

MODULE MEC3130: AUTOMATIC TRANSMISSIONS

Level: Advanced

Theme: Guidance and Control Systems

Prerequisite: MEC1110 Pneumatics & Hydraulics

Module Description: Students develop knowledge of automatic transmissions and transaxles, and skills in diagnosing and executing minor automatic transmission and transaxle repair requirements.

Module Parameters: Access to automatic transmission diagnostic tools, support resources.
Note: Customer work must be supervised and checked by certified technician.

Supporting Module: MEC2140 Transmissions/Transaxles

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 established safety and care procedures when working with automatic transmissions and transaxles • identify the parts of a torque converter and automatic transmission or transaxle, and determine the path of power and the shifting control operation in each gear setting 	<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"> – personal safety procedures – safety and care when working with equipment, tools and materials – following safety procedures specific to automatic transmissions and transaxles – clean-up and workstation organization. <p><i>Assessment Tool</i> <i>Assessment Checklist: Health and Safety, MECH&S</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p> <ul style="list-style-type: none"> • observed performance related to correct: <ul style="list-style-type: none"> – description of parts – identification of the power flow – explanation of shift controls. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Automatic Transmissions, Part 1, MEC3130–1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p>	<p>15</p> <p>20</p>

MODULE MEC3130: AUTOMATIC TRANSMISSIONS (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> inspect, diagnose, service and complete a minor repair to an automatic transmission and transaxle assembly demonstrate basic competencies. 	<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"> procedures followed during inspection, diagnosis, service and repair to automatic transmissions and transaxles analysis of conditions that caused wear/malfunctions to automatic transmissions and/or transaxles. <p><i>Assessment Tool</i> <i>Assessment Checklist: Automatic Transmissions, Part 2, MEC3130–1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>65</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 knowledge of and follow established lab procedures. 	
Identification/Function	<ul style="list-style-type: none"> describe the operation of a torque converter compare the internal structure of a lock-up converter and non-lock-up converter identify the parts of a transmission assembly by naming pieces on a diagram or parts of a disassembled unit using a hydraulic flow diagram, explain the unit engaged and shift process for each gear position 	

MODULE MEC3130: AUTOMATIC TRANSMISSIONS (continued)

Concept	Specific Learner Expectations	Notes
Identification/ Function (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • interpret shifting characteristics resulting from differentiated inputs; e.g., high road speed, pulling heavy loads, throttle valve position. 	
Inspect/Service	<ul style="list-style-type: none"> • use service manuals and road test to determine probable causes of noted conditions • complete diagnostic procedures developed from service inquiry, which may include linkage adjustments, pressure testing and further road testing as well as partial disassembly of the transmission • perform a stall test according to manufacturer's specifications • list parts for required repairs • inspect transmission/transaxle oil level and develop an assessment of its odor and colour • change transmission fluid and filter as described in the appropriate service manual • check unit for oil leakage and determine a cause for loss of oil • repair a fluid leak • evaluate the condition and adjustment of linkage • locate and correct a transmission linkage or band adjustment where required • remove, clean and reinstall a transmission valve body assembly. 	<p>For example, oil pan and/or valve body removal.</p> <p>Cost estimate including labour may be done.</p>
Inspect/Repair	<ul style="list-style-type: none"> • remove and repair or replace an automatic transmission assembly. 	<p>May require Career Transitions module to replace/repair a transmission on a customer vehicle.</p>
Careers	<ul style="list-style-type: none"> • identify further education and work opportunities related to automatic transmissions. 	