



Australian Government

AURVTW103 Carry out advanced gas metal arc welding on vehicle body sections

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0

Application

This unit describes the skills and knowledge 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, operating gas metal arc welder, selecting and using suitable personal protective equipment (PPE), and completing workplace processes and documentation.

The unit 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.

Unit Sector

Vehicle Body Technical - Welding, Grinding, Machining and Soldering

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare to carry out advanced GMAW	1.1 Identify job requirements from workplace instructions 1.2 Obtain and interpret welding information 1.3 Identify hazards associated with the work, assess potential risks and implement control measures in line with workplace policies and procedures 1.4 Identify tools and equipment required for welding and establish serviceability according to workplace procedures
2. Weld using GMAW welder	2.1 Set up and make adjustments to welding equipment according to manufacturer specifications, workplace procedures, workplace health and safety and environmental

ELEMENTS	PERFORMANCE CRITERIA
	requirements 2.2 Carry out welding test runs according to workplace procedures 2.3 Weld materials using GMAW process according to workplace procedures and required specifications
3. Check welds	3.1 Clean welds are according to workplace procedures 3.2 Carry out visual inspection and destructive testing and confirm weld quality and specifications 3.3 Identify weld defects and prepare for re-welding as required, notifying appropriate personnel
4. Complete work processes	4.1 Conduct final inspection according to workplace procedures and confirm component is ready for use 4.2 Clear work area and dispose of or recycle materials according to workplace procedures 4.3 Complete documentation according to workplace procedures

Foundation Skills

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

SKILL	DESCRIPTION
Learning	Locates required sources of information efficiently.
Oral communication	- Clarifies instructions and procedures - Reports quality issues and job outcomes clearly.
Numeracy	- Identifies and sets gas metal arc welder settings - Identifies weld measurements from job requirements.
Planning and organising	- Plans own work requirements - Prioritises actions to achieve required outcomes - Ensures tasks are completed within workplace timeframes.
Problem solving	Identifies defects, quality issues and potential problems associated with GMAW processes and refers problems to appropriate person.
Technology	Uses specialist GMAW equipment.

Unit Mapping Information

Supersedes and is equivalent to AURVTW003 Carry out advanced gas metal arc welding on vehicle body sections.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for AURVTW103 Carry out advanced gas metal arc welding on vehicle body sections

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

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

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- methods to locate and interpret information required to carry out manual metal arc welding on components, including:

- Australian Standard 1554
- manufacturer specifications and procedures or equivalent documentation
- workplace procedures
- workplace procedures required to carry out manual metal arc welding on components, including:
 - preparing and operating welding equipment
 - non-destructive testing of completed welds
 - establishing the serviceability of tools and equipment
 - documentation procedures
 - housekeeping procedures, including:
 - examination of tools and equipment
 - storage of equipment
 - identification, tagging and isolation of faulty equipment
 - disposal of excess materials
 - recycling procedures
- workplace health and safety (WHS) 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 relating to carrying out advanced GMAW on vehicle body sections, including procedures for:
 - trapping, storing and disposing of waste materials
- GMAW equipment manufacturer operating procedures
- material and consumable preparation techniques, including characteristics of different metal types, including high strength steels (HSS)
- 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

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.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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