

**Unit ID: 602**

**Domain**

**AIR CONDITIONING AND  
REFRIGERATION**

**Title:**

**Analyse noise and vibration in air  
conditioning and refrigeration systems**

**Level: 4**

**Credits: 4**

**Purpose**

This unit standard specifies the competencies required for analysing noise and vibration in air conditioning and refrigeration systems. It includes examining and solving noise and vibration problems in ACR systems. 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.

5. Regulations and legislation relevant to this unit standard include the following:

- Labour Act, No. 6, 1992
- 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 on [www.nta.com.na](http://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 screw drivers, spanners.

#### **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: Examine noise and vibration in ACR systems.**

### **Range**

Components may include but are not limited to compressor, compressor mountings, covers, condenser and evaporator motor and motor blade, pipes, bearings and swings.

### **Performance Criteria**

- 2.1 The system is analysed to check for worn parts, loose covers, damaged fan motor blade, motor swing, and noisy bearing.
- 2.2 Knowledge of noise, vibration and thermodynamics are applied to analytical solutions in line with workplace procedures.
- 2.3 Approaches for analysing noise, vibration and thermodynamic parameters are carried out in line with workplace procedures.
- 2.4 Refrigerant tube/pipes rubbing against other system components are checked and rectified.

## **Element 3: Solve noise and vibration problems in ACR systems.**

### **Range**

Solutions to vibration may include but are not limited to insert vibration eliminator and mounting rubbers.

### **Performance Criteria**

- 3.1 Procedures and information required for solving noise and vibration problems are identified and sourced in line with workplace procedures.
- 3.2 Vibration eliminator and/or rubber mounting are inserted in the system if necessary, in line with manufacture specifications.
- 3.3 Damaged, loose and worn parts are repaired and/or replaced in line with workplace procedures.

## **Element 4: Complete work and clean up.**

### **Range**

Work completion details may include but are not limited to job cards 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 Tools and equipment are cleaned, checked, maintained and stored in line with workplace procedures.
- 4.5 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