



Australian Government

AUMGTW003 Perform manual metal arc welding

Release: 1

AUMGTW003 Perform manual metal arc welding

Modification History

Release	Comment
Release 1	Unit updated to reflect the new standards for Training Packages Replaces AUMGTW3003 Perform manual metal arc welding operations

Application

This unit describes the performance outcomes required to prepare and weld components using the manual metal arc welding (MMAW) process.

It applies to those in an automotive manufacturing environment and involves the application of skills and knowledge at a specialist level.

Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Manufacturing - Bus, Truck and Trailer

Unit Sector

Technical - Welding, Grinding, Machining and Soldering

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Plan and prepare	1.1 Work order, job specification and resources are identified and inspected for compliance 1.2 Welding standards are identified 1.3 Weld specifications are identified from work sheets and work instructions 1.4 Weld size, type, sequence and quantity of materials are identified

Elements	Performance Criteria
	1.5 Welding plan is prepared 1.6 Work area is prepared, and potential hazards identified according to workplace procedures
2. Weld materials	2.1 Workplace procedures are identified and followed 2.2 Welding equipment is set and used according to operating procedures 2.3 Distortion prevention measures are identified and adjusted if required 2.4 Welding equipment is set and used according to operating procedures 2.5 Test runs are conducted according to work instruction and quality requirements 2.6 Materials are welded using MMAW process to required specifications
3. Check welds	3.1 Weld quality and specifications are confirmed by non-destructive inspection 3.2 Weld defects are identified, prepared and re-welded, and appropriate personnel notified
4. Complete job	4.1 Welds are cleaned using appropriate techniques according to work instructions 4.2 Work area is cleaned and cleared of waste according to workplace procedures 4.3 Welding equipment is cleaned, maintained and stored according to workplace procedures 4.4 Faulty equipment is identified, tagged and reported 4.5 Work sheets are completed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skills	Description
Reading skills to:	- interpret work health and safety (WHS) requirements, workplace procedures, work instructions, job specifications and welding plans - interpret welding standards - identify weld inspection reports and weld quality requirements

	interpret welding machine operating procedures.
Writing skills to:	- complete welding plan - legibly complete work sheets and inspection reports - prepare weld rectification plan - complete faulty equipment tags.
Numeracy skills to:	- identify and set machine settings - measure material from job specifications - calculate material requirements - calculate welding time.
Planning and organising skills to:	- prepare work area, welding equipment and materials to job specifications - manage job outcomes and production time.
Problem-solving skills to:	identify and apply distortion prevention measures.
Technology skills to:	use welding equipment.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

<i>Resources</i> must include:	- manual metal arc welding equipment - materials and equipment for preventing distortion during welding, including braces, clamps, jigs and fixtures - materials for welding - materials and equipment for non-destructive testing of welds - workplace welding standards relevant to the work being performed.
<i>Workplace procedures</i> must include:	- operating procedures of manual metal arc equipment - procedures for recording and reporting manual metal arc welding processes - WHS and environmental requirements relating to manual metal arc welding procedures.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=bd587669-08b3-4cd5-85f0-f9fa0c6304c1>

Assessment Requirements for AUMGTW003 Perform manual metal arc welding

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Performance Evidence

Before competency can be determined, individuals must have competently demonstrated manual metal arc welding operations on a minimum of three occasions.

Individuals must demonstrate they can:

- identify welding requirements from work sheets and work instructions
- prepare welding equipment and work area according to workplace procedures and work health and safety (WHS) requirements
- perform manual metal arc welding while controlling weld distortion, according to workplace procedures, applicable welding standards, and WHS requirements
- inspect welding using non-destructive testing procedures and identify and rectify faults
- clean welds and work area, and maintain and store welding equipment according to workplace procedures and WHS requirements
- complete manual metal arc welding work sheets.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- WHS requirements and workplace procedures relating to performing manual metal arc welding:
 - hazard identification and risk control methods
 - personal protective equipment (PPE)
- types of materials that can be welded using manual metal arc welding
- types of metal arc welding electrodes and their application
- basic welding symbols
- procedures for setting up and operating MMAW equipment
- material preparation techniques for manual metal arc welding
- methods for identifying and repairing weld defects
- manual metal arc welding distortion control techniques

- metal arc weld test procedures, including non-destructive testing
- welding standards applicable to manual metal arc welding.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the manual metal arc welding operations that they have performed, e.g. production work sheets.

Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.

The following resources must be made available:

- automotive manufacturing workplace or simulated workplace
- work orders and job specifications
- applicable manual metal arc welding standards
- safe operating procedures and PPE relating to MMAW
- MMAW equipment
- consumables and materials for MMAW
- production work sheets for the welding job.

Links

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