



Australian Government

AURVTW104 Carry out tungsten inert gas welding

Release: 1

AURVTW104 Carry out tungsten inert gas welding

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 welding operations using tungsten inert gas (TIG) welding. It involves preparing for the task, selecting and using TIG welding equipment, setting gas flow pressures and welder settings, selecting and using suitable personal protective equipment (PPE), performing welding to given specifications, inspecting and testing weld quality, and completing workplace processes and documentation.

This 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	1.1 Determine job requirements from workplace instructions 1.2 Access and interpret welding information 1.3 Identify hazards associated with the work and manage risks 1.4 Select and check tools and equipment for serviceability 1.5 Prepare work area and plan work to carry out TIG welding, minimise waste, and use time efficiently
2. Weld materials using TIG welder	2.1 Prepare, set up and adjust TIG welding equipment for specific welding job requirement 2.2 Use TIG welding equipment according to manufacturer operating procedures and safety and environmental requirements

ELEMENTS	PERFORMANCE CRITERIA
	2.3 Conduct weld test runs according to workplace instructions and weld specifications 2.4 Weld materials using standard or inverter TIG process to industry standards
3. Check welds	3.1 Clean welds using required tools and techniques and according to workplace instructions 3.2 Check and confirm weld specifications and quality requirements by non-destructive inspection 3.3 Identify weld defects, prepare for re-welding as required, and notify required personnel
4. Complete work processes	4.1 Conduct final inspection according to workplace procedures and confirm vehicle is ready for use 4.2 Clear work area and dispose of or recycle materials according to workplace procedures 4.3 Process workplace 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.
Numeracy	- Identifies and sets TIG welder settings - Identifies weld measurements from job requirements - Measures material from specifications.
Oral communication	- Clarifies instructions and procedures - Reports quality issues and job outcomes clearly.
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 TIG welding processes and refers problems to required person.
Technology	Uses specialist TIG equipment.

Unit Mapping Information

Supersedes and is equivalent to AURVTW004 Carry out gas tungsten inert gas welding.

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 AURVTW104 Carry out tungsten inert gas welding

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 tungsten inert gas (TIG) welding to each of the following material sections:
 - 150 mm long:
 - aluminium
 - steel
 - stainless steel
- in the course of the above work, utilise each of the following weld positions:
 - butt
 - outside corner
 - fillet
 - lap.

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 tungsten inert gas welding, including:
 - manufacturer specifications and operating procedures or equivalent documentation
 - national standards and codes of practice for welding
- workplace procedures required to carry out tungsten inert gas welding, including:
 - establishing 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
- work health and safety (WHS) requirements relating to carrying out TIG welding, including procedures for:
 - selecting and using personal protective equipment (PPE) for TIG welding, including approved welding helmets
 - using specialist welding tools and equipment
 - using protective screens and fume extraction system
 - manually handling vehicle components and TIG equipment
 - identifying and controlling hazards
- environmental requirements, including procedures for trapping, storing and disposing of waste materials
- different types of shielding gases used in TIG welding
- TIG manufacturer operating procedures
- material and consumable preparation techniques, including:
 - aluminium
 - steel
 - stainless steel
- procedures for setting up and operating TIG equipment, including:
 - standard and inverter TIG equipment
 - tungsten electrodes
 - protective screens and fume extraction system
 - shielding gas
 - filler rods
 - PPE, including approved welding helmets
- methods and techniques for TIG welding, including:
 - welding positions:
 - butt
 - outside corner
 - fillet
 - lap
 - weld distortion and distortion control techniques
 - TIG testing procedures, including procedures for visual or non-destructive weld testing
- procedures for identifying and rectifying weld defects, including:
 - lack of penetration
 - excessive weld build-up
 - excess heat
 - undercut
 - heat affected zone

- procedures for protecting vehicle electronics during TIG welding
- procedures for final inspection 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 TIG welding 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
- TIG equipment operating instructions
- PPE required for TIG welding
- protective screens and fume extraction system
- TIG welder and shielding gases
- TIG consumables
- materials specified in the performance evidence requiring TIG welding
- tools, equipment and materials appropriate for carrying out TIG welding.

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>