

Trade Profile

Truck and Transport Mechanic



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RED SEAL TRADE PROFILE

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STRUCTURE OF THE TRADE PROFILE

This profile has two sections that provide a snapshot of the trade's description, and all trade activities as they are organized in the Red Seal Occupational Standard:

Description of the Truck and Transport Mechanic trade: an overview of the trade's duties, work environment, job requirements, similar occupations and career progression

Task Matrix: a chart which outlines graphically the major work activities, tasks and sub-tasks of this trade

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities

Task: distinct actions that describe the activities within a major work activity

Sub-task: distinct actions that describe the activities within a task

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.

Description of the Truck and Transport Mechanic Trade

“Truck and Transport Mechanic” is this trade’s official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by truck and transport mechanics.

Truck and transport mechanics inspect, diagnose, repair and maintain commercial trucks, emergency vehicles, buses and road transport vehicles. In some jurisdictions, they may also work on commercial trailers and recreation vehicles. Vehicles include electrical (high voltage), hybrid or other fuel alternative vehicles. Truck and transport mechanics work on the structural, mechanical, electrical vehicle systems and components such as engines, cab, chassis and frames, brakes, steering, suspension, drive train, heating, ventilation and air conditioning (HVAC), emissions, fuel systems and hydraulic systems. Many of these systems have electronic controls.

Truck and transport mechanics use specialized tools including hand tools, test meters, hoisting and lifting equipment, staging equipment, welding and cutting equipment, hydraulic equipment, safety equipment, recycle and recovery equipment, and complex electronics and computer diagnostic test equipment.

Truck and transport mechanics are employed in the agricultural, construction, mining, forestry, petrochemical and transportation sectors. They may be employed in small repair shops, motor vehicle dealers, fleet maintenance companies, public transportation companies, government highway departments, railways and construction companies.

Work environments for truck and transport mechanics differ from one job to another. The truck and transport mechanic trade is physically demanding as they frequently work in awkward positions, and must often climb, stoop, crouch and kneel. They also must handle heavy parts and tools. Truck and transport mechanics are sometimes required to work in adverse weather conditions, including extreme cold and heat.

There is some risk of injury involved in working with heavy equipment and power tools. Common occupational hazards are exposure to chemicals and harmful materials, repetitive motion, stored energy releases, high voltages, noises and sharp edges.

Key attributes for individuals entering this trade are mechanical aptitude, manual dexterity, flexibility, good hand-eye coordination and data management (collection, storing and using data securely). With the evolving technology of electrical and hybrid vehicle systems, they must also have a good understanding of computerized machinery, good problem-solving, analytical and computer skills, and the ability to read and understand service manuals. Good communication skills, self learning skills and patience are also important. Other assets include good vision, hearing and sense of smell to diagnose problems.

This standard recognizes similarities or overlaps with the work of automotive service technicians, agricultural equipment technicians, heavy duty equipment technicians, recreation vehicle service technicians and transport trailer technicians.

With experience, truck and transport mechanics act as mentors and trainers to apprentices in the trade. They may also advance to supervisory, service manager and training positions.

In many jurisdictions, truck and transport mechanics require certification to conduct safety inspections on vehicles.

Trends in the Truck and Transport Mechanic Trade

Technology

There is an increase in the use of alternative fuel system trucks, such as electric, hybrid, hydrogen fuel cells, natural gas and propane-powered, requiring truck and transport mechanics to be more knowledgeable of these new systems and have the skill set required for their maintenance and repair. Automated transmissions have become more popular replacing the manual transmission. These recent technological changes require truck and transport mechanics to have more intellectual, digital, computer and problem-solving skills.

Advanced driver-assist technologies such as lane signaling systems, lane departure, collision avoidance, and roll stability are rapidly evolving. Into the future, it is expected that there will be more and more autonomous applications, such as platoons of vehicles with a single driver and fully autonomous vehicles.

Health and Safety

There are advanced health and safety standards in regard to high voltages in electrical and hybrid vehicle systems. There is also potential for increased arc flash hazards that require specialized personal protective equipment (PPE), tools and safety procedures.

Tools and Equipment

In order to maintain, diagnose and repair hybrid and electric vehicles, specialized tools and repair techniques are necessary. Truck and transport mechanics need to be trained to use these tools and equipment and shops that service these vehicles must have the appropriate specialized equipment to work on them safely.

There is an increase in the use of specialized shop tools to reduce heavy lifting.

Products and Materials

There are increasingly expensive materials being used for the production of truck systems. After treatment systems require exotic materials to accomplish the emission reduction.

Environmental

The reduction of harmful exhaust emissions is a priority, which is leading to an increase in the market of alternative fuel system and electric vehicles. Design in vehicles improve their fuel efficiency through improved aerodynamics, reduced weight vehicles, improved tires and tire monitoring systems and electronic control management systems.

There are many hazardous materials used that are detrimental to the environment. Proper protocols for the recycling and disposal of these materials are crucial.

Legislative and Regulatory

There are legislative requirements set out by the provincial/territorial and federal governments that transport truck mechanics need to follow such as exhaust emissions and chemical disposal.

Truck and Transport Mechanic

Task Matrix and Weightings

A – Performs common occupational skills

6%

Task A-1 Performs safety-related functions 28%	A-1.01 Maintains safe work environment	A-1.02 Uses personal protective equipment (PPE) and safety equipment	A-1.03 Implements specific safety protocols for hybrid electric vehicles (EV)
Task A-2 Uses and maintains tools and equipment 32%	A-2.01 Uses hand, power, measuring, testing, and diagnostic tools	A-2.02 Uses shop equipment	A-2.03 Uses hoisting, lifting and staging equipment
Task A-3 Performs routine work practices 28%	A-2.04 Uses welding and cutting equipment	A-2.05 Uses electronic devices and systems for diagnostics and programming	
	A-3.01 Uses documentation and reference materials	A-3.02 Maintains fluids and lubricants	A-3.03 Services hoses, tubing and fittings
Task A-4 Uses communication and mentoring techniques 12%	A-3.04 Services filters	A-3.05 Services bearings and seals	A-3.06 Uses fasteners and sealing devices
	A-4.01 Uses communication techniques	A-4.02 Uses mentoring techniques	

B – Services, diagnoses and repairs engines and supporting systems

15%

Task B-5 Services, diagnoses and repairs base engines 15%	B-5.01 Services base engines	B-5.02 Diagnoses base engines	B-5.03 Repairs base engines
Task B-6 Services, diagnoses and repairs lubrication systems 10%	B-6.01 Services lubrication systems	B-6.02 Diagnoses lubrication systems	B-6.03 Repairs lubrication systems
Task B-7 Services, diagnoses and repairs intake systems 13%	B-7.01 Services intake systems	B-7.02 Diagnoses intake systems	B-7.03 Repairs intake systems
Task B-8 Services, diagnoses and repairs exhaust systems 14%	B-8.01 Services exhaust systems	B-8.02 Diagnoses exhaust systems	B-8.03 Repairs exhaust systems
Task B-9 Services, diagnoses and repairs engine management systems 17%	B-9.01 Services engine management systems	B-9.02 Diagnoses engine management systems	B-9.03 Repairs engine management systems
Task B-10 Services, diagnoses and repairs fuel delivery systems 13%	B-10.01 Services fuel delivery systems	B-10.02 Diagnoses fuel delivery systems	B-10.03 Repairs fuel delivery systems
Task B-11 Services, diagnoses and repairs engine retarder systems 8%	B-11.01 Services engine retarder systems	B-11.02 Diagnoses engine retarder systems	B-11.03 Repairs engine retarder systems
Task B-12 Services, diagnoses and repairs cooling systems 10%	B-12.01 Services cooling systems	B-12.02 Diagnoses cooling systems	B-12.03 Repairs cooling systems

C – Services, diagnoses and repairs air systems and brake systems

13%

Task C-13 Services, diagnoses and repairs air systems 51%	C-13.01 Services air systems	C-13.02 Diagnoses air systems	C-13.03 Repairs air systems
Task C-14 Services, diagnoses and repairs brake systems 49%	C-14.01 Services brake systems	C-14.02 Diagnoses brake systems	C-14.03 Repairs brake systems

D – Services, diagnoses and repairs electrical and electronic systems

16%

Task D-15 Services, diagnoses and repairs battery systems 13%	D-15.01 Services battery systems	D-15.02 Diagnoses battery systems	D-15.03 Repairs battery systems
Task D-16 Services, diagnoses and repairs charging systems 19%	D-16.01 Services charging systems	D-16.02 Diagnoses charging systems	D-16.03 Repairs charging systems
Task D-17 Services, diagnoses and repairs spark ignition systems 8%	D-17.01 Services spark ignition systems	D-17.02 Diagnoses spark ignition systems	D-17.03 Repairs spark ignition systems
Task D-18 Services, diagnoses and repairs starting systems 19%	D-18.01 Services starting systems	D-18.02 Diagnoses starting systems	D-18.03 Repairs starting systems
Task D-19 Services, diagnoses and repairs electrical components and accessories 21%	D-19.01 Services electrical components and accessories	D-19.02 Diagnoses electrical components and accessories	D-19.03 Repairs electrical components and accessories
Task D-20 Services, diagnoses and repairs vehicle management systems and electronic components 20%	D-20.01 Services vehicle management systems and electronic components	D-20.02 Diagnoses vehicle management systems and electronic components	D-20.03 Repairs vehicle management systems and electronic components

E – Services, diagnoses and repairs drive trains

12%

Task E-21 Services, diagnoses and repairs clutches 13%	E-21.01 Services clutches	E-21.02 Diagnoses clutches	E-21.03 Repairs clutches
Task E-22 Services, diagnoses and repairs manual transmissions and transfer cases 17%	E-22.01 Services manual transmissions and transfer cases	E-22.02 Diagnoses manual transmissions and transfer cases	E-22.03 Repairs manual transmissions and transfer cases
Task E-23 Services, diagnoses and repairs automatic transmissions 15%	E-23.01 Services automatic transmissions	E-23.02 Diagnoses automatic transmissions	E-23.03 Repairs automatic transmissions
Task E-24 Services, diagnoses and repairs automated transmissions 20%	E-24.01 Services automated transmissions	E-24.02 Diagnoses automated transmissions	E-24.03 Repairs automated transmissions
Task E-25 Services, diagnoses and repairs driveline systems 12%	E-25.01 Services driveline systems	E-25.02 Diagnoses driveline systems	E-25.03 Repairs driveline systems
Task E-26 Services, diagnoses and repairs drive axle assemblies 16%	E-26.01 Services drive axle assemblies	E-26.02 Diagnoses drive axle assemblies	E-26.03 Repairs drive axle assemblies
Task E-27 Services, diagnoses and repairs drive train retarders 7%	E-27.01 Services drive train retarders	E-27.02 Diagnoses drive train retarders	E-27.03 Repairs drive train retarders

F – Services, diagnoses and repairs steering, chassis/frames, suspensions, tires, wheels and hubs

13%

Task F-28 Services, diagnoses and repairs steering systems 26%	F-28.01 Services steering systems	F-28.02 Diagnoses steering systems	F-28.03 Repairs steering systems
Task F-29 Services, diagnoses and repairs chassis/frames 14%	F-29.01 Services chassis/frames	F-29.02 Diagnoses chassis/frames	F-29.03 Repairs chassis/frames
Task F-30 Services, diagnoses and repairs suspensions 23%	F-30.01 Services suspensions	F-30.02 Diagnoses suspensions	F-30.03 Repairs suspensions
Task F-31 Services, diagnoses and repairs hitches and couplers 15%	F-31.01 Services hitches and couplers	F-31.02 Diagnoses hitches and couplers	F-31.03 Repairs hitches and couplers
Task F-32 Services, diagnoses and repairs tires, wheels and hubs 22%	F-32.01 Services tires, wheels and hubs	F-32.02 Diagnoses tires, wheels and hubs	F-32.03 Repairs tires, wheels and hubs

G – Services, diagnoses and repairs cabs

4%

Task G-33 Services, diagnoses and repairs interior cab components 56%	G-33.01 Services interior cab components	G-33.02 Diagnoses interior cab components	G-33.03 Repairs interior cab components
Task G-34 Services, diagnoses and repairs exterior cab components 44%	G-34.01 Services exterior cab components	G-34.02 Diagnoses exterior cab components	G-34.03 Repairs exterior cab components

H – Services, diagnoses and repairs trailers

6%

Task H-35 Services, diagnoses and repairs trailer components and accessories 59%	H-35.01 Services trailer components and accessories	H-35.02 Diagnoses trailer components and accessories	H-35.03 Repairs trailer components and accessories
Task H-36 Services, diagnoses and repairs heating and refrigeration systems 41%	H-36.01 Services heating and refrigeration systems	H-36.02 Diagnoses heating and refrigeration systems	H-36.03 Repairs heating and refrigeration systems

I – Services, diagnoses and repairs climate control systems

6%

Task I-37 Services, diagnoses and repairs heating and ventilation systems 46%	I-37.01 Services heating and ventilation systems	I-37.02 Diagnoses heating and ventilation systems	I-37.03 Repairs heating and ventilation systems
Task I-38 Services, diagnoses and repairs air conditioning systems 54%	I-38.01 Services air conditioning systems	I-38.02 Diagnoses air conditioning systems	I-38.03 Repairs air conditioning systems

J – Services, diagnoses and repairs hydraulic systems

6%

Task J-39 Services, diagnoses and repairs hydraulic systems 100%	J-39.01 Services hydraulic systems	J-39.02 Diagnoses hydraulic systems	J-39.03 Repairs hydraulic systems
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K – Services, diagnoses and repairs hybrid and electric vehicles (EV)

3%

Task K-40 Services, diagnoses and repairs hybrid vehicles 51%	K-40.01 Services hybrid vehicles	K-40.02 Diagnoses hybrid vehicles	K-40.03 Repairs hybrid vehicles
Task K-41 Services, diagnoses and repairs electric vehicles (EV) 49%	K-41.01 Services electric vehicles (EV)	K-41.02 Diagnoses electric vehicles (EV)	K-41.03 Repairs electric vehicles (EV)