methods of penetrant, magnetic and Rockwell and Brinell hardness testing, including limitations, advantages and hazards associated with testing
- non-destructive testing terminology
- non-destructive test equipment use, maintenance and storage
- non-destructive testing preparation procedures
- non-destructive testing verification methods and techniques
- non-destructive testing analysis techniques
- techniques for recording results of non-destructive testing
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including OHS, personal safety and environment, reporting and recording procedures, relevant to non-destructive testing

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Assessors must be satisfied that the candidate can competently and consistently:</p> <ul style="list-style-type: none"> <li>• interpret and apply team requirements, controlling body and category rules and supplementary regulations</li> <li>• apply and use safety equipment and personal protective equipment</li> <li>• follow task instructions, operating procedures and inspection processes to: <ul style="list-style-type: none"> <li>• minimise the risk of injury to self or others</li> <li>• prevent damage to competition vehicle or equipment</li> <li>• achieve required outcomes within team time and quality standards</li> </ul> </li> <li>• prepare equipment for testing (including zeroing and calibration checks)</li> <li>• correctly conduct non-destructive testing on a minimum of four (4) components. Each component must be tested using at least two (2) testing methods as detailed in the range statement. Each of the following must be covered: <ul style="list-style-type: none"> <li>• select and apply testing methods</li> <li>• verify results</li> <li>• record outcomes</li> </ul> </li> <li>• perform work within team quality and timeliness standards</li> <li>• work effectively with others</li> <li>• modify activities to cater for variations in workplace context and environment.</li> </ul>
<b>Context of, and specific resources for assessment</b>	<ul style="list-style-type: none"> <li>• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.</li> <li>• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.</li> <li>• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.</li> <li>• Where applicable, reasonable adjustment must be made to</li> </ul>

<b>EVIDENCE GUIDE</b>	
	<p>work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.</p> <ul style="list-style-type: none"> <li>• The following resources should be made available: <ul style="list-style-type: none"> <li>• process equipment</li> <li>• material work instructions and deadlines</li> <li>• tooling and equipment.</li> </ul> </li> </ul>
<b>Method of assessment</b>	<ul style="list-style-type: none"> <li>• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.</li> <li>• Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge.</li> <li>• Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application.</li> <li>• Assessment may be applied under project-related conditions (real or simulated) and require evidence of process.</li> <li>• Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.</li> <li>• Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.</li> </ul>
<b>Guidance information for assessment</b>	<p>Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.</p>

## Range Statement

### RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

<b>RANGE STATEMENT</b>	
<b>Non-destructive testing equipment</b>	<p>Non-destructive testing equipment may include:</p> <ul style="list-style-type: none"> <li>• dye penetrant</li> <li>• magnetic particle</li> </ul>
<b>Components to be tested</b>	<p>Components to be tested may include those used in the construction of competition vehicles, such as:</p> <ul style="list-style-type: none"> <li>• final drive</li> <li>• steering</li> <li>• brake</li> <li>• roll cage</li> <li>• gear components</li> </ul>
<b>OHS requirements</b>	<p>OHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include:</p> <ul style="list-style-type: none"> <li>• material safety management systems</li> <li>• controlling body requirements</li> <li>• manufacturer specifications</li> <li>• local safe operating procedures</li> <li>• personal protective equipment and clothing</li> <li>• safety equipment</li> <li>• first aid equipment</li> <li>• hazard and risk control</li> <li>• elimination of hazardous materials and substances</li> <li>• manual handling, including shifting, lifting and carrying</li> <li>• emergency procedures</li> <li>• team insurance requirements</li> </ul>
<b>Legislative requirements</b>	<p>Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include:</p> <ul style="list-style-type: none"> <li>• award and enterprise agreements</li> <li>• industrial relations</li> <li>• Australian standards</li> <li>• confidentiality and privacy</li> <li>• OHS</li> <li>• the environment</li> <li>• equal opportunity</li> </ul>



<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• anti-discrimination</li> <li>• duty of care</li> <li>• health regulations</li> </ul>
<b>Tooling and equipment</b>	Tooling and equipment may include: <ul style="list-style-type: none"> <li>• dye penetrant test kit</li> <li>• magnetic particle test kit</li> </ul>
<b>Material</b>	Material may include: <ul style="list-style-type: none"> <li>• material used for construction of competition vehicle components</li> </ul>
<b>Information and procedures</b>	Information and procedures may include: <ul style="list-style-type: none"> <li>• controlling body rules, category rules and supplementary regulations</li> <li>• team procedures and standards relating to:               <ul style="list-style-type: none"> <li>• conducting non-destructive testing</li> <li>• reporting and communication</li> <li>• use of tooling and equipment</li> <li>• emergency service contacts and term persons emergency contacts</li> </ul> </li> <li>• team emergency and event procedures for accidents or injury</li> <li>• safety requirements</li> <li>• work instructions, including worksheets, material safety data sheets (MSDS), assembly procedures, plans, drawings, designs and checklists</li> <li>• manufacturer/component supplier specifications and application procedures for test equipment and material</li> <li>• safety body publications</li> <li>• environmental, hazardous chemicals and dangerous goods legislation and local requirements relating to the disposal and use of fuels, lubricants, coolants and cleaning agents</li> </ul>

## Unit Sector(s)

<b>Unit sector</b>	Motorsport
--------------------	------------

## Co-requisite units

<b>Co-requisite units</b>		

## Competency field

<b>Competency field</b>	
-------------------------	--