

Unit ID: 570

Domain

**AIR CONDITIONING AND  
REFRIGERATION**

Title:

**Use and maintain air conditioning and  
refrigeration tools and equipment**

Level: 1

Credits:5

**Purpose**

This unit standard specifies the competencies required to use and maintain air conditioning and refrigeration tools and equipment. It includes using, storing and maintaining tools and equipments. 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 mechanics workplace* or demonstrated equivalent knowledge and skills.

2. To demonstrate competence, at a minimum, evidence is required of selecting and safely using different hand and power tools and different items of equipment used in air conditioning and refrigeration mechanical tasks. 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, simulated real workplace or an appropriate simulated realistic environment in which Air conditioning and refrigeration mechanic operations are carried out.

4. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' and company guidelines, instructions, and reasonable flat rate time.

5. Glossary of terms:

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

6. 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

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

## **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](http://www.nta.com.na)

## **Elements and Performance Criteria**

### **Element 1: Plan and prepare for work.**

Air conditioning and refrigeration service hand tools may include but are not limited to tools for turning, swage and flare tools, tools for gripping and holding, tools for hammering and driving tools, for cutting and forming, tools for pulling and pushing special service tools, measuring tools and bending tools, measuring instruments.

Air conditioning and refrigeration service power tools may include but are not limited to air blow gun, drill machine, arc welding machine, and grinder.

Equipment may include but are not limited to oxy-acetylene gas welding set, charging station or manifold gauges, recovery machine and vacuum pump.

### **Performance Criteria**

- 1.1 Work instructions, including job cards, specifications and operational details are obtained, confirmed and applied.
- 1.2 Hand tools, power tools and equipment are selected.
- 1.3 Workplace inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements is carried out.
- 1.4 Safety requirements are followed in line with safety plans and policies.
- 1.5 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.
- 1.6 Material requirements are identified and obtained in line with job card and/or specifications.
- 1.7 Materials are safely handled and located ready for use in line with workplace procedures.
- 1.8 Technical and/or calibration requirements for tools and equipment are sourced and implemented in line with workplace procedures.
- 1.9 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

## **Element 2: Use common air conditioning and refrigeration service tools.**

### **Range**

Air conditioning and refrigeration service hand tools may include but are not limited to tools for turning such as open ended spanners, ring spanners, combination spanners, socket spanners. Special spanners such as ratchet wrench, adjustable spanners, torque wrenches, allen wrenches (allen keys), swage and flare tools, screw drivers, tools for gripping and holding such as combination pliers, pinch off tool, wire stripper, long-nose pliers, pliers, vice grip pliers, water pump pliers, bench vices, tools for hammering and driving such as mallet hammer, ball pin hammer, punches, tools for cutting and forming such as hacksaws, side-cutting, pipe cutters, chisels, files, tools for pulling and pushing such as pullers ,special service tools such as grease gun, riveting gun and silicone gun measuring tools such as spirit level, measuring tape and square and bending tools such as spring bender, lever type bender, measuring instruments such as measuring tape, vanier caliper, square, spirit level and steel ruler.

Air conditioning and refrigeration service power tools may include but are not limited to air blow gun, drill machine, arc welding machine, and grinder.

Equipment may include but are not limited to oxy-acetylene gas welding set, charging station or manifold gauges, recovery machine and vacuum pump.

### **Performance Criteria**

- 2.1 Air conditioning and refrigeration service hand tools are identified and selected to match requirements of the task in line with manufacturers' requirements and workplace procedures.
- 2.2 Air conditioning and refrigeration service power tools are identified and selected to match requirements of the task according to manufacturers' requirements and workplace procedures.
- 2.3 Safe working practices are carried out throughout the task in line with legislative and workplace procedures.

## **Element 3: Use common air conditioning and refrigeration service workshop equipment.**

### **Range**

Air conditioning and refrigeration service workshop equipment may include but are not limited to air compressors, blower, service and diagnostic equipment such as multimeter.

### **Performance Criteria**

- 3.1 Procedures and information required for using common air conditioning and refrigeration service workshop equipments are identified and sourced in line with workplace procedures.
- 3.2 Air conditioning and refrigeration service workshop equipment is identified and selected to match requirements of the task in line with manufacturers' requirements and workplace procedures.

- 3.3 Safe working practices are carried out throughout the task in line with legislative and workplace requirements.

#### **Element 4: Service and maintain workplace tools and equipment.**

##### **Range**

Signs of damage may include but is not limited to wear, cracks, leaks, faulty electrical insulation.

##### **Performance Criteria**

- 4.1 Procedures and information required for servicing and maintaining workplace tools are identified and sourced in line with workplace procedures.
- 4.2 Tools and equipment are serviced, adjusted and/or maintained in line with manufacturer and/or workshop requirements and workplace procedures.
- 4.3 Damaged or worn out tools and equipment are identified and appropriate personnel notified in line with workplace procedures.
- 4.4 Safe working practices are carried out throughout the task in line with legislative and company requirements.

#### **Element 5: Store and secure tools and equipment.**

##### **Range**

Signs of damage may include but is not limited to wear, cracks, leaks, faulty electrical insulation.

##### **Performance Criteria**

- 5.1 Procedures and information required for storing and securing workplace tools are identified and sourced in line with workplace procedures.
- 5.2 Tools and equipment are cleaned and checked for any sign of damage.
- 5.3 Tools and equipment are stored and secured in line with manufacturers' requirements and workplace procedures.
- 5.4 Safe working practices are carried out throughout the task in line with legislative and workplace requirements.

## **Element 6: 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**

- 6.1 Work is completed and appropriate personnel notified in line with workplace procedures.
- 6.2 Work area is cleared of waste, cleaned, restored and secured in line with workplace procedures.
- 6.3 Reusable material is collected and stored in line with workplace procedures.
- 6.4 Tools and equipment are cleaned, checked, maintained and stored in line with workplace procedures.
- 6.5 Work completion details are finalised in line with workplace procedures.

### **Registration Data**

<b>Subfield:</b>	Mechanical Engineering
<b>Date first registered:</b>	27 May 2010
<b>Date this version registered:</b>	27 May 2010
<b>Anticipated review:</b>	2014
<b>Body responsible for review:</b>	Namibia Training Authority