SERVICE VEHICLE STEERING AND SUSPENSION SYSTEMS

UNIT CODE: ENG/OS/AUT/CR/4/4/A

Unit Description:

This unit specifies competencies required to service vehicle steering and suspension systems. It involves inspecting steering and suspension system parts, removing steering and suspension systems components, dismantling, cleaning and examining the components, servicing/repairing/ replacing and assembling steering/ suspension parts, fitting steering and suspension components and carrying out adjustment and reporting.

ELEMENTS PERFORMANCE CRITERIA

Element *These describe the key outcomes which make up 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. Inspect steering and suspension system parts	1.1 Work area and steering and suspension units are prepared as per the workshop procedures 1.2 ***Tools and equipment*** are assembled as per job assignment 1.3 Personal protective clothing and equipment (***PPEs***) are used as per OSHA 2007 1.4 Vehicle steering and suspension system checklist is prepared based on workplace requirements 1.5 Steering and suspension systems are visually inspected in accordance with service manual 1.6 Faulty steering and suspension components are identified as per the service manual
2. Remove steering and suspension system component from the vehicle	2.1 ***Technical information*** is used according to the service manual 2.2 Vehicle is raised in accordance with workshop procedures 2.3 ***Lubricants and fluids*** are drained and disposed according to HSE&Q 2.4 ***Steering components*** are removed as per service manual 2.5 ***Suspension components*** are removed as per service manual
3. Dismantle, clean and examine steering and suspension system components	3.1 Steering components are disassembled as per the service manual 3.2 Steering components are cleaned as per SOPs.

	3.3 Serviceability of steering components is assessed as per the service manual 3.4 Suspension components are disassembled as per the service manual 3.5 Suspension components are cleaned as per sops. 3.6 Serviceability of suspension components is assessed as per the service manual
4. Service/Repair/ Replace and assemble steering and suspension parts	4.1 Steering components are serviced according to the service manual 4.2 Worn/damaged steering components are verified against manufacturers' part numbers and replaced as per manufacturer's manual 4.3 Steering components are assembled in accordance with manufacturers' specification 4.4 Suspension components are serviced according to the service manual 4.5 Worn/damaged suspension components are verified against manufacturers' part numbers and replaced as per manufacturer's manual 4.6 Suspension components are assembled in accordance with manufacturers' specification
5. Fit steering and suspension components to vehicle	5.1 Steering components are fitted as per service manual 5.2 Lubricants and fluids are replenished according to the service manual 5.3 ***Steering geometry*** is set in accordance with manufacturers' specifications 5.4 Steering system is tested and adjusted as per the manufacturers specification 5.5 suspension components are fitted as per service manual 5.6 suspension system Lubricants and fluids are replenished according to the service manual 5.7 suspension system is tested as per the manufacturers specification
6. Carry out adjustments and reporting	6.1 Steering system service and repair is completed and tested as per manufacturer specification 6.2 Steering system final adjustment is carried out as per manufacturer specification

	6.3 suspension system service and repair is completed and tested as per manufacturer specification 6.4 suspension system final adjustment is carried out as per manufacturer specification 6.5 Work area is cleaned in accordance with work shop procedures 6.6 ***Waste*** is disposed as per OSH Act- 2007 6.7 Steering and suspension report is written and shared with relevant personnel according to workshop procedures

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:	• Steering wheel • Steering column • Steering box • Drop arm • Steering arms • Track arm • Tie rods; • Universal joint/coupling • Dust rubber boot
2. Suspension components may include but is not limited to:	• Wishbone/arms • Shock absorbers/dampers • Strut • Stabilizer bar • Springs -Coil/leaf/rubber/Torsion bar/Pneumatic and Hydro pneumatic bushes
3. Steering geometry may include but is not limited to:	• Toe in / Toe out • Castor • Camber • Kingpin inclination • Wheel base • Wheel track
4. Tools and equipment may include but is not limited to:	• Assorted Spanners • Screw drivers • Pliers • Oil can • Feeler gauge • Grease gun • Jacks

	• Axle stands • Car hoist • Hammers
5. Personal protective equipment (PPEs) may include but is not limited to:	• Overall • Safety boots • Gloves
6. Technical information may include but is not limited to:	• Vehicle technical data • Manufacturers' tolerances and specification data. • Manufacturers' specifications • Approved company practices
7. Lubricants and fluids may include but is not limited to:	• Steering fluid • Suspension hydraulic fluid • Grease
8. Wastes may include but is not limited to:	• Liquid • Solid/Rubber/Plastics

REQUIRED KNOWLEDGE;

The individual needs to demonstrate knowledge of:

- Kenyan legislation and workplace procedures to the vehicle and its construction
- Workplace procedures
- Reporting delays to the completion of work
- Sources of technical information
- adjustments on steering and suspension systems
- Construction and operation of suspension and steering systems
- The construction, layout and operation of different types of suspension systems,
- 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
- The principles of suspension and steering geometry

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;
- Dismantling
- Inspecting
- Examining

- Assembling
- Planning
- Team work
- Listening
- 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.	**Assessment requires evidence that the candidate:** 1.1 Used PPEs appropriately 1.2 Observed regulations concerned with health and safety in the disposal of waste appropriately 1.3 Used technical information to remove and dismantle steering units appropriately 1.4 Used technical information to remove and dismantle suspension units appropriately 1.5 examined vehicle steering components correctly 1.6 examined vehicle suspension components correctly 1.7 Repaired/serviced/replaced and assembled steering components correctly 1.8 Repaired/serviced/replaced and assembled suspension components correctly 1.9 Fitted suspension components correctly 1.10 itted steering components correctly 1.11 eplenished suspension fluids correctly 1.12 eplenished steering fluids correctly 1.13 ested suspension system correctly 1.14 ested steering system correctly 1.15 ompleted steering/ suspension system servicing within set time frame 1.16 ocumented steering and suspension servicing records appropriately
2. Resource Implications.	**The following resources must be provided:** 2.1 A workshop that is fully equipped for servicing vehicle steering systems. 2.2 Vehicle lift 2.3 Tool kits and vehicle steering equipment

	2.4 Manufacturers manuals 2.5 Facilities for the disposal of waste oil and scrap parts 2.6 Customer database 2.7 Personal protection equipment 2.8 Computer
3. Methods of Assessment	Competency may be assessed through: 1. Observation 2. Oral Questioning 3. Written Tests
4. Context of Assessment	Competency may be assessed individually in an actual workplace or in work-simulated conditions within accredited institutions or during Industrial Attachment.
5. Guidance information for assessment.	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.