

PREPARATION KIT



HEAVY VEHICLE MECHANICS JOURNEYMAN

23
24



VERSION 11-2023

qualifying exam

WHY THE QUALIFICATION?

The professional qualification exam is an assessment tool that aims to certify that your knowledge and skills meet the standards qualifying a journeyman.

The exam is identical throughout Quebec. The qualification certificate obtained following successful completion is recognized in the other provinces of Canada and in France.

→ For the mechanic

it is the recognition of their skills and the improvement of their working conditions.

→ For the employer

it is the certification of the qualification of its staff.

→ For the public

it is a guarantee of confidence and safety.



SUGGESTED ROUTE TOWARDS QUALIFICATION



Self evaluation

Duration: 1 hour 30 minutes

Description: This allows you to take stock of the candidate's skills. In other words, it is the portrait of the skills acquired and those missing.



Training



Link: www.cpcpa.ca/qualification-et-formation/formations

Description: Training is available depending on the skills to be developed. With the help of the CPA training advisor in your region, it is possible to establish a training plan adapted to the needs of each candidate.



Qualifying exam

Exam: Heavy vehicle mechanics end of apprenticeship

Location: CPA in your region

Card: Journeyman (Class C)

Description: The qualification exam consists of two parts. The **theoretical component** must be passed to be eligible to register for the **practical component**.



THE THEORETICAL COMPONENT



CPA in your area



150 minutes

Number of questions: 115 from a bank (random)

Distribution of questions:

45 % knowledge

35 % understanding

20 % diagnosis

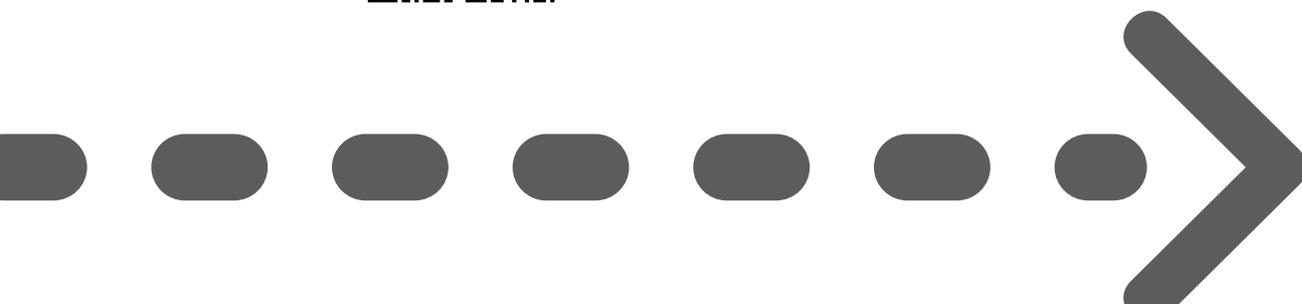
Passing mark: 70%

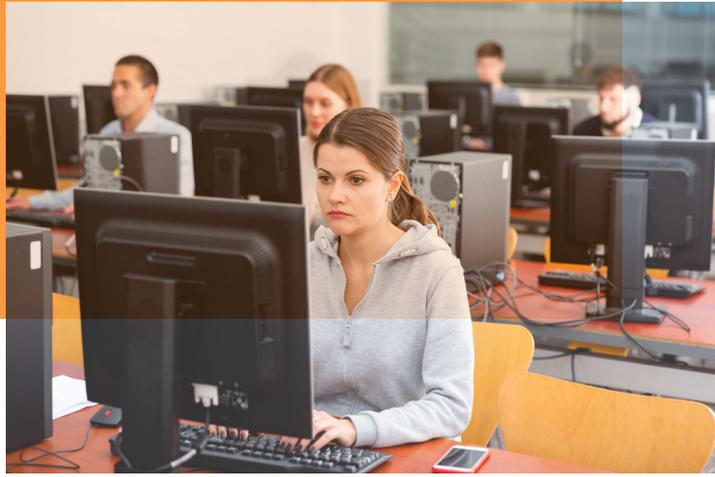
Pass: Access to the practical component

Right to retake exam: 3 months

Questions similar to the ones found in the exam can be found here:

[CLICK HERE](#)





Process

- ➔ A computer is assigned to each candidate upon arrival.
- ➔ The supervisor will remind you of the rules for conducting the exam.
- ➔ It is possible to raise your hand to ask questions relating to the use of the software or the computer only.
- ➔ The software allows you to navigate between questions, allowing for revision at the end.
- ➔ Cell phones, lighters, and other computer devices must be given to the supervisor upon arrival.
- ➔ You have the right to use your personal headphones if you wish (the software allows automated reading of questions).

THE PRACTICAL COMPONENT



CPA in your area



120 minutes

Number of questions: 44 (3 modules)

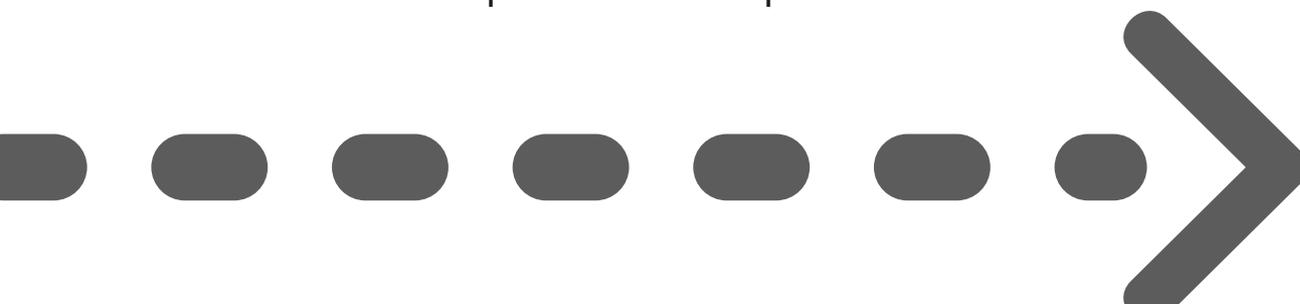
Passing mark: **Double threshold**

✓ 1st condition: Obtain an OVERALL grade of 60% and above

- If this condition is not met, the entire exam will have to be repeated.
- If this result is achieved, the second success condition must be fulfilled.

✓ 2nd condition: Obtain a mark of 50% or more in EACH module

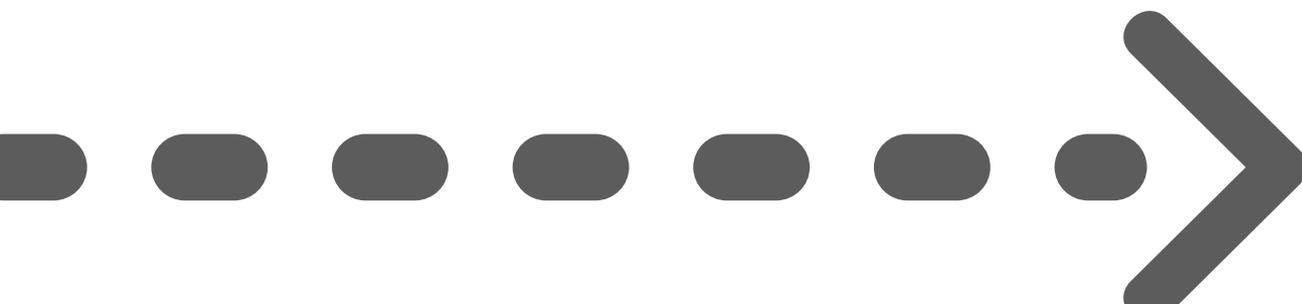
- If there is a failure in a module, the candidate is subject to a retake exclusively for the failed module (or failed modules).
- If the results for each module are achieved, the PASS mark is awarded for the practical component.



THE BLIND PRACTICAL (SUITE)

Success: Obtaining the journeyman card (class C)

Deadline for the right to retake exam: every 3 months, respecting the 18-month period between the date of passing the theoretical exam and the date of the practical exam. After the 18-month period, you will have to repeat both parts (theoretical and practical).





Process

- ➔ There are 4 rooms for this exam, allowing you to complete the questions for the 3 modules evaluated.
- ➔ In each room there is an examiner.
- ➔ The supervisor will remind you of the rules to follow while doing the exam.
- ➔ The examiner will read the question twice, then you will be able to perform the technical tasks or answer according to the question.
- ➔ Make sure you complete each of the steps necessary to safely carry out the tasks required of you.
- ➔ Safety shoes and safety glasses are required.
- ➔ It is possible to bring your own multimeter (marked "automotive").
- ➔ Cell phones, lighters, and other computer devices must be given to the supervisor upon arrival.

SKILLS



Steering and suspension

	<i>Know and recognize roles and functions</i>	<i>Understand how it works</i>	<i>Diagnose and understand problems</i>
Steering gear			
Frame and chassis		☑	
Steering alignment	☑	☑	☑
Power steering	☑	☑	
Rim	☑	☑	
Hubs	☑	☑	
Safety	☑		
Blade suspension	☑	☑	
Air suspension	☑	☑	☑
Hitch system		☑	☑

SKILLS



Brakes

	<i>Know and recognize roles and functions</i>	<i>Understand how it works</i>	<i>Diagnose and understand problems</i>
ABS brakes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Disc brakes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hydraulic brakes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Pneumatic brakes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Hydraulic system	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Pneumatic system	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Safety	<input checked="" type="checkbox"/>		

SKILLS



Engine

*Know and recognize
roles and functions*

*Understand how it
works*

*Diagnose and
understand problems*

Lubrication



Intake and exhaust system



Emission control system



Fuel system



Injection system



Engine management system



Cooling system



Mechanical shutter



SKILLS



Electricity

*Know and recognize
roles and functions*

*Understand how it
works*

*Diagnose and
understand problems*

Batteries



Basic electricity



Electrical system safety



Charging system



Air conditioning system



Hybrid and electric
vehicles

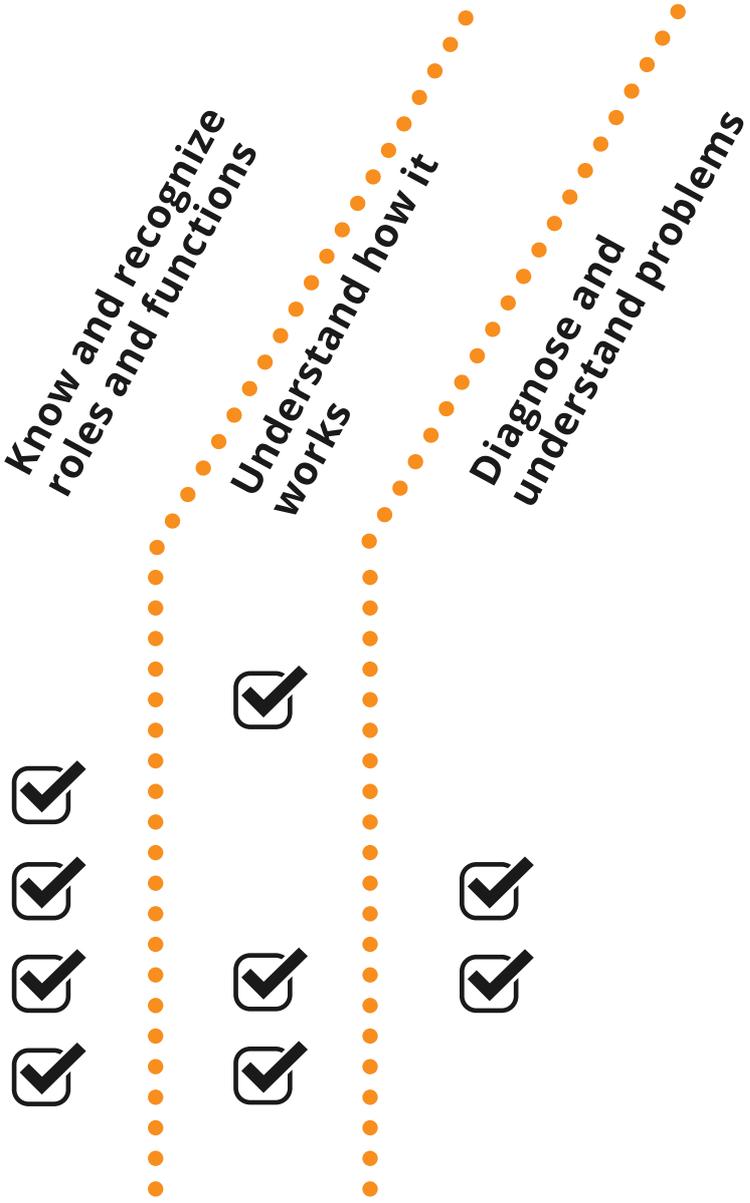




SKILLS



Transmission



Seals

Lubrication

Clutch system

Automatic transmission

Manual transmission

Know and recognize roles and functions

Understand how it works

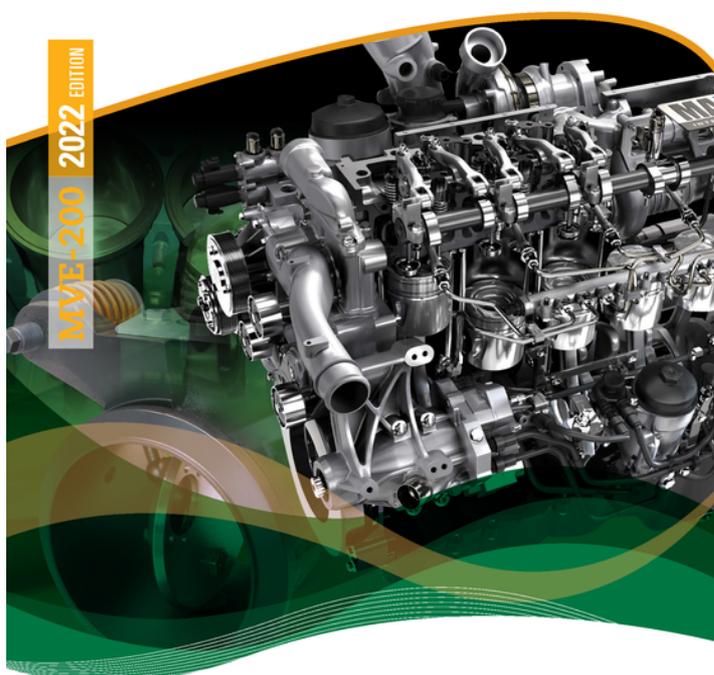
Diagnose and understand problems

TRAINING

Developed by the CPCPA,
the CPA and our partners



Heavy Vehicle Engine and Related Systems



Training duration

In person **30 hours**

Engine and Related systems



Description

This training is aimed at mechanics in the heavy vehicle industry wishing to update their knowledge at the end of their apprenticeship.

At the end of this training, the participant will be able to identify the different components of the engine and its subsystems, and to carry out maintenance and repair.

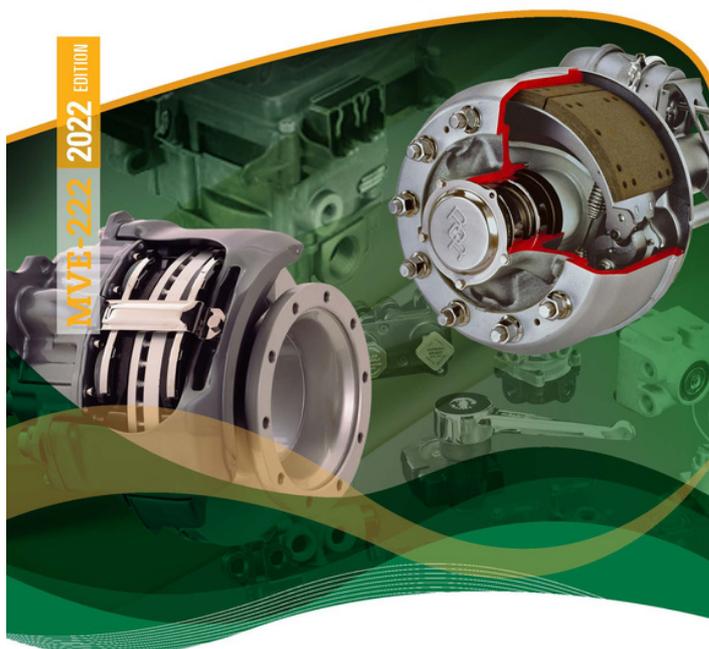
Course Objectives

- Know and understand the role of the main components of standard engines.
- Understand the physical principles of operation of the internal combustion engine and the principle of the four-stroke engine.
- Know specialized testing procedures.
- Understand lubrication and cooling systems and their components.
- Understand the different types of fuel systems, their components, and related risks.
- Know the different components of the intake, exhaust and anti-pollution system.
- Understand engine management systems.
- Understand auxiliary braking systems.
- Know the possible contaminations between the different fluids in an engine.

TRAINING



Heavy Vehicle Hydraulic and Pneumatic Brakes



Training duration

In person **33 hours**

Hydraulic and Pneumatic Brakes



Description

This training is aimed at mechanics in the heavy vehicle industry wishing to update their knowledge at the end of their apprenticeship.

At the end of this training, the participant will be able to identify the different components of hydraulic and pneumatic brakes as well as their subsystems, and to carry out their maintenance and repair.

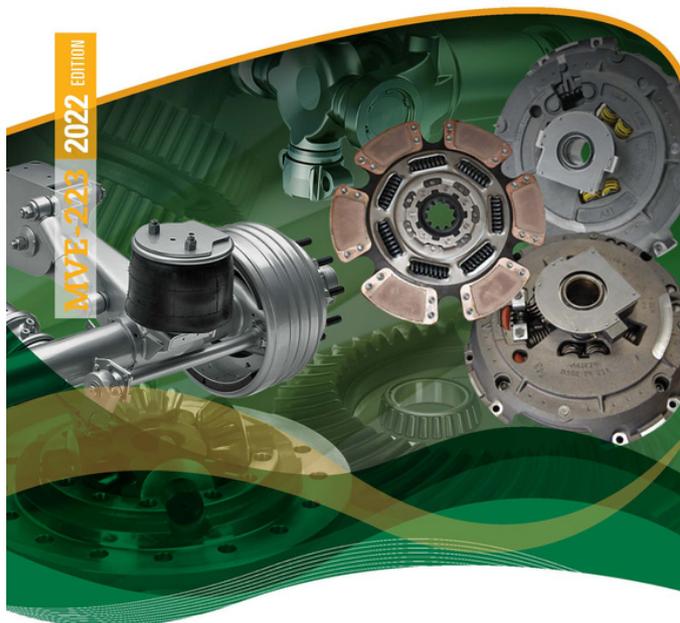
Course Objectives

- Know the basic principles of the braking system.
- Understand the operating principles of a pneumatic system and a hydraulic system.
- Know the different parts of hydraulic systems as well as their assistance.
- Carry out leak checks on the hydraulic braking system, as well as bleeding.
- Understand the air supply to the circuit and the different types of compressors.
- Know how the air dryer works and its cycles.
- Know the air brake system, its valves, and fittings.
- Know the braking system of the tractor and semi-trailer.
- Know how the braking control of a tractor without a semi-trailer works.
- Know the pneumatic circuit of the semi-trailer, its operation, and its diagnosis.
- Know the parts of mechanical brakes, drum and disc brakes.
- Know the maintenance needs of the air brake system and its parts.
- Know the anti-lock braking system, its parts, and its different configurations.

TRAINING



Heavy Vehicle Transmission and Suspension



Training duration

In person **24 hours**

Transmission and suspension



Description

This training is aimed at mechanics in the heavy vehicle industry wishing to update their knowledge at the end of their apprenticeship.

At the end of this training, the participant will be able to identify the different components of the transmission and suspension.

Course Objectives

- Know the types of clutches.
- Understand the operating principles of a clutch.
- Know the different clutch controls.
- Understand the symptoms requiring clutch intervention.
- Know the main components, depending on the model (manufacturer).
- Understand how manual transmissions work.
- Understand the pneumatic and electrical circuits of manual transmissions.
- Know the types of automated transmissions (manufacturer) and their maintenance.
- Know automatic transmissions and their particularities.
- Know the procedures and specific work of automatic transmissions.
- Understand the operation and components of driveshafts.
- Know the methods for removing and installing control shafts.
- Understand the operating principle of the differential.
- Know the parts, maintenance, and needs necessary for the proper functioning of the differential.
- Know the types of suspensions.
- Know the maintenance and inspection points for different types of suspensions.

TRAINING



Electrical and Electronic Systems

Description

This training is aimed at mechanics in the heavy vehicle industry wishing to update their knowledge at the end of their apprenticeship.

At the end of this training, the participant will be able to identify the different electrical and electronic circuits of the components of a heavy vehicle and to carry out repairs.

Course Objectives

- Know the different types of conductive materials.
- Know the units of measurement of electricity.
- Know the types of circuits and calculate Ohm's law.
- Understand the use of the multimeter and its scales.
- Know the different electrical and electronic components.
- Understand voltage drops and verify them.
- Interpret electrical diagrams.
- Know the types of batteries.
- Know how to handle, check and test batteries.
- Know the safe method for overvoltage.
- Know the components of a charging system.
- Know the methods for checking the alternator as well as the checks to be made on it.
- Understand the starting system and its related parts.
- Know the checks to be made on the starting system.
- Know the different accessories and electrical components of the semi-trailer.
- Understand multiplexing and how it works.
- Update your knowledge of electricity and electronics and research the problems of different heavy vehicle circuits.
- Update your theoretical knowledge of today's electrical and electronic systems.
- Update your knowledge on the maintenance of the various electrical and electronic circuits of today's heavy vehicles.

Developed by the CPCFA,
the CFA and our partners



Heavy Vehicle Electrical and Electronic Systems



Training duration

In person **21 hours**

TRAINING

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Heavy Vehicle Steering, Frame, Hubs and Tires



Training duration

In person **21 hours**

Steering, Frame, Hubs, and Tires



Description

This training is aimed at mechanics in the heavy vehicle industry wishing to update their knowledge at the end of their apprenticeship.

At the end of this training, the participant will be able to make a more precise diagnosis of the condition of the steering and its related systems, as well as carry out repairs and maintenance.

Course Objectives

- Update your theoretical and practical knowledge of tires.
- Update your knowledge of disc and spoke wheels.
- Know the procedures for adjusting wheel bearings.
- Know the steering components.
- Know how to adjust the geometry and steering angles.
- Know the inspection and verification procedures on hydraulic assistance systems.
- Understand the causes of tire wear defects.
- Know the parts of the chassis and frame and detect their defects.
- Know the parts of the fifth wheel, its component, and their inspection.
- Know the components of crutches and common defects.
- Know the types of semi-trailers and their specific components.

TRAINING



Operator Cab and Ambient Air Monitoring

Description

This training is aimed at mechanics in the heavy vehicle industry wishing to update their knowledge at the end of their apprenticeship.

At the end of this training, the participant will be able to identify the different components of the cabin and ambient air control as well as those of their subsystems, and to carry out their maintenance and repair.

Course Objectives

- Know the supplemental restraint systems (SRS).
- Know the main indicators on the dashboard.
- Understand the procedures for checking pneumatic systems.
- Know the elements to inspect around the vehicle.
- Know the controls and distribution of the HVAC system.
- Understand the issues associated with the heating system.
- Know the definition and role of the air conditioning system.
- Know the regulations on halocarbons.
- Know the various elements of the air conditioning system.
- Know the maintenance procedures for the air conditioning system.
- Know the tools to use with the air conditioning system.
- Understand the causes of air conditioning system failure.

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Heavy Vehicle Operator Cab and Ambient Air Monitoring



Training duration

In person **15 hours**

HEAVY VEHICLE MECHANICS JOURNEYMAN