

MODULE MEC2160: STEERING SYSTEMS

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: MEC1150 Ride & Control Systems

Module Description: Students develop the knowledge, skills and attitudes necessary to maintain a steering system.

Module Parameters: Access to steering systems, specialized steering tools and related resources.
Note: Customer work must be checked by certified technician.

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"> • demonstrate safe work practices when working on steering systems • identify different steering system designs and applications 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • observed performance related to: <ul style="list-style-type: none"> – safe use of equipment, tools and supplies – use of personal protective equipment – use of safety devices to protect vehicles against damage. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Steering Systems, Part 1, MEC2160–1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p> <ul style="list-style-type: none"> • observed performance related to: <ul style="list-style-type: none"> – identifying three or more common steering designs and applications – listing the advantages and limitations of steering designs – knowledge of the evolution of steering designs – identifying steering components and their function. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Steering Systems, Part 2, MEC2160–1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p>	<p style="text-align: center;">10</p> <p style="text-align: center;">15</p>

MODULE MEC2160: STEERING SYSTEMS (continued)

Concept	Specific Learner Expectations	Notes
Health/Safety Hazards	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate knowledge of and follow lab safety procedures when working on steering systems, and explain the importance of proper adjustments and torques. 	<p>Never apply heat to steering components or reuse damaged parts.</p>
Identification/Function	<ul style="list-style-type: none"> • identify common types of steering gear used to create the necessary mechanical advantages to overcome tire resistance; e.g.: <ul style="list-style-type: none"> – worn and sector – Ross cam and lever – recirculating ball – rack and pinion • identify and compare the operation of two or more steering boxes • describe the steering linkage used with rack and pinion and recirculating ball type systems • describe the construction of a tie rod assembly and explain how it is built to accommodate up and down as well as lateral movement • explain the operation of four-wheel steering and outline the advantages of this type of steering over a conventional two-wheel system. 	
Inspect/Service	<ul style="list-style-type: none"> • show how to: <ul style="list-style-type: none"> – complete a work order form – check and adjust power steering fluid level – check the lubricant level in a manual steering gear and add the appropriate lubricant if necessary – lubricate steering parts – clean and inspect steering linkage for wear and replace if necessary – inspect steering joints, bushings and replace if necessary – adjust a manual steering gear – inspect and service rack and pinion steering gear – inspect and service power steering components. 	<p>On road-licenced vehicles must have final inspection done by certified personnel.</p>

MODULE MEC2160: STEERING SYSTEMS (continued)

Concept	Specific Learner Expectations	Notes
Consumer Awareness	<i>The student should:</i> <ul style="list-style-type: none">• list symptoms of worn or defective components• list factors that create premature steering failures.	
Careers	<ul style="list-style-type: none">• identify further education, working conditions and career opportunities.	