

Unit ID: 589

Domain

**AIR CONDITIONING AND
REFRIGERATION**

Title:

**Carry out repair to commercial
refrigeration systems**

Level: 3

Credits: 8

Purpose

This unit standard specifies the competencies required to carry out repair to appliance refrigeration systems. It includes testing, repairing appliance's refrigeration systems and verify appliance functionality. 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
- '*commercial* refrigeration' refers to variety of systems currently used in supermarkets and retail food stores. These include central refrigeration systems connected to food display cases, self-contained display cases and walk-in coolers and freezers.

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

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; measuring tools, bending tools and 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 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: Test appliance's refrigeration system.

Range

Visual inspection may include but is not limited to check for seals, oil leakage, fan belts, and pressure switch.

Operational tests may include but are not limited to mechanical tests (pressure test, leakage test) and electrical circuit tests.

Tools and equipment may include but are not limited to leak testing equipment such as halide leak detector, electronic leak detector, halogen leak detector, soapy water pressure testing equipment such as manifold gauges and electrical testing equipment such as multimeter.

Performance Criteria

- 2.1 Procedures and information required for testing appliance's refrigeration system are identified and sourced in line with workplace procedures.
- 2.2 Visual inspections are carried out in line with workplace procedures.
- 2.3 Operational tests of the refrigeration system are conducted.

Element 3: Repair appliance's refrigeration system.

Range

Repair methods may include but are not limited to evacuating and recharging of refrigerant, disassembling and assembling of system components and replacing of system components.

Performance Criteria

- 3.1 Procedures and information required for repairing appliance's refrigeration system are identified and sourced in line with workplace procedures.
- 3.2 Appliance is isolated from power source.
- 3.3 Repair methods are implemented in line with workplace procedures and legislative requirements.
- 3.4 Component parts are tagged during the dismantling to help ensure correct and efficient reassembling and storing to protect them against loss or damage.
- 3.5 Replacement of components or parts are obtained in line with workplace procedures

Element 4: Verify appliance functionality.

Range

Verification methods may include but are not limited to written reports and verification findings.

Performance Criteria

- 4.1 Appliance is activated, observed while in motion to verify proper functionality.
- 4.2 Non-compliance defects are identified and reported in line with workplace procedures.
- 4.3 Recommendations for rectifying defects are made in line with workplace procedures.

Element 5: 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

- 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 Equipment used is 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:	Mechanical Engineering
Date first registered:	27 May 2010
Date this version registered:	27 May 2010
Anticipated review:	2014
Body responsible for review:	Namibia Training Authority