

Domain AUTOMOTIVE MECHATRONICS**Title: Repair steering systems and wheels****Level: 3****Credits: 9****Purpose**

This unit standard is intended for those who repair steering systems and wheels. People credited with this unit standard are able to describe basic principles of steering systems, describe steering system components, describe power assisted steering systems, describe four wheel steering systems, maintain steering systems, replace steering system components, describe wheel construction and applications, and conduct wheel balancing.

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

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 and the Namibia Training Authority on www.nta.com.na.

Elements and Performance Criteria

Element 1: Describe basic principles of steering systems

Performance Criteria

- 1.1 Different steering system components are identified.
- 1.2 Operation of basic steering system is explained.

Element 2: Describe steering system components

Performance Criteria

- 2.1 Function of each steering component is explained.
- 2.2 Parts of each steering component are identified.

Element 3: Describe power assisted steering systems

Range

Power steering systems includes and are not limited to hydraulic rack, electro-hydraulic speed sensitive rack.

Performance Criteria

- 3.1 Types of power assisted steering systems are identified.
- 3.2 Method of operation of power assisted steering systems is explained.
- 3.3 Typical faults of power assisted steering systems are explained.

Element 4: Describe four wheel steering systems

Performance Criteria

- 4.1 Four wheel steering system components are identified.

- 4.2 Function of each of the four wheel steering system components is explained.
- 4.3 Advantages and disadvantages of the four wheel steering system are explained.

Element 5: Maintain steering systems

Performance Criteria

- 5.1 Typical steering faults are identified and explained.
- 5.2 Steering system components are cleaned according to manufacturer's procedures.
- 5.3 Steering system components are adjusted and aligned according to workplace procedures.
- 5.4 Steering system components are lubricated according to manufacturer's procedures.

Element 6: Replace steering system components

Performance Criteria

- 6.1 Faulty steering system components are identified and marked according to workplace procedures.
- 6.2 Worn-out components are identified and marked according to workplace procedures.
- 6.3 Faulty and worn-out components are removed according to manufacturer's procedures.
- 6.4 Faulty and worn-out components are replaced according to manufacturer's procedures.
- 6.5 Steering system components are tested for correct operation according to manufacturer's procedures.

Element 7: Describe wheel construction and applications

Performance Criteria

- 7.1 Components of a wheel are identified.
- 7.2 Different types of tyres are identified.
- 7.3 Constructional features and specifications of different tyres are explained.

7.4 Applications of different type of tyres are explained.

7.5 Tyre markings on the tyre wall are explained.

Element 8: Conduct wheel balancing

Performance Criteria

8.1 Wheel is checked for damage according to manufacturer's specifications.

8.2 Wheel balancing equipment is set-up according to manufacturer's procedures.

8.3 Weights are selected according to manufacturers' procedures.

8.4 Weights are positioned on designated places on the wheel according to manufacturers' procedures.

8.5 Wheel is balanced according to manufacturer's procedures.

Registration Data

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