

**MODULE MEC3150: WHEEL ALIGNMENT****Level:** Advanced**Theme:** Suspension and Structural Systems**Prerequisite:** MEC2150 Suspension Systems**Module Description:** Students develop the knowledge, skills and attitudes necessary for repairing and aligning various vehicle steering systems.**Module Parameters:** Access to wheel alignment equipment and supporting resources.**Note:** Customer work must be supervised and checked by a certified technician.**Supporting Module:** MEC2160 Steering Systems**Curriculum and Assessment Standards**

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>follow established safe work procedures</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>observed performance related to personal safety and vehicle care.</li> </ul> <p><i>Assessment Tool</i> <i>Assessment Checklist: Health and Safety, MECH&amp;S</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p>	10
<ul style="list-style-type: none"> <li>investigate and determine the condition of various components that affect wheel alignment and tracking</li> </ul>	<ul style="list-style-type: none"> <li>measured performance related to pre-alignment: <ul style="list-style-type: none"> <li>determining the condition of steering components</li> <li>determining the condition of suspension components</li> <li>applying recommended procedures and practices.</li> </ul> </li> </ul> <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Wheel Alignment, Part 1, MEC3150-1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p>	25

**MODULE MEC3150: WHEEL ALIGNMENT** (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<ul style="list-style-type: none"> <li>identify measurements and angles used to check and adjust suspension and steering systems</li> </ul>	<ul style="list-style-type: none"> <li>observed performance related to:                             <ul style="list-style-type: none"> <li>identifying and measuring angles</li> <li>identifying methods of angle adjustments</li> <li>indicating effects of incorrect angles on vehicle handling and component life.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Task Assessment Checklist: Wheel Alignment, Part 2, MEC3150-1</i>  <i>Illustrative Example: Wheel Alignment, MEC3150-2</i></p> <p><i>Standard</i>  <i>Performance rating of 3 on each criteria</i></p>	25
<ul style="list-style-type: none"> <li>use specialized alignment equipment to check and adjust alignment angles on various suspension types to manufacturers' specifications</li> </ul>	<ul style="list-style-type: none"> <li>observed performance related to:                             <ul style="list-style-type: none"> <li>information retrieval</li> <li>accurate measurements</li> <li>correct use of special tools/equipment</li> <li>correct alignment adjustments.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Task Assessment Checklist: Wheel Alignment, Part 3, MEC3150-1</i></p> <p><i>Standard</i>  <i>Performance rating of 3 on each criteria</i></p>	30
<ul style="list-style-type: none"> <li>use road test information to determine the quality of service work performed</li> </ul>	<ul style="list-style-type: none"> <li>observed performance related to:                             <ul style="list-style-type: none"> <li>assessment of the work done</li> <li>analysis of driving symptoms</li> <li>report on vehicle status to customer.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Task Assessment Checklist: Wheel Alignment, Part 4, MEC3150-1</i>  <i>Illustrative Example: Wheel Alignment, MEC3150-2</i></p> <p><i>Standard</i>  <i>Performance rating of 3 on each criteria</i></p>	10
<ul style="list-style-type: none"> <li>demonstrate basic competencies.</li> </ul>	<ul style="list-style-type: none"> <li>observations of individual effort and interpersonal interaction during the learning process.</li> </ul> <p><i>Assessment Tool</i>  <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

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Concept	Specific Learner Expectations	Notes
Health/Safety Hazards	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• demonstrate knowledge of and follow lab safety procedures.</li> </ul>	
Identification/Function	<ul style="list-style-type: none"> <li>• define and explain camber, caster, toe, steering axis inclination, toe-out on turns and tracking.</li> </ul>	
Identify/Analyze	<ul style="list-style-type: none"> <li>• solve common steering and suspension problems such as:               <ul style="list-style-type: none"> <li>– loose steering</li> <li>– hard steering</li> <li>– vehicle wander</li> <li>– pulling to one side</li> <li>– wheel shimmy</li> <li>– wheel tramp</li> <li>– improper tire wear.</li> </ul> </li> </ul>	
Inspect/Service	<ul style="list-style-type: none"> <li>• demonstrate how to:               <ul style="list-style-type: none"> <li>– check and correct tire pressures and determine reason for abnormal tire wear</li> <li>– check and adjust wheel bearings</li> <li>– check and adjust wheel/tire run out</li> <li>– check and correct tire balance</li> <li>– check and correct steering linkage problems</li> <li>– check and adjust steering gear</li> <li>– check and correct shock absorber problems</li> <li>– check and correct riding height</li> <li>– check vehicle tracking</li> <li>– check alignment angles for a given vehicle using the appropriate alignment equipment</li> <li>– adjust alignment angles to manufacturer’s specifications on at least two different suspension types</li> </ul> </li> </ul>	
Careers	<ul style="list-style-type: none"> <li>• identify further education and work opportunities related to wheel alignment.</li> </ul>	