

Domain**AIR CONDITIONING AND
REFRIGERATION****Title:****Diagnose and recondition air
conditioning and refrigeration systems
components****Level: 3****Credits: 5****Purpose**

This unit standard specifies the competencies required to diagnose and recondition air conditioning and refrigeration components. It includes diagnosing faults in air conditioning and refrigeration systems and retrofitting refrigerant and lubricants. 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:

- 'ACR' refers to air conditioning and refrigeration systems.
- 'specifications' refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements.
- 'retrofitting' refers to replacements of refrigerant towards alternatives; it may require replacing specific parts of the ACR system.

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. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website 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 multimeter, leak detector and grease gun.

Performance Criteria

- 1.1 Work instructions, including job cards, 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 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.
- 1.5 Material requirements are identified and obtained in line with job card and/or specifications.
- 1.6 Materials are safely handled and located ready for use in line with workplace procedures.
- 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: Diagnose faults in ACR systems.

Range

Diagnose may include but are not limited to calibrating and testing.

Operation of controls may include but are not limited to switches, fuses, contactors, relays, timers and overloads.

Performance Criteria

- 2.1 Procedures and information required for diagnosing and rectifying faults are identified and sourced in line with workplace procedures.
- 2.2 The operation of controls is checked and controls are adjusted in line with operational specifications.
- 2.3 Monitors and reporting systems are checked, and recalibrated or adjusted in line with operational specifications.
- 2.4 Electrical circuits are tested, current, voltage, insulation resistance are measured and recorded in line with workplace procedures.
- 2.5 Faults are identified and rectified in line with manufactures and workplace procedures.

Element 3: Retrofit refrigerant and lubricants.

Range

Refrigerants may include but are not limited to CFC-free.

Lubricant oil may include but are not limited to specified oil for ACR systems.

Performance Criteria

- 3.1 Suitable equipments for retrofitting is selected and used in line with workplace procedures.
- 3.2 Alternative refrigerants and appropriate oil are selected and refill in existing ACR system in line with manufactures specifications.
- 3.3 Refrigeration and air conditioning components are reconditioned in line with workplace procedures.
- 3.4 Relocated, repaired, and/or converted equipments, components, and/or sub-systems are reassembled, tested and/or recommissioned in line with manufactures and 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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