

# ESSENTIAL SKILLS OUTLINE

## Automotive Service Technician

2016



[red-seal.ca](http://red-seal.ca)  
[sceau-rouge.ca](http://sceau-rouge.ca)





# **ESSENTIAL SKILLS**

# **OUTLINE**

## **AUTOMOTIVE SERVICE**

## **TECHNICIAN**



# STRUCTURE OF THE ESSENTIAL SKILLS OUTLINE

To facilitate the inclusion of essential skills in the development and delivery of apprenticeship technical training and to complement the learning standard, this document contains the following sections:

**Description of the Automotive Service Technician trade:** an overview of the trade's duties, work environment, job requirements, similar occupations and career progression

**Essential Skills Summary:** an overview of how each of the 9 essential skills is applied in this trade

**Essential Skills Matrix by Recommended Training Levels:** an illustrative chart which identifies each of the nine essential skills by subtask and recommended training level.

A complete version of the occupational standard, which provides additional detail for the trade activities, skills and knowledge can be found at [www.red-seal.ca](http://www.red-seal.ca)

# DESCRIPTION OF THE AUTOMOTIVE SERVICE TECHNICIAN TRADE

Automotive Service Technician is this trade's official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by Automotive Service Technicians whose occupational title has been identified by some provinces and territories of Canada under the following names:

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
Automotive Service Technician	■	■	■	■	■	■	■	■	■	■	■	■	■

Automotive service technicians possess the full range of knowledge and abilities required to perform preventative maintenance, diagnose problems and repair vehicle systems including engines, vehicle management, hybrids, steering, braking, tires, wheels, drivetrains, suspension, electrical, electronics, heating, ventilation and air conditioning (HVAC), restraints, trim and accessories of automotive vehicles and light trucks.

Automotive service technicians may be employed by automotive repair shops, dealerships, automotive specialty repair shops, large organizations that may own a fleet of vehicles and motor vehicle body repair companies.

While the scope of the automotive service technician trade includes many aspects of vehicle service and repair, an increasing number of technicians specialize in specific areas of automotive vehicle repair due to the complexity of today's motor vehicle systems.

Technicians usually work indoors and can expect a work environment that includes noise, fumes, odours, hazardous compounds, drafts, vibrations, and confined spaces. The work often requires considerable standing, bending, crawling, lifting, pulling and reaching.

Some important attributes of automotive service technicians are: good hand-eye coordination, mechanical aptitude, time management skills, logical thinking and decision making skills, excellent communication skills, computer skills and the ability to continue learning as technology advances. It is also imperative to have a valid driver's licence.

With additional training, experienced automotive service technicians may advance to shop supervisor or service manager positions. Also technicians can transfer their skills and knowledge to related occupations such as automotive instructor, truck and transport mechanic, agricultural equipment technician or heavy duty equipment technician. Some technicians may open their own garage or automotive specialty shop.

# 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 CCDA-endorsed tools 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.

Tools are available online or for order at: <http://www.esdc.gc.ca/eng/jobs/les/tools/index.shtml>.

The application of these skills may be described throughout this document within the competency statements which support each subtask of the trade. The following are summaries of the requirements in each of the essential skills, taken from the essential skills profile. A link to the complete essential skills profile can be found at [www.red-seal.ca](http://www.red-seal.ca).

---

## READING

Automotive service technicians must read and comprehend a variety of materials including repair manuals, manufacturers' bulletins and safety documents. They refer to government regulations, vehicle inspection procedures, hazardous material handling and disposal and safety requirements of vehicles.

---

## DOCUMENT USE

Automotive service technicians interpret technical drawings and flowcharts. They locate data such as classifications, product and material specifications, identification numbers, quantities and costs. Automotive service technicians often use specification tables. They scan a variety of manufacturers' labels for part numbers, serial numbers, sizes, colours and other information and adhere to hazard and safety icons.

---

## WRITING

Automotive service technicians complete workplace documents such as written explanations to the client, work orders, inspection reports and incident reports.

---

## **ORAL COMMUNICATION**

Automotive service technicians gather information from different sources about vehicle faults and needed repairs, explain the results of inspections and repairs, and discuss maintenance procedures. They exchange technical repair and troubleshooting information with others such as service managers, apprentices, co-workers, colleagues and suppliers.

---

## **NUMERACY**

Automotive service technicians take a variety of measurements using digital and analog equipment. They estimate the amount of time required to complete repairs. Automotive service technicians compare measurements of energy, dimension, speed, horsepower, temperature and torque to specifications. They analyze pressure, power, torque, compression and electrical readings to assess vehicle performance and troubleshoot faults.

---

## **THINKING**

Automotive service technicians use thinking skills and visual analysis to diagnose and repair problems. They evaluate the severity of vehicle defects and deficiencies and the quality of repairs. Automotive service technicians decide the most efficient course of action to complete a job.

---

## **WORKING WITH OTHERS**

Most automotive service technicians work independently on jobs outlined in work orders. They may assist others with jobs that require two people or are within their specific area of expertise. They collaborate effectively with colleagues including salespersons, partspersons and management to resolve concerns, situations and problems.

---

## **DIGITAL TECHNOLOGY**

Automotive service technicians use computerized scanning equipment, onboard vehicle diagnostics and hand-held diagnostic tools to gain operational information about vehicles. They access the Internet and databases to retrieve repair information. Automotive service technicians use digital technology to exchange information with other technicians, service managers, colleagues in other locations and manufacturer support specialists. Keyboarding and basic computer skills are an asset.

---

## **CONTINUOUS LEARNING**

Constant change in the industry makes it vital for automotive service technicians to stay current with the latest technology. They learn on the job, in organized information activities and in work discussion groups. Their training is provided by vehicle manufacturers, parts suppliers, employers and associations. They also advance skills by reading work-related magazines, periodicals and automotive websites.

# AUTOMOTIVE SERVICE TECHNICIAN

## ESSENTIAL SKILLS MATRIX BY RECOMMENDED TRAINING LEVELS

The Essential Skills Matrix can be used to develop targeting training activities and to help identify both essential skills strengths as well as areas in which apprentices may need some improvement. For example, an apprentice that demonstrates having difficulty with a number of the sub-tasks under a specific essential skills may benefit from some additional support or guided practice in this area. The goal of this matrix is to assist instructors and mentors to identify how essential skills can be blended in to both technical training and on-the-job learning.

<b>Reading</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
A-1.02 Uses personal protective equipment (PPE) and safety equipment	G-20.04 Diagnoses latches, locks and movable glass
A-2.04 Uses technical information	G-21.03 Repairs interior and exterior components, accessories and trim
F-18.01 Diagnoses steering, suspension and control systems	G-21.04 Repairs latches, locks and movable glass
G-20.03 Diagnoses interior and exterior components, accessories and trim	H-22.01 Implements specific safety protocols for hybrid and EV
<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
B-5.01 Repairs cooling systems	D-13.06 Repairs final drive assemblies
D-12.06 Diagnoses final drive assemblies	F-18.01 Diagnoses steering, suspension and control systems
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
D-12.05 Diagnoses transfer cases	D-13.05 Repairs transfer cases
<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
D-12.03 Diagnoses automatic transmissions/transaxles	H-23.01 Repairs hybrid vehicle systems
H-22.01 Implements specific safety protocols for hybrid and EV	H-23.02 Repairs EV systems
H-22.02 Diagnoses hybrid and EV systems	

<b>Document Use</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
A-1.01 Maintains safe work environment	F-18.01 Diagnoses steering, suspension and control systems
A-1.02 Uses personal protective equipment (PPE) and safety equipment	F-18.02 Diagnoses braking and control systems
A-2.01 Uses tools and equipment	F-18.03 Diagnoses tires, wheels, hubs and wheel bearings

A-2.02 Uses fasteners, tubing, hoses and fittings	F-19.01 Repairs steering, suspension and control systems
A-2.03 Uses hoisting and lifting equipment	F-19.02 Repairs braking and control systems
A-2.04 Uses technical information	F-19.03 Repairs tires, wheels, hubs and wheel bearings
A-3.01 Uses communication techniques	G-20.02 Diagnoses wind noises, rattles and water leaks
D-12.01 Diagnoses drive shafts and axles	G-20.03 Diagnoses interior and exterior components, accessories and trim
D-13.01 Repairs drive shafts and axles	G-20.04 Diagnoses latches, locks and movable glass
E-14.01 Diagnoses basic wiring and electrical systems	G-21.02 Repairs wind noises, rattles and water leaks
E-14.02 Diagnoses starting/charging systems and batteries	G-21.03 Repairs interior and exterior components, accessories and trim
E-15.01 Repairs basic wiring and electrical systems	G-21.04 Repairs latches, locks and movable glass
E-15.02 Repairs starting/charging systems and batteries	H-22.01 Implements specific safety protocols for hybrid and EV
E-17.02 Repairs refrigerant systems	F-18.01 Diagnoses steering, suspension and control systems
<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
B-4.01 Diagnoses cooling systems	D-13.04 Repairs clutches
B-4.02 Diagnoses lubricating systems	E-14.02 Diagnoses starting/charging systems and batteries
B-4.03 Diagnoses engine assembly	E-14.03 Diagnoses lighting and wiper systems
B-4.04 Diagnoses accessory drive systems	E-15.02 Repairs starting/charging systems and batteries
B-5.01 Repairs cooling systems	E-15.03 Repairs lighting and wiper systems
B-5.02 Repairs lubricating systems	E-15.08 Repairs electrical accessories
B-5.03 Repairs engine assembly	F-18.01 Diagnoses steering, suspension and control systems
B-5.04 Repairs accessory drive systems	F-18.02 Diagnoses braking and control systems
D-12.02 Diagnoses manual transmissions/transaxles	F-19.01 Repairs steering, suspension and control systems
D-12.04 Diagnoses clutches	F-19.02 Repairs braking and control systems
D-13.02 Repairs manual transmissions/transaxles	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
B-6.01 Diagnoses gasoline fuel delivery and injection systems	C-10.02 Monitors data
B-6.02 Diagnoses gasoline ignition systems	C-10.03 Interprets test results
B-6.03 Diagnoses gasoline intake/exhaust systems	C-11.01 Updates component software
B-6.04 Diagnoses gasoline emission control systems	C-11.02 Replaces components
B-7.01 Repairs gasoline fuel delivery and injection systems	C-11.03 Verifies vehicle module communications system repair
B-7.02 Repairs gasoline ignition systems	E-14.05 Diagnoses electrical options
B-7.03 Repairs gasoline intake/exhaust systems	E-14.07 Diagnoses electrical accessories
B-7.04 Repairs gasoline emission control systems	E-15.05 Repairs electrical options
C-10.01 Reads diagnostic trouble codes (DTCs)	E-15.07 Installs electrical accessories



<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
B-8.01 Diagnoses diesel fuel delivery and injection systems	E-15.06 Repairs instrumentation and information displays
B-8.02 Diagnoses diesel intake/exhaust systems	E-16.01 Diagnoses air flow control systems
B-8.03 Diagnoses diesel emission control systems	E-16.02 Diagnoses refrigerant systems
B-9.01 Repairs diesel fuel delivery and injection systems	E-16.03 Diagnoses heating systems
B-9.02 Repairs diesel intake/exhaust systems	E-17.01 Repairs air flow control systems
B-9.03 Repairs diesel emission control systems	E-17.02 Repairs refrigerant systems
D-13.03 Repairs automatic transmissions/transaxles	E-17.03 Repairs heating systems
E-14.04 Diagnoses entertainment systems	G-20.01 Diagnoses restraint systems
E-14.06 Diagnoses instrumentation and information displays	G-21.01 Repairs restraint systems
E-15.04 Repairs entertainment systems	H-22.01 Implements specific safety protocols for hybrid and EV

<b>Writing</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
A-1.01 Maintains safe work environment	A-3.01 Uses communication techniques
<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
B-4.01 Diagnoses cooling systems	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
A-3.02 Uses mentoring techniques	

<b>Numeracy</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
A-2.01 Uses tools and equipment	E-14.02 Diagnoses starting/charging systems and batteries
A-2.02 Uses fasteners, tubing, hoses and fittings	F-18.02 Diagnoses braking and control systems
A-2.03 Uses hoisting and lifting equipment	F-18.03 Diagnoses tires, wheels, hubs and wheel bearings
D-12.01 Diagnoses drive shafts and axles	F-19.01 Repairs steering, suspension and control systems
D-13.01 Repairs drive shafts and axles	F-19.02 Repairs braking and control systems
E-14.01 Diagnoses basic wiring and electrical systems	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
B-4.02 Diagnoses lubricating systems	D-13.04 Repairs clutches
B-4.03 Diagnoses engine assembly	D-13.06 Repairs final drive assemblies
B-5.02 Repairs lubricating systems	E-14.02 Diagnoses starting/charging systems and batteries
B-5.03 Repairs engine assembly	E-14.03 Diagnoses lighting and wiper systems

D-12.02 Diagnoses manual transmissions/transaxles	F-18.02 Diagnoses braking and control systems
D-12.04 Diagnoses clutches	F-19.01 Repairs steering, suspension and control systems
D-13.02 Repairs manual transmissions/transaxles	F-19.02 Repairs braking and control systems
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
C-10.03 Interprets test results	C-10.04 Tests system circuitry and components
<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
B-9.01 Repairs diesel fuel delivery and injection systems	D-13.03 Repairs automatic transmissions/transaxles

<b>Oral Communication</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
A-1.01 Maintains safe work environment	A-3.01 Uses communication techniques
<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
B-4.01 Diagnoses cooling systems	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
A-3.02 Uses mentoring techniques	

<b>Thinking</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
A-1.01 Maintains safe work environment	F-18.02 Diagnoses braking and control systems
A-1.02 Uses personal protective equipment (PPE) and safety equipment	F-18.03 Diagnoses tires, wheels, hubs and wheel bearings
A-2.01 Uses tools and equipment	F-19.01 Repairs steering, suspension and control systems
A-2.02 Uses fasteners, tubing, hoses and fittings	F-19.02 Repairs braking and control systems
A-2.03 Uses hoisting and lifting equipment	F-19.03 Repairs tires, wheels, hubs and wheel bearings
D-12.01 Diagnoses drive shafts and axles	G-20.02 Diagnoses wind noises, rattles and water leaks
D-13.01 Repairs drive shafts and axles	G-20.03 Diagnoses interior and exterior components, accessories and trim
E-14.01 Diagnoses basic wiring and electrical systems	G-20.04 Diagnoses latches, locks and movable glass
E-14.02 Diagnoses starting/charging systems and batteries	G-21.02 Repairs wind noises, rattles and water leaks
E-15.01 Repairs basic wiring and electrical systems	G-21.03 Repairs interior and exterior components, accessories and trim
E-15.02 Repairs starting/charging systems and batteries	G-21.04 Repairs latches, locks and movable glass
E-17.02 Repairs refrigerant systems	H-22.01 Implements specific safety protocols for hybrid and EV
F-18.01 Diagnoses steering, suspension and control systems	

<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
B-4.01 Diagnoses cooling systems	D-13.04 Repairs clutches
B-4.02 Diagnoses lubricating systems	D-13.06 Repairs final drive assemblies
B-4.03 Diagnoses engine assembly	E-14.02 Diagnoses starting/charging systems and batteries
B-4.04 Diagnoses accessory drive systems	E-14.03 Diagnoses lighting and wiper systems
B-5.01 Repairs cooling systems	E-15.02 Repairs starting/charging systems and batteries
B-5.02 Repairs lubricating systems	E-15.03 Repairs lighting and wiper systems
B-5.03 Repairs engine assembly	E-15.08 Repairs electrical accessories
B-5.04 Repairs accessory drive systems	F-18.01 Diagnoses steering, suspension and control systems
D-12.02 Diagnoses manual transmissions/transaxles	F-18.02 Diagnoses braking and control systems
D-12.04 Diagnoses clutches	F-19.01 Repairs steering, suspension and control systems
D-12.06 Diagnoses final drive assemblies	F-19.02 Repairs braking and control systems
D-13.02 Repairs manual transmissions/transaxles	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
B-6.01 Diagnoses gasoline fuel delivery and injection systems	C-10.04 Tests system circuitry and components
B-6.02 Diagnoses gasoline ignition systems	C-11.01 Updates component software
B-6.03 Diagnoses gasoline intake/exhaust systems	C-11.02 Replaces components
B-6.04 Diagnoses gasoline emission control systems	C-11.03 Verifies vehicle module communications system repair
B-7.01 Repairs gasoline fuel delivery and injection systems	D-12.05 Diagnoses transfer cases
B-7.02 Repairs gasoline ignition systems	D-13.05 Repairs transfer cases
B-7.03 Repairs gasoline intake/exhaust systems	E-14.05 Diagnoses electrical options
B-7.04 Repairs gasoline emission control systems	E-14.07 Diagnoses electrical accessories
C-10.01 Reads diagnostic trouble codes (DTCs)	E-15.05 Repairs electrical options
C-10.02 Monitors data	E-15.07 Installs electrical accessories
C-10.03 Interprets test results	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
B-8.01 Diagnoses diesel fuel delivery and injection systems	E-16.02 Diagnoses refrigerant systems
B-8.02 Diagnoses diesel intake/exhaust systems	E-16.03 Diagnoses heating systems
B-8.03 Diagnoses diesel emission control systems	E-17.01 Repairs air flow control systems
B-9.02 Repairs diesel intake/exhaust systems	E-17.02 Repairs refrigerant systems
B-9.03 Repairs diesel emission control systems	E-17.03 Repairs heating systems
D-12.03 Diagnoses automatic transmissions/transaxles	G-20.01 Diagnoses restraint systems
D-13.03 Repairs automatic transmissions/transaxles	G-21.01 Repairs restraint systems
E-14.04 Diagnoses entertainment systems	H-22.01 Implements specific safety protocols for hybrid and EV

E-14.06 Diagnoses instrumentation and information displays	H-22.02 Diagnoses hybrid and EV systems
E-15.04 Repairs entertainment systems	H-23.01 Repairs hybrid vehicle systems
E-15.06 Repairs instrumentation and information displays	H-23.02 Repairs EV systems
E-16.01 Diagnoses air flow control systems	

<b>Digital Technology</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
A-2.04 Uses technical information	F-19.03 Repairs tires, wheels, hubs and wheel bearings
E-15.01 Repairs basic wiring and electrical systems	G-20.02 Diagnoses wind noises, rattles and water leaks
E-15.02 Repairs starting/charging systems and batteries	G-21.02 Repairs wind noises, rattles and water leaks
E-17.02 Repairs refrigerant systems	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
B-4.04 Diagnoses accessory drive systems	E-15.02 Repairs starting/charging systems and batteries
B-5.04 Repairs accessory drive systems	E-15.03 Repairs lighting and wiper systems
D-12.06 Diagnoses final drive assemblies	E-15.08 Repairs electrical accessories
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
B-6.01 Diagnoses gasoline fuel delivery and injection systems	C-10.04 Tests system circuitry and components
B-6.02 Diagnoses gasoline ignition systems	C-11.01 Updates component software
B-6.03 Diagnoses gasoline intake/exhaust systems	C-11.02 Replaces components
B-6.04 Diagnoses gasoline emission control systems	C-11.03 Verifies vehicle module communications system repair
B-7.01 Repairs gasoline fuel delivery and injection systems	D-12.05 Diagnoses transfer cases
B-7.02 Repairs gasoline ignition systems	D-13.05 Repairs transfer cases
B-7.03 Repairs gasoline intake/exhaust systems	E-14.05 Diagnoses electrical options
B-7.04 Repairs gasoline emission control systems	E-14.07 Diagnoses electrical accessories
C-10.01 Reads diagnostic trouble codes (DTCs)	E-15.05 Repairs electrical options
C-10.02 Monitors data	E-15.07 Installs electrical accessories
<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
B-8.01 Diagnoses diesel fuel delivery and injection systems	E-16.01 Diagnoses air flow control systems
B-8.02 Diagnoses diesel intake/exhaust systems	E-16.02 Diagnoses refrigerant systems
B-8.03 Diagnoses diesel emission control systems	E-16.03 Diagnoses heating systems
B-9.01 Repairs diesel fuel delivery and injection systems	E-17.01 Repairs air flow control systems
B-9.02 Repairs diesel intake/exhaust systems	E-17.02 Repairs refrigerant systems
B-9.03 Repairs diesel emission control systems	E-17.03 Repairs heating systems
D-12.03 Diagnoses automatic transmissions/transaxles	G-20.01 Diagnoses restraint systems
E-14.04 Diagnoses entertainment systems	G-21.01 Repairs restraint systems
E-14.06 Diagnoses instrumentation and information displays	H-22.02 Diagnoses hybrid and EV systems

E-15.04 Repairs entertainment systems	H-23.01 Repairs hybrid vehicle systems
E-15.06 Repairs instrumentation and information displays	H-23.02 Repairs EV systems

<b>Working with Others</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
A-3.01 Uses communication techniques	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
A-3.02 Uses mentoring techniques	

<b>Continuous Learning</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 1</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 2</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 3</b>	
<b>Subtasks in Apprenticeship Recommended Technical Training Level 4</b>	
A-3.02 Uses mentoring techniques	