

Unit ID: 576

Domain

**AIR CONDITIONING AND
REFRIGERATION**

Title:

**Apply basic manual metal arc welding
techniques used in air conditioning and
refrigeration**

Level: 2

Credits: 4

Purpose

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

Special Notes

1. Entry information:

Prerequisite

- Unit 567 - *Apply health and safety routines in an air conditioning and refrigeration workplace or demonstrated equivalent knowledge and skills.*

2. Assessment evidence may be collected from a real workplace or a simulated real workplace or an appropriate simulated realistic environment in which air conditioning and refrigeration operations are carried out.

3. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' specifications and/or company's guidelines and instructions.

4. Glossary of terms:

- '*specifications*' refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements.

5. Regulations and legislation relevant to this unit standard include the following:

- Labour Act, No. 11, 2007
- Occupational Health and Safety Regulations No. 18, 1997 and all subsequent amendments.

6. Performance of all elements in this unit standard must comply with industry standards.

7. This unit standard applies to single-phase and three-phase air conditioning and refrigeration systems.

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

Tools and equipment may include but are not limited to hand tools, welding equipment including manual metal arc welding machine, safety equipment, measuring and marking out equipment.

Materials are to include but are not limited to welding rods/electrodes and cleaning materials.

Performance Criteria

- 1.1 Work instructions, including repair order forms, specifications and operational details are obtained, confirmed and applied.
- 1.2 Workplace inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements is carried out.
- 1.3 Safety requirements are followed in line with safety plans and policies.
- 1.4 Tools and equipment selected to carry out tasks that are consistent with the requirements of the job, are checked for serviceability and any faults rectified or reported prior to commencement.
- 1.5 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located, ready for use.
- 1.6 Material requirements are identified and obtained in line with job card and/or specifications
- 1.7 Technical and/or calibration requirements for tools and equipment are sourced and implemented in line with workplace procedures.
- 1.8 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

Element 2: Select, assemble and set up welding components and equipment.

Performance Criteria

- 2.1 Procedures and information required for selecting, assembling and setting up welding components are determined in line with manufacturers' specifications and workplace procedures.
- 2.2 Material is cleaned and prepared using appropriate tools and techniques in line with workplace procedures.
- 2.3 Welding machine setting, accessories and consumables are identified in line with workplace procedures.
- 2.4 Welding equipment is assembled and correctly set up in line with manufactures and workplace procedures.
- 2.5 Welding machine is set to appropriate welding current.

Element 3: Perform routine welding using manual arc metal welding process.

Range

Prescribed procedure is limited to fillet and butt welds in horizontal and vertical position.

Performance Criteria

- 3.1 Correct procedures are accessed from sources to enable welding to be performed in line with manufacturers' specifications.
- 3.2 Manual metal arc welding is completed using approved methods and equipment, in line with workplace procedures.
- 3.3 Manual metal arc welding procedures are completed without causing damage to components or systems in line with workplace procedures.

Element 4: Complete work and clean up.

Range

Work completion details may include but are not limited to job card and sign-out form for equipment.

Performance Criteria

- 4.1 Work is completed and appropriate personnel notified in line with workplace procedures.
- 4.2 Work area is cleared of waste, cleaned, restored and secured in line with workplace procedures.
- 4.3 Reusable material is collected and stored in line with workplace procedures.
- 4.4 Equipment used is cleaned, checked, maintained and stored in line with

workplace procedures.

4.5 Work completion details are finalised in line with workplace procedures.

Registration Data

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