



Australian Government

AURVTW003 Carry out advanced gas metal arc welding on vehicle body sections

Release: 1

AURVTW003 Carry out advanced gas metal arc welding on vehicle body sections

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to carry out advanced gas metal arc welding (GMAW) to replace structural and non-structural vehicle body sections during vehicle body repair work. It involves preparing for the task, selecting and using GMAW equipment, setting gas flow pressures and welder settings, operating gas metal arc welder, selecting and using suitable personal protective equipment (PPE), inspecting and testing weld quality, and completing workplace processes and documentation.

It applies to those working in the automotive service and repair industry.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Vehicle body

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 and italicised text is used, further information is detailed in the range of conditions section.
1. Plan and prepare to carry out advanced GMAW	1.1 Job requirements are determined from workplace instructions 1.2 <i>Welding information</i> is accessed and interpreted 1.3 Hazards associated with the work are identified and risks are

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	managed 1.4 Tools and equipment are selected and checked for serviceability 1.5 Work area is prepared and work is planned to carry out GMAW, minimise waste, and use time efficiently
2. Weld using GMAW welder	2.1 GMAW equipment is prepared, set up and adjusted for specific welding job requirement according to manufacturer procedures and safety and environmental requirements 2.2 Weld test runs are conducted according to workplace instructions and weld specifications 2.3 Materials are welded using standard or inverter GMAW process to industry and original equipment manufacturer (OEM) or authorised agency standards
3. Check welds	3.1 Welds are cleaned using appropriate tools and techniques and according to workplace instructions 3.2 Weld specifications and quality requirements are checked and confirmed by visual inspection and destructive testing 3.3 Weld defects are identified are prepared for re-welding as required, and appropriate personnel are notified
4. Complete work processes	4.1 Final inspection is made to ensure work meets workplace expectations and components are presented ready for use 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored 4.3 Tools and equipment are checked, reported if faulty, and stored according to workplace procedures 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	locate appropriate sources of information efficiently.
Writing skills to:	legibly and accurately fill out workplace documentation.

Skills	Description
Oral communication skills to:	- clarify instructions and procedures - clearly report quality issues and job outcomes.
Numeracy skills to:	- identify and set gas metal arc welder settings - identify weld measurements from job requirements.
Planning and organising skills to:	plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed within workplace timeframes.
Problem solving skills to:	identify defects, quality issues and potential problems associated with GMAW processes and refer problems to appropriate person.
Technology skills to:	use specialist GMAW 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>Welding information</i> must include:	- GMAW equipment operating procedures - national standards and codes of practice for welding - OEM or authorised agency standards - workplace procedures.
<i>Tools and equipment</i> must include:	- PPE - GMAW standard or inverter welders - GMAW consumables and materials - approved welding helmets - welding protective screens and fume extraction system.
<i>Safety and environmental requirements</i> must include:	- work health and safety (WHS), and occupational health and safety (OHS) requirements, including procedures for: - selecting and using PPE when working with GMAW equipment, including approved welding helmet - using specialist welding tools and equipment - using protective screens and fume extraction system - manually handling vehicle components and GMAW equipment - identifying and controlling hazards - environmental requirements, including procedures for trapping, storing and disposing of waste materials.

Unit Mapping Information

Equivalent to AURVTW2003 Carry out gas metal arc welding procedures

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

Assessment Requirements for AURVTW003 Carry out advanced gas metal arc welding on vehicle body sections

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Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- use gas metal arc welding (GMAW) equipment to carry out the following welds:
 - three butt welds to 0.8 mm and 1.2 mm panel steel in the following positions:
 - down hand
 - vertical
 - horizontal
 - two lap welds to 0.8 mm and 1.2 mm panel steel in the following positions:
 - vertical
 - horizontal
 - three plug welds to 0.8 mm and 1.2 mm panel steel in the following positions:
 - down hand
 - vertical
 - horizontal
 - two butt welds on dissimilar material thickness 0.8 mm to 1.2 mm panel steel in the following positions:
 - down hand
 - horizontal.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS), and occupational health and safety (OHS) requirements relating to carrying out advanced GMAW on vehicle body sections, including procedures for:

- selecting and using personal protective equipment (PPE) when working with GMAW equipment, including approved welding helmet
- using specialist welding tools and equipment
- using protective screens and fume extraction system
- manually handling vehicle components and GMAW equipment
- identifying and controlling hazards
- environmental requirements, including procedures for trapping, storing and disposing of waste materials
- GMAW equipment manufacturer operating procedures
- original equipment manufacturer (OEM) or authorised agency welding standards
- material and consumable preparation techniques, including characteristics of different metal types, including high strength steels (HSS)
- procedures for setting up and operating GMAW equipment
- methods and techniques for advanced GMAW, including:
 - GMAW silicone bronze process
 - weld speed
 - weld angle
 - weld distance
 - welding positions
 - welding of dissimilar metal thicknesses
 - distortion control techniques
 - GMAW testing, including:
 - non-destructive inspection
 - destructive testing
 - identification and rectification of weld defects, including:
 - porosity
 - lack of penetration
 - excessive weld build-up
 - excess heat
 - undercut
 - weld distortion
 - heat affected zone
- procedures for safeguarding vehicle electronics during GMAW
- post-weld inspection procedures.

Assessment Conditions

Assessors must satisfy NVR/AQTF assessor requirements.

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

Assessment must include direct observation of tasks.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the GMAW that they have carried out, e.g. work orders.

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 repair workplace or simulated workplace
- workplace instructions
- GMAW equipment operating instructions
- PPE required for GMAW
- body sections specified in the performance evidence requiring GMAW
- protective screens and fume extraction system
- standard or inverter GMAW equipment
- tools, equipment, consumables and materials appropriate for carrying out advanced GMAW.

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