

<b>Domain</b>	<b>AUTOMOTIVE MECHANICS</b>	<b>Unit ID: 222</b>
<b>Title:</b>	<b>Perform major service on a vehicle</b>	
<b>Level: 4</b>		<b>Credits: 4</b>

### Purpose

This unit standard specifies the competencies required to perform a major service on a vehicle. It includes conducting a vehicle condition assessment, servicing vehicle systems and associated components, performing engine tune up and conducting final serviceability tests on components. This unit standard is intended for those who work as automotive mechanics.

### Special Notes

1. Entry information:
  - Prerequisite
    - Unit 65 - *Apply safety rules and regulations in an automotive mechanics workshop* or demonstrated equivalent knowledge and skills.
2. To demonstrate competence, at a minimum, evidence is required of:
  - conducting one (1) vehicle condition assessment in line with manufacturers' service plan
  - servicing five (5) vehicle system components as outlined in the manufacturers' service plan
  - performing one (1) engine tune up in line with manufacturers' specifications
  - conducting one (1) serviceability tests on vehicle systems and components in line with manufacturers' requirements and specifications.
3. Assessment evidence may be collected from a real workplace or a simulated real workplace or an appropriate simulated realistic environment in which automotive mechanics operations are carried out.
4. Performance of all elements in this unit standard must comply with manufacturers' specifications, workplace specific requirements and reasonable flat rate time.
5. Glossary of terms:
  - '*specifications*' refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements
  - '*service operations*' refers to 'on-vehicle service' where operations can be directly performed on the vehicle and 'component repair' where the operations are done on the workbench after removing the component from the vehicle.
6. Regulations and legislation relevant to this unit standard include the following:
  - Labour Act, No. 6, 1992
  - Occupational Health and Safety Regulations No. 18, 1997
  - Road Traffic and Transport Regulations No. 266, 2000
 and all subsequent amendments.
7. This unit standard applies to passenger and light commercial vehicles with a Gross Vehicle Mass  $\leq$  5 500 kg (Petrol & Diesel).

## **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**

Planning and preparation may include but is not limited to workplace inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements.

Tools and equipment may include but are not limited to standard tool set, torque wrench, power tools and maintenance equipment including lift (hoist) or inspection pit.

Materials and lubricants are to include but are not limited to grease, lubricating oil, hydraulic brake fluid, spare parts and standard service parts as outlined in the manufacturers' service plan.

#### **Performance Criteria**

- 1.1 Work instructions, including repair order forms, specifications and operational details are obtained, confirmed and applied.
- 1.2 Safety requirements are followed in accordance with safety plans and policies.
- 1.3 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.
- 1.4 Material requirements are identified and obtained in accordance with repair order form and/or specifications.
- 1.5 Materials are safely handled and located ready for use in line with workplace requirements.
- 1.6 Technical and/or calibration requirements for tools and equipment are sourced and implemented in line with workplace procedures.
- 1.7 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

## **Element 2: Assess vehicle condition**

### **Range**

Assessment on vehicle condition includes functional testing, measurements, visual, aural and functional assessment (including damage, corrosion, leakage, wear) in line with manufacturers' service plan requirements and specifications.

### **Performance Criteria**

- 2.1 Vehicle condition assessment is implemented in accordance with legislative requirements, workplace procedures and manufacturers' specification.
- 2.2 Wear measurement results are compared with manufacturers' specifications.
- 2.3 Results of vehicle condition assessment are documented with evidence and supporting information and recommendation(s) is made in line with workplace procedures.
- 2.4 Report on vehicle condition assessment is processed according to workplace procedures.

## **Element 3: Service motor vehicle systems and associated components**

### **Range**

Service operations may include but are not limited to isolation of faults, removing and installing, disassembling and assembling, inspection and evaluation, adjustments, operational testing, lubrication, repair, replacement and visual inspections in line with manufacturers' specifications.

Systems and associated components may include but are not limited to drive train components, running gear components, electrical system components, vehicle body components and engine system components (including fuel-, lubrication-, cooling-, ignition-, intake- and exhaust system) in line with manufacturers' service plan requirements.

### **Performance Criteria**

- 3.1 Procedures and information required for servicing vehicle systems and associated components are identified and sourced in line with workplace procedures and manufacturers' guidelines.
- 3.2 Resources required for servicing vehicle systems and associated components are identified and support equipment is identified and prepared in line with workplace procedures.
- 3.3 Service operations are implemented according to workplace procedures and manufacturers' service plan and specifications.
- 3.4 Adjustments made during servicing of vehicle systems and associated components are made in line with manufacturers' specifications.

- 3.5 Unexpected or unplanned contingencies that are encountered in servicing of vehicle systems and associated components are addressed through applying workplace procedures, previous experience and manufacturers' technical information.
- 3.6 Final on-vehicle performance test is conducted and results compared with manufacturers' specifications.

#### **Element 4: Perform engine tune up**

##### **Range**

Tune up may include but is not limited to functional testing, measurements and adjustments in line with manufacturers' specifications.

##### **Performance Criteria**

- 4.1 Information required for performing engine tune up is accessed and interpreted from manufacturers' specifications in line with workplace procedures.
- 4.2 Engine tune up is implemented in line with workplace procedures and manufacturers' specifications.

#### **Element 5: Conduct serviceability tests on components**

##### **Performance Criteria**

- 5.1 Test procedures are implemented according to workplace procedures and manufacturers' specifications.
- 5.2 Observations on the performance of the components are noted during the test in line with workplace procedures.
- 5.3 Serviceability of components is determined in line with manufacturers' specifications and workplace procedures.
- 5.4 Failed components are tagged for rework in line with workplace procedures.
- 5.5 Documentation of observations is completed in line with workplace procedures.

#### **Element 6: Complete work and clean up**

##### **Range**

Work completion details may include but are not limited to repair order form, sign-out form for equipment, service record book and service plan form.

##### **Performance Criteria**

- 6.1 Work is completed and appropriate personnel notified in accordance with workplace procedures.
- 6.2 Work area is cleared of waste, cleaned, restored and secured in accordance with workplace procedures.

- 6.3 Reusable material is collected and stored in accordance with workplace procedures.
- 6.4 Equipment used is cleaned, checked, maintained and stored in accordance with workplace procedures.
- 6.5 Work completion details are finalised in accordance with workplace procedures.

### **Registration Data**

<b>Subfield:</b>	Automotive Engineering
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<b>Body responsible for review:</b>	Namibia Training Authority