

SERVICE VEHICLE SUSPENSION SYSTEMS.

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

Unit description:

This unit specifies competencies required to service vehicle suspension system. It involves assessment, removal, servicing and replacement of vehicle suspension components. It also involves fitting and testing vehicle suspension components and documenting vehicle suspension 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 suspension 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 suspension checklist is prepared according to the workplace requirements 1.4 Personal protective clothing and equipment (<i>PPE</i>) is used as per <i>OSHA 2007</i> 1.5 Suspension systems are visually inspected in accordance with service manual 1.6 Faulty suspension components are identified as per the service manual
2.Remove vehicle suspension components	2.1 <i>Technical information</i> is used according to the service manual 2.2 Vehicle is raised in accordance with

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	workshop procedures 2. Suspension components are removed as per service manual
3. Assess vehicle suspension components serviceability	3.1 <i>Suspension components</i> are disassembled as per the service manual 3.2 Suspension components are cleaned in accordance with service manual 3.3 Serviceability of suspension components is <i>assessed</i> as per the service manual 3.4 Suspension component serviceability report is prepared in accordance with workshop procedure
4. Replace/service vehicle suspension components	4.1 Worn/damaged components are replaced as per manufacturer's manual 4.2 Suspension components' replacement parts are verified against manufacturers' part numbers 4.3 Suspension components are re-assembled in accordance with manufacturers' specification 4.4 <i>Hydrolastic suspension components</i> are replaced according to service manual 4.5 <i>Hydro-pneumatic components</i> are replaced according to service manual 4.6 <i>Macpherson strut suspension components</i> are serviced/replace as per the service manual
5. Fit and test vehicle	5.1 Suspension components are fitted back as per

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suspension components	service manual 5.2 <i>Suspension alignments</i> set in accordance with manufacturers' specifications 5.3 Road test is carried out as per the service manual 5.4 Vehicle suspension service checklist is filled in accordance with workplace policy
6. Vehicle suspension system service documentation	6.1. Suspension service and repair is completed within workplace policy/customer's specification 6.2 Vehicle suspension service system report is prepared as the SOPs 6.3 Suspension <i>service and repair records</i> are generated and shared in line with company standard operating 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. Suspension components may include but is not	1.1 Wishbone/arms 1.2 Shock absorbers/dampers 1.3 Strut

Variable	Range
limited to:	1.4 Torsion bar 1.5 Stabilizer 1.6 Coil/leaf/rubber spring
3. Assessment methods may include but is not limited to:	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. Suspension alignments may include but is not limited to:	5.1 Wheel base 5.2 Wheel track
6. Service and repair records may include but is not limited to:	6.1 Job cards 6.2 Company IT system 6.3 Customer database
7. Agreed timeframe may include but is not limited to:	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.

<p>1. Critical Aspects of Competency.</p>	<p><i>Assessment requires evidence that the candidate:</i></p> <p>1.1 Worked in a safe and clean environment using personal protection and appropriate tools and equipment</p> <p>1.2 Observed regulations concerned with health and safety and the disposal of waste</p>
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	<p>1.3 Used technical information to remove and disassemble suspension units</p> <p>1.4 Assessed vehicle suspension components against manufacturers' specifications</p> <p>1.4 Repaired/serviced, replaced and restored suspension components as per manufacturer's specification</p> <p>1.5 Reassembled suspension components in accordance with manufacturers' specifications</p> <p>1.6 Completed suspension system servicing within set time frame</p> <p>1.6 Documented suspension servicing records as per customer specifications and company policy.</p>
<p>2. Resource Implications.</p>	<p><i>The following resources must be provided:</i></p> <p>2.1 A workshop that is fully equipped for servicing vehicle suspension systems.</p> <p>2.2 Vehicle lift</p> <p>2.3 Tool kits and vehicle suspension equipment</p> <p>2.4 Access to manufacturers' technical information</p> <p>2.5 Facilities for the disposal of waste oil and scrap parts</p> <p>2.6 Customer database</p> <p>2.7 Personal protection equipment</p> <p>2.8 Computer</p>
<p>3. Methods of assessment.</p>	<p><i>Competency may be assessed through:</i></p> <p>3.1 Observation</p> <p>3.2 Verbal</p> <p>3.3 Written</p>
<p>4. Context of</p>	<p>Competency may be assessed</p>

assessment.	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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