

**Unit ID: 588**

**Domain**

**AIR CONDITIONING AND  
REFRIGERATION**

**Title:**

**Install refrigeration system control  
devices**

**Level: 3**

**Credits: 7**

**Purpose**

This unit standard specifies the competencies required to install refrigeration system control devices. 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
- 'refrigeration system control device' refers to control devices such as pressure, temperature and electrical controls.

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

## **Elements and Performance Criteria**

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

#### **Range**

Tools and equipments may include but are not limited to adjustable wrenches, screw drivers, pliers, multimeter.

Materials may include but are not limited to insulation tape, connector blocks.

#### **Performance Criteria**

- 1.1 Installation and 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 Tools and 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: Install control devices.**

### **Range**

Air conditioning and refrigeration control devices may include but are not limited to metering devices such as float valve, expansion valves, capillary tube, reversing valve, solenoid valve, pressure switch and vapour flow control such as evaporator pressure regulating valve, crankcase pressure regulating valve, compressor capacity control valve and condenser capacity regulating valve.

Electrical control devices may include but are not limited to contactors, overload and circuit breakers.

Hand tools may include but are not limited to swaging tool set, adjustable wrench, screw drivers, spanners, and ratchet and water pump pliers.

Materials may include but are not limited to flare nuts and cable ties.

Pressure switch adjustments may include but are not limited to range and differential adjustments.

### **Performance Criteria**

- 2.1 Procedures and information required for installing control devices are identified and sourced in line with workplace procedures.
- 2.2 Device is installed in line with workplace procedures.
- 2.3 Electrical wires on control device are connected in line with manufactures specifications and workplace procedures.
- 2.4 The pressure switch is adjusted to determine differential between cut-in and cut-out temperatures.

## **Element 3: 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**

- 3.1 Work is completed and appropriate personnel notified in line with workplace procedures.
- 3.2 Work area is cleared of waste, cleaned, restored and secured in line with workplace procedures.
- 3.3 Reusable material is collected and stored in line with workplace procedures.
- 3.4 Equipment used is cleaned, checked, maintained and stored in line with workplace procedures.

3.5 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
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<b>Body responsible for review:</b>	Namibia Training Authority