

Domain AIR CONDITIONING AND REFRIGERATION**Title: Carry out troubleshoot on air conditioning and
refrigeration****Level: 3****Credits: 5****Purpose**

This unit standard specifies the competencies required to troubleshoot on air conditioning and refrigeration. It includes plan and prepare for work; perform troubleshooting; and perform housekeeping.

This unit standard is intended for those who works as air conditioning and refrigeration artisans.

Special Notes

1. Entry information:

 Prerequisite
 - *Unit 1157 – Demonstrate basic knowledge of workplace health and safety.*
2. To demonstrate competence, at a minimum, evidence is required to carry out one (1) mechanical and one (1) electrical troubleshooting.
3. Assessment evidence may be collected from a real workplace or a simulated workplace or an appropriate simulated realistic environment in which air conditioning and refrigeration operations are carried out.
4. 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.
5. Glossary of terms:
 - *"Troubleshooting"* refers to the systematic search for the source of a problem so that it can be solved or is process of identifying and fixing a specific technical fault.
 - *"Multimeter"* refers to is test tool used to measure two or more electrical values
 - *"Specifications"* refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements
6. Regulations, legislation and standards 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.
 - Occupational Health and Safety Regulations No. 101, 1992 (act 6,1992)
 - Import and Export control act, 1994.
 - NAMS/ESI LVEIWS 001: ed 1.0 2021
 - NAMS/ESI 002: ed 1.0 2021
 - NAMS 5149-4: 2021 (ISO 5149 – 4: 2014)
 - SANS 10147: 2014
7. Performance of all elements in this unit standard must comply with industry standards.
8. 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 not limited to spanner set, screw driver set, manifold gauges, thermometer, multimeter, and leak detecting equipment.

Performance Criteria

- 1.1 Work instructions including job cards, specifications and operational details are interpreted and confirmed.
- 1.2 Workplace inspection, is carried out in line with safety standards.
- 1.3 Safety requirements are applied in line with safety and workplace policies.
- 1.4 Tools and equipment are selected in line with the job requirements.
- 1.5 Material required are selected and obtained in line job specifications.

- 1.6 Calibration requirements for tools, instruments and equipment are carried out in line with job requirements.
- 1.7 Environmental protection requirements are outlined and followed in line with environmental legislative requirements.

Element 2: Perform troubleshooting

Range

Tools may include but not limited to screw drivers set, pipe cutter, spanners, ratchet, shifting spanners, pliers, flaring swagging tools, piecing valve, blower, infrared thermometer, multimeter, clamp on meter, plug tester, and coil tester.

Equipment may include but is not limited to measuring and testing equipment; ladder; vacuum pump; oxy-acetylene; vacuum gauge (DV150); manifold gauges; leak detector; and extension lead.

Consumable material may include but not limited to nitrogen gas, and flushing agent.

Refrigerator may include but limited to domestic; commercial, and industrial.

Performance Criteria

- 2.1 Procedures and information required for troubleshooting refrigerator are outlined in line with job specifications.
- 2.2 Instruments required for troubleshooting are identified and selected in line with job specifications.
- 2.3 Troubleshooting is performed in line with job specifications.

Element 3: Perform housekeeping

Range

Housekeeping may include but not limited to work completion; cleaning; arranging; and storing of tools and equipment.

Performance Criteria

- 3.1 Work area is cleared of waste, cleaned, restored and secured in line with job specifications.
- 3.2 Reusable materials are collected and stored in line with job specifications.
- 3.3 Equipment used are cleaned, checked, maintained and stored in line with job specification/work instructions.

Registration Data

Subfield:	Electrical Engineering
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