



Australian Government

Department of Education, Employment and Workplace Relations

AUMATW3001 Test welds ultrasonically

Release: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the application of the required skills and knowledge to inspect, analyse and assess welds on vehicle bodies or components using ultrasonic testing equipment. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	The unit applies to the automotive and related component manufacturing environment and involves application of skills and knowledge at a specialist level. These skills and knowledge are to be used within the scope of the person's job and authority.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains Employability Skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare	1.1. Activities are carried out according to <i>OHS</i> and <i>organisation requirements</i> 1.2. Work instructions, including relevant inspection reports and forms and quality requirements are obtained, confirmed with <i>appropriate personnel</i> and applied 1.3. Tools and equipment selected to carry out tasks are consistent with job requirements, checked for serviceability and any faults are rectified or reported prior to commencement 1.4. Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use
2. Analyse and test welds	2.1. Specified welds from various parts of the vehicle body and components are identified and selected 2.2. Welds are visually inspected, analysed and findings recorded 2.3. Welds are tested with ultrasonic equipment 2.4. Weld breaking points are established and tested with ultrasonic equipment 2.5. Testing sequence is repeated on multiple weld samples 2.6. Results of all tests are recorded and reported in accordance with organisation requirements
3. Clean up	3.1. Work area is cleared and materials disposed of, reused or recycled in accordance with organisation requirements and <i>cost reduction initiatives</i> 3.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with organisation requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

- speak clearly and directly in order to report test results to appropriate personnel
- apply teamwork to a range of situations
- solve problems particularly in teams in order to meet performance indicators
- show initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas
- access, interpret and apply information on relevant organisation policies, procedures and instructions, particularly to ensure correct use of ultrasound equipment during testing procedures
- manage time when planning, preparing and organising work priorities
- take responsibility for organising own work priorities.

Required knowledge

- workplace and equipment safety requirements
- relevant organisation production quality standards
- automotive industry terminology
- organisation manufacturing and production techniques for vehicle metal components
- tools and equipment types, characteristics, uses and limitations
- metal properties and workability limitations
- weld structures and technology
- ultrasonic testing procedures
- processes for the calculation of tensile strength
- material Safety Data Sheets
- plans, drawings and specifications
- materials handling, storage and environmentally friendly waste management
- organisation safety policies and procedures
- relevant Australian Standards.

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- location, interpretation and application of relevant information, standards and specifications
- compliance with organisation safety policies and procedures and OHS legislation/regulations/codes of practice applicable to operations
- compliance with organisation policies and procedures including quality requirements
- safe and effective operational use of tools and equipment
- communication and working effectively and safely with others
- inspection, analysis, assessment and testing of a minimum of 30 welds to specifications and organisation inspection requirements.

Context of and specific resources for assessment

- assessment of the competency should take place in a safe working environment in a passenger motor vehicle manufacturing plant or simulated environment using tools/equipment/machinery required for the production process without undue disruption to the production process
- assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- assessment methods must confirm consistency and accuracy of performance (over time and in a range of organisation relevant contexts) together with application of underpinning knowledge
- assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application
- assessment may be applied under project related conditions (real or simulated) and require evidence of process
- 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.

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. Bold italicised wording in the Performance Criteria is detailed below. Add any 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.

<p><i>OHS requirements</i> may include:</p>	<p>Legislation and regulations, organisational safety policies and procedures and may include: the use of personal protective equipment and clothing, rescue services, fire fighting organisation and equipment, first aid equipment, hazard and risk control and elimination, systems covering the use of hazardous materials and substances and manual handling procedures including lifting and carrying.</p>
<p><i>Organisation requirements</i> may include:</p>	<ul style="list-style-type: none"> • access and equity principles and practices • environmental management (waste disposal, recycling and re-use guidelines) • emergency and evacuation procedures • equipment use procedures • ethical standards • legal obligations • maintenance and storage procedures • organisational and site guidelines • policies and procedures relating to own role and responsibility • procedural manuals • quality assurance guidelines • quality and continuous improvement processes and standards • recording and reporting guidelines.
<p><i>Appropriate personnel</i> may include:</p>	<ul style="list-style-type: none"> • clients and managers • supervisors • suppliers • team leaders • team members.
<p><i>Cost reduction initiatives</i> may include:</p>	<ul style="list-style-type: none"> • continuous improvement programs • cost benchmarks • power conservation • productivity achievement • waste avoidance.

Unit Sector(s)

Unit sector	Technical - Welding, Grinding, Machining and Soldering
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Competency field

Competency field	Manufacturing - Common
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Co-requisite units

Not applicable.