



**ONTARIO COLLEGE OF TRADES**  

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**ORDRE DES MÉTIERS DE L'ONTARIO**

Apprenticeship  
Training Standard  
Log Book

**Truck and Coach  
Technician**

310T

## What Is This About?

The Apprenticeship Training Standard Log Book identifies all the skills associated with your trade in Ontario. It is written in statements that describe how you, the apprentice, must perform each skill in order to be considered competent in that skill.

## Training As An Apprentice

- ✔ Notify Ministry of Training, Colleges and Universities (MTCU) staff **immediately** of any changes to contact information or training agreement, especially if you change sponsors.
- ✔ Review the Log Book regularly with your trainer and sponsor to track your progress.
- ✔ Keep an accurate record of the hours you work.
- ✔ Attend classroom training when it is offered.
- ✔ Apply for the financial incentives for which you are eligible.
- ✔ Pay your annual membership fee to the Ontario College of Trades and keep your membership in good standing.



## Completing Your Log Book

There are two types of signatures required in your Log Book:

### Skill Confirmation

**You and your trainer** sign off each required skill to confirm that you have demonstrated competency in that skill.

### Skill Set Confirmation

After you and your trainer have signed off all the required skills in a skill set, **your sponsor** signs the signature box at the end of each skill set to confirm your competency in the skill set.

Shaded boxes in your Log Book mean the skills are optional and do not have to be confirmed by your trainer or sponsor. However, you are encouraged to complete them as part of your training.

## Changing Sponsors

- ✔ Contact the Ministry of Training, Colleges and Universities immediately if you change sponsors as you will need to sign a new Registered Training Agreement.
- ✔ Record your original Sponsor's information in Sponsor Record #1 (the sponsor who has signed your initial Registered Training Agreement).



**This document is the property of the apprentice named inside and represents the official record of your training. For information about completing your apprenticeship, see inside of back cover.**



Apprentice Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

Trade: \_\_\_\_\_

**Ministry of Training, Colleges and Universities Registered Training Agreement #:**

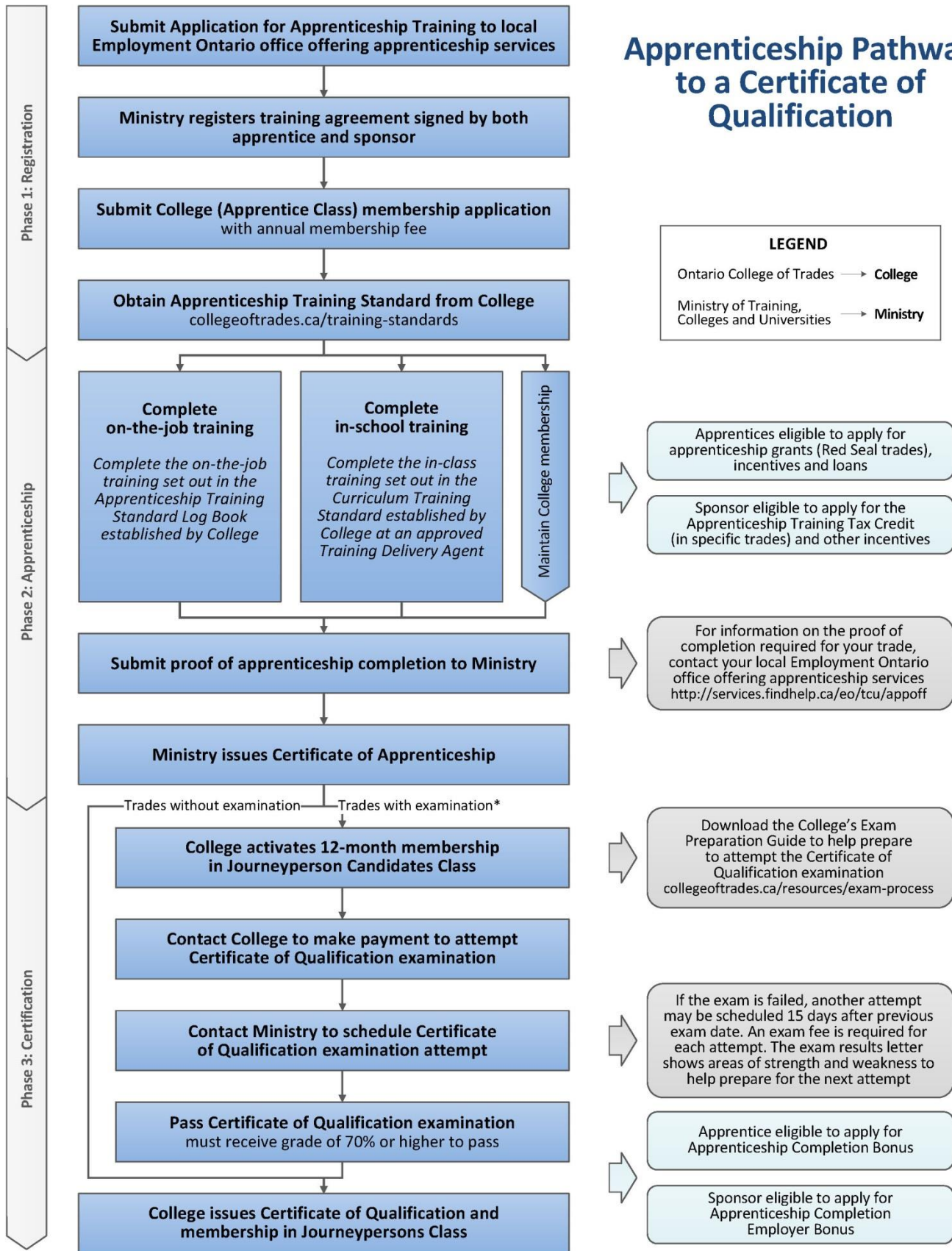
**OCOT Membership #:**

**This document is the property of the Apprentice named herein and represents the official record of their training.**

**If you have questions about the use of this Training Standard Log Book or about your Apprenticeship program, contact your Apprenticeship office (see Appendix D in this book) or the Employment Ontario hotline at: 1-800-387-5656.**

**You must become a member of the College of Trades Apprentices Class and maintain your membership in good standing while you complete your training. For more information on membership, please visit the College of Trades website at: [collegeoftrades.ca](http://collegeoftrades.ca)**

# Apprenticeship Pathway to a Certificate of Qualification



\* For a list of trades subject to a certification examination, visit: [collegeoftrades.ca/resources/exam-process](http://collegeoftrades.ca/resources/exam-process)

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Ministry of Training, Colleges and Universities Apprentice’s Appendices

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- Skill Set Completion for Sponsors ..... (Appendix C)
- Ministry of Training, Colleges and Universities Apprenticeship Offices .. (Appendix D)

Any updates to this publication are available on-line; to download this document in PDF format, please follow the link: [collegeoftrades.ca](http://collegeoftrades.ca).

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*Maintained with transfer to Ontario College of Trades (V300)*

**TERMS AND CONDITIONS AS PER REGISTERED TRAINING AGREEMENT**

**The Apprentice agrees:**

- to inform the Ministry of Training, Colleges and Universities of any change to their contact information or change in sponsor within 7 days;
- to follow the Sponsor’s and Trainer’s lawful instructions and make every effort to acquire the skills identified in the Apprentice Training Standard Log Book (Log Book) for the Trade which is part of the apprenticeship program established by the Ontario College of Trades for the trade;
- to obtain written verification from the Sponsor and the Trainer(s) that the requirements in the Log Book for the trade have been met.

**The Sponsor agrees:**

- to ensure that the Apprentice is provided with the training required as part of the apprenticeship program established by the College of Trades for this trade;
- to ensure that the Trainer(s) verifies, in writing, when each skill identified in the Log Book for the trade has been successfully completed by the Apprentice;
- to review the progress of training with the Apprentice, and with the Trainer(s) where the Sponsor and the Trainer are not the same party.

RESOURCE	LINK
Red Seal Program	<a href="http://red-seal.ca">red-seal.ca</a>
Ministry of Training, Colleges and Universities	<a href="http://tcu.gov.on.ca">tcu.gov.on.ca</a>
Employment Ontario	<a href="http://tcu.gov.on.ca/eng/employmentontario.ca">tcu.gov.on.ca/eng/employmentontario.ca</a>
Service Canada	<a href="http://servicecanada.gc.ca">servicecanada.gc.ca</a>
Ontario College of Trades and Apprenticeship Act, 2009	<a href="#"><i>Ontario College of Trades and Apprenticeship Act, 2009</i></a>
Ontario Ministry of Labour – Health and Safety Partners	<a href="http://labour.gov.on.ca">labour.gov.on.ca</a>
College of Trades Appointments Council	<a href="http://cot-appointments.ca">cot-appointments.ca</a>
Ontario Skills Passport (Essential Skills)	<a href="http://skills.edu.gov.on.ca">skills.edu.gov.on.ca</a>
Exam Preparation Guide	<a href="http://collegeoftrades.ca">collegeoftrades.ca</a>

## INTRODUCTION TO THE LOG BOOK

On April 8th, 2013, the Ontario College of Trades (College) became responsible for the development and maintenance of Log Books in the Province of Ontario.

Please refer to the College of Trades website for the most accurate and up-to-date information: [collegeoftrades.ca](http://collegeoftrades.ca)

This Log Book is intended to be used by the Apprentice and Sponsor as an official record of training. The completion of this document is necessary to complete your apprenticeship and receive your Certification of Apprenticeship.

The Log Book identifies skills required for this trade and its related training program. It has been written in statements which describe how you, the Apprentice, must perform each skill in order to become competent in your trade.

The Trainer and Apprentice are required to sign-off and date each skill after the Apprentice has proven competence in these skills. However, if a skill is shaded, it is optional and does not need to be signed off.

This on-the-job Log Book is a document issued to Apprentices who sign a Registered Training Agreement in the Province of Ontario. It is designed to record an Apprentice's acquired skills and time worked for the trade to which they are registered. This Log Book is developed by the Ontario College of Trades and used by the Ministry of Training, Colleges and Universities.

This Apprenticeship Log Book for Truck and Coach Technician was developed in consultation with representatives from industry and may include members from a related Trade Board/Working Committees.

The information presented in this standard is, to the best of our knowledge, current at time of printing and is intended for general application.



## ROLES AND RESPONSIBILITIES

### Ontario College of Trades

Under the [Ontario College of Trades and Apprenticeship Act, 2009 \(OCTAA\)](#), the College of Trades is responsible for:

- Establishing and maintaining qualifications for membership;
- Issuing Certificates of Qualification and Statements of Membership;
- Maintaining a [Public Register](#) of members;
- Receiving and investigating complaints, and determining disciplinary action;
- Establishing Apprenticeship Programs, Training Standards and Scopes of Practice for each trade;
- Conducting Trade Equivalency Assessments;
- Determining Journeyperson-to-Apprentice ratios;
- Addressing compliance with legislation (OCTAA) and regulations; and,
- Promoting the skilled trades and conducting research.

For any matters related to your membership in the Apprentices class, you must contact the College of Trades directly at: (647) 847-3000 or toll free at: 1(855) 299-0028.

### Ministry of Training, Colleges and Universities

Is responsible for:

- Registering Training Agreements;
- Approving which persons may provide apprenticeship training;
- Approving Training Delivery Agents;
- Issuing Certificates of Apprenticeship;
- Administering Certificate of Qualification examinations;
- Promoting skilled trades and apprenticeship;
- Conducting policy development, evaluation and research; and,
- Passing regulations.

For any matter related to your Registered Training Agreement or completing your apprenticeship, you must contact your Local Apprenticeship Office at the Ministry of Training, Colleges and Universities.

## Roles and Responsibilities of the Apprentice

An Apprentice is an individual who has entered into an Registered Training Agreement with a Sponsor to receive training in a trade as part of an apprenticeship program established by the College of Trades.

As an Apprentice, you have certain roles and responsibilities to follow throughout your apprenticeship training:

Steps:

1. You must become a member of the College of Trades Apprentices Class and maintain your membership in good standing while you complete your training. For more information on membership, please visit the College of Trades website at: [collegeoftrades.ca](http://collegeoftrades.ca)
2. As an Apprentice, you are responsible for completing skills or skill sets in this Log Book and ensuring that they are dated and signed by both you and your Trainer.
3. You must also ensure your Skill Set Completion Form is completed and signed by your current Sponsor once you have demonstrated competence in all the mandatory skills in this Log Book. Once this is done, we recommend you submit the Log Book to your local Ministry of Training, Colleges and Universities office.
4. You are responsible for informing the staff at your local Ministry of Training, Colleges and Universities office regarding changes to the following:
  - Your Sponsor's address;
  - Your name and address; and/or,
  - Your Sponsor, including starting employment with a new Sponsor.
5. You must present the Apprentice Completion Form (Please refer to Appendix B), once all unshaded skills and skill sets have been completed within this document, along with your authorized Log Book to your local Ministry of Training, Colleges and Universities office.

## **Roles and Responsibilities of Sponsors and Trainers**

Log Books identify the on-the-job skills required for a trade and its related training program.

This Log Book has been written in concise statements which describe how well an Apprentice must perform each skill in order to become competent. Competence means being able to perform to the required standard.

By using this Log Book, Trainers will be able to ensure that the Apprentice is developing skills detailed for the trade.

Trainers and Apprentices are required to sign-off and date the skills following each successful acquisition.

The detailed content listed for each skill is not intended to represent an inclusive list; rather, it is included to illustrate the intended direction for the skill acquisition.

The Trainer must provide their signature based on their assessment and professional judgment that the apprentice is competent in the skills described above. The Trainer's signature is not a general warranty or guarantee of the apprentice's future conduct.

Sponsors participating in this training program will be designated as the Signing Authority and are required to attest to successful achievement by signing the appropriate box included at the end of each skill set.

## **SAFETY**

Safe working procedures and conditions, accident prevention and the preservation of health are of primary importance for apprenticeship programs in Ontario. These responsibilities are shared and require the joint efforts of government, sponsors, employers, employees and the public. Therefore, it is imperative that all parties become aware of circumstances that may lead to injury or harm. Safe learning experiences and environments can be created by controlling the variables and behaviours that may contribute to or cause an accident or injury.

It is generally recognized that a safe attitude contributes to an accident free environment. Everyone will benefit as a result of a healthy attitude towards prevention of accidents.

A tradesperson is possibly exposed to more hazards than any other person in the work force and, therefore, should be familiar with and apply Occupational Health and Safety Act and Regulations dealing with personal safety and the personal safety rules applying to each task.

### **Legal and Administrative Aspects of Safety:**

Accident prevention and the provisions of safe working conditions are the responsibilities of an employer and employee.

### **Employer's Responsibilities - The employer is responsible for:**

- Providing and maintaining safety equipment and protective devices;
- Ensuring proper safe work clothing is worn;
- Enforcing safe working procedures;
- Providing safeguards for machinery, equipment and tools;
- Observing all accident prevention regulations; and,
- Training employees in the safe use and operation of equipment.

### **Employee's Responsibilities - The employee is responsible for:**

- Working in accordance with the safety regulations pertaining to the job environment;
- Working in such a way as not to endanger themselves or fellow employees and the public.

### **Workplace Health and Safety's Responsibilities:**

- Workplace Health and Safety (Ontario's Ministry of Labour) will conduct periodic inspections of the workplace to ensure that safety regulations for industry are being observed.

## APPRENTICESHIP PROGRAM SUMMARY

### Scope of Practice

The Scope of Practice for the trade of Truck and Coach Technician is set out in section 21 of Ontario Regulation 277/11 under OCTAA and reads as follows:

#### Truck and coach technician

21. The scope of practice for the trade of truck and coach technician includes engaging in any of servicing, repairing, overhauling, diagnosing and inspecting motor coaches, heavy trucks and truck-trailers by doing any of the following:

1. Disassembling, adjusting, repairing and reassembling engines, transmissions, clutches, rear ends, differentials, brakes, drive shafts, wheels and rims, axles and other assemblies.
2. Testing for, diagnosing and correcting faulty alignment of wheels and steering mechanisms.
3. Diagnosing faults in, repairing or replacing suspension systems, including shock absorbers and spring assemblies.
4. Diagnosing faults in, installing, repairing and removing ignition, charging and starting systems, panel instruments, wiring and other electrical and electronic systems and equipment.
5. Diagnosing faults in, repairing and adjusting fuel systems, engine management systems and emission control systems.
6. Diagnosing faults in, installing, inspecting, maintaining and removing air-conditioning and refrigeration and heating systems. O. Reg. 277/11, s. 21.

**\*While the Log Book draws on the scope of practice regulation (Section 21 of Ontario Regulation 277/11 under OCTAA). The Log Book does not purport to add to or modify the scope of practice as provided in regulation.\***

### Program Guidelines

#### On-the-Job Training Duration

Industry has identified 6,000 hours as the duration necessary for any Apprentice to become competent in the skills required. There may be circumstances in which the duration varies from this guideline.

#### Classroom Training Duration

Industry has identified 720 hours of in-school training as the duration necessary for an Apprentice to complete the in-school curriculum for this program.

### **Journeyperson to Apprentice Ratio**

While some of the trades regulated under OCTAA are subject to Journeyperson to Apprentice ratios (ratios) set out in regulation, this trade is not one of them.

### **Compulsory and Voluntary Classification**

Regulations under OCTAA set out the regulated trades in Ontario and the classification of each trade as either “compulsory” or “voluntary.” The trade of Truck and Coach Technician is compulsory.

### **Eligibility for Apprenticeship Program Completion**

The Apprentice must:

- Achieve competency in all mandatory (unshaded) skills as identified in the Log Book
- Complete the in-school training as outlined in the industry and Ministry of Training, Colleges and Universities approved Curriculum Standard

It is the responsibility of an Apprentice to maintain a training record in the form of an Ontario College of Trades Apprenticeship Training Standard Log Book. The Sponsor and Trainer are required to sign-off when competencies in the trade are achieved.

## **ESSENTIAL SKILLS SUMMARY**

Essential skills are needed for work, learning and life. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change. Through extensive research, the Government of Canada and other national and international agencies have identified and validated nine essential skills. These skills are used in nearly every occupation and throughout daily life in different ways.

A series of tools endorsed by the Canadian Council of Directors of Apprenticeship (CCDA) have been developed to support apprentices in their training and to be better prepared for a career in the trades. The tools can be used independently or with the assistance of a tradesperson, trainer, employer, teacher or mentor to:

- Understand how essential skills are used in the trades;
- Learn about individual essential skills strengths and areas for improvement, and,
- Improve essential skills and increase success in an apprenticeship program.

A link to the complete essential skills profile for Red Seal trades can be found at [red-seal.ca](http://red-seal.ca).

## TRAINING THE APPRENTICE

### Tips for Apprentices

Remember, it takes time to learn. The following is a list of additional tips and tools to help make the most of your apprenticeship training:

- Practice safe work habits;
- Use your Apprenticeship Log Book as a journal to keep track of the skills you have achieved;
- Listen to the suggestions of your Trainer;
- Discuss your training needs with your Sponsor;
- Review your training plan with your Training Consultant, Trainer, or Sponsor;
- Ask your Trainer questions if you are unsure of any skill you need to perform or any tools or equipment you need to use to perform your duties;
- Show enthusiasm and develop good work habits; and,
- Upon demonstration of competency, ensure that you and your Trainer sign-off the individual skills. Once a 'set of skills' have been signed off, ensure your Sponsor signs off this area as well.

### Sponsor

Sponsors are responsible for ensuring all terms are met as per the Registered Training Agreement. They are named on the Registered Training Agreement as the entity responsible for ensuring Apprentices receive the training required as part of an apprenticeship program. As a signatory to this agreement, they are designated as the 'Signing Authority' for the Apprentice's Skill Set Completion Form, and are required to attest to successful achievement by signing the appropriate box at the completion of each skill set.

### Tips for Sponsors

- Select Trainers with good communication skills and who work well with others;
- Ensure that the Apprentice always works under the direction of or has access to a qualified Trainer;
- Encourage Trainers to take upgrading courses (e.g. Train the Trainer, Mentor, Coach, etc.);
- Encourage safe work habits;
- Provide time for the Trainer to demonstrate skills to the apprentice;
- Provide opportunities and time for the Apprentice to learn the trade;
- Ensure that the Apprentice receives the varied on-the-job trade training experience outlined in this document;
- Set out clear expectations, and recognize good performance;
- Involve both the Apprentice and Trainer in developing the training plan and observe frequently;
- Provide constructive feedback and conduct regular performance reviews involving the Apprentice and Trainer;
- Use the Log Book as a monitoring tool and a part of regular performance evaluations; and,
- Complete the Skill Set Completion Form once the Apprentice has demonstrated competency in the skills.

### Trainer

A Trainer is an individual who oversees the performance of a task and sets the workplace expectations and practices for the Apprentice. In compulsory trades, a Trainer must hold a valid Certificate of Qualification and be a member of the College of Trades Journeypersons Class.

In voluntary trades, a Trainer is an individual who holds one of the following:

- A valid Certificate of Qualification and is a member of the College of Trades Journeypersons Class; or,
- Holds a Statement of Membership in the College of Trades Tradespersons Class; or,
- Holds a Certificate of Qualification previously issued by Ministry of Training, Colleges and Universities; or,
- Holds a Certificate of Apprenticeship in the trade; or,
- Has completed both the workplace-based training (competencies and/or hours as applicable) and classroom training components of the trade's apprenticeship program; or,
- Has workplace experience equivalent to the apprenticeship program (eligible to apply to College membership in the Journeypersons or Tradespersons Classes) or has the skills outlined in the Log Book.

**A classroom instructor is not permitted to sign-off the skills contained within this Log Book.**

### Tips for Trainers

Trainers are responsible for ensuring the Apprentice is developing the skills outlined in this document. Here is a list of tips and tools to help Trainers in their supervision of Apprentices:

- Demonstrate model safe work habits;
- Provide opportunities and time for the Apprentice to learn the trade;
- Treat Apprentices fairly and with respect;
- Review the Log Book with the Apprentice and develop a training plan;
- Set out clear expectations and recognize good performance;
- Ensure that the Apprentice receives on-the-job trade training experience as outlined in this document;
- Encourage and respond to all questions;
- Be patient;
- Explain, show and demonstrate the skill;
- Provide continuous feedback;
- Sign-off skills when your Apprentice demonstrates competency, and,
- Use the Log Book as a guide to evaluate competence in each skill area. By using the Log Book, Trainers will be able to ensure that the Apprentice is developing skills outlined in this document.



## NOTICE OF COLLECTION OF PERSONAL INFORMATION

1. At any time during your apprenticeship training, you may be required to show this Log Book to the Ministry of Training, Colleges and Universities. You will be required to submit the signed Apprenticeship Completion form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry of Training, Colleges and Universities will use your personal information to administer and finance Ontario's apprenticeship training system, including confirming your completion and issuing your Certificate of Apprenticeship.
2. The Ministry of Training, Colleges and Universities will disclose information about your program completion and your Certificate of Apprenticeship to the Ontario College of Trades, as it is necessary for the College of Trades to carry out its responsibilities.
3. Your personal information is collected, used and disclosed by the Ministry under the authority of the *Ontario College of Trades and Apprenticeship Act, 2009*.
4. Questions about the collection, use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre  
Ministry of Training, Colleges and Universities  
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3  
Toll-free: 1-800-387-5656; Toronto: 416-326-5656  
TTY: 1-866-533-6339 or 416-325-4084.

**COMPETENCY ANALYSIS PROFILE  
TRUCK AND COACH TECHNICIAN 310T**

*(All unshaded skill sets must be demonstrated/completed)*

**SKILL SETS**

**SKILLS**

<b>OCCUPATIONAL HEALTH AND SAFETY PROCEDURES</b>  <b>U5135.0</b>	Identify potential workplace health and safety hazards  5135.01	Handle, store and dispose of hazardous materials  5135.02	Wear and maintain personal protective equipment  5135.03	Comply with workplace-related legislation  5135.04	Interpret and apply service-related information  5135.05
	Practice good housekeeping in workplace  5135.06	Comply with WHMIS guidelines  5135.07			
<b>ELECTRICAL SYSTEMS - STARTING AND CHARGING</b>  <b>U5136.0</b>	Perform visual inspection  5136.01	Diagnose and troubleshoot starting systems and components  5136.02	Repair starting systems and components  5136.03	Verify and document repair of starting system and components  5136.04	Diagnose and troubleshoot charging systems and components  5136.05
	Repair charging system and components  5136.06	Verify and document repair of charging system and components  5136.07			
<b>ELECTRICAL SYSTEMS - BODY ELECTRICAL</b>  <b>U5137.0</b>	Perform visual inspection  5137.01	Diagnose and troubleshoot body electrical systems and components  5137.02	Repair body electrical systems and components  5137.03	Verify and document repair of body electrical systems and components  5137.04	Repair system warning devices  5137.05
	Verify and document repair of system warning devices  5137.06	Diagnose and troubleshoot fire suppression systems and components  5137.07	Repair fire suppression systems and components  5137.08	Verify and document repair of fire suppression systems and components  5137.09	Repair coach destination signs  5137.10
	Verify and document repair of coach destination signs  5137.11	Diagnose and troubleshoot supplemental restraint systems (SRS) and components  5137.12	Repair supplemental restraint systems (SRS) and components  5137.13	Verify and document repair of supplemental restraint systems (SRS) & components  5137.14	

## TRUCK AND COACH TECHNICIAN

<b>FUEL SYSTEMS</b>	Perform visual inspection	Diagnose and troubleshoot fuel systems and components	Repair fuel systems and components	Verify and document repair of fuel systems and components	
<b>U5138.0</b>	5138.01	5138.02	5138.03	5138.04	
<b>ENGINE SYSTEMS</b>	Perform visual inspection	Diagnose and troubleshoot cooling systems and components	Repair cooling systems and components	Verify and document repair of cooling systems and components	Diagnose and troubleshoot engine lubricating systems and components
<b>U5139.0</b>	5139.01	5139.02	5139.03	5139.04	5139.05
	Repair engine lubricating systems and components	Verify and document repair of engine lubricating systems and components	Diagnose and troubleshoot cylinder head and components	Repair cylinder heads and components	Verify and document repair of cylinder head and components
	5139.06	5139.07	5139.08	5139.09	5139.10
	Diagnose and troubleshoot engine block and components	Repair engine block and components	Verify and document repair of engine block and components	Diagnose and troubleshoot auxiliary coolers and components	Repair auxiliary coolers and components
	5139.11	5139.12	5139.13	5139.14	5139.15
	Verify and document repair of auxiliary coolers and components				
	5139.16				

## TRUCK AND COACH TECHNICIAN

<b>ENGINE MANAGEMENT SYSTEMS</b>  <b>U5140.0</b>	Perform visual inspection	Diagnose and troubleshoot fuel control systems and components	Repair fuel control systems and components	Verify and document repair of fuel control systems and components	Diagnose and troubleshoot electronic ignition systems and components
	5140.01	5140.02	5140.03	5140.04	5140.05
	Repair electronic ignition systems and components	Verify and document repair of electronic ignition systems and components	Diagnose and troubleshoot electronically-controlled engine systems and components	Repair electronically-controlled engine systems and components	Verify and document repair of electronically-controlled engine systems and components
	5140.06	5140.07	5140.08	5140.09	5140.10
	Perform engine tune-ups				
	5140.11				
<b>EXHAUST, INTAKE, AND EMISSION CONTROL SYSTEMS</b>  <b>U5141.0</b>	Perform visual inspection	Diagnose and troubleshoot exhaust, intake, and emission control systems and components	Repair exhaust, intake, and emission control systems and components	Verify and document repair of exhaust, intake, and emission control systems and components	Diagnose and troubleshoot turbocharger systems and components
	5141.01	5141.02	5141.03	5141.04	5141.05
	Repair/Replace turbocharger systems and components	Verify and document repair of turbocharger systems and components			
	5141.06	5141.07			
<b>TRANSMISSION SYSTEMS</b>  <b>U5142.0</b>	Perform visual inspection	Diagnose and troubleshoot clutch systems and components	Repair/Replace clutch systems and components	Verify and document repair of clutch systems and components	Diagnose and troubleshoot manual systems and components
	5142.01	5142.02	5142.03	5142.04	5142.05
	Repair manual systems and components	Verify and document repair of manual transmissions and components	Diagnose and troubleshoot automatic/automated transmission systems and components	Repair/Replace automatic/automated transmission systems and components	Verify and document repair of automatic/automated transmission systems and components
	5142.06	5142.07	5142.08	5142.09	5142.10

## TRUCK AND COACH TECHNICIAN

<b>DRIVE SHAFTS AND DRIVE AXLE ASSEMBLIES</b>	Perform visual inspection	Diagnose and troubleshoot drive shafts, drive axle assemblies and components	Repair/Replace drive shafts, drive axle assemblies and components	Verify and document repair of drive shafts, drive axle assemblies and components	
<b>U5143.0</b>	5143.01	5143.02	5143.03	5143.04	
<b>FRAMES AND HITCHING-COUPLING SYSTEMS</b>	Perform visual inspection	Diagnose and troubleshoot frames, hitching systems, and components	Repair frames and hitching systems and components	Verify and document repair of frames, hitching systems and components	
<b>U5144.0</b>	5144.01	5144.02	5144.03	5144.04	
<b>BODY AND TRIM</b>	Perform visual inspection	Diagnose and troubleshoot body and/or trim	Repair body and/or trim	Verify and document repair of body and/or trim	
<b>U5145.0</b>	5145.01	5145.02	5145.03	5145.04	
<b>SUSPENSION SYSTEMS</b>	Perform visual inspection	Diagnose and troubleshoot suspension systems and components	Repair suspension system and components	Verify and document repair of suspension systems and components	
<b>U5146.0</b>	5146.01	5146.02	5146.03	5146.04	
<b>STEERING SYSTEMS</b>	Perform visual inspection	Diagnose and troubleshoot steering systems and components	Repair/Replace steering systems and components	Verify and document repair of steering system and components	Align steering and axles
<b>U5147.0</b>	5147.01	5147.02	5147.03	5147.04	5147.05
<b>TIRES, WHEELS, RIMS, AND HUBS</b>	Perform visual inspection	Diagnose and troubleshoot tires, wheels, rims, hubs, and components	Repair tires, wheels, rims, hubs and components	Verify and document repair of tires, wheels, rims, hubs and components	
<b>U5148.0</b>	5148.01	5148.02	5148.03	5148.04	
<b>AIR SUPPLY SYSTEM</b>	Perform visual inspection	Diagnose and troubleshoot air supply systems and components	Repair/Replace air supply system and components	Verify and document repair of air supply system and components	Diagnose and troubleshoot auxiliary air components
<b>U5149.0</b>	5149.01	5149.02	5149.03	5149.04	5149.05

## TRUCK AND COACH TECHNICIAN

	Repair/replace auxiliary air components  5149.06	Verify and document repair of auxiliary air components  5149.07			
<b>BRAKING SYSTEMS</b>  <b>U5150.0</b>	Perform visual inspection  5150.01	Diagnose and troubleshoot brake system (air or hydraulic)  5150.02	Repair brake system (air or hydraulic)  5150.03	Verify and document repair of brake system (air or hydraulic)  5150.04	Resurface brake drums, lines and rotors  5150.05
<b>HEATING, VENTILATION, AIR CONDITIONING (HVAC) &amp; REFRIGERATION SYSTEMS</b>  <b>U5151.0</b>	Perform visual inspection  5151.01	Diagnose and troubleshoot HVAC systems and components  5151.02	Repair HVAC systems and components  5151.03	Verify and document repair of HVAC systems and components  5151.04	Diagnose and troubleshoot refrigeration systems and components  5151.05
	Repair refrigeration systems and components  5151.06	Verify and document repair of refrigeration systems and components  5151.07			
<b>HYDRAULIC SYSTEMS</b>  <b>U5152.0</b>	Perform visual inspection  5152.01	Diagnose and troubleshoot hydraulic systems and components  5152.02	Repair hydraulic systems and components  5152.03	Verify and document repair of hydraulic systems and components  5152.04	

**U5135.0 OCCUPATIONAL HEALTH AND SAFETY PROCEDURES**

Comply with occupational health and safety procedures, by: identifying potential health and safety hazards; maintaining a safe and secure work environment; handling and storing hazardous materials; wearing and maintaining personal protective equipment; complying with workplace-related legislation; interpreting and applying service-related information; practising good housekeeping; complying with Workplace Hazardous Materials Information (WHMIS) guidelines; according to the *Occupational Health and Safety Act*, government regulations, GHS manufacturer’s recommendations and company policy.

**SKILLS**

**5135.01 Identify potential workplace health and safety hazards**, including: excessive exhaust and/or explosive fumes, dust, sound levels, electrical and mechanical hazards (i.e. damaged or faulty air lines and/or inadequate ventilation);so that the potential for personal injury, damage to equipment, vehicles and the environment are minimized; according to government regulations and company policy.

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**5135.02 Handle, store and dispose of hazardous workplace materials**, including: cleaning solvents, anti-freeze, transmission and brake fluids, engine oil, brake dust, battery electrolyte, refrigerants and gases, using personal protective equipment and specified handling and storage equipment; so that individuals are protected from injury, the environment from contamination and safety procedures are followed; according to government regulations and company policy.

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**5135.03 Wear and maintain personal protective equipment**, including: eye, ear, hand, respiratory, body and foot protection, ensuring that correct fit and optimum protection is provided to the wearer for the specific task performed; according to government regulations, manufacturer’s specifications and company policy.

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**5135.04 Comply with workplace-related legislation**, relating to highway traffic, safety, parts warranties, occupational health/safety, environmental protection, and business and trade practices, including: Occupational Health and Safety Act, Motor Vehicle Repair Act, Highway Traffic Act, National Safety Code (NSC), Section 11B, National Safety Mark (NSM) Environmental Protection Act; by: identifying the personal and legal liabilities of technicians and vehicle owners when performing vehicle safety inspections, emissions tests, providing repair estimates, and repairing/replacing defective parts; according to government regulations and company policy.

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**5135.05 Interpret and apply service-related information**, including: service bulletins, manuals and parts catalogues, by: locating and identifying the vehicle information number (VIN), service information systems; so that service/repair is performed according to manufacturer’s recommendations and company policy.

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**5135.06 Practice good housekeeping in the workplace**, by applying fire hazard prevention methods, including: maintaining a clean and orderly work area; identifying, removing and disposing of potential fire hazards; cleaning up grease, oil spills and/or fluids; ensuring that the work area is free of obstructions, and safely storing tools and shop equipment and wearing personal protective equipment, to minimize accident or injury to self and others; according to government regulations and company policy.

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**5135.07 Comply with Workplace Hazardous Materials Information Systems (WHMIS) guidelines**, including: reading and interpreting labels and Materials Data Sheets (MSDS), Global Harmonization System (GHS), ensuring receipt of training in WHMIS regulations and practices; according to the Occupational Health and Safety Act.

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<b>SPONSOR CONFIRMATION FOR U5135: OCCUPATIONAL HEALTH AND SAFETY PROCEDURES</b>		
<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>

**U5136.0 ELECTRICAL SYSTEMS - STARTING AND CHARGING**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair electrical systems - starting and charging, by: performing a visual inspection; diagnosing and troubleshooting batteries; servicing and boosting/charging batteries; diagnosing and troubleshooting starting systems and components; repairing starting systems and components; verifying and documenting repair of starting systems and components; diagnosing and troubleshooting charging systems and components; repairing charging systems and components, and verifying and documenting repair of charging systems and components; according to manufacturer’s recommendations, specifications, and safety requirements.

**SKILLS**

**5136.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, damaged, corroded, distorted, loose, missing, or defective components, including: batteries, starters, alternating current (a/c) generators (alternators), drive mechanisms, cables, connectors, switches, relays, regulators, solenoids, sensors, modules, wiring harnesses, gauges, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5136.02 Diagnose and troubleshoot starting systems and components**, including: starting motors, batteries, cables, hardware, wiring harnesses, solenoids, relays, switches, circuit protection devices, and fastening and mounting devices; by: visually inspecting, testing and analyzing performance and function, checking for: opens/shorts/grounds, voltage, amperage, resistance, wear, noise, odour, colour, corrosion, temperature, fractures, and distortion; using: hand, power, specialized, precision, heavy-duty load testers and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

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**5136.03 Repair starting systems and components**, including: starting motors, batteries, cables, hardware, wiring harnesses, solenoids, relays, switches, circuit protection devices, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5136.04 Verify and document repair of starting systems and components**, including: starting motors, batteries, cables, hardware, wiring harnesses, solenoids, relays, switches, circuit protection devices, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5136.05 Diagnose and troubleshoot charging systems and components**, including: alternating and direct current generators, batteries, cables, connectors, switches, relays, voltage regulators, circuit protection devices, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function, checking for: opens/grounds/shorts, voltage, amperage, resistance, vibration/noise, odour, corrosion temperature, and alignment; using: hand, power, specialized, precision, AVR (ammeter, voltmeter, resistance) testers, and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

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**5136.06 Repair charging systems and components**, including: alternating and direct current generators, batteries, cables, connectors, switches, relays, voltage regulators, circuit protection devices, wiring harnesses, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5136.07 Verify and document repair of charging systems and components**, including: batteries, cables, hardware, wiring harnesses, voltage regulators, relays, alternating current (AC) generators, switches, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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<b>SPONSOR CONFIRMATION FOR U5136: ELECTRICAL SYSTEMS - STARTING AND CHARGING</b>		
<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>

**U5137.0 ELECTRICAL SYSTEMS - BODY ELECTRICAL**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair electrical system - body electrical and components, by: performing a visual inspection; diagnosing and troubleshooting body electrical systems and components; repairing body electrical systems and components; verifying and documenting repair of body electrical systems and components; repairing system warning devices; verifying repair of system warning devices; diagnosing and troubleshooting fire suppression systems and components (if equipped); repairing fire suppression systems and components (if equipped); verifying and documenting repair of fire suppression system and components (if equipped); repairing coach destination signs; verifying repair of coach destination signs; diagnosing and troubleshooting supplemental restraint systems (SRS); repairing supplemental restraint systems (SRS); and verifying and documenting repair of supplemental restraint systems (SRS); according to manufacturer’s recommendations, specifications, and safety requirements.

**SKILLS**

**5137.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing, or defective components, including: batteries, cables, connectors, switches, relays, solenoids, sensors, modules, wiring harnesses, lighting/illumination, terminal boards/blocks, warning devices, circuit protection devices, electrical accessory devices, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.02 Diagnose and troubleshoot body electrical systems and components**, including: batteries, motors, cables, connectors, switches, relays, solenoids, sensors, modules wiring harnesses, lighting/illumination, terminal boards/blocks, proximity warning, circuit protection, electrical accessory, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function, checking for: opens/shorts/grounds, odour, colour, temperature, corrosion, and noise/vibration; using: hand, power, specialized, precision, soldering, heat shrink tubes, crimpers, and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

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**5137.03 Repair body electrical systems and components**, including: including: batteries, motors, cables, connectors, switches, relays, solenoids, sensors, modules wiring harnesses, lighting/illumination, terminal boards/blocks, proximity warning, circuit protection, electrical accessory, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, soldering equipment, heat shrink tubes, crimpers, and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.04 Verify and document repair of body electrical systems and components,** including: batteries, motors, cables, connectors, switches, relays, solenoids, sensors, modules, wiring harnesses, lighting/illumination, terminal boards/blocks, proximity warning, circuit protection, electrical accessory, and fastening and mounting devices; by visually inspecting, testing, and analysing performance and function, using: hand, power, specialized, precision, soldering equipment, heat shrink tubes, crimpers, and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.05 Repair system warning devices,** including: cables, connectors, switches, relays, solenoids, sensors, modules, wiring harnesses, annunciators/data display screens, and fastening and mounting devices, by: exchanging, or servicing; using: hand, power, specialized, precision and electronic service tools, lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.06 Verify and document repair of system warning devices,** including: cables, connectors, switches, relays, solenoids, sensors, modules, wiring harnesses, annunciators/data display screens, and fastening and mounting devices, using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.07 Diagnose and troubleshoot fire suppression systems and components,** including: sensors, activating devices, wiring harnesses, and fastening and mounting devices; by visually inspecting, testing, and analyzing performance and function; checking for: opens/shorts/grounds, corrosion, distortion, temperature and leaks; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

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**5137.08 Repair fire suppression systems and components,** including: sensors, activating devices, wiring harnesses, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.09 Verify and document repair of fire suppression systems and components,** including: sensors, activating devices, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.10 Repair coach destination signs**, including: rollers, gears, chains, motors, and display boards; by: exchanging, or servicing; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.11 Verify and document repair of coach destination signs**, including: including: rollers, gears, chains, motors, and display boards; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.12 Diagnose and troubleshoot supplemental restraint systems (SRS) and components**, including: air bag assemblies, sensors, modules, activating devices, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function; checking for: opens/shorts/grounds, corrosion, wear, and distortion; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

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**5137.13 Repair supplemental restraint systems (SRS) and components**, including: air bag assemblies, sensors, modules, activating devices, and wiring harnesses, and fastening and mounting devices; by exchanging; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5137.14 Verify and document repair of supplemental restraint systems (SRS) and components**, including: air bag assemblies, sensors, modules, activating devices, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	_____ Journeyman (Signature)	_____ College of Trades Member I.D.#
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<b>SPONSOR CONFIRMATION FOR U5137: ELECTRICAL SYSTEMS - BODY ELECTRICAL</b>		
<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>

**U5138.0 FUEL SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair fuel systems by: performing a visual inspection; diagnosing and troubleshooting fuel systems and components; repairing fuel systems and components; verifying and documenting repair of fuel systems and components; according to manufacturer's recommendations, specifications, and safety requirements.

**SKILLS**

**5138.01 Perform visual inspection**, identifying system types and applications, by: checking for: fuel condition, worn, loose, damaged, leaking, missing, or defective components, including: pumps, injectors, lines, hoses, fittings, filters, vents, tanks, valves, heat exchangers, crossover pipes, heaters, sensors, modules, wiring harnesses, mechanical controls, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5138.02 Diagnose and troubleshoot fuel systems and components**, including: fuel, tanks, vents, hoses, lines, filters, heaters, valves, pumps, linkages, cables, throttles, injectors, switches, relays, solenoids, sensors, modules, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, analyzing performance, function and programming, checking for: opens/shorts/grounds, wear, odour, temperature, smoke colour, corrosion, distortion, fractures, noise/vibration, and fuel level, type and condition; using: hand, power, specialized, precision and electronic service tools, vacuum and pressure gauges, lifting, rigging and blocking devices, refractometers, hydrometers and water-detection devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

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**5138.03 Repair fuel systems and components**, including: fuel, tanks, vents, hoses, lines, filters, heaters, valves, pumps, linkages, cables, throttles, injectors, switches, relays, solenoids, sensors, modules, wiring harnesses, and fastening and mounting devices; by: exchanging, reconditioning, servicing, or reprogramming; using: hand, power, specialized, precision and electronic service tools, vacuum and pressure gauges, lifting, rigging and blocking devices, ultrasonic baths, and torque wrenches; according to manufacturer's recommendations, specifications, and safety requirements.

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**5138.04 Verify and document repair of fuel systems and components**, including: fuel, tanks, vents, hoses, lines, filters, heaters, valves, pumps, linkages, cables, throttles, injectors, switches, relays, solenoids, sensors, modules, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, analysing performance, function and programming; using: hand, power, specialized, precision and electronic service tools, vacuum and pressure gauges, lifting, rigging and blocking devices, ultrasonic baths, and torque wrenches; according to manufacturer's recommendations, specifications, and safety requirements.

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<b>SPONSOR CONFIRMATION FOR U5138: FUEL SYSTEMS</b>		
<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>

**U5139.0 ENGINE SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair engines, by: performing a visual inspection; diagnosing and troubleshooting cooling systems and components, repairing cooling systems and components; verifying and documenting repair of cooling systems and components; diagnosing and troubleshooting engine lubricating systems and components; repairing engine lubricating systems and components; verifying and documenting repair of engine lubricating systems and components; diagnosing and troubleshooting cylinder heads and components; repairing cylinder heads and components; verifying and documenting repair of cylinder heads and components; diagnosing and troubleshooting engine blocks and components; repairing engine blocks and components; verifying and documenting repair of engine blocks and components; diagnosing and troubleshooting auxiliary coolers and components, repairing auxiliary coolers and components, and verifying and documenting repair of auxiliary coolers and components; according to manufacturer`s recommendations, specifications, and safety requirements.

**SKILLS**

**5139.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing, or defective components, including: cooling and lubrication systems, cylinder heads, engine blocks, auxiliary coolers, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5139.02 Diagnose and troubleshoot cooling systems and components**, including: coolant, radiators, reservoirs, surge tanks, fans, hubs and controls, water pumps, shutters, controls, actuators, belts, hoses, lines, fittings, heat exchangers, filters, gaskets, O-rings, seals, valves, switches, relays, sensors, modules, wiring harnesses, thermostats, block heaters, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function, checking for: opens/shorts/grounds, wear, odour, colour, temperature, corrosion, distortion, fractures, contamination, leaks, noise/ vibration, and coolant type and level; using: hand, power, specialized, precision and electronic service tools, lifting, rigging and blocking devices, pullers, torque wrenches, gauges, pressure/radiator cap testers, hydrometers, refractometers, and coolant analysis kits; according to manufacturer's recommendations, specifications, and safety requirements.

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**5139.03 Repair cooling systems and components**, including: coolant, radiators, reservoirs, surge tanks, fans, hubs and controls, water pumps, shutters, controls, actuators, belts, hoses, lines, fittings, heat exchangers, filters, gaskets, O-rings, seals, valves, switches, relays, sensors, modules, wiring harnesses, thermostats, block heaters, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision and electronic service tools, lifting, rigging and blocking devices, pullers, torque wrenches, and gauges, pressure/radiator cap testers, hydrometers, refractometers, and coolant analysis kits; according to manufacturer's recommendations, specifications, and safety requirements.

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**5139.04 Verify and document repair of cooling systems and components**, including: coolant, radiators, reservoirs, surge tanks, fans, hubs and controls, water pumps, shutters, controls, actuators, belts, hoses, lines, fittings, heat exchangers, filters, gaskets, O-rings, seals, valves, switches, relays, sensors, modules, wiring harnesses, thermostats, block heaters, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, lifting, rigging and blocking devices, pullers, torque wrenches, and gauges, pressure/radiator cap testers, hydrometers, refractometers, and coolant analysis kits; according to manufacturer's recommendations, specifications, and safety requirements.

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**5139.05 Diagnose and troubleshoot engine lubricating systems and components,** including: oil, pumps, filters, housings, lines, hoses, fittings, seals, piston cooling jets, gaskets, O-rings, heat exchangers, bypass valves and auxiliary devices, compressors, , engine brakes, fuel system actuators, sensors, and wiring harnesses; by testing, and analysing performance and function, checking for: opens/shorts/grounds, wear, odour, temperature, corrosion, distortion, fractures, colour, noise, pressure, oil analysis and spectrographic testing of components; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.06 Repair engine lubricating systems and components,** including: oil, pumps, filters, housings, lines, hoses, fittings, seals, piston cooling jets, gaskets, O-rings, heat exchangers, bypass valves and auxiliary devices, compressors, , engine brakes, fuel system actuators, sensors, and wiring harnesses; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.07 Verify and document repair of engine lubricating systems and components,** including: oil, pumps, filters, housings, lines, hoses, fittings, seals, piston cooling jets, gaskets, O-rings, heat exchangers, bypass valves and auxiliary devices, compressors, engine brakes, fuel system actuators, sensors, modules, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices, according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.08 Diagnose and troubleshoot cylinder heads and components,** including: cylinder heads, expansion plugs, seats, guides, seals, springs, retainers, rotators, injectors tubes, valves and actuating mechanisms, camshafts, drive mechanisms, engine brakes, gasket assemblies, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function, checking for: wear, temperature, corrosion, erosion, vibration/noise, carbon build-up, leaks, fractures, and distortion; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.09 Repair cylinder heads and components,** including: cylinder heads, expansion plugs, seats, guides, seals, springs, retainers, rotators, injectors tubes, valves and actuating mechanisms, camshafts, drive mechanisms, engine brakes, gasket assemblies, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.10 Verify and document repair of cylinder heads and components,** including: cylinder heads, expansion plugs, seats, guides, seals, springs, retainers, rotators, injectors tubes, valves and actuating mechanisms, camshafts, drive mechanisms, engine brakes, gasket assemblies, fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.11 Diagnose and troubleshoot engine blocks and components,** including: engine blocks, piston assemblies, connecting rods, bearings, liners, counter balancers, crankshafts, flywheel assemblies, balance shafts, gear trains, camshafts and follower assemblies, harmonic balancers, pulleys, auxiliary drives, oil pans, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function, checking for: wear, temperature, corrosion, noise, carbon build-up, fractures, leaks, and distortion; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.12 Repair engine blocks and components,** including: piston assemblies, connecting rods, bearings, liners, counter balancers, crankshafts, flywheel assemblies, balance shafts, gear trains, camshafts and follower assemblies, harmonic balancers, pulleys, auxiliary drives, oil pans, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.13 Verify and document repair of engine blocks and components**, including: piston assemblies, connecting rods, bearings, liners, counter balancers, crankshafts, flywheel assemblies, balance shafts, gear trains, camshafts and follower assemblies, harmonic balancers, pulleys, auxiliary drives, oil pans, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.14 Diagnose and troubleshoot auxiliary coolers and components**, including: housings, charge air, oil coolers, fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function, checking for: temperature, contamination, corrosion, fractures, noise, cracks, leaks, and flow-test results; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.15 Repair auxiliary coolers and components**, including: housings, charge air, oil coolers, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5139.16 Verify and document repair of auxiliary coolers and components**, including: charge air, and oil coolers; by: testing performance and function; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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<b>SPONSOR CONFIRMATION FOR U5139: ENGINE SYSTEMS - GASOLINE AND DIESEL</b>		
<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>

**U5140.0 ENGINE MANAGEMENT SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair engine management systems, by: performing a visual inspection; diagnosing and troubleshooting fuel control systems and components; repairing fuel control systems and components; verifying repair of fuel control systems and components; diagnosing and troubleshooting electronic ignition systems and components; repairing electronic ignition systems and components; verifying and documenting repair of electronic ignition systems and components; diagnosing and troubleshooting electronically-controlled engine systems and components; repairing electronically-controlled engine systems and components; verifying and documenting repair of electronically-controlled engine systems and components; performing engine tune-ups; according to manufacturer’s recommendations, specifications, and safety requirements.

**5140.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing, or defective engine components, including: engine protection systems, electronic ignition systems, switches, relays, solenoids, sensors, electronic control modules (ECM), wiring harnesses, driver displays, and fastening and mounting devices; according to manufacturer’s recommendations, specifications and safety requirements.

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**5140.02 Diagnose and troubleshoot fuel control systems and components**, including: pumps, injectors, actuators, warning devices, switches, solenoids, relays, sensors, modules, wiring harnesses, interfaces, multiplexing, and fastening and mounting devices; by: visually inspecting, testing, analyzing performance, and function, checking for: opens/shorts/grounds, diagnostic codes, wear, odour, temperature, corrosion, colour, noise, pressure, and leaks; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, schematic diagrams, and safety requirements.

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**5140.03 Repair fuel control systems and components**, including: pumps, injectors, actuators, warning devices, switches, solenoids, relays, sensors, modules, wiring harnesses, interfaces, multiplexing, and fastening and mounting devices; by: exchanging, reconditioning, servicing, or programming; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5140.04 Verify and document repair of fuel control systems and components**, including: pumps, injectors, actuators, warning devices, switches, solenoids, relays, sensors, modules, wiring harnesses, interfaces, multiplexing, and fastening and mounting devices; by visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5140.05 Diagnose and troubleshoot electronic ignition systems and components**, including: distributor components, coils, resistors, switches, solenoids, relays, sensors, wiring harnesses, electronic ignition modules, spark plugs, high tension wires, engine lights, warning devices, electronic injectors, pumps, actuator modules, interfaces, multiplexing, and fastening and mounting devices; by: visually inspecting, testing, and analyzing performance, function and programming, checking for: opens/shorts/grounds, odour, temperature, corrosion, noise, flash codes, spark timing, system voltage and circuit resistance; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, schematic diagrams, and safety requirements.

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**5140.06 Repair electronic ignition systems and components**, including: distributor components, coils, resistors, switches, solenoids, relays, sensors, wiring harnesses, electronic ignition modules, spark plugs, high tension wires, engine lights, warning devices, electronic injectors, pumps, actuator modules, interfaces, multiplexing, and fastening and mounting devices; by: exchanging, reconditioning, reprogramming, or servicing; using, hand, power, specialized, precision and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements,

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**5140.07 Verify and document repair of electronic ignition systems and components,** including: distributor components, coils, resistors, switches, solenoids, relays, sensors, wiring harnesses, electronic ignition modules, spark plugs, high tension wires, engine lights, warning devices, electronic injectors, pumps, actuator modules, interfaces, multiplexing, and fastening and mounting devices; by visually inspecting, testing, and analysing performance, function and programming; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5140.08 Diagnose and troubleshoot electronically-controlled engine systems and components,** including: circuit protection devices, connectors, sensors, modules, drivers, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, analysing performance function and programming; checking for: opens/shorts/grounds, wear, odour, temperature, corrosion, vibration/noise, diagnostic codes, system voltage, and Society of Automotive Engineers (SAE) code identifiers; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer’s recommendations, specifications, schematic diagrams, and safety requirements.

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**5140.09 Repair electronically-controlled engine systems and components,** including: circuit protection devices, connectors, sensors, modules, drivers, wiring harnesses, and fastening and mounting devices; by: exchanging, reconditioning, reprogramming, or servicing; using: hand, power, specialized, precision and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5140.10 Verify and document repair of electronically-controlled engine systems and components,** including: circuit protection devices, connectors, sensors, modules, drivers, wiring harnesses, fastening and mounting devices; by: visually inspecting, testing, analysing performance, function and programming; using, hand, power, specialized, precision and electronic service tools, and lifting, rigging and blocking devices, according to manufacturer’s recommendations, specifications, and safety requirements.

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**5140.11 Perform engine tune-ups,** by: measuring fuel, compression, and crankcase pressures, checking/replacing disposable service items such as filters, ignition components (if equipped), checking electrical systems, and performing all recommended engine adjustments; checking intake and exhaust systems, analysing engine operating parameters and vehicle data logs; using: gauges, hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

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**SPONSOR CONFIRMATION FOR U5140: ENGINE MANAGEMENT SYSTEMS**

<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>
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**U5141.0 EXHAUST, INTAKE, AND EMISSION CONTROL SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair exhaust, intake, and emission control systems and components, by: performing a visual inspection; diagnosing and troubleshooting exhaust, intake and emission control systems and components; repairing exhaust, intake and emission control systems and components; verifying and documenting the repair of exhaust, intake and emission control systems and components; diagnosing and troubleshooting turbocharger systems and components, repairing turbocharger systems and components, and verifying and documenting the repair of turbocharger systems and components; according to manufacturer’s recommendations, specifications, and safety requirements.

**SKILLS**

**5141.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing, or defective components, including: manifolds, piping, gaskets, seals, turbochargers, blowers, charge air coolers, particulate traps, catalytic converters, mufflers, heat shields, filters and indicators, pyrometers, emission control devices, exhaust brakes (if equipped), sensors, modules, wiring harnesses, actuators, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5141.02 Diagnose and troubleshoot exhaust, intake, and emission control systems and components**, including: manifolds, piping, gaskets, seals, turbochargers, blowers, charge air coolers, particulate traps, catalytic converters, mufflers, heat shields, filters, indicators, pyrometers, emission control devices, exhaust brakes (if equipped), sensors, modules, wiring harnesses, actuators, fastening and mounting devices; by visually inspecting, testing, and analysing performance and function, checking for: opens/shorts/grounds, odour, noise/vibration, pressures, smoke colour, temperature, and leaks; using: hand, power, specialized, precision, and electronic service tools, pyrometers, gauges, exhaust gas analysers, opacimeters (smoke meters), manometers, vacuum gauges, stethoscopes, and infrared thermometers; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.



## TRUCK AND COACH TECHNICIAN

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
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**5141.03 Repair exhaust, intake, and emission control systems and components,** including: manifolds, piping, gaskets, seals, turbochargers, blowers, charge air coolers, particulate traps, catalytic converters, mufflers, heat shields, filters, indicators, pyrometers, emission control devices, exhaust brakes, sensors, modules, wiring harnesses, actuators, fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, and electronic service tools, heating, welding and cutting equipment, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5141.04 Verify and document repair of exhaust, intake, and emission control systems and components,** including: manifolds, piping, gaskets, seals, turbochargers, blowers, charge air coolers, particulate traps, catalytic converters, mufflers, heat shields, filters, indicators, pyrometers, emission control devices, exhaust brakes, sensors, modules, wiring harnesses, actuators, fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, and electronic service tools, welding/heating equipment, and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5141.05 Diagnose and troubleshoot turbocharger systems and components**, including: housings, waste gates, variable volume controls, manifold boost control devices, turbochargers, boost pressure sensors, piping, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function, checking for: pressure, temperature, corrosion, wear, leaks, and noise/vibration, using: hand, power, specialized, precision, and electronic service tools, welding/heating equipment, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5141.06 Repair/replace turbocharger systems and components**, including: housings, waste gates, variable volume controls, manifold boost control devices, turbochargers, boost pressure sensors, piping, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using hand, power, specialized, precision, and electronic service tools, dynamic balancing equipment, gauges, stethoscopes, and precision measuring instruments; according to manufacturer's recommendations, specifications, and safety requirements.

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**5141.07 Verify and document repair of turbocharger systems and components**, including: including: waste gates, variable volume controls, manifold boost control devices, turbochargers, boost pressure sensors, piping, and fastening and mounting devices, by: testing, and analysing performance and function; using: hand, power, specialized, precision, and electronic service tools, dynamic balancing equipment, gauges, stethoscopes, and precision measuring instruments; according to manufacturer's recommendations, specifications, and safety requirements.

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SPONSOR CONFIRMATION FOR U5141: EXHAUST, INTAKE, AND EMISSION CONTROL SYSTEMS		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

**U5142.0 TRANSMISSION SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair transmission systems, by: performing a visual inspection; diagnosing and troubleshooting clutch systems and components; repairing clutch systems and components; verifying the repair of clutch systems and components; diagnosing and troubleshooting manual transmissions and components; repairing manual transmissions and components; verifying the repair of manual transmissions and components; diagnosing and troubleshooting automatic transmissions and components; repairing automatic transmissions and components; verifying and documenting the repair of automatic transmissions and components; diagnosing and troubleshooting electronically-controlled systems and components, repairing electronically-controlled systems and components, verifying repair of electronically-controlled systems and components; according to manufacturer’s recommendations, specifications, and safety requirements.

**SKILLS**

**5142.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, defective, leaking, or missing components, including: housings, clutch and pressure plates, friction materials, clutch brakes, flywheels, ring gears, linkages, cables, controls, actuators, cylinders, reservoirs, lines, fittings, shafts, bearings, seals, bushings, gear sets, sensors, modules, wiring harnesses, fluids/lubricants, coolers, pumps and filters, auxiliary devices, dipsticks, tubes, yokes, flanges, driver display screens, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5142.02 Diagnose and troubleshoot clutch systems and components**, including: pressure plates, cover assemblies, discs, intermediate plates and drive mechanisms, clutch brakes, linkages, cables, controls, actuators, input (pilot) shafts, cross shafts, release bearings, pilot bearings, flywheel assemblies, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function, checking for: odour, temperature, corrosion, fractures, contamination, vibration/noise, colour, free play, internal adjustment, clutch brake squeeze, slippage, disengagement, dragging, and alignment; using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5142.03 Repair/replace clutch systems and components**, including: pressure plates, cover assemblies, discs, intermediate plates and drive mechanisms, clutch brakes, linkages, cables, controls, actuators, input (pilot) shafts, cross shafts, release bearings, pilot bearings, flywheel assemblies, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using hand, power, specialized, precision, and electronic service tools, heating, welding and cutting equipment, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5142.04 Verify and document repair of clutch systems and components**, including: pressure plates, cover assemblies, discs, intermediate plates and drive mechanisms, clutch brakes, linkages, cables, controls, actuators, input (pilot) shafts, cross shafts, release bearings, pilot bearings, flywheel assemblies, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5142.05 Diagnose and troubleshoot manual transmissions and components**, including: transfer cases, housings, linkages, gears, shafts, synchronizers, bearings, thrust washers, seals, fluids, filters, power take-off (PTO) units, speedometer drives, auxiliary drives, input, main, and counter shafts, shift collars, gear shift levers, cover assemblies, auxiliary sections, pneumatic controls, yokes, flanges, switches, solenoids, sensors, modules, wiring harness, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function, checking for: opens/shorts/grounds, odour, temperature, corrosion, colour, noise, vibration, wear, gear clash, oil level and condition, leaks, contamination, timing, and alignment, using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

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(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5142.06 Repair manual transmissions and components**, including: transfer cases, housings, linkages, gears, shafts, synchronizers, bearings, thrust washers, seals, fluids, filters, power take-off (PTO) units, speedometer drives, auxiliary drives, input, main, and counter shafts, shift collars, gear shift levers, cover assemblies, auxiliary sections, pneumatic controls, yokes, flanges, switches, solenoids, sensors, modules, wiring harness, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, and electronic service tools, heating, welding, and cutting equipment, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5142.07 Verify and document repair of manual transmissions and components,** including: transfer cases, housings, linkages, gears, shafts, synchronizers, bearings, thrust washers, seals, fluids, filters, power take-off (PTO) units, speedometer drives, auxiliary drives, input, main, and counter shafts, shift collars, gear shift levers, cover assemblies, auxiliary sections, pneumatic controls, yokes, flanges, switches, solenoids, sensors, modules, wiring harness, and fastening and mounting devices; by visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5142.08 Diagnose and troubleshoot automatic/automated transmission systems and components,** including: fluids, transfer cases, housings, gear train, shafts, bearings, seals, springs, clutch packs, one-way clutches, band and servo assemblies, pumps, valve bodies, governors, modulators, power take-off (PTO) units, torque converters, flex plates, modulator/throttle devices, governor assemblies, retarding devices, hoses, lines, fittings, linkages, cables, switches, relays, solenoids sensors, modules, wiring harnesses, interface, driver display screens, diagnostic lights, and fastening and mounting devices, by: visually inspecting, testing, and analyzing performance and function, checking for: opens/shorts/grounds, odour, temperature, leaks, colour, vibration/noise, corrosion malfunctioning indicator lights; using: hand, power, specialized, precision, and electronic service tools and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

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**5142.09 Repair/replace automatic/automated transmission systems and components,** including: fluids, transfer cases, housings, gear train, shafts, bearings, seals, springs, clutch packs, one-way clutches, band and servo assemblies, pumps, valve bodies, governors, modulators, power take-off (PTO) units, torque converters, flex plates, modulator/throttle devices, governor assemblies, retarding device, hoses, lines, fittings, linkages, cables, switches, relays, solenoids, sensors, modules, wiring harnesses, interface, driver display screens, diagnostic lights, and fastening and mounting devices, by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, and electronic service tools; heating, welding and cutting equipment, and lifting, rigging, and blocking devices, according to manufacturer's recommendations, specifications, and safety requirements.

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**5142.10 Verify and document repair of automatic/automated transmission systems and components,** including: fluids, transfer cases, housings, gear train, shafts, bearings, seals, springs, clutch packs, one-way clutches, band and servo assemblies, pumps, valve bodies, governors, modulators, power take-off (PTO) units, torque converters, flex plates, modulator/throttle devices, governor assemblies, retarding devices, hoses, lines, fittings, linkages, cables, switches, relays, solenoids, sensors, modules, wiring harnesses, interfaces, driver display screens, diagnostic lights, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, and electronic service tools, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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SPONSOR CONFIRMATION FOR U5142: TRANSMISSION SYSTEMS		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

**U5143.0 DRIVE SHAFTS AND DRIVE AXLE ASSEMBLIES**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair drive shafts and drive axle assemblies, by performing a visual inspection; diagnosing and troubleshooting drive shafts, drive axle assemblies and components; repairing drive shafts, drive axle assemblies and components; verifying repair of drive shafts, drive axle assemblies and components; according to manufacturer’s specifications, recommendations, and safety requirements.

**SKILLS**

**5143.01 Perform visual inspection,** identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing or defective components, including: drive shafts, universal joint and hanger bearing assemblies, lubrication, flanges, yokes, housings, carriers, differentials, power dividers (inter-axle differentials), drop boxes, axle shafts, gear sets, bearings, seals, wheel end assemblies, controls, actuators, switches, sensors, wiring harnesses, coolers, pumps, and fastening and mounting devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5143.02 Diagnose and troubleshoot drive shafts, drive axle assemblies and components,** including: housings, carriers, differentials, power dividers (inter- axle differentials), drop boxes, drive shafts, universal joint and hanger bearing assemblies, fluids, lubricants, flanges, yokes, axle shafts, gear sets, bearings, seals, wheel end assemblies, controls and actuators, switches, solenoids, sensors, wiring harnesses, coolers, pumps, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function, checking for: opens/shorts/grounds, temperature, odour, colour, tolerances, vibration/noise, corrosion, distortion, fractures, alignment, and phasing; using: hand, power, specialized, precision, and electronic service tools; and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5143.03 Repair/replace drive shafts, drive axle assemblies and components**, including: housings, carriers, differentials, power dividers (inter-axle differentials), drop boxes, drive shafts, universal joint and hanger bearing assemblies, fluids, lubricants, flanges, yokes, axle shafts, gear sets, bearings, seals, wheel end assemblies, controls and actuators, switches, solenoids, sensors, wiring harnesses, coolers, pumps, and fastening and mounting devices; by: reconditioning, exchanging, or servicing; using hand, power, specialized, electronic service, and precision measuring tools, lifting, rigging and blocking devices, heating, welding and cutting equipment, pullers, and presses; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5143.04 Verify and document repair of drive shafts, drive axle assemblies and components**, including: housings, carriers, differentials, power dividers (inter-axle differentials), drop boxes, drive shafts, universal joint assemblies, hanger bearing assemblies, fluids, lubricants, flanges, yokes, axle shafts, gear sets, bearings, seals, wheel end assemblies, controls and actuators, switches, solenoids, sensors, wiring harnesses, coolers, pumps, fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using hand, power, specialized, electronic service, and precision measuring tools, lifting, rigging and blocking devices, pullers, and presses; according to manufacturer’s recommendations, specifications, and safety requirements.

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SPONSOR CONFIRMATION FOR U5143: DRIVE SHAFTS AND DRIVE AXLE ASSEMBLIES		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

**U5144.0 FRAMES AND HITCHING/COUPLING SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair hitching/coupling systems, by performing a visual inspection; diagnosing and troubleshooting frames and hitching systems and components, repairing frames and hitching systems and components, and verifying and documenting repair of frames, hitching systems and components; according to manufacturer’s recommendations, specifications, and safety requirements.

**SKILLS**

**5144.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, missing or defective components, including: frames, fifth-wheels, upper coupler assemblies, pintle hooks, ball hitches, lubrication, locking mechanisms, converter dollies, trailer configurations, controls, actuators, welds, and fastening and mounting devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5144.02 Diagnose and troubleshoot frames and hitching systems and components**, including: frames, fifth-wheels, upper coupler assemblies, pintle hooks, ball hitches, lubricant, locking mechanisms, converter dollies, trailer configurations, controls, actuators, welds, and fastening and mounting devices, by: visually inspecting, testing, and analysing performance and function, checking for: lubrication, noise/vibration, corrosion, alignment, bends, twists and fractures; using hand, power, specialized, electronic service, and precision measuring tools, lifting, rigging and blocking devices, heating, welding and cutting equipment, pullers, and presses; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5144.03 Repair frames and hitching systems and components**, including: lubrication, frames, fifth-wheels, upper coupler assemblies, pintle hooks, ball hitches, locking mechanisms, converter dollies, trailer configurations, controls, actuators, welds, and fastening and mounting devices, by: exchanging, reconditioning, servicing, reinforcing, or modifying; using: hand, power, specialized, electronic service, and precision measuring tools, lifting, rigging and blocking devices, heating, welding and cutting equipment, pullers, and presses; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5144.04 Verify and document repair of frames and hitching systems and components**, including: lubrication, frames, fifth-wheels, upper coupler assemblies, pintle hooks, ball hitches, locking mechanisms, converter dollies, trailer configurations, controls and actuators, welds, fastening and mounting devices, by: visually inspecting, testing and analysing performance and function; using: hand, power, specialized, electronic service, and precision measuring tools, lifting, rigging and blocking devices, pullers, and presses; according to manufacturer’s recommendations, specifications, and safety requirements.

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<b>SPONSOR CONFIRMATION FOR U5144: FRAMES AND HITCHING/COUPLING SYSTEMS</b>		
<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>

**U5145.0 BODY AND TRIM**

**GENERAL PERFORMANCE OBJECTIVES**

Service and repair body and trim, by performing a visual inspection; diagnosing and troubleshooting body and trim, repairing body and trim, and verifying and documenting repair of body and trim; according to manufacturer’s specifications, recommendations, and safety requirements.

**SKILLS**

**5145.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing, or defective components, including: cabs, bodies, doors, sleeper units, van or dump bodies, unitized construction (monocoque), vessels/tanks, catwalks, rails, ladders, roll-over protection, vapour recovery and loading systems, trim, seats, restraint systems, emergency exits, glazing material, conspicuity (reflective) materials, lift gates, steps, lights, ramps switches, relays, sensors, wiring harnesses, controls, actuators, and fastening and mounting devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5145.02 Diagnose and troubleshoot body and trim**, including: cabs, bodies, doors, and sleeper units, van or dump bodies, unitized construction (monocoque), vessels/tanks, catwalks, rails, ladders, roll-over protection, vapour recovery and loading systems, trim, seats, restraint systems, emergency exits, glass, glazing material, conspicuity (reflective) materials, lift gates, steps, ramp sensors, lights, wiring harnesses, controls, actuators, and fastening and mounting devices, by: visually inspecting, testing, and analysing performance and function, checking for: opens/shorts/grounds, wear, temperature, corrosion, pressure, vibration/ noise, leaks, cracks, and defective latching mechanisms; using: hand, power, specialized, precision, electronic service tools, lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5145.03 Repair body and/or trim**, including: cabs, bodies, doors, and sleeper units, van or dump bodies, unitized construction (monocoque), vessels/tanks, catwalks, rails, ladders, roll-over protection, vapour recovery, loading systems, trim, seats, restraint systems, emergency exits, glass, glazing material, conspicuity (reflective) materials, lift gates, steps, ramp sensors, lights, wiring harnesses, controls and actuators, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, electronic service tools, lifting, rigging and blocking devices, and heating, welding and cutting equipment; according to manufacturer’s recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journey person (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5145.04 Verify and document repairs of body and/or trim**, including: cabs, bodies, doors, and sleeper units, van or dump bodies, unitized construction (monocoque), vessels/tanks, catwalks, rails, ladders, roll-over protection, vapour recovery, loading systems, trim, seats, restraint systems, emergency exits, glass, glazing material, conspicuity (reflective) materials, lift gates, steps, ramp sensors, lights, wiring harnesses, controls, actuators, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, electronic service tools, lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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SPONSOR CONFIRMATION FOR U5145: BODY AND TRIM		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

**U5146.0 SUSPENSION SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Service and repair suspension systems by: performing a visual inspection; diagnosing and troubleshooting suspension systems and components, repairing suspension systems and components and verifying repair of suspension systems and components; according to manufacturer’s recommendations, specifications, and safety requirements.

**SKILLS**

**5146.01 Perform visual inspection**, identifying system types and applications, by: checking for worn, loose, damaged, leaking, missing, or defective components, including: shock absorbers, springs (leaf, rubber block, air, and torsion bar), equalizers, shackles, bushings, walking beams, struts, sway bars, rubber blocks, hangers, lines, fittings, gauges, valves, controls, radius/torque rods, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5146.02 Diagnose and troubleshoot suspension systems and components**, including: air beams, shock absorbers, springs (leaf, rubber block, air, and torsion bar), equalizers, shackles, bushings, walking beams, struts, sway bars, blocks, hangers, lines, fittings, gauges, valves, controls, and radius/torque rods, and fastening and mounting devices, by: visually inspecting, testing, and analysing performance and function, checking for: vibration/noise, corrosion, distortion, fractures, leaks, pressure, colour, alignment, stability, ride height, load distribution and controls, and lift, or kneeling applications; using: hand, power, specialized, precision, electronic service tools, lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5146.03 Repair suspension systems and components**, including: air beams, shock absorbers, springs (leaf, rubber block, air, and torsion bar), equalizers, shackles, bushings, walking beams, struts, sway bars, blocks, hangers, lines, fittings, gauges, valves, controls, and radius/torque rods, and fastening and mounting devices; by: exchanging, reconditioning, aligning, or servicing; using: hand, power, specialized, precision, electronic service tools, lifting, rigging and blocking devices, and heating, welding and cutting equipment; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5146.04 Verify and document repair of suspension systems and components**, including: air beams, shock absorbers, springs (leaf, rubber block, air, and torsion bar), equalizers, shackles, bushings, fasteners, walking beams, struts, sway bars, blocks, hangers, lines, gauges, valves, controls, and radius/torque rods; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, electronic service tools, lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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<b>SPONSOR CONFIRMATION FOR U5146: SUSPENSION SYSTEMS</b>		
<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>

**U5147.0 STEERING SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair steering systems, by: performing a visual inspection; diagnosing and troubleshooting steering systems and components, repairing steering system and components, verifying repair of steering systems and components, and aligning steering and axles; according to manufacturer’s specifications, recommendations, and safety requirements.

**SKILLS**

**5147.01 Perform visual inspection**, identifying system types and applications, checking for: worn, loose, damaged, leaking, missing. or defective components, including: steering boxes, pumps, drive mechanisms, cylinders, reservoirs, valves, controls, lines, hoses, fittings, linkages, columns, ball joints, king pins, universal joints, transfer boxes, switches, relays, sensors, modules, wiring harnesses, multiplexing, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5147.02 Diagnose and troubleshoot steering systems and components**, including: fluids, steering boxes, pumps, drive mechanisms, cylinders, reservoirs, valves, controls, lines, hoses, fittings, linkages, columns, ball joints, king pins, universal joints, transfer boxes, switches, relays, sensors, modules, wiring harnesses, multiplexing, and fastening and mounting devices; by visually inspecting, testing, and analysing performance and function; checking for: opens/shorts/grounds, wear, odour, temperature, colour, vibration/noise, corrosion, distortion, fractures, alignment, contamination, pressure, leaks, flow, oil level and condition; using: hand, power, specialized, precision, electronic service tools, lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications, schematic diagrams, and safety requirements.

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**5147.03 Repair/replace steering systems and components**, including: fluids, steering boxes, pumps, drive mechanisms, cylinders, reservoirs, valves, controls, lines, hoses, fittings, linkages, and columns, ball joints, king pins, universal joints, transfer boxes, switches, relays, sensors, modules, wiring harnesses, multiplexing, fastening and mounting devices; by visually inspecting, testing, and analysing performance and function; by: exchanging, reconditioning, servicing, adjusting, or aligning; using hand, power, specialized, precision, electronic service tools, lifting, rigging and blocking devices, heating, cutting and welding equipment and alignment equipment; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5147.04 Verify and document repair of steering systems and components**, including: fluids, steering boxes, pumps, drive mechanisms, cylinders, reservoirs, valves, controls, lines, hoses, fittings, linkages, columns, ball joints, king pins, universal joints, transfer boxes, switches, relays, sensors, modules, wiring harnesses, multiplexing, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices and alignment equipment; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5147.05 Align steering and axles**, by: adjusting alignment and verifying; using: alignment equipment, hand, power, precision measuring and electronic service tools, torque wrenches, gauges, and shims; according to manufacturer’s recommendations, specifications, and safety requirements.

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SPONSOR CONFIRMATION FOR U5147: STEERING SYSTEMS		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

**U5148.0 TIRES, WHEELS, RIMS, AND HUBS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair tires, wheels, rims, and hubs: by: performing a visual inspection; diagnosing and troubleshooting tires, wheels, rims, hubs and components, repairing tires, wheels, rims, hubs and components, verifying repair of tires, wheels, rims, and hubs, balancing tires, wheels, rims, hubs, assemblies and components; according to manufacturer’s recommendations, specifications, and safety requirements.

**SKILLS**

**5148.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn loose, damaged, leaking, overheated, missing, or defective components, including: tires, tubes, rims, hubs, bearings, spacers, seals, valves, caps, tire ratings, mounting arrangements, locking channels, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

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**5148.02 Diagnose and troubleshoot tires, wheels, rims, hubs, and components**, including: tires, tubes, valves, monitoring, automatic inflation systems, stems, caps, mounting arrangements, including: wide base singles, rims, hubs, locking channels, bearings, seals, wear rings, spacers, sensors, wiring harnesses, hub meters, lock wedges, cones, washers, flanges, tab locks, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function, checking for: tire matching and condition, corrosion, odour, contamination, pressure, leaks, colour, temperature, vibration/noise, fractures, lubrication, and runout, using hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, gauges, stethoscopes, wheel balancers, and torque wrenches; according to manufacturer's recommendations, specifications, and safety requirements.

## TRUCK AND COACH TECHNICIAN

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5148.03 Repair/replace tires, wheels, rims, hubs and components**, including: tires, tubes, valves, monitoring, automatic inflation systems, stems, caps, mounting arrangements, rims, hubs, locking channels, bearings, seals, wear rings, spacers, sensors, wiring harnesses, and hub meters, lock wedges, cones, washers, flanges, tab locks, and fastening and mounting devices; by: exchanging, reconditioning, servicing or balancing; using: hand, power, specialized, precision, electronic service tools, safety cages, balancing equipment, lifting, rigging and blocking devices, gauges, stethoscopes, wheel balancers, torque wrenches, gauges, seal installers, patches, plugs, sections, and heating, cutting and welding equipment; according to manufacturer's recommendations, specifications, and safety requirements.

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**5148.04 Verify and document repair of tires, wheels, rims, hubs and components**, including: tires, tubes, valves, monitoring, automatic inflation systems, stems, caps, mounting arrangements, rims, hubs, locking channels, bearings, seals, wear rings, spacers, sensors, wiring harnesses, and hub meters, lock wedges, cones, washers, flanges, tab locks, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using hand, power, specialized, precision, electronic service tools, safety cages, balancing equipment, lifting, rigging, and blocking devices, torque wrenches and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

### SPONSOR CONFIRMATION FOR U5148: TIRES, WHEELS, RIMS, AND HUBS

<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>
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**U5149.0 AIR SUPPLY SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair air supply system and components, by: performing a visual inspection; diagnosing and troubleshooting air supply system and components; repairing air supply system and components, verifying and documenting repair of air supply system and components; diagnosing and troubleshooting auxiliary air components, repairing auxiliary air components, and verifying repair of auxiliary air components; according to manufacturer’s specifications, recommendations and safety requirements.

**SKILLS**

**5149.01 Performs visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing or defective components, including: compressors, lubrication system, fans, drive mechanisms, governors, air dryers, air filters, reservoirs, after coolers, reservoirs, lines, hoses, fittings, valves, unloader mechanisms, gauges, warning devices, and fastening and mounting devices; according to manufacturer’s recommendations, specifications, and safety requirements.

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**5149.02 Diagnose and troubleshoot air supply systems and components**, such as: compressors, lubrication systems, fans, drive mechanisms, governors, air dryers, air filters, reservoirs, after cooler, reservoirs, lines, hoses, fittings, valves, unloader mechanisms, gauges, warning devices, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function, checking for: wear, odour, colour, corrosion, fractures, temperature, pressure, flow, vibration/ noise, contamination, and leaks, using: hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

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**5149.03 Repair/replace air supply systems and components**, such as: compressors, lubrication system, fans, drive mechanisms, governors, air dryers, air filters, reservoirs, after coolers, reservoirs, lines, hoses, fittings, valves, unloader mechanisms, gauges, warning devices, and fastening and mounting devices, by: reconditioning, exchanging, servicing, or calibrating; using: hand, power, specialized, precision, electronic service tools, and lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
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**5149.04 Verify and document repair of air supply systems and components**, such as: compressors, lubrication system, fans, drive mechanisms, governors, air dryers, air filters, reservoirs, after coolers, reservoirs, lines, hoses, fittings, valves, unloader mechanisms, gauges, warning devices, and fastening and mounting devices, by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#

**5149.05 Diagnose and troubleshoot auxiliary air components**, including: air ride seats, wipers, door systems, valves, regulators, cylinders, dash controls, horns, tarpaulin systems, air starters, tail gate locks, switches, relays, sensors, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; checking for: opens/shorts/grounds, wear, odour, colour, temperature, pressure, leaks, vibration/noise, corrosion, and contamination, using: hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#

**5149.06 Repair/replace auxiliary air components**, including: air ride seats, wipers, door systems, valves, regulators, cylinders, dash controls, horns, tarpaulin systems, air starters, tail gate locks, switches, relays, sensors, wiring harnesses, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#

**5149.07 Verify and document repair of auxiliary air components**, including: air ride seats, wipers, door systems, valves, regulators, cylinders, dash controls, horns, tarpaulin systems, air starters, tail gate locks, switches, relays, sensors, wiring harnesses, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#

**SPONSOR CONFIRMATION FOR U5149: AIR SUPPLY SYSTEMS**

<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>
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**U5150.0 BRAKING SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose, troubleshoot and repair brake systems (air or hydraulic) by: performing a visual inspection and measurement; verify and document repair of brake systems and components; diagnose and troubleshoot and repair anti-lock systems (ABS), automatic traction control (ATC) and rollover stability control (RSC) systems and components; verify and document repairs of ABS, ATC, and RSC systems; according to manufacturer’s recommendations, specifications, and safety requirements.

**SKILLS**

**5150.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing, or defective components, including: drums, calipers, rotors, backing plates, dust shields, spiders, friction material, hoses, lines, fittings, S-cams, bushings, slack adjusters, valves, brake chambers, hydraulic fluid, wheel and master cylinders, boosters, switches, relays, sensors, modules, wiring harnesses, safety and warning devices, ABS, ATC and RSC, driver display screens, multiplexing, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5150.02 Diagnose and troubleshoot brake system (air or hydraulic)**, including: drums, calipers, rotors, backing plates, dust shields, spiders, friction material, hoses, lines, fittings, S-cams, bushings, slack adjusters, valves, brake chambers, hydraulic fluid, wheel and master cylinders, boosters, switches, relays, sensors, modules, wiring harnesses, safety and warning devices, ABS, ATC and RSC, driver display screens, multiplexing, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function, checking for: wear, vibration/noise, pressure, corrosion, odour, colour, contamination, fractures, distortion, temperature, hydraulic fluid level and condition; using: hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#

**5150.03 Repair brake system (air or hydraulic)**, including: drums, calipers, rotors, backing plates, dust shields, spiders, friction material, hoses, lines, fittings, S-cams, bushings, slack adjusters, valves, brake chambers, hydraulic fluid, wheel and master cylinders, boosters, switches, relays, sensors, modules, wiring harnesses, safety and warning devices, ABS, ATC and RSC systems, driver display screens, multiplexing, and fastening and mounting devices; by: exchanging, reconditioning, servicing, or adjusting; using hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#

**5150.04 Verify and document repair of brake system (air or hydraulic)**, including: drums, calipers, rotors, backing plates, dust shields, spiders, friction material, hoses, lines, fittings, S-cams, bushings, slack adjusters, valves, brake chambers, hydraulic fluid, wheel and master cylinders, boosters, switches, relays, sensors, modules, wiring harnesses, safety and warning devices, ABS, ATC and RSC systems, driver display screens, multiplexing, fastening and mounting devices; by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision, electronic service tools, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#



**5150.05 Resurface brake drums and rotors**, using drums, rotors, and shoe gauges, specialized resurfacing equipment, and lifting devices; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**SPONSOR CONFIRMATION FOR U5150: BRAKING SYSTEMS**

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature
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**U5151.0 HEATING, VENTILATION, AIR CONDITIONING (HVAC) & REFRIGERATION SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose, troubleshoot and repair heating, ventilation, air-conditioning (HVAC) and refrigeration systems, by performing: a visual inspection, measurements and repairs. Verifying and documenting those repairs according to manufacturer's specifications, recommendations, and safety requirements.

**SKILLS**

**5151.01 Perform visual inspection**, identifying system types and applications, by: checking for: fluid levels and condition, and refrigerant levels, worn, loose, damaged, leaking, missing or defective components, including: hoses, lines, fittings, controls, actuators, cables, valves, switches, relays, sensors, modules, wiring harnesses, warning devices, compressors and drive mechanisms, motors, pumps, filters, heat exchangers, auxiliary heaters, receiver/dryers, accumulators, ducting, and fastening and mounting devices; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5151.02 Diagnose and troubleshoot HVAC systems and components**, such as: coolants, refrigerants, receiver/dryers, accumulators, hoses, lines, controls, actuators, cables, valves, switches, relays, sensors, modules, wiring harnesses, warning devices, drive mechanisms, motors, pumps, filters, heat exchangers, auxiliary heaters, ducting, fastening and mounting devices; by: measuring, testing, and analysing performance and function, checking for: opens/shorts/grounds, wear, odour, colour, corrosion, fractures, temperature, contamination, fluid levels and condition, vibration/noise, pressure and leaks; using: hand, power, specialized, precision, electronic service tools, vacuum pumps, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5151.03 Repair HVAC systems and components**, such as: coolants, refrigerants, receiver/dryers, accumulators, hoses, lines, controls, actuators, cables, valves, switches, relays, sensors, modules, wiring harnesses, warning devices, drive mechanisms, motors, pumps, filters, heat exchangers, auxiliary heaters, ducting, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, electronic service tools, vacuum pumps, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5151.04 Verify and document repair of HVAC systems and components**, including: coolants, refrigerants, receiver/dryers, accumulators, hoses, lines, controls, actuators, cables, valves, switches, relays, sensors, modules, wiring harnesses, warning devices, drive mechanisms, motors, pumps, filters, heat exchangers, auxiliary heaters, ducting, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, electronic service tools, vacuum pumps, and lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5151.05 Diagnose and troubleshoot refrigeration systems and components**, including: refrigerant, hoses, lines, fittings, controls, actuators, cables, valves, switches, relays, sensors, modules, wiring harnesses, warning devices, compressors, drive mechanisms, motors, pumps, filters, heat exchangers, auxiliary heaters, receiver/dryers, accumulators, ducting, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function, checking for: opens/shorts/grounds, wear, odour, colour, corrosion, temperature, contamination, vibration/ noise, pressure, leaks, fluid levels and condition, and refrigerant levels; using: hand, power, specialized, precision, electronic service tools, leak detection devices, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5151.06 Repair refrigeration systems and components**, including: refrigerant, hoses, lines, fittings, controls, actuators, cables, valves, switches, relays, sensors, modules, wiring harnesses, warning devices, compressors, drive mechanisms, motors, pumps, filters, heat exchangers, auxiliary heaters, receiver/dryers, accumulators, ducting, and fastening and mounting devices; by: exchanging, reconditioning, or servicing, using: hand, power, specialized, precision, electronic service tools, leak detection devices, vacuum pumps, recovery and charging equipment, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5151.07 Verify and document repair of refrigeration systems and components,** including: refrigerant, hoses, lines, fittings, controls, actuators, cables, valves, switches, relays, sensors, modules, wiring harnesses, warning devices, compressors, drive mechanisms, motors, pumps, filters, heat exchangers, auxiliary heaters, receiver/dryers, accumulators, ducting, and fastening and mounting devices; by: visually inspecting, testing, and analysing performance and function; using: hand, power, specialized, precision, electronic service tools, leak detection devices, vacuum pumps, recovery and charging equipment, lifting, rigging, and blocking devices, torque wrenches, and gauges; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journey person (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**SPONSOR CONFIRMATION FOR U5151: HEATING, VENTILATION, AIR CONDITIONING (HVAC) & REFRIGERATION SYSTEMS SYSTEMS**

<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>
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**U5152.0 HYDRAULIC SYSTEMS**

**GENERAL PERFORMANCE OBJECTIVES**

Diagnose and repair hydraulic systems and components, by: performing a visual inspection; diagnosing and troubleshooting hydraulic systems and components, repairing hydraulic systems and components, and verifying repair of hydraulic systems and components; according to manufacturer’s specifications, recommendations, and safety requirements.

**SKILLS**

**5152.01 Perform visual inspection**, identifying system types and applications, by: checking for: worn, loose, damaged, leaking, missing or defective components, including: pumps, drive mechanisms, cylinders, reservoirs, valves, seals, controls, gauges, screens, filters, coolers, power take-off (PTO) units, lines, hoses, fittings, oil level and condition, switches, relays sensors, modules, wiring harnesses, driver display screens, and fastening and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#

**5152.02 Diagnose and troubleshoot hydraulic systems and components**, including: fluid, pumps, drive mechanisms, cylinders, reservoirs, valves, seals, controls, gauges, screens, filters, coolers, power take-off (PTO) units, lines, hoses, fittings, switches, relays, sensors, modules, wiring harnesses, driver display screens, and fastening and mounting devices, by: visually inspecting, testing, and analysing performance and function, checking for: opens/shorts/grounds, wear, fluid level and condition, odour, colour, corrosion, vibration/noise, cavitation, contamination, pressure, flow, and temperature, using: hand, power, specialized, precision, electronic service tools, flow meters, lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, schematic diagrams, and safety requirements.

(mm/dd/yy)	_____ Journeyperson (Signature)	_____ College of Trades Member I.D.#
(mm/dd/yy)	_____ Apprentice (Signature)	_____ College of Trades Member I.D.#

**5152.03 Repair hydraulic systems and components**, including: fluid, pumps, drive mechanisms, cylinders, reservoirs, valves, seals, controls, gauges, screens, filters, coolers, power take-off (PTO) units, lines, hoses, fittings, switches, relays, sensors, modules, wiring harnesses, driver display screens, and fastening and mounting devices; by: exchanging, reconditioning, or servicing; using: hand, power, specialized, precision, electronic service tools, flow meters, lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**5152.04 Verify and document repair of hydraulic systems and components**, including: fluid, pumps, drive mechanisms, cylinders, reservoirs, valves, seals, controls, gauges, screens, filters, coolers, power take-off (PTO) unit, lines, hoses, fittings, switches, relays, sensors, modules, wiring harnesses, driver display screens, and fastening and mounting devices, by: visually inspecting, testing, and analyzing performance and function; using: hand, power, specialized, precision, electronic service tools, flow meters, lifting, rigging, and blocking devices; according to manufacturer's recommendations, specifications, and safety requirements.

(mm/dd/yy)	Journeyperson (Signature)	College of Trades Member I.D.#
(mm/dd/yy)	Apprentice (Signature)	College of Trades Member I.D.#

**SPONSOR CONFIRMATION FOR U5152: HYDRAULIC SYSTEMS**

<b>Date Completed (mm/dd/yy)</b>	<b>Sponsor Name (Print)</b>	<b>Sponsor Signature</b>
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## DEFINITIONS

### Apprentices Class

Individuals in this class:

- Hold one or more valid Registered Training Agreements with the Ministry of Training, Colleges and Universities in either compulsory or voluntary trades;
- Hold a valid statement of membership with the Ontario College of Trades in the Apprenticeship class;
- Are subject to any ratios or wage rates that have been set out in regulation for their trade(s);
- Can remain in this class until they receive their Certificate of Apprenticeship;
- Can hold themselves out as Apprentices.

### Certificate of Apprenticeship (C of A)

A certificate issued by the Minister of Training, Colleges and Universities to individuals who have demonstrated that they have completed an apprenticeship program in Ontario.

### Certificate of Qualification (C of Q)

A certificate issued by the Registrar on behalf of the College of Trades to a Journey person. A Certificate of Qualification will serve as proof of having met any testing/program requirements and membership in the College's Journey persons Class.

### Competence

The ability of an individual to perform a skill repeatedly and without assistance in the workplace as set out in the Log Book.

### Competency Analysis Profile (CAP Chart)

A chart that identifies the training needs of an individual trade and details the skills/skill sets that must be demonstrated during an apprenticeship program.

### Competent Person

A competent person is defined by the *Occupational Health and Safety Act* as being a person who:

- Is qualified because of their knowledge, training and experience to organize the work and its performance;
- Is familiar with the *Occupational Health and Safety Act* and its regulations that apply to the work; and has knowledge of any potential or actual danger to health or safety in the workplace.

### **Competent Worker**

A competent worker is defined by the *Occupational Health and Safety Act* as being a person who:

- Is qualified because of knowledge, training and experience to perform the work;
- Is familiar with the *Occupational Health and Safety Act* and with the provisions of the regulations that apply to the work; and
- Has knowledge of all potential or actual danger to health or safety in the work.

### **Sponsor**

Means a person that has entered into a Registered Training Agreement under which the person is required to ensure that an individual is provided with workplace-based training in a trade as part of an apprenticeship program established by the College of Trades.

### **Sponsor of Record**

Refers to the Sponsor documented as being signatory to the current training agreement or contract. In order for a Sponsor to be considered for the training of Apprentices, they must identify that the workplace has qualified Journeypersons or the equivalent on site, and can identify that the workplace has the tools, equipment, materials, and processes which have been identified by the Industry representatives for the trade.

### **Incompetence**

According to the *Ontario College of Trades and Apprenticeship Act, 2009*, a member of the College of Trades may be found to be incompetent by the College Of Trades Discipline Committee if the Committee feels that the member has displayed a lack of knowledge, skill or disregard for another person's welfare while practising their trade. If this happens, the individual may be found unfit to practise their trade and their Statement of Membership/Certificate of Qualification may be revoked, suspended, or be subject to terms, conditions or limitations.

### **Journeyperson**

Compulsory Trades Journeyperson:

- Someone who holds a valid Certificate of Qualification in the trade and who is a member in good standing of the College of Trades Journeypersons Class for the same trade; or
- Someone who holds a valid Provisional Certificate of Qualification in the trade and who is a member in good standing of the College of Trades Journeypersons Class for the same trade.

Voluntary Trades Journeyperson:

- Someone who holds a valid Certificate of Qualification in the trade and who is a member in good standing of the College of Trades Journeypersons Class for the same trade; or
- Someone who holds a Certificate of Qualification in the trade that was issued by the Ministry of Training, Colleges and Universities prior to April 8, 2013 (membership in the College of Trades is not required in this scenario).



### **Journey person Candidates Class**

An individual who has completed an Ontario apprenticeship program (Certificate of Apprenticeship) in a voluntary or compulsory trade that has a Certificate of Qualification examination, but has not passed the Certificate of Qualification examination for their trade. There is a maximum time limit of one year to remain in the Journey person Candidates Class.

Are subject to any ratios and/or wage rates that have been set out for their trade(s), if they practise a compulsory trade.

Can continue to work legally in their trade if they are in a compulsory trade, as they prepare to write their examination (individuals in voluntary trades do not have to be members of the College of Trades to work legally); and can hold themselves out as Journey person Candidates (they are neither Apprentices nor Journey persons).

Can remain in this class for a maximum of one year or until they pass the Certificate of Qualification exam and become members of the Journey persons class. However, they can only remain in this class for a maximum of one year. After one year they can move into the Trades persons Class if they are in a voluntary trade. If they are in a compulsory trade and have been in the Journey person Candidates Class for one year, they can no longer work legally in that trade until they pass the Certificate of Qualification examination.

### **Mandatory Skill**

Status assigned to unshaded individual skills, skill sets or general performance objectives which must be signed off for the Apprentice to complete their program.

### **OCTAA**

*Ontario College of Trades and Apprenticeship Act, 2009*

### **Optional Skill**

Status assigned to shaded individual skills, skills sets or general performance objectives for which sign-off is not required for the Apprentice to complete the program.

### **Ratios**

For up to date information regarding Journey person to Apprentice ratios, please visit: [collegeoftrades.ca](http://collegeoftrades.ca)

**Red Seal Program**

The Interprovincial Standards Red Seal Program (also known as the Red Seal Program) was established more than 50 years ago to provide greater mobility across Canada for skilled workers and represents a standard of excellence for industry. Through the program, individuals are able to obtain a Red Seal endorsement on their provincial/territorial certificates by successfully completing an interprovincial Red Seal examination. The Interprovincial Standards Red Seal Program acknowledges their competence and ensures recognition of their certification throughout Canada without further examination. There are currently over 50 Red Seal designated trades. The Red Seal Program is recognized as the interprovincial *standard of excellence* in the skilled trades. The Interprovincial Standards Red Seal Program is a partnership between the Government of Canada, the Provinces, the Territories and various stakeholders.

**Sign-off**

Signature of the Sponsor of record, or an individual to whom that Sponsor has delegated signing authority, (e.g. Trainer) indicating an Apprentice’s demonstration of competence.

**Skill**

Individual skill described in the Log Book (note: does not mean the larger skill groups referred to in the Log Book as Skill Sets, Training Units, or General Performance Objectives, but the individual skills that make up those groups).

**Skill Sets**

Group of individual skills found in the Log Book (may also be called Training Unit or General Performance Objective).

**Skill Set Completion for Sponsors**

Listing for all skill sets and includes space for sign-off by Sponsor of record.

**Supervisor**

An individual who oversees the performance of a task and oversees the actions or work of others.

**Trade Board**

Under the *Ontario College of Trades and Apprenticeship Act, 2009*, the [College of Trades Appointments Council](#) (COTAC) may appoint a Trade Board for each designated trade, composed of Employee and Employer representatives from the industry. Trade Boards are responsible for advising and making recommendations to the College of Trades Divisional Boards on issues relating to their trade. When there is no appointed trade board for a trade, the respective sector Divisional Board will act as the default Trade Board for the trade.

### **Tradespersons Class**

A Class of Membership for individuals who practise in a voluntary trade which may or may not have a Certificate of Qualification examination.

Individuals in this class:

Have been members of the Journeyperson Candidates Class or are not eligible for Journeyperson Candidates Class and have been assessed to have experience and/or qualifications that are equivalent to a Certificate of Apprenticeship in that trade

- Are preparing to write/have no plans to write/have not passed the available Certificate of Qualification exam for their trade(s);
- Can remain in this class indefinitely or until they pass the available Certificate of Qualification exam for their trade(s); and
- Can hold themselves out as tradespersons (they are neither apprentices nor journeypersons).

**Note:** Individuals in the Tradespersons Class are considered Journeypersons for the purpose of determining ratios for that trade.

### **Trainer**

A qualified Trainer in a compulsory trade is a Journeyperson with a Certificate of Qualification. In a voluntary trade, a Trainer is an individual who is considered equivalent to a Journeyperson with a Certificate of Qualification.

## READY TO WRITE YOUR EXAM?

Many of the skilled trades in Ontario have a final certification examination that you must pass to become certified in your trade. Passing the examination gives you the right to join the Journeypersons class of members at the Ontario College of Trades and receive a Certificate of Qualification in your trade.

There are two types of trade certification examinations in Ontario:

1. Provincial (Ontario) examinations - which lead to a Certificate of Qualification.
2. Red Seal examinations – which lead to a Certificate of Qualification with an Interprovincial Red Seal endorsement.

If a trade is designated as Red Seal in Ontario, you will be writing the Red Seal examination. To access the Red Seal preparation guide please visit: [red-seal.ca](http://red-seal.ca)

You will write an Ontario-only examination when your trade is not designated as Red Seal trade in Ontario.

### Ontario's Exam Preparation Guide [collegeoftrades.ca](http://collegeoftrades.ca)

#### Basic Examination Details for You to Know

You will have **up to four hours to write your examination**. If you need more time, you must ask for it when you schedule the examination, not on the day of your examination. You can leave the examination centre if you complete the examination in less than four hours. You need a mark of 70% to pass.

Exam questions are multiple choice with four options from which you must choose the correct answer. Your examination may have between 90 and 150 multiple choice questions.

#### Scheduling Your Examination

The examination scheduling process is currently outlined in detail on the College of Trades website: [collegeoftrades.ca](http://collegeoftrades.ca)

#### Remember these 3 basic steps:

1. Confirm your eligibility to write the examination with the College of Trades.
2. Contact Client Services at the College of Trades to pay your examination fee.
3. Contact the local Ministry apprenticeship office to schedule your examination in their examination centre: <http://services.findhelp.ca/eo/tcu/appoff>

## INSTRUCTIONS FOR RECORDING A CHANGE IN SPONSOR

1. Record your first sponsor's information in Sponsor Record #1 – this would be the sponsor who has signed your initial apprenticeship Training Agreement for this trade.
2. If you do change sponsors prior to completing this apprenticeship, please contact your local Ministry of Training, Colleges and Universities Apprenticeship Office immediately to update your sponsor record.
3. Please make sure you do record all of the information regarding any additional sponsors of record towards your apprenticeship using the Sponsor Records on the following pages (if applicable).

**You must fill out a CHANGE OF SPONSOR RECORD each time you change your sponsor.**

**SPONSOR RECORD #1**

SPONSOR INFORMATION	
Apprentice Name	
Registered Training Agreement #	
Sponsor Name	
Address	
Telephone	
E-mail Address	

SUMMARY OF TRAINING	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	
Skill Sets Completed (e.g. UXXXX)	

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: \_\_\_\_\_ Date: (mm/dd/yy) \_\_\_\_\_

The Sponsor is required to sign off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed off.

***\*If you need additional copies of the Sponsor Record, please photocopy as needed or visit [collegeoftrades.ca](http://collegeoftrades.ca) and search Sponsor Record Form.***

## INSTRUCTIONS FOR APPRENTICESHIP PROGRAM COMPLETION (Appendix A)

Once an Apprentice has completed all the classroom training and on-the-job hours specified for the trade, and has acquired all the mandatory skills included in this Log Book:

1. The Apprentice and the Sponsor complete the Apprentice Completion Form and the Skill Set Completion for Sponsors Form located on the following pages.
2. They sign the forms and submit them to their local Ministry of Training, Colleges and Universities apprenticeship office. To find the closest office, check the contact information at <http://services.findhelp.ca/eo/tcu/appoff> or call the Employment Ontario toll free number at (1-800-387-5656).
3. Since this trade is competency based, all mandatory skills in the Log Book must be signed off. If the Sponsor is completing the Apprentice before the industry recommended training hours are done, Ministry staff may request further information regarding the Apprentice's on-the-job training. An example of a request would be a letter from the Sponsor confirming the Apprentice worked for some time in the trade before the initial Training Agreement was registered, thereby acquiring some skills beforehand.

If Apprentices are submitting the completion request form and supporting documentation to their local Ministry of Training, Colleges and Universities apprenticeship office by mail, fax, or email (as a scanned document), they should not include their Log Book; if they are presenting this form in person at the local apprenticeship office, they should bring their Log Book with them.

After Ministry staff verifies all the information in the completion request, they may contact either the Apprentice or the Sponsor for further information or documentation. Once the completion has been confirmed, the Ministry will issue a Certificate of Apprenticeship to the Apprentice.

The Ontario College of Trades will receive notification of this completion, and complete the individual's membership in the Apprentices class for the trade. If the Apprentice has completed a program in a compulsory trade, the College of Trades will automatically register the Apprentice as a member of the Journeyperson Candidates class so the Apprentice can continue to work legally for one year while preparing for the certification examination. If an apprentice completes their apprenticeship in a voluntary trade **and** there is no Certificate of Qualification exam, they can apply for membership in the Journeypersons Class at the Ontario College of Trades. If there is a Certificate of Qualification exam, they must write and pass the exam in order to enter the Journeypersons Class at the Ontario College of Trades.

For permission to schedule an exam once completion is confirmed by the Ministry, the individual must first contact the College of Trades Client Services Department at 647-847-3000 or toll free at 1-855-299-0028 to pay the certification examination fee.

## APPRENTICE COMPLETION FORM (Appendix B)

*Please fill out both sides of this form, including the Skill Set Completion for Sponsors (see back of form). Once both sides are completed, submit the form to your local Ministry of Training, Colleges and Universities apprenticeship office (find contact information at <http://services.findhelp.ca/eo/tcu/appoff> or by calling Employment Ontario at (1-800-387-5656).*

APPRENTICE INFORMATION	
Name (print)	
Client ID # Issued by Ministry	
Telephone Number(s)	

SPONSOR INFORMATION	
Legal Name	
Address	
Telephone Number(s)	
Sponsor's Signing Authority ( <i>print name</i> )	
E-mail Address	

PROGRAM INFORMATION			
Trade Name			
Number of hours required as per Training Agreement ( <i>for hours-based trades only</i> )			
Hours completed? ( <i>documentation attached</i> )	Yes ( )	No ( )	Not applicable ( )
Classroom training completed or exempt?	Yes ( )	No ( )	Not applicable ( )

I hereby confirm that the information submitted on both sides of this form is true and accurate.

**X** \_\_\_\_\_  
Apprentice's signature                      Date

**X** \_\_\_\_\_  
Signature of Sponsor's Signing Authority                      Date



## SKILL SET COMPLETION FOR SPONSORS (Appendix C)

*You will find the skill set numbers and titles in the Log Book's Table of Contents. By signing off each skill set in the table below, you are providing final confirmation, as the Apprentice's Sponsor, that the Apprentice has demonstrated competency in all the mandatory skills included in the skill set.*

SKILL SET #	SKILL SET TITLE	SIGNING AUTHORITY SIGNATURE
U5135.0	Occupational Health and Safety Procedures	
U5136.0	Electrical Systems - Starting and Charging	
U5137.0	Electrical Systems - Body Electrical and Components	
U5138.0	Fuel Systems	
U5139.0	Engine Systems - Gasoline and Diesel	
U5140.0	Engine Management Systems	
U5141.0	Exhaust, Intake and Emission Control Systems	
U5142.0	Transmission Systems	
U5143.0	Drive Shafts and Drive Axle Assemblies	
U5144.0	Frames and Hitching/Coupling Systems	
U5145.0	Body and Trim	
U5146.0	Suspension Systems	
U5147.0	Steering Systems	
U5148.0	Tires, Wheels, Rims and Hubs	
U5149.0	Air Supply Systems	
U5150.0	Braking Systems	
U5151.0	Heating, Ventilation, Air-Conditioning and Refrigeration Systems	
U5152.0	Hydraulic Systems	

### MINISTRY OF TRAINING, COLLEGES AND UNIVERSITIES USE ONLY:

Sponsor verified as most recent sponsor of record:                      Yes ( )                      No ( )  
 Documentation to support completion of hours attached:                      Yes ( )                      No ( )  
 Completion of classroom training verified:                      Yes ( )                      No ( )

Staff Name \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

**MINISTRY OF TRAINING, COLLEGES AND UNIVERSITIES  
APPRENTICESHIP OFFICES IN ONTARIO (Appendix D)**

<b>Location</b>	<b>Contact</b>	<b>Location</b>	<b>Contact</b>
<b>Barrie</b> 705-737-1431	55 Cedar Pointe Dr Unit 609, Barrie, ON L4N 5R7	<b>North Bay</b> 705-495-8515	200 First Ave West, North Bay, ON P1B 3B9
<b>Belleville</b> 613-968-5558	135 North Front St, Belleville, ON K8P 3B5	<b>Ottawa</b> 613-731-7100	Preston Square, 347 Preston St 3rd Flr, Ottawa, ON K1S 3H8
<b>Brantford</b> 519-756-5197	505 Park Rd North Suite 201, Brantford, ON N3R 7K8	<b>Owen Sound</b> 519-376-5790	1450 1st Ave West Suite 100, Owen Sound, ON N4K 6W2
<b>Chatham</b> 519-354-2766	870 Richmond St West 1st Floor, Chatham, ON N7M 5J5	<b>Pembroke</b> 613-735-3911	615 Pembroke St East, Pembroke, ON K8A 3L7
<b>Cornwall</b> 613-938-9702	132 Second St East Ste 202, Cornwall, ON K6H 1Y4	<b>Peterborough</b> 705-745-1918	901 Lansdowne St West, Peterborough, ON K9J 1Z5
<b>Dryden</b> 807-223-4632	Provincial Government Building, 479 Government St, Dryden, ON P8N 3K9	<b>Pickering (City of)</b> 905-837-7721	1420 Bayly St Unit 1, Pickering, ON L1W 3R4
<b>Elliot Lake</b> 705-848-4661	50 Hillside Dr North, Elliot Lake, ON P5A 1X4	<b>Sarnia</b> 519-542-7705	Bayside Mall, 150 Christina St North, Sarnia, ON N7T 7W5
<b>Fort Frances</b> 807-274-8634	922 Scott St 2nd Flr, Fort Frances, ON P9A 1J4	<b>Sault Ste. Marie</b> 705-945-6815	477 Queen St East 4th Flr, Sault Ste Marie, ON P6A 1Z5
<b>Hamilton Central</b> 905-521-7764	Ellen Fairclough Bldg, 119 King St West 8th Flr, Hamilton, ON L8P 4Y7	<b>St Catharines</b> 905-704-2991	Garden City Tower, 301 St Paul St 10th Flr, St Catharines, ON L2R 7R4
<b>Kapuskasing</b> 705-337-4381	Ontario Government Complex, 122 Government Rd West, Kapuskasing, ON P5N 2X8	<b>Sudbury</b> 705-564-3030	159 Cedar St Ste 506, Sudbury, ON P3E 6A5
<b>Kenora</b> 807-468-2879	227 1/2 Second St South, Kenora, ON P9N 1G4	<b>Thunder Bay</b> 807-346-1550	189 Red River Rd Suite 103, Thunder Bay, ON P7B 1A2
<b>Kingston</b> 613-548-1151	Cornell Corporate Centre, 299 Concession St Ste 201, Kingston, ON K7K 2B9	<b>Timmins</b> 705-235-1950	Ontario Government Complex, 5520 Highway 101 East Wing B, South Porcupine, ON P0N 1H0
<b>Kitchener</b> 519- 653-5758	4275 King St East Ste 200, Kitchener, ON N2P 2E9	<b>Toronto Central</b> 416-326-5800	625 Church St 1st Fl, Toronto, ON M7A 2B5
<b>London</b> 519-675-7788	1200 Commissioners Rd E Unit 72, London, ON N5Z 4R3	<b>Windsor Central</b> 519-973-1441	Roundhouse Centre, 3155 Howard Ave 2nd Fl, Ste 200, Windsor, ON N8X 4Y8
<b>Mississauga (City of)</b> 905-279-7333	The Emerald Centre, 10 Kingsbridge Garden Cir Ste 404, Mississauga, ON L5R 3K6		

For current office listings, please visit: <http://services.findhelp.ca/eo/tcu/appoff>

## Completing Your Apprenticeship Program

Once your sponsor agrees that your hours are complete and you are competent in the required skills, and you have completed all the levels of classroom training required for your trade:

- ✔ Check the Ontario College of Trades Public Register to make sure your Apprentices class membership is still active:  
<https://tmsportal.collegeoftrades.ca/web/ocot-public-services-v3/public-registry>
- ✔ Follow the completion instructions on the Completion Form (Appendix A) in the Log Book.
- ✔ Answer any questions that MTCU staff may have, and provide any additional completion documentation they may require.
- ✔ Once they confirm completion, MTCU will issue you a Certificate of Apprenticeship and notify the Ontario College of Trades of your completion.

## After Your Apprenticeship

If you are in a trade with a certification exam, the College of Trades will **automatically** complete your membership in the Apprentices class and activate your 12-month membership in the Journeyman Candidates class. This change will be reflected on your account with the College as well as on the College's Public Register.

Membership in the Journeyman Candidates class will allow you to continue practising in a compulsory trade for 12 months while you prepare for and write your exam; if you are in a voluntary trade, it is your automatic approval to challenge the certification exam.

The College will send you a Journeyman Candidates class welcome letter within 3 weeks of completion that outlines any/all of your future requirements for membership and examination as appropriate (different situations for voluntary and compulsory trades).

If you complete an apprenticeship program for which there is no exam, you can submit an application to become a member of the College's Journeymen class on the basis of having earned a Certificate of Apprenticeship in the trade.

## Preparing For Your Exam

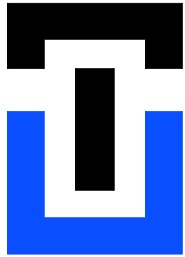
**Find out if your trade has a Certificate of Qualification exam at:**

[www.collegeoftrades.ca/wp-content/uploads/tradesOntarioTradesCodes\\_En.pdf](http://www.collegeoftrades.ca/wp-content/uploads/tradesOntarioTradesCodes_En.pdf)

**For permission to schedule an exam once completion is confirmed by MTCU**, you must first contact the College's Client Services Department at 647-847-3000 or toll free at 1-855-299-0028 to pay the certification exam fee. Once you have paid, contact your local MTCU Apprenticeship office to book your exam.

**Download Ontario College of Trades exam preparation guide at:**

[www.collegeoftrades.ca/resources/exam-process](http://www.collegeoftrades.ca/resources/exam-process) and/or view the exam preparation guide for Red Seal trades at: [www.red-seal.ca/w.2lc.4m.2@-eng.jsp](http://www.red-seal.ca/w.2lc.4m.2@-eng.jsp)



**ONTARIO COLLEGE OF TRADES**  

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**ORDRE DES MÉTIERS DE L'ONTARIO**

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