

PERFORM VEHICLE BASIC MAINTENANCE

UNIT CODE: ENG/OS/AUT/CR/1/4/A

Unit Description

This unit specifies the competencies required to perform vehicle basic maintenance. It involves performing basic vehicle mechanical and operational assessment, basic maintenance on engine, braking system, suspension/steering system, transmission system, electrical system, Wheels and tires and preparing vehicle basic maintenance report.

ELEMENTS AND PERFORMANCE CRITERIA

Element	Performance Criteria
<p>These describe the key outcomes which make up workplace function</p>	<p>These are assessable statements which Specify the required level of performance for each of the elements.</p> <p><i>Bold and italicized terms are elaborated in the Range</i></p>
<p>1. Perform basic vehicle mechanical and operational assessment</p>	<p>1.1 <i>Tools, equipment</i> and necessary checklists are assembled as per the tasks requirements</p> <p>1.2 PPEs are used as per OSHA 2007</p> <p>1.3 Health, safety, Environment and quality regulations are observed as per OSHA 2007</p> <p>1.4 Assessment is undertaken in accordance with manufacturers' routine and <i>periodic maintenance</i> schedule</p> <p>1.5 Defects are identified as per SOPs</p> <p>1.6 Mechanical and operational <i>job card</i> is prepared as per organizations approved format</p>
<p>2. Perform engine basic maintenance</p>	<p>2.1 Engine <i>Technical information</i> is sourced as per service manual</p> <p>2.2 Condition and performance of engine and externally attached components are inspected as per SOPs</p> <p>2.3 Worn out/damaged/broken/clogged components are serviced/replaced as per service manual</p> <p>2.4 Engine basic maintenance checklist is filled and shared as per the organization policy</p>
<p>3. Perform braking system basic maintenance</p>	<p>3.1 Vehicle braking system is inspected as per the SOPs</p> <p>3.2 Faulty braking system parts are identified as per the SOPs</p> <p>3.3 Worn out/damaged/broken braking system components are serviced/replaced as per service manual</p> <p>3.4 Final adjustments are performed as per service manual</p> <p>3.5 Braking system basic maintenance checklist is filled as per SOPs</p>

<p>4. Perform suspension/steering systems basic maintenance</p>	<p>4.1 Suspension steering systems inspected as per SOPs 4.2 Faulty suspension/steering system components are identified as per SOPs 4.3 Worn out/damaged/broken suspension/steering system components are serviced/replaced as per manufacturers specifications 4.4 Final adjustments are performed as per service manual 4.5 Vehicle suspension/steering system check list is filled as per workshop procedures</p>
<p>5. Perform transmission system basic maintenance</p>	<p>5.1 Transmission system is inspected as per SOPs 5.2 Faulty transmission system components are identified as per SOPs 5.3 Damaged/worn out transmission system components are replaced/serviced as per manufacturers specifications 5.4 Transmission system components are greased/oiled/adjusted as per service manual 5.5 Vehicle transmission system check list is filled as per workshop procedures</p>
<p>6. Perform electrical system basic maintenance</p>	<p>6.1 Vehicle electrical system check list is prepared as per workshop manual 6.2 Vehicle battery condition is inspected as per service manual 6.3 Vehicle battery faults are identified and serviced as per service manual 6.4 Vehicle starter motor operational condition is inspected as per service manual 6.5 Vehicle starter motor faults are identified and serviced as per service manual 6.6 Vehicle lighting system operational condition is inspected as per service manual 6.7 Vehicle lighting circuits faults are identified and serviced as per service manual 6.8 Ignition system operational condition is inspected as per service manual 6.9 Ignition system faults are identified as per service manual 6.10 Worn out/broken/burnt ignition system components are serviced/replaced as per service manual 6.11 Electrical system circuits are tested as per manufacturers specifications 6.12 Service check list is filled as per SOPs</p>
<p>7. Perform Wheel and tires basic service/maintenance</p>	<p>7.1 Wheel and Tire to be serviced is identified and removed as per SOPs 7.2 Wheel and tire specifications are identified as per manufacturers manual</p>

	<p>7.3 Wheel and <i>tires repair kit</i> selected as per manufacturers manual</p> <p>7.4 Wheel and Tire is repaired/serviced as per service manual</p> <p>7.5 Wheel and tire basic/maintenance report is prepared as per SOPs</p>
8. Prepare vehicle basic maintenance report	<p>8.1 Vehicle interior and exterior is cleaned as per organization policy</p> <p>8.2 Basic maintenance report is prepared as per organization policy</p> <p>8.3 Workshop/station is cleaned as per workshop regulations</p> <p>8.4 Waste is disposed as per OSHA 2007</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.

Variables	Range
1. Tools and Equipment may include but not limited to;	<ul style="list-style-type: none"> • Assorted Spanners • Screw drivers • Pliers • Oil can <ul style="list-style-type: none"> • Filter wrench • Feeler gauge • Multi-tester • DC-tester • Hydrometer • High-rate discharge tester • Grease gun • Jacks • Axle stands • Car hoist • Hammers
2. Periodic maintenance may include but not limited to;	<ul style="list-style-type: none"> • Brake pads/linings • Fluids leaks • Noise and vibrations • Gas leaks • Contact breaker points

<p>3. Technical Information may include but not limited to;</p>	<ul style="list-style-type: none"> • Vehicle technical data; • Manufacturers' online information; • Schedules of inspection; • Legal regulations • On-board diagnostics (OBD) displays
<p>4. Job Card may include but not limited to;</p>	<ul style="list-style-type: none"> • Date • Job card number • Customer name • Vehicle registration • Tasks/repairs/services • Person assigned work • Supervisor
<p>5. Braking system parts may include but not limited to;</p>	<ul style="list-style-type: none"> • Servo unit (booster) • Master cylinder • Calipers • Disc (rotor) • Drum • Brake pads and linings • Wheel cylinders • Brake adjusters • Actuators • ABS unit • Flexible pipes • Parking brake cable.
<p>6. Suspension system components may include but not limited to;</p>	<ul style="list-style-type: none"> • Wishbone/arms • Shock absorbers/dampers • Strut • Torsion bar • Stabilizer • Coil/leaf/rubber spring
<p>7. Steering system components may include but not limited to;</p>	<ul style="list-style-type: none"> • Steering rack • Tie rods; • Steering box • Steering column • Universal joint/coupling • Drop arm • Dust rubber boot • Steering wheel
<p>8. Transmission system components may include but not limited to;</p>	<ul style="list-style-type: none"> • Bearings • Gears • Synchromesh unit • Gearbox shafts and thrust plates • Gear selectors, sensors and linkages • Constant velocity and universal joints • Clutch assemblies release bearings

	<ul style="list-style-type: none"> • Automatic gearbox pump and oil strainer • Transmission unit mounting • Flywheel • Transmission drive shaft/half shaft • propeller shaft/center rubber • Input shaft • Lay shaft • Output shaft • Speed gearwheels • Synchronizer unit • Selector shafts/forks
9. Battery Conditions may include but not limited to;	<ul style="list-style-type: none"> • Electrolytes level • Battery discharged state • Battery charged state • Ventilation plugs • Battery cells • Cells container/housing
10. Vehicle lighting circuits may include but not limited to;	<ul style="list-style-type: none"> • Indicator circuit • Head lamps circuit • High beam circuit • Low beam circuit • Brakes lights circuit
11. Manufacturer's procedures may include but not limited to;	<ul style="list-style-type: none"> • Vehicle technical data • Manufacturer's tolerance and specification data • Approved company practices
12. Electrical system circuits may include but not limited to;	<ul style="list-style-type: none"> • Ignition system • Lighting system • Starting system • Battery
13. Standard operational procedures(SOPs) may include but not limited to;	<ul style="list-style-type: none"> • Company policy • Filling system • Record management procedures • Client satisfaction procedures
14. Tire repair kit may include but not limited to;	<ul style="list-style-type: none"> • Tire lever • Patches • Glue • Tubeless repair kit

REQUIRED KNOWLEDGE

The individual needs to demonstrate knowledge of:

- Organizational and legislative requirements

- Manufacturer's warranty requirements relating to routine maintenance activities for vehicle systems and components
- Service report preparation
- Check list preparation
- Technical information
- Basic vehicle electrical system defects
- Vehicle fluids and lubricants
- Vehicle systems and components
- Vehicle basic inspection
- Legal requirements relating to the vehicle maintenance activities for vehicle systems and components
- Kenyan legislation and workplace
- Recording vehicle maintenance work
- Reporting delays to the completion of work
- Documenting vehicle maintenance information
- Work timeframe
- Sharing of information at workplace
- Relationship between time and costs
- Reporting anticipated delays to relevant person(s) promptly
- Technical information
- Basic On-board diagnostic displays
- Purpose of and how to use identification codes
- Operation of vehicle systems
- Engines, cooling systems, air supply and exhaust systems, fuel systems and ignition systems operate for different vehicles
- operating specifications and tolerances for the different type(s) of vehicles
- The hazards associated with high energy electrical components
- Routine maintenance requirements

REQUIRED SKILLS

- Communications (verbal and written);
- Trouble shooting
- Proficient in ICT;
- Time management;
- Dismantling
- Assembling
- Inspection
- Problem solving;
- Decision making;
- Multitasking;
- First aid;
- Report

- Driving.
- Planning
- Writing
- Team work
- Listening

EVIDENCE GUIDE

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

<p>1. Critical Aspects of Competency.</p>	<p>Assessment requires evidence that the candidate:</p> <ol style="list-style-type: none"> 1.1 Assembled tools, equipment and checklist appropriately 1.2 Used PPEs appropriately 1.3 Used manufacturers' technical information correctly 1.4 Inspected engine mechanical and operational conditions correctly 1.5 Inspected and serviced engine components correctly 1.6 Inspected and serviced braking system correctly 1.7 Inspected and serviced transmission system correctly 1.8 Prepared vehicle electrical system checklist appropriately 1.9 Inspected and serviced vehicle battery correctly 1.0 Inspected and serviced starter motor correctly 2.0 Inspected and serviced lighting system correctly 3.0 Inspected and serviced ignition system correctly 4.0 Tested electrical system correctly 5.0 Repaired/serviced wheels and tires correctly 6.0 Cleaned vehicle interior and exterior correctly 7.0 Prepared vehicle basic maintenance report appropriately 8.0 Cleaned tools, equipment and workshop/station appropriately 9.0 Disposed wastes correctly
<p>2. Resource Implications</p>	<p>The following resources must be provided:</p> <ol style="list-style-type: none"> 2.1 A workshop that is fully equipped for maintaining motor vehicles, including a vehicle lift, specialist tools and diagnostic equipment appropriate for the different makes of vehicles that are being maintained; 2.2 Access to manufacturers' technical information; 2.3 Consumables for maintaining vehicle, including lubricants, fluids and replacement parts; 2.4 Facilities for the disposal of waste oil and replaced serviceable parts; 2.5 Personal protection equipment and suitable coverings to protect vehicles.

3. Methods of Assessment.	Competency may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 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.

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