

SERVICE VEHICLE STEERING SYSTEM

UNIT CODE: ENG/OS/AUT/CR/5/6

UNIT DESCRIPTION:

This unit specifies competencies required to service vehicle steering system. It involves assessment, removal, servicing and replacement of vehicle steering components. It also involves fitting and testing vehicle steering components and documenting vehicle steering service.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make the workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. Bold and italicized terms are elaborated in the Range
1. Assess vehicle steering system	1.1 Work area and steering units are prepared as per the workshop procedures 1.2 <i>Tools and equipment</i> are assembled as per job assignment 1.3 Vehicle steering system checklist is prepared based on workplace requirements 1.4 Personal protective clothing and equipment (<i>PPE</i>) is used as per <i>OSHA 2007</i> 1.5 Steering systems are visually inspected in accordance with service manual 1.6 Faulty steering components are identified as per the service manual
2. Remove steering components	2.1 <i>Technical information</i> is used according to the service manual

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	2.2 Vehicle is raised in accordance with workshop procedures 2.2 <i>Lubricants and fluids</i> are drained and disposed according to health and safety standards 2. Steering components are removed as per service manual
3. Assess serviceability of vehicle steering components	3.1 <i>Steering components</i> are disassembled as per the service manual 3.2 Steering components are cleaned in accordance with service manual 3.3 Serviceability of steering components is <i>assessed</i> as per the service manual 3.4 Serviceability report is prepared in accordance with workshop procedure
4. Replace/service vehicle steering components	4.1 Worn/damaged components are replaced as per manufacturer's manual 4.2 Replacement parts are verified against manufacturers' part numbers 4.3 Steering components are re-assembled in accordance with manufacturers' specification 4.4 Vehicle steering components are serviced according to the service manual
5. Fit and test vehicle steering components	5.1 Steering components are fitted back as per service manual 5.2 Lubricants and fluids are replenished

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<p>6. Document vehicle steering system service</p>	<p>according to the service manual</p> <p>5.3 <i>Steering geometry</i> is set in accordance with manufacturers' specifications</p> <p>5.4 Steering system is tested as per the manufacturers specification</p> <p>5.5 Road test is carried out in accordance with manufacturers' specifications</p> <p>6.1. Steering service and repair is completed according to workplace policy/customer's specification</p> <p>6.2 Vehicle steering service system report is prepared as the SOPs</p> <p>6.3 Steering <i>service and repair records</i> are generated and shared in line with company standard operating procedures</p>

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Steering components may include but is not limited to:	1.1 Steering rack 1.2 Tie rods; 1.3 Steering box 1.4 Steering column 1.5 Universal joint/coupling 1.6 Drop arm 1.7 Dust rubber boot 1.8 Steering wheel
3. Assessment methods.	3.1 Visual 3.2 Measurement 3.3 Acoustic 3.4 Vibration 3.5 Functional 3.6 Serviceable 3.7 Unserviceable 3.8 Tolerances
5. Steering geometry / wheel alignment	5.1 Toe in / Toe out 5.2 Castor 5.3 Camber 5.4 Kingpin inclination
6. Service and repair records	6. Job cards 6.2 Company IT system 6.3 Customer database
7. Agreed timeframe	7.1 Manufacturers' recommended work times 7.2 Job times set by the company 7.3 Job time agreed with a specific customer

REQUIRED KNOWLEDGE AND UNDERSTANDING

The individual needs to demonstrate knowledge of:

- Kenyan legislation and workplace procedures relevant to:
 - health and safety
 - the environment (including waste disposal)
 - personal and vehicle protective equipment
- Legal requirements relating to the vehicle and its construction
- Workplace procedures for:
 - recording fault location and correction activities;
 - reporting the results of tests;
 - the referral of problems;
- reporting delays to the completion of work
- sources of technical information
- How to use wheel alignment and steering geometry measuring and adjusting equipment
- Construction and operation of suspension and steering systems
- The construction, layout and operation of different types of suspension systems, including:
 - Beam axle;
 - Independent types; front and rear;
 - Hydro-Pneumatic;
 - Active suspension and their control systems.
 - Types of springs and how they are mounted and located on the vehicle
 - The layout and operation of different types of steering systems, including
- Different types of steering gear, including:
 - Rack and pinion;
 - Recirculating ball.
 - Hydraulic and electronic power assisted
- The principles of suspension and steering geometry including:

- Front and rear wheel alignment;
 - Toe-out-on-turns;
 - Camber;
 - Castor;
 - Kingpin inclination.
- How to remove and replace suspension and steering system units and components for the classification of vehicle being worked on
 - How to select and use gaskets, sealants, seals, fittings and fasteners
 - How to test and evaluate the performance of replacement suspension and steering system units and components against vehicle operating specifications, and any legal requirements
 - When replacement units and components must meet the original equipment specification (OES) for warranty or other requirements
 - How to work safely avoiding damage to other vehicle systems, units and components

Required Skills

The individual needs to demonstrate the following foundation skills:

- Decision making;
- Multitasking;
- Communications (verbal and written);
- Proficient in ICT;
- Time management;
- Problem solving;
- Planning
- First aid;
- Report writing;
- Record keeping
- Driving

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency.	<p><i>Assessment requires evidence that the candidate:</i></p> <ul style="list-style-type: none">1.1 Worked in a safe and clean environment using personal protection and appropriate tools and equipment;1.2 Observed regulations concerned with health and safety and the disposal of waste1.3 Used technical information to remove and dismantle steering units1.4 Assessed vehicle steering components against manufacturers' specifications1.4 Repaired/serviced, replaced and restored components as per manufacturer's specification1.5 Reassembled steering components in accordance with manufacturers' specifications1.6 Completed steering system servicing within set time frame1.6 Documented steering servicing records as per customer specifications and company policy.
2. Resource implications.	<p><i>The following resources must be provided:</i></p> <ul style="list-style-type: none">2.1 A workshop that is fully equipped for servicing vehicle steering systems.2.2 Vehicle lift2.3 Tool kits and vehicle steering equipment2.4 Access to manufacturers' technical information2.5 Facilities for the disposal of waste oil and scrap parts2.6 Customer database2.7 Personal protection equipment

	2.8 Computer
3. Methods of Assessment.	<i>Competency may be assessed through:</i> 3.1 Observation 3.2 Verbal 3.3 Written
4. Context of Assessment.	Competency may be assessed individually in an actual workplace or in work-simulated conditions within accredited institutions.
5. Guidance information for assessment.	This unit may be assessed on an integrated basis with others within this occupational sector.

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