



Australian Government

AURVTW2001 Carry out manual metal arc welding procedures

Release 1

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Modification History

Release	Comment
Release 1	Replaces AURV281108A Carry out manual metal arc welding procedures Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to carry out manual metal arc welding procedures. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.
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Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work and the completion of welding and work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.
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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 performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and 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. Prepare for work	1.1. Work instructions are used to determine job requirements, including job sheets, quality and quantity of materials. 1.2. Job specifications are read and interpreted. 1.3. WHS requirements, including personal protection needs, are observed throughout the work. 1.4. Materials for repairs and replacements are selected and inspected for quality. 1.5. Hand, power tooling and safety equipment are identified and checked for safe use. 1.6. Products are determined to minimise waste material. 1.7. Procedures are identified for maximising energy efficiency while completing the job.
2. Carry out manual metal arc procedures	2.1. Information is accessed from sources to enable welding to be performed in accordance with vehicle and equipment manufacturer/component supplier procedures. 2.2. Manual metal arc welding is completed using approved methods and equipment, according to type of material and repairs required. 2.3. Manual metal arc welding procedures are completed without causing damage to component or system. 2.4. Manual metal arc welding is carried out according to a standard that meets industry regulations/guidelines, WHS requirements, legislation and enterprise policy/procedures.
3. Clean up work area and maintain equipment	3.1. Material that can be reused is collected and stored. 3.2. Waste and scrap is removed following workplace procedures. 3.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures. 3.4. Unserviceable equipment is tagged and faults identified in accordance with workplace procedures. 3.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and worksite procedures. 3.6. Tooling is maintained in accordance with workplace procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills include:

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for the identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and wastage
- use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to welding systems, including the use of measuring equipment and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- common automotive technology
- types of metals
- types of electrodes and their application
- manual metal arc welding procedures
- equipment maintenance procedures
- workplace guidelines regarding acceptable tolerance levels to be considered as per

REQUIRED SKILLS AND KNOWLEDGE

- job sheet and manufacturer/component supplier specifications
- procedures for reporting faults and material defects
- work organisation and planning processes
- enterprise quality processes

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, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • setting up, operating and maintaining manual metal arc welding, safety, lifting and measuring equipment • completing a range of manual metal arc welding tasks to specification.
Context of, and specific resources for assessment	• Application of competence is to be assessed in the workplace or simulated worksite. • Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. • Assessment is to comply with regulatory requirements, including Australian standards. • The following resources should be made available: • workplace location or simulated workplace • materials relevant to manual metal arc welding • equipment, hand and power tooling appropriate to manual metal arc welding • activities covering mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of the Automotive Industry Retail, Service and Repair Training Package. • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge. • Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also

EVIDENCE GUIDE	
	reinforce the integration of key competencies. Assessment may be applied under project-related conditions and require evidence of process.
Guidance information for assessment	- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge. - Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies. - Assessment may be applied under project-related conditions and require evidence of process. - Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. - It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements. - Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Overview of assessment	

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, if used in the performance criteria, is detailed below. 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.	
Manual metal arc welding method	Manual metal arc welding methods are to include: equipment selection and preparation, material selection/ confirmation and preparation, the application of welding techniques and the

RANGE STATEMENT	
	operator maintenance of equipment
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include: protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous material and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and worksite visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to: emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and worksite evacuation
Environmental requirements	Environmental requirements are to include, but are not limited to: waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: regulations, including Australian standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: federal, state/territory and local authorities administering acts, regulations and codes of

RANGE STATEMENT	
	practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, welding equipment, including manual metal arc welding machines, safety equipment, measuring equipment, marking out equipment and lifting equipment
Materials	Materials may include: • rods/electrodes and cleaning materials
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include worksite specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to manual metal arc welding • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian standards

Unit Sector(s)

Unit sector	Vehicle body
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Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Welding, Grinding, Machining and Soldering
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