

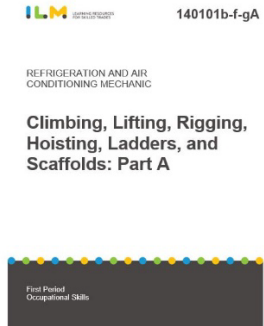
Refrigeration and Air Conditioning Mechanic Publishing Release Notes 2022-23

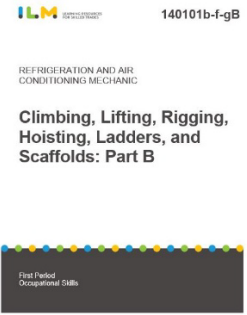
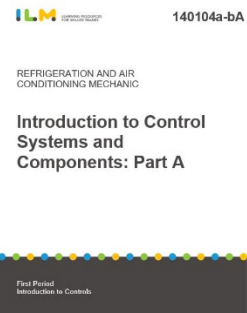
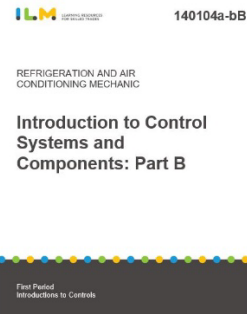


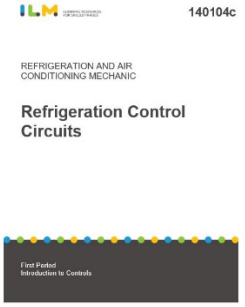
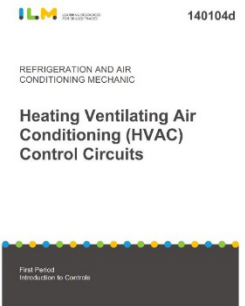
In 2022, ILM and the Alberta Refrigeration programs implemented a pilot project titled ModuleWorks, where a selection of six (6) modules were elected for a full revision update. The primary objective of the project was to reduce the large volume of duplication that existed in the first period, section one modules, as well as update and revise the control modules in section four. To best accommodate this change, AIT objectives have been reconfigured and arranged to improve delivery and flow, as well as reduce duplication. In collaboration with instructors, the development has been successfully completed and content is validated. For more details on the content and objective arrangements, please refer to the tables below.

Discontinued Module Number, Version and Title:	New Module Number, Version and Title:
140101b24 - Climbing, Lifting, Rigging and Hoisting	140101b-f-gA25 - Climbing, Lifting, Rigging and Hoisting, Ladders and Scaffolds: Part A
140101f24 - Ladders, Scaffolds and Lifts	140101b-f-gB25 - Climbing, Lifting, Rigging and Hoisting, Ladders and Scaffolds: Part B
140101g24 - Rigging and Hoisting Equipment	
140104a24 - Introduction to Control Systems	140104a-bA25 - Introduction to Control Systems and Components: Part A
140104b24 - Control Components	140104a-bB25 - Introduction to Control systems and Components: Part B

Content notes for the six (6) redeveloped modules:

Product Cover	Topics/Objectives	Content Summary										
 <p>140101b-f-gA</p> <p>REFRIGERATION AND AIR CONDITIONING MECHANIC</p> <p>Climbing, Lifting, Rigging, Hoisting, Ladders, and Scaffolds: Part A</p> <p>First Period Occupational Skills</p>	<table border="1"> <thead> <tr> <th style="background-color: #ccc;">Booklet Topic Sections</th> <th style="background-color: #ccc;">AIT Objectives</th> </tr> </thead> <tbody> <tr> <td>Personal Protective Equipment</td> <td>B5, B6</td> </tr> <tr> <td>Manual Lifting Procedures</td> <td>B1</td> </tr> <tr> <td>Ladders, Scaffolds and Lifts</td> <td>F1, F2, F3</td> </tr> <tr> <td>Ropes, Knots and Hitches</td> <td>G1, G2, G3, G7</td> </tr> </tbody> </table>	Booklet Topic Sections	AIT Objectives	Personal Protective Equipment	B5, B6	Manual Lifting Procedures	B1	Ladders, Scaffolds and Lifts	F1, F2, F3	Ropes, Knots and Hitches	G1, G2, G3, G7	<p>This booklet provides instructions for the safe use of personal protective equipment, specifically harnesses, when climbing, lifting, rigging, and hoisting. It emphasizes the importance of proper body mechanics, such as bending knees and keeping the back straight while lifting, and highlights the need for employers to ensure that fall protection systems are certified, compatible, and inspected regularly. The document also highlights the prevalence of back injuries in the workplace and the use of specialized equipment for lifting heavy objects.</p>
Booklet Topic Sections	AIT Objectives											
Personal Protective Equipment	B5, B6											
Manual Lifting Procedures	B1											
Ladders, Scaffolds and Lifts	F1, F2, F3											
Ropes, Knots and Hitches	G1, G2, G3, G7											

Product Cover	Topics/Objectives	Content Summary												
 <p>140101b-f-gB</p> <p>REFRIGERATION AND AIR CONDITIONING MECHANIC</p> <p>Climbing, Lifting, Rigging, Hoisting, Ladders, and Scaffolds: Part B</p> <p>First Period Occupational Skills</p>	<table border="1"> <thead> <tr> <th data-bbox="512 324 842 383">Booklet Topic Sections</th> <th data-bbox="850 324 1031 383">AIT Objectives</th> </tr> </thead> <tbody> <tr> <td data-bbox="512 389 842 448">Hoisting and Rigging</td> <td data-bbox="850 389 1031 448">G4, G5, B2, B3,</td> </tr> <tr> <td data-bbox="512 454 842 513">Load Moving and Hand Signals</td> <td data-bbox="850 454 1031 513">B4, G6</td> </tr> </tbody> </table>	Booklet Topic Sections	AIT Objectives	Hoisting and Rigging	G4, G5, B2, B3,	Load Moving and Hand Signals	B4, G6	<p>This booklet provides information on hoisting and rigging equipment, specifically focusing on electric chain hoists, spur-gear chain hoists, lever hoists, cherry pickers, boom trucks, and jacks. It emphasizes the importance of using proper equipment and following safety procedures when lifting and moving heavy loads. The content also mentions the need for certification and training for operators of boom trucks. Overall, it provides an overview of different types of hoisting equipment and their uses in various scenarios.</p>						
Booklet Topic Sections	AIT Objectives													
Hoisting and Rigging	G4, G5, B2, B3,													
Load Moving and Hand Signals	B4, G6													
 <p>140104a-bA</p> <p>REFRIGERATION AND AIR CONDITIONING MECHANIC</p> <p>Introduction to Control Systems and Components: Part A</p> <p>First Period Introduction to Controls</p>	<table border="1"> <thead> <tr> <th data-bbox="495 623 842 682">Booklet Topic Sections</th> <th data-bbox="850 623 1031 682">AIT Objectives</th> </tr> </thead> <tbody> <tr> <td data-bbox="495 688 842 747">Fundamentals of Control Systems</td> <td data-bbox="850 688 1031 747">A2, A3</td> </tr> <tr> <td data-bbox="495 753 842 812">Control Systems Terminology</td> <td data-bbox="850 753 1031 812">A1</td> </tr> <tr> <td data-bbox="495 818 842 876">Electrical Diagrams</td> <td data-bbox="850 818 1031 876">A4</td> </tr> <tr> <td data-bbox="495 883 842 941">Control Systems Components</td> <td data-bbox="850 883 1031 941">B1</td> </tr> <tr> <td data-bbox="495 948 842 1006">Application of Control Components</td> <td data-bbox="850 948 1031 1006">B3</td> </tr> </tbody> </table>	Booklet Topic Sections	AIT Objectives	Fundamentals of Control Systems	A2, A3	Control Systems Terminology	A1	Electrical Diagrams	A4	Control Systems Components	B1	Application of Control Components	B3	<p>This booklet discusses different types of control systems used in the HVAC/R industry, including closed-loop, electromechanical, electronic, and hybrid systems. It emphasizes the use of digital control and electronic systems due to their cost-effectiveness and advanced technology. The content discusses open-loop control systems, which do not have feedback, and provides information on the components and operation of control systems. It emphasizes the importance of understanding and properly maintaining heating and cooling control systems. The booklet provides a brief overview of electronic control systems and pneumatic control systems, highlighting their advantages and applications.</p>
Booklet Topic Sections	AIT Objectives													
Fundamentals of Control Systems	A2, A3													
Control Systems Terminology	A1													
Electrical Diagrams	A4													
Control Systems Components	B1													
Application of Control Components	B3													
 <p>140104a-bB</p> <p>REFRIGERATION AND AIR CONDITIONING MECHANIC</p> <p>Introduction to Control Systems and Components: Part B</p> <p>First Period Introduction to Controls</p>	<table border="1"> <thead> <tr> <th data-bbox="487 1101 821 1159">Booklet Topic Sections</th> <th data-bbox="829 1101 1056 1159">AIT Objectives</th> </tr> </thead> <tbody> <tr> <td data-bbox="487 1166 821 1224">Construction and Operation of Control Components</td> <td data-bbox="829 1166 1056 1224">B2, B4,</td> </tr> </tbody> </table>	Booklet Topic Sections	AIT Objectives	Construction and Operation of Control Components	B2, B4,	<p>This booklet provides information on the construction and operation of control components in heating and cooling systems. It discusses the different types of sensors, including temperature sensors, pressure sensors, humidity sensors, and flow sensors, as well as the different types of controllers used in control systems. The content also emphasizes the importance of understanding how to install and maintain control systems to ensure client comfort, increase process efficiency, and preserve product integrity. It further highlights the different types of temperature controls and thermostats used in refrigeration and air conditioning systems.</p>								
Booklet Topic Sections	AIT Objectives													
Construction and Operation of Control Components	B2, B4,													

Product Cover	Topics/Objectives	Content Summary
 <p>140104c</p> <p>REFRIGERATION AND AIR CONDITIONING MECHANIC</p> <p>Refrigeration Control Circuits</p> <p>First Period Introduction to Controls</p>	<ol style="list-style-type: none"> 1. Describe components used in control circuits for refrigeration systems. 2. Describe the differences between medium and low-temperature control circuits. 3. Describe the components and operation of a medium-temperature control circuit. 4. Describe the components and operation of a low-temperature control circuit. 	<p>This module provides information on refrigeration control circuits and components. It explains the principles behind how these components interact, such as thermostats, pressure controls, relays and contactors, timers, solenoid valves, and heaters. It discusses the differences between electromechanical and electronic control systems and introduces the concept of medium and low-temperature control circuits. The document emphasizes the importance of maintaining proper temperatures in refrigeration systems to prevent frost formation and mechanical failure. Overall, it aims to provide a comprehensive understanding of refrigeration control systems for service, repair, and installation purposes.</p>
 <p>140104d</p> <p>REFRIGERATION AND AIR CONDITIONING MECHANIC</p> <p>Heating Ventilating Air Conditioning (HVAC) Control Circuits</p> <p>First Period Introduction to Controls</p>	<ol style="list-style-type: none"> 1. Describe components used in HVAC control circuits. 2. Describe the construction of HVAC control system components. 3. Describe the application of control components for HVAC systems. 4. Describe the operation of HVAC control system components. 5. Connect and verify the operation of a HVAC control system. 	<p>This module provides information on HVAC control circuits and their components. It emphasizes the importance of understanding these circuits and their interaction with HVAC systems. The document mentions various components used in HVAC control circuits, such as thermostats and low ambient limit thermostats, and explains their functions. It also discusses the operation of HVAC control system components and the benefits of using control circuits in terms of energy savings and efficiency.</p>

QA Maintenance and Other ILM Product Updates

In addition to the changes in ModuleWorks, Maintenance comments were resolved in 2022.

For more information on the ILM Comments and QA Maintenance process, please visit our website:

- ILM Maintenance : <https://www.ilmlearning.ca/ilm-maintenance>
- Comments: <https://www.ilmlearning.ca/comments>

***All-Trades Product Update:** Due to changes resulting from the new [Skilled Trades and Apprenticeship Education Act](#), the content within **Alberta's Industry Network** and **Apprenticeship Training Program** modules are no longer valid. When the provincial apprenticeship system changes are final, these products will be updated accordingly. Until then, they are not available to order.

The table below lists all new modules impacted by QA maintenance edits, the above all-trades modules discontinuation and moduleworks into one summary.

1 st Period					
	Booklet Number	Module Title	Change Notes	Category	Version
1	140101k	Pipe Working Skills, Soldering and Brazing	-	QA Maintenance	25
2	140102a	Refrigeration Principles	-	QA Maintenance	25
3	140102b	Vapour Compression Cycle	-	QA Maintenance	25
4	140102c	Introduction to Refrigeration Enthalpy and Gas Laws	-	QA Maintenance	25
5	140102d	Air Properties and Air Flow Designs	-	QA Maintenance	25
6	140102e	Air Handling Systems and Accessories	-	QA Maintenance	25
7	140102i	Refrigerant and Oil Handling	-	QA Maintenance	25
8	140102k	Properties of Gas and Principles of Combustion	-	QA Maintenance	25
9	140103a	Introduction to Electrical, Safety Connections and Meters	-	QA Maintenance	25
10	140101d	Apprenticeship Training Program	Content no longer accurate.	Discontinued	24
2 nd Period					
11	140201a	Evaporator Feed Controls and Refrigeration Effect	-	QA Maintenance	25
12	140201b	Automatic Flow Controls and Applications	-	QA Maintenance	25
13	140201e	Evaporators and Condensers	-	QA Maintenance	25
14	140201h	System Calculation and Analysis	-	QA Maintenance	25
15	140204b	Single Phase Motors	-	QA Maintenance	25
3 rd Period					
16	140303d	Diagrams	-	QA Maintenance	25

4 th Period					
17	140403f	Alberta's Industry Network	Content no longer accurate.	Discontinued	24
AIT (65) All Trades Discontinued Modules					
1	*650101d	Apprenticeship Training Program	Content no longer accurate.	Discontinued	24
2	*650401a	Alberta's Industry Network	Content no longer accurate.	Discontinued	24
ModuleWorks Summary					
1	140101b-f-gA	Climbing, Lifting, igging, Hoisting, Ladders and Scaffolds: Part A	New content flow and configuration, content updated and validated.	ModuleWorks	25
2	140101b-f-gB	Climbing, Lifting, igging, Hoisting, Ladders and Scaffolds: Part B	New content flow and configuration, content updated and validated.	ModuleWorks	25
3	140104a-bA	Introduction to Control Systems and Components: Part A	New content flow and configuration, content updated and validated.	ModuleWorks	25
4	140104a-bB	Introduction to Control Systems and Components: Part B	New content flow and configuration, content updated and validated.	ModuleWorks	25
5	140104c	Refrigeration Control Circuits	Content updated and validated.	ModuleWorks	25
6	140104d	Heating Ventilating Air Conditioning (HVAC) Control Circuits	Content updated and validated.	ModuleWorks	25