

Unit ID: 87	
Domain Title:	AUTOMOTIVE MECHANICS Apply basic gas metal arc welding techniques used in automotive mechanics
Level: 2	Credits: 2

Purpose

This unit standard specifies the competencies required to apply basic gas metal arc welding techniques used in automotive mechanics. It includes preparing welding equipment, selecting and assembling welding components and performing routine gas metal arc welding tasks. This unit standard is intended for those who work as automotive mechanics.

Special Notes

1. Entry information:

Prerequisite

- Unit 65 - *Apply safety rules and regulations in an automotive mechanics workshop or demonstrated equivalent skills and knowledge.*
2. To demonstrate competence, at a minimum, requires evidence of safely performing three given welding tasks. These tasks are a spot, fillet and butt weld in horizontal position, using 150 mm continuous length on two pieces of unalloyed and/or low-alloy steel with the dimensions of 50 x 3 x 150 mm for fillet and butt welds, and on a piece of sheet metal with the dimensions of 50 x 0.8 x 150 mm for spot welds. In performing these tasks ensure correct identification of requirements and finishing of the tasks, correct selection and use of appropriate processes, tools and equipment and completing all work to specification.
 3. Assessment evidence may be collected from a real workplace, or simulated real workplace or an appropriate simulated realistic environment in which automotive mechanic operations are carried out.
 4. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' guidelines and instructions.
 5. '*Specifications*' refers to any, or all of the following: manufacturers' specifications and recommendations, as well as workplace specific requirements.
 6. Regulations and legislation relevant to this unit standard include the following:
 - Labour Act, No. 6, 1992
 - Occupational Health and Safety Regulations No. 18, 1997
 - Road Traffic and Transport Regulations No. 266, 2000
 and all subsequent amendments.
 7. This unit standard applies to passenger and light commercial vehicles with a Gross Vehicle Mass $\leq 5\,500$ kg (Petrol & Diesel).

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority on www.nta.com.na

Elements and Performance Criteria

Element 1: Plan and prepare for work

Range

Planning and preparation may include but are not limited to workplace inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements.

Tools and equipment are to include hand tools, grinding devices, personal protective equipment, Metal Active Gas (MAG) welding machine equipped with either carbon dioxide, argon or argon/carbon dioxide welding gas.

Materials are to include but are not limited to unalloyed and/or low-alloy steel and sheet metal.

Performance Criteria

- 1.1 Work instructions, including repair order forms, specifications and operational details are obtained, confirmed and applied.
- 1.2 Safety requirements are followed in accordance with safety plans and policies.
- 1.3 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults rectified or reported prior to commencement.
- 1.4 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use.
- 1.5 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

Element 2: Prepare materials for welding

Range

Preparation of materials may include but is not limited to preheating, setting up jigs, fixtures and clamps.

Performance Criteria

- 2.1 Weld requirements are determined in accordance with job specifications.
- 2.2 Material is cleaned and prepared using appropriate tools and techniques in accordance with standard operating procedures.

Element 3: Select, assemble and set up welding components and equipment

Range

Setting up may include the correct connection of hose, torch, pressure regulator, cylinder valve and appropriate current adjustment.

Performance Criteria

- 3.1 Welding machine settings, accessories and consumables are identified.
- 3.2 Welding equipment is assembled and set up.

Element 4: Perform routine welding using gas metal arc welding process

Range

Prescribed procedure is limited to spot, fillet and butt welds in horizontal positions. Cleaning joints may include usage of grinding devices.

Performance Criteria

- 4.1 Weld is undertaken safely in line with prescribed procedures.
- 4.2 Joints are cleaned to manufacturer guidelines and workplace procedures.

Element 5: Complete work and clean up

Range

Work completion details may include but are not limited to work schedule or appointment sheet, vehicle drop-off form, repair order form, service record book, service plan form and sign-out form for equipment.

Performance Criteria

- 5.1 Work is completed and appropriate personnel notified in accordance with workplace procedures.
- 5.2 Work area is cleared of waste, cleaned, restored and secured in accordance with workplace procedures.
- 5.3 Reusable material is collected and stored in accordance with workplace procedures.
- 5.4 Tools and equipment are cleaned, checked, maintained and stored in accordance with workplace procedures.
- 5.5 Work completion details are finalised in accordance with workplace procedures.

Registration Data

Subfield:	Automotive Engineering
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