

Unit ID: 2212

Domain

**AUTOMOTIVE MECHATRONICS**

Title:

**Maintain motor vehicle emission control**

Level: 3

**Credits: 8**

### Purpose

This unit standard is intended for those who maintain motor vehicle emission control. People credited with this unit standard are able to describe the purpose of emission control, use diagnostic scan tools operation, service engine emission control systems, service air intake systems, service crankcase emission control, service exhaust gas recirculation system, and service evaporative emission control.

This unit standard is intended for those who work in automotive mechatronics environment.

### Special Notes

1. Entry information

Prerequisite

- *none*

2. This unit standard is to be assessed in the context of industrial safety operations and should be assessed in conjunction with other relevant technical unit standards selected from this domain.

3. Assessment evidence may be collected at a real workplace or simulated workplace in which safety operations are carried out.

4. Glossary of terms:

- '*Specifications*' refers to any, or all the following: manufacturers' specifications and recommendations, workplace specific requirements, national and international standards and legislations
- '*ISO*' refers to *International Organization for Standards*
- '*OBD*' refers to Onboard Diagnosis System

5. Performance of all elements in this unit standard must comply with industry standards and workplace requirements.

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

- Labour Act No. 11 of 2007
- Regulations relating to the health and safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007
- ISO 14001 (Environmental Management Standard) and all subsequent amendments to any of the above.

## **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 on [www.namqa.org](http://www.namqa.org) and the Namibia Training Authority on [www.nta.com.na](http://www.nta.com.na).

## **Elements and Performance Criteria**

### **Element 1: Describe the purpose of emission control**

#### **Performance Criteria**

- 1.1 Effects of exhaust fumes on the environment are stated and explained.
- 1.2 Application of different emission control systems for different engines is explained.
- 1.3 Components for emission control are listed.
- 1.4 Operation of catalytic converters and filters is explained.
- 1.5 International emission regulations and effects are explained.
- 1.6 Diagnostic trouble codes are stated and explained.
- 1.7 Strategies for reducing emissions are recommended and explained.
- 1.8 The purpose of On Board Diagnostic (OBD) regarding standardized emission is explained.

### **Element 2: Use diagnostic scan tools operation**

#### **Performance Criteria**

- 2.1 Different diagnostic tools for use in emission control are listed.
- 2.2 Operation of diagnostic tools is explained.
- 2.3 Different diagnostic tools are used to measure emission according to vehicle manufacturers' procedures.
- 2.4 Readings are taken and documented according to workplace procedures.

### **Element 3: Service engine emission control systems**

#### **Range:**

Engine emission control systems will include diesel and petrol engine emission systems.

#### **Performance Criteria**

- 3.1 Engine emission control system components are identified and listed.
- 3.2 Faulty components are identified and replaced according to vehicle manufacturers' procedures.
- 3.3 Replacement of components are checked for recommended operation according to vehicle manufacturers' procedures.

### **Element 4: Service air intake systems**

#### **Performance Criteria**

- 4.1 Different air intake system components are identified.
- 4.2 Air intake accessories are cleaned according to vehicle manufacturer's procedures.
- 4.3 Faulty components are identified and replaced according to vehicle manufacturers' procedures.
- 4.4 Replaced components are checked for operation according to vehicle manufacturers' procedures.

### **Element 5: Service crankcase emission control**

#### **Performance Criteria**

- 5.1 Crankcase emission system components are identified.
- 5.2 Crankcase emission system components are cleaned according to vehicle manufacturing procedures.
- 5.3 Faulty components are identified and replaced according to vehicle manufacturers' procedures.
- 5.4 Replaced components are checked for operation according to vehicle manufacturers' procedures.

## **Element 6: Service exhaust gas recirculation system**

### **Performance Criteria**

- 6.1. Exhaust gas recirculation system components are identified.
- 6.2. Exhaust gas recirculation system components are cleaned according to vehicle manufacturing procedures.
- 6.3. Faulty components are identified and replaced according to vehicle manufacturers' procedures.
- 6.4. Replaced components are checked for operation according to vehicle manufacturers' procedures.

## **Element 7: Service evaporative emission control**

### **Performance Criteria**

- 7.1 Evaporative emission control components are identified.
- 7.2 Evaporative emission control is cleaned according to vehicle manufacturer's procedures.
- 7.3 Faulty components are identified and replaced according to vehicle manufacturers' procedures.
- 7.4 Replaced components are checked for operation according to vehicle manufacturers' procedures.

## **Registration Data**

<b>Subfield:</b>	Automotive Engineering
<b>Date first registered:</b>	22 April 2020
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<b>Body responsible for review:</b>	Namibia Training Authority