

## 11. PERFORM VEHICLE PREVENTIVE MAINTENANCE

UNIT CODE: ENG/OS/AUT/CR/2/3/A

### UNIT DESCRIPTION

This unit describes the competences required to perform vehicle preventive maintenance. It involves conducting vehicle familiarization, external inspections, under vehicle inspections, under hood inspections, following Original Equipment Manufacturer (OEM) instructions, changing oil and oil filters, replacing/servicing air filters, maintaining spark plugs, replacing drive belts, performing lubrication, inspecting fluid levels and inspecting tire and rims in an automobile service environment.

### ELEMENTS AND PERFORMANCE CRITERIA

<b>ELEMENT</b> These describe the key outcomes which make up workplace function.	<b>PERFORMANCE CRITERIA</b> These are assessable statements which specify the required level of performance for each of the elements.  <i><b>Bold and italicized terms are elaborated in the Range</b></i>
1. Conduct vehicle familiarization	1.1 Vehicle familiarization checklist is provided as per SOPs. 1.2 Physical body shape of the vehicle is identified as per manufacturer's specification. 1.3 Shape and features of the dashboard are identified as per manufacture's specification. 1.4 Service features and location are identified as per the model.
2. Conduct vehicle external inspection	2.1 Vehicle external inspection checklist is provided as per SOPs. 2.2 Exterior damages of vehicle are identified as per manufacture's specifications. 2.3 Vehicle tires/wheels are <i>inspected</i> as per manufacturer's specifications. 2.4 Windshield/wiper/glasses inspections are conducted as per manufacture's specifications. 2.5 Vehicle bumpers and grills are inspected as per manufacture's service manual.
3. Conduct under vehicle inspection	3.1 Under vehicle inspection checklist is provided according to SOPs. 3.2 Station/place automobile for under vehicle inspection is completed according to manufacturer's specifications.

	3.3 Suspension, fuel tanks, linkages, mounting, shields, silencer are inspected according to manufacturer's specifications.
4. Conduct under hood inspection	4.1 Under hood inspection checklist is provided as per SOPs. 4.2 Vehicle under hood components are identified as per the model.
5. Follow OEM instructions	5.1 Vehicle <i>maintenance schedule</i> is identified according to OEM manual. 5.2 Stripe and decal is interpreted on the vehicle according to manufacturer's service manual.
6. Change engine oil	6.1 Engine oil level is determined as per manufacturer's service manual. 6.2 Oil drainage system is located as per manufacturer's service manual. 6.3 Oil from engine is drained as per manufacturer's service manual. 6.4 Recommended quantity and quality of oil is added as per manufacturer's service manual. 6.5 Contaminated oil is disposed of per OS&H.
7. Replace oil filter	7.1 Oil filter is located as per manufacturer's service manual. 7.2 Oil filter is removed as per manufacturer's service manual. 7.3 Oil filter is fixed as per manufacturer's service manual.
8. Service/Replace air filter	8.1 Air filter is located as per manufacturer's service manual. 8.2 Air filter is removed as per manufacturer's service manual. 8.3 Service air filter for clog/dust is removed as per manufacturer's service manual. 8.4 Air filter is fixed into the vehicle as per manufacturer's service manual.
9. Maintain spark plug	9.1 Spark plug is removed as per manufacturer's service manual. 9.2 Spark plug is serviced/replaced as per manufacturer's service manual. 9.3 Spark plug is fixed for normal operation as per manufacturer's service manual.

10. Replace drive belts	<p>10.1 Drive belt is inspected for correct tension, wear and tear as per manufacturer’s service manual.</p> <p>10.2 Drive belt is removed as per manufacturer’s service manual.</p> <p>10.3 Drive belt is replaced as per manufacturer’s service manual.</p>
11. Perform lubrication	<p>11.1 <b>Lubricants</b> are selected according to OEM manual.</p> <p>11.2 Greasing/lubrication points are located according to OEM manual.</p> <p>11.3 Chassis lubrication is performed according to OEM manual.</p> <p>11.4 Body lubrication is performed according to OEM manual.</p> <p>11.5 Excess grease/lubricant is cleaned from vehicle body according to SOPs.</p>
12. Inspect and maintain fluid levels	<p>12.1 Checklist for fluid levels is provided as per SOPs.</p> <p>12.1 <b>Fluid</b> levels are determined as per manufacturer’s service manual.</p> <p>12.3 Contaminated fluids are replaced as per manufacturer’s service manual.</p> <p>12.4 Fluids are changed as per manufacturer’s service manual.</p>
13. Inspect tires and rims	<p>13.1 Checklist for tire and rim inspection is provided as per SOPs.</p> <p>13.2 Tire condition is inspected for normal operation as per auto workshop SOPs.</p> <p>13.3 Tire is removed from vehicle as per SOPs.</p> <p>13.4 Tire is inspected as per auto workshop SOPs.</p> <p>13.5 Tire is fixed on vehicle as per manufacturer’s specifications.</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.

<b>VARIABLE</b>	<b>RANGE</b>
1. Inspected may include but are not limited to:	<ul style="list-style-type: none"> <li>● Visual</li> <li>● Documentation</li> </ul>
2. Maintenance schedule may include but are not limited to:	<ul style="list-style-type: none"> <li>● Intervals</li> <li>● Routine</li> <li>● Planned</li> <li>● Preventative</li> <li>● Conditional</li> </ul>
3. Lubricants may include but are not limited to:	<ul style="list-style-type: none"> <li>● Grease</li> <li>● Oils</li> <li>● Sprays</li> </ul>
4. Fluids may include but are not limited to:	<ul style="list-style-type: none"> <li>● Transmission system fluids</li> <li>● Brake</li> <li>● Antifreeze</li> <li>● Washer</li> <li>● Power steering fluids</li> <li>● Axles</li> <li>● Transfer case</li> <li>● Engine oil</li> <li>● Fuel</li> <li>● Antirust fluids</li> </ul>

## **REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

### **Required Skills**

The individual needs to demonstrate the following skills:

- Skills on preliminary identification of workplace hazards/risks
- Critical thinking
- Troubleshooting
- Work safely to instructions
- Dispose of material safely
- Use disposal equipment and tools as required
- Communications (verbal and written)
- Listening
- Observation
- Measuring
- Multitasking

- Planning
- Time management

### Required Knowledge

The individual needs to demonstrate knowledge of:

- Use of service manuals
- Inspection techniques
- Interpretation of pictorial diagrams
- Select proper tools for the job
- Vehicle layout
- Tool safety
- Proper tightening torques
- Oil grades
- Workshop processes
- Personal safety procedures

### 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>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Conducted vehicle familiarization.</li> <li>1.2 Conducted vehicle external inspection.</li> <li>1.3 Conducted under vehicle inspection.</li> <li>1.4 Conducted under hood inspection.</li> <li>1.5 Followed OEM instructions.</li> <li>1.6 Changed engine oil.</li> <li>1.7 Replaced oil filter.</li> <li>1.8 Serviced/repaired air filter.</li> <li>1.9 Maintained spark plugs.</li> <li>1.10 Replaced drive belts.</li> <li>1.11 Performed lubrication.</li> <li>1.12 Inspected and maintained fluid levels.</li> <li>1.13 Inspected tires and rims.</li> </ul>
<p>2. Resource Implications</p>	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> <li>2.1 Comprehensive set of tools for performing vehicle preventive maintenance.</li> <li>2.2 Equipment relevant to activities or tasks including an air compressor, funnel, hydraulic jack, hoist, vehicle stand, battery</li> </ul>

	<p>tester, grease gun, jumper lead set, oil disposal container, oil tray and oil drum.</p> <p>2.3 Materials and supplies relevant to activities or tasks including grease, oil, sprays, transmission fluid, brake fluid, drive belts, washer fluid, power steering fluid, axles fluid, transfer case oil, engine oil, fuel, oil filter, air filter, spark plugs and antifreeze.</p> <p>2.4 Access to relevant workplace or appropriate simulated environment where assessment can take place.</p> <p>2.5 OEM manual</p> <p>2.6 Standard Operational Procedures</p> <p>2.7 Workshop checklists</p>
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <p>3.1 Real work observation (checklist, projects, job aids, project teams)</p> <p>3.2 Simulated work</p> <p>3.3 Written tasks (multiple choice, short answers, assignments, projects, essays, true/false)</p> <p>3.4 Oral questions (role plays, interviews, presentation by learner, discussion groups)</p>
4. Context of Assessment	<p>Competency may be assessed on the job, off the job or a combination of these or during Industrial Attachment. Off the job assessment must be undertaken in a closely simulated workplace environment.</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

## 12. INSPECT AUTOMOTIVE STEERING AND SUSPENSION SYSTEMS

**UNIT CODE: ENG/OS/AUT/CR/3/3/A**