

CORE UNITS OF COMPETENCY

PERFORM VEHICLE BASIC MAINTENANCE

UNIT CODE: ENG/OS/AUT/CR/1/6

Unit description

This unit specifies the competencies required to perform vehicle basic maintenance. It involves assessing vehicle mechanical and operational condition, carrying out diagnosis tests, replacing service parts, replenishing fluids and lubrications, conducting tests and complete the procedure.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make the workplace function.	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 mechanical and operational condition	1.1 Assessment is undertaken in accordance with manufacturers' routine and periodic maintenance schedule 1.2 Defects are identified using prescribed assessment methods as per service manual 1.3 Mechanical and operational assessment report is prepared as per organizations approved format
2. Carry out diagnostic tests	2.1 Service technical information is sourced as per service manual

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
	2.2. Condition and performance of the vehicle system is assessed using diagnostic equipment and tools as prescribed by the manufactures' specifications 2.3 Diagnostic assessment report is prepared and provided as per the organization policy
3. Service vehicle lubrication system	3.1 Vehicle lubrication system is diagnosed according to manufacturer' manuals 3.2 Engine transmission and hydraulic filters are replaced according to assessment results 3.3 Vehicle components are greased according to manufacturer's specifications 3.4 Lubrication system pressure is tested according to workshop procedures
4. Replenish fluids and lubricants	4.1 Lubricants for engines and transmissions are obtained using vehicle manufacturers' specifications

<p>ELEMENT</p> <p>These describe the key outcomes which make the workplace function.</p>	<p>PERFORMANCE CRITERIA</p> <p>These are assessable statements which specify the required level of performance for each of the elements.</p> <p>Bold and italicized terms are elaborated in the Range</p>
	<p>4.2 Grades of fluids for brakes and clutch operation, power assisted steering, cooling system, windscreen washers and diesel exhaust emission control are identified and obtained as per manufactures' technical information</p> <p>4.3 Protective measures on lubricants and fluids are applied as per the workplace policy and OSHA 2007.</p> <p>4.4 Lubricants and fluids are replenished as prescribed by vehicle manufacturers' specifications.</p> <p>4.5 Waste oil and fluids are disposed in compliance with workplace policy and OSHA 2007.</p>
<p>5. Replace/service vehicle service parts</p>	<p>5.1 Tools and equipment for use are selected, obtained and assembled based on service manual</p> <p>5.2 Vehicle service parts are identified, verified, replaced and adjusted as per manufacturer's part numbers.</p>

<p>ELEMENT</p> <p>These describe the key outcomes which make the workplace function.</p>	<p>PERFORMANCE CRITERIA</p> <p>These are assessable statements which specify the required level of performance for each of the elements.</p> <p>Bold and italicized terms are elaborated in the Range</p>
	<p>5.3 Test on the vehicle is carried out to ascertain replaced/serviced parts perform according to the service manual</p> <p>5.4 Worn out/damage parts are disposed as per the workplace policy and OSHA 2007</p> <p>5.5 Vehicle replacement/servicing records are prepared and kept according to the workplace requirements</p> <p>5.6 Maintenance activities are completed within an agreed time frame as per organization policy</p>
<p>6. Conduct road tests</p>	<p>6.1 Visual inspection of the vehicle and its system is carried out as per manufacturers specifications</p> <p>6.2 Vehicle is road-tested in compliance with company standards, traffic rules and manufacturers' standards</p>
<p>7. Carry out adjustments to vehicle components and systems.</p>	<p>7.1 Using of manufacturers technical information to identify operating specifications and tolerances</p> <p>7.2 Identifying components and</p>

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
	systems that are to be checked and adjusted
8. Service Vehicle Wheels and Tyres	8.1 Identify and repair tyre punctures according to vehicles fault 8.2 Perform wheel balancing according to standard operating procedures 8.3 Perform tyre fitting on the rim according to SOP 8.4 Straighten bent wheel rims according to SOP 8.5 Replace tyre pressure nozzles according to SOP 8.6 Maintain tyre pressure according to manufacturer's specifications.
9. Finalize service and repair procedures.	9.1 Vehicle interior and exterior is cleaned and made presentable in compliance with company policy 9.2 Vehicle service and repair report is prepared and shared as per the organizations requirement 9.3 Service and repair records are maintained as per organization policy.

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. Technical information may include but is not limited to:	1.1 Vehicle technical data; 1.2 Manufacturers' online information; 1.3 Schedules of inspection; 1.4 Legal regulations 1.5 On-board diagnostics (OBD) displays.
2. Assessment methods may include but is not limited to:	2.1 Aural (noise); 2.2 Visual 2.3 Vibration 2.4 Digital diagnostic equipment 2.5 Functional 2.6 Measurement
3. Periodic maintenance may include but is not limited to:	3.1 brake pads/linings 3.2 fluid leaks 3.3 noise and vibration 3.4 air-conditioning 3.5 gas leaks 3.6 Tyre wear 3.7 fan belt
4. Vehicle systems may include but is not limited to:	4.1 Engine management (fuel, ignition, emission control) 4.2 Battery, charging and starter 4.3 Engine cooling 4.4 Steering and suspension 4.5 Air conditioning;

Variable	Range
	4.6 Lighting
5. Adjustments may include but is not limited to:	5.1 Valve clearances 5.2 Spark plug gaps 5.3 Exhaust emission settings 5.4 Wheel, steering and suspension alignment 5.5 Headlight alignment; 5.6 Drive belt tension; 5.7 Engine idling speed; 5.8 Lubricant and fluid levels; 5.9 Fuel pressure; 5.10 Brake clearances; 5.11 Tyre pressure. 5.12 Wheel balancing 5.13 Fluid level
6. Assessments may include but is not limited to:	6.1 Damage; 6.2 Fluid leaks; 6.3 Air conditioning gas leaks; 6.4 Wear and tear; 6.5 Security of parts and components; 6.6 Condition and serviceability; 6.7 Necessity for adjustment.
7. Vehicle service parts may include but is not limited to:	7.1 Oil, fuel, air and diesel exhaust filters; 7.2 Wiper blades; 7.3 Spark plugs; 7.4 Brake pads/linings; 7.5 Drive belts; 7.6 Seals and gaskets. 7.7 Tyre fitting and puncture repair 7.8 Lining/pad

Variable	Range
	7.9 Fan belts
8. Approved format may include but is not limited to:	8.1 Manufacturers' maintenance schedules; 8.2 Company's maintenance schedules.
9. Agreed time frame may include but is not limited to:	9.1 Manufacturers' recommended work times; 9.2 Job times set by the company; 9.3 Job time agreed with a specific customer.
10. High energy electrical components may include but is not limited to:	10.1 High tension ignition circuit; 10.2 Xenon headlamps.
11 Lubricants and fluids may include but is not limited to:	11.1 Engine oil 11.2 Gear box oil 11.3 Automatic transmission oil (ATF) 11.4 Brake fluids 11.5 Coolants

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
- Methods of assessing vehicle conditions
- Report writing
- Technical information
- Customer relation
- Diagnostic tools and equipment
- Rectification system defects

- Vehicle fluids and lubricants
- Vehicle systems and components
- Vehicle inspection
- Legal requirements relating to the vehicle maintenance activities for vehicle systems and components
- Kenyan legislation and workplace procedures relevant to:
 - Health and safety
 - The environment (including waste disposal)
 - Appropriate personal and vehicle protection
- Workplace procedures for:
- Recording vehicle maintenance work and any variations from the
 - Original vehicle specification
 - The referral of problems
- 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
 - Finding and sources
 - Importance of correctness in sourcing
 - Use
 - interpreting
- 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
- How clutch assemblies, clutch operating systems, manual gear boxes, automatic gear boxes, drivelines and hubs and final drive assemblies operate for different vehicles

- Suspension systems, steering systems, braking systems, wheels and tyres for motor vehicle operate
- The purpose, operating principles and location of vehicle batteries, charging systems, starting systems, lighting systems and ancillary equipment for the different type of vehicle
- The operating specifications and tolerances for the different type(s) of vehicles
- The hazards associated with high energy electrical components
- Routine maintenance requirements
- How to conduct scheduled, routine light vehicle maintenance activities using prescribed examination methods and assessments against vehicle specifications to identify damage, corrosion, inadequate fluid levels, leaks, wear, security problems and general condition and serviceability
- How to check and adjust clearances, gaps, settings, alignment, pressures, tension, speeds and levels relevant to the engine area, transmission area, chassis area, electrical area and body (including to valves, ignition, fuel and emissions, brakes, transmission, lights, headlight alignment, tyres and tyre rotation, steering and body fittings).
- How to replenish and replace routine service components and materials, including filters, drive belts, spark plugs, wiper blades, brake linings and pads, lubricants and fluids
- How to recognise and report cosmetic damage to vehicle components and units that are outside the scope of normal routine service
- How to identify codes and grades of lubricants, brake/clutch fluids and coolants
- How to work safely avoiding damage to the vehicle and its systems
- The consequence of using incorrect lubricants, fluids and components

REQUIRED SKILLS

- Communications (verbal and written);
- Trouble shooting
- Proficient in ICT;
- Time management;
- Problem solving;
- Decision making;
- Multitasking;
- First aid;
- Report
- Driving.
- Planning
- Writing

EVIDENCE GUIDE

This provides advice on assessment and must be 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> <p>1.1 Used manufacturers' technical information and prescribed procedures in vehicle maintenance activities</p> <p>1.2 Established and recorded accurate diagnosis of vehicle systems</p> <p>1.3 Serviced vehicle components as per the service manual and customer's specification</p> <p>1.4 Replenished fluids and carried out adjustments and replacement of serviceable part</p> <p>1.5 Recorded work that was carried out, including the assessment of vehicle condition and its systems</p>
------------------------------------	---

	<p>1.6 Conducted road test and handed the vehicle to the customer in a clean condition</p> <p>1.7 Prepared maintenance records</p>
2. Resource Implications.	<p><i>The following resources must be provided:</i></p> <p>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;</p> <p>2.2 Access to manufacturers' technical information;</p> <p>2.3 Consumables for maintaining vehicle, including lubricants, fluids and replacement parts;</p> <p>2.4 Facilities for the disposal of waste oil and replaced serviceable parts;</p> <p>2.5 Customer database and systems for recording maintenance records;</p> <p>2.6 Personal protection equipment and suitable coverings to protect vehicles.</p>
3. Methods of Assessment.	<p><i>Competency may be assessed through:</i></p> <p>3.1 Observation with the use of checklists;</p> <p>3.2 Verbal questioning during maintenance activities to test underpinning knowledge;</p> <p>3.3 Short-answer tests to assess understanding of vehicle systems and the importance of using correct lubricants and fluids.</p>
4. Context of Assessment.	<p>4.1 Competency may be assessed individually in an actual workplace or in work-simulated conditions within accredited institutions.</p>
5. Guidance	<p>4.2 This unit may be assessed on an integrated</p>

information for assessment.	basis with others within this occupational sector.
-----------------------------	--

easytvvet.com