

MODULE MEC1170: METAL FORMING & FINISHING

Level: Introductory
Theme: Suspension and Structural System
Prerequisite: MEC1160 Structures & Materials
Module Description: Students repair and re-form damaged metal panels.

Module Parameters: Access to oxy-fuel welding equipment, basic autobody hand/power tools, basic metal refinishing material and resources.

Supporting Module: FAB1040 Oxyacetylene Welding

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 metal forming and finishing, and follow established lab procedures • describe effects of physical damage caused by distortion and corrosion on sheet metal components 	<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"> – following established lab/shop procedures – safe use of tools/equipment related to metal forming and finishing – recognizing and following personal protective procedures. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Metal Forming & Finishing, Part 1, MEC1170–1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p> <ul style="list-style-type: none"> • report indicating effects of physical damage and corrosion on ferrous sheet metal including: <ul style="list-style-type: none"> – stretching – work hardening of sheet metal – weakening of components through corrosion. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Metal Forming & Finishing, Part 2, MEC1170–1</i></p> <p><i>Standard</i> <i>Performance rating of 1 or more on each criteria</i></p>	<p>10</p> <p>20</p>

MODULE MEC1170: METAL FORMING & FINISHING (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> apply metal forming and finishing skills to repair minor panel damage demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observed performance in correcting: <ul style="list-style-type: none"> minor dent and/or forming a crown in a panel small rust out in a panel using welding procedures. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Metal Forming & Finishing, Part 3, MEC1170-1</i> <i>Illustrative Example: Metal Forming & Finishing, MEC1170-2</i></p> <p><i>Standard</i> <i>Performance rating of 1 or more on each criteria</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal exploration during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>70</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Health/Safety Hazards	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate safe practices in relation to: <ul style="list-style-type: none"> personal protective equipment/clothes use of impact tools, drills, grinders, cutters, sheet metal brake and shear safe use of oxyacetylene and GMAW welding equipment hazards of body fillers. 	
Identify/Analyze	<ul style="list-style-type: none"> identify properties of: <ul style="list-style-type: none"> low carbon steels high strength steels list tools and equipment available to shape and finish sheet metal identify the process required for specific types of metal shaping. 	<p>Types of steel; work hardening; affects of impact forces.</p> <p>Stretching, shrinking.</p>

MODULE MEC1170: METAL FORMING & FINISHING (continued)

Concept	Specific Learner Expectations	Notes
Identify/Analyze (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify processes for metal working and repairing small dents using: <ul style="list-style-type: none"> – pry bar – pulling tools – hammering techniques • describe possible methods of small rust out repair • describe the best method of small rust out repair • identify various plastic filler materials available • describe the suitable type of plastic fillers to be used • complete a small rust out repair. 	<p>Have student distort and reshape a mild steel panel.</p> <p>Demonstrate paintless dent-repair procedures.</p> <p>Use fibreglass, welded patches.</p>
Inspect/Repair	<ul style="list-style-type: none"> • demonstrate how to: <ul style="list-style-type: none"> – hammer and dolly metal panel to smooth contour – pick, file and grind panel to desired finish – prepare the surface for filler application – apply plastic fillers and refinish. 	<p>Demonstrate use of fibreglass, aluminum, light/premium, polyester fillers.</p>
Careers	<ul style="list-style-type: none"> • research further education, working conditions and career opportunities. 	