



Australian Government

AURVTW101 Carry out manual metal arc welding on components

Release: 1

AURVTW101 Carry out manual metal arc welding on components

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 prepare and weld components using the manual metal arc welding (MMAW) process. It involves preparing for the task, setting up and operating MMAW equipment, performing welding to required standards and specifications, inspecting weld quality, 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 weld component	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 welding electrodes, weld size, type and sequence, and quantity of materials required according to workplace procedures 1.5 Identify tools and equipment required for welding and establish serviceability according to workplace procedures

ELEMENTS	PERFORMANCE CRITERIA
2. Weld materials using MMAW	2.1 Set up and operate welding equipment according to manufacturer specifications, workplace procedures, workplace health and safety and environmental requirements 2.2 Identify distortion prevention measures and adjust as required 2.3 Carry out welding test runs according to workplace procedures 2.4 Weld materials using MMAW process according to workplace procedures and required specifications
3. Check welds	3.1 Carry out non-destructive inspection and confirm weld quality and specifications 3.2 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 set welding machine settings - Identifies welding rod specifications.
Planning and organising	- Plans own work requirements - Prioritises actions to achieve required outcomes - Ensures tasks are completed within workplace timeframes.
Problem solving	Identifies weld defects, quality issues and potential problems associated with MMAW process and refers problems to appropriate person.
Technology	Uses specialist MMAW equipment.

Unit Mapping Information

Supersedes and is equivalent to AURVTW001 Carry out manual metal arc welding on components.

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 AURVTW101 Carry out manual metal arc welding on components

Modification History

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

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:

- carry out manual metal arc welding (MMAW), including:
 - three bead runs, 200 mm long
 - three pad welds, 200 mm long
 - three butt welds, 200 mm long
 - three lap welds, 200 mm long
 - one T-fillet weld, 200 mm long.

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:
 - manufacturer specifications and procedures or equivalent documentation
 - Australian Standard 1554
- 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 manual metal arc welding on components, including procedures for:
 - selecting and using personal protective equipment (PPE) when working with MMAW equipment, including approved welding helmet
 - using specialist welding tools and equipment
 - using protective screens and fume extraction system
 - manually handling components and MMAW equipment
- identifying and controlling hazards, including:
 - arc eye and exposure to ultraviolet light
 - metal vapours, welding electrodes and welded components
 - molten metal spatter and fire danger
- environmental requirements relating to carrying out manual metal arc welding on components, including:
 - • procedures for trapping, storing and disposing of waste materials
- distortion control techniques, including:
 - bracing
 - pre-setting
 - tacking
 - bolting
 - clamping
 - jigs and fixtures
- material preparation techniques, including characteristics of different metal types
- procedures for setting up and operating MMAW equipment
 - methods and techniques for MMAW, including:
 - weld specifications
 - basic welding symbols
 - types of welding electrodes and their application
 - identification of electrode classifications
 - protection of vehicle electronics
 - weld inspection
 - identification and rectification of weld defects
- procedures for final inspection and testing of welded components.

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 MMAW 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
- PPE required for MMAW
- components to be welded as specified in the performance evidence
- welding materials and consumables
- MMAW equipment and operating instructions
- tools, equipment and materials appropriate for carrying out MMAW.

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

Links

Companion Volume Implementation Guide is found on VETNet -

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