MODULE MEC3170: DAMAGE ANALYSIS

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC2170 Metal Repair & Finishing

Module Description: Students identify and examine physical damage caused by collisions, and learn cost estimating procedures.

Module Parameters: Access to damaged vehicle, measuring gauges and related resources.

Supporting Modules: 2150 Suspension Systems
2160 Steering Systems

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• demonstrate established safe work procedures	• observed performance related to: – safe positioning of vehicle jacks and jack stands – following shop routines in removal of parts. *Assessment Tool* *Task Assessment Checklist: Damage Analysis, Part 1, MEC3170–1* *Standard* *Performance rating of 3 on each criteria*	10
• identify types and signs of collision damage	• presentation of a report describing: – vehicle construction and safety features preventing collision damage – frame types and related damage – signs of secondary and hidden damage – methods used to determine damage. *Assessment Tool* *Task Assessment Checklist: Damage Analysis, Part 2, MEC3170–1* *Standard* *Performance rating of 3 on each criteria*	15

MODULE MEC3170: DAMAGE ANALYSIS (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• examine and use measurements to determine extent of vehicle damage	• calculate measurements to show: – direction and extent of damage – possible suspension problems through direct and indirect damage to a vehicle. *Assessment Tool* *Task Assessment Checklist: Damage Analysis, Part 3, MEC3170–1* *Standard* *Performance rating of 3 on each criteria*	30
• prepare a repair strategy for a given vehicle	• demonstration of: – problem-solving ability in determining cost of repair – knowledge of vehicle value versus repair costs – industry standards of repair including parts, labour and shop cost estimates. *Assessment Tool* *Task Assessment Checklist: Damage Analysis, Part 4, MEC3170–1* *Standard* *Performance rating of 3 on each criteria*	45
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tool* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Health/Safety Hazards	*The student should:* • demonstrate knowledge of and follow established lab procedures.	

Concept	Specific Learner Expectations	Notes
Identification/ Function	*The student should:* • describe manufacturer's methods used in vehicle construction and define the terms used to identify vehicle body parts • describe methods used in vehicle construction to control damage through energy transfer and differences in structural strength • identify the specific occupant safety features built into the vehicle as required by law or provided as a vehicle option.	
Inspect/Report	• demonstrate basic principles of estimating damage repair and apply to a specific situation • estimate repair or replacement of safety equipment damaged in a collision • identify the basic frame structures used in auto construction, and describe the measurement charts used to determine misalignment • calculate frame alignment measurements to determine extent of misalignment and explain the results of the measurements • use frame gauges and charts • analyze measurements and determine repair procedure • explain the value of using used, after market or OEM parts in any given repair • complete a damage analysis for a given vehicle • prepare strategy plan showing correct repair sequence.	ABS, air bag, suspension and personal restraint systems.
Careers	• identify further education and work opportunities related to structural damage analysis.	