



# 24th Annual Territorial Skills Competition Automobile Technologies 2024

## Skill Canada Territorials Competition 2024 Automobile Technologies Skill #33

Competitors are required to bring the following:

### **Mandatory Equipment:**

- Steel toed boots
- Safety glasses

### **Optional Equipment:**

- Coveralls
- Rubber gloves
- Ear Protection.

## **SKILLS AND KNOWLEDGE THAT MAY BE TESTED**

### Service Information Retrieval

- Electronic system use
- Traditional manual use

### Theory

- Examination questions regarding all aspects of the repair and diagnosis of automobiles.

### Fabrication

- Select and operate appropriate fabricating hand tools.

### Engine Mechanical

- Assembly / disassembly of all engine components (piston removal and install, crankshaft and camshaft removal and install. How to properly time an engine, could be either timing chains or belts, etc.)
- Identification of any and all components

- Component fault diagnosis
- Inspection and testing (compression test, cylinder leak down, cylinder bore gauge, cam lobe lift, measure stroke and bore, calculate volume, measuring axial and radial clearances, etc.)
- Diagnosis of cylinder heads and blocks
- Measurements

### Fuel Systems

- Identify components
- Inspection and testing (How to safely prepare fuel system for work, Fuel pressure test, component removal and install, etc.)

### Engine Management

- Identify components, systems and subsystems, Identify the different sensors and know what type of sensor it is and how to diagnose it.)
- Drivability diagnostics
- Test equipment usage – Scan tool, Multimeter, May require needing to know how to monitor and interpret PID readings.
- Component operation and testing
  - Following WSM for DTC charts, PPT flow charts,

### Ignition Systems

- Identify components
- Inspection and testing
- Diagnostics
- Adjustments

### Electrical

- Starting systems
- Charging systems
- Batteries
- Testing and diagnosis of vehicle electrical equipment

### Braking Systems (excluding air brakes)

- Identify components
- Inspection and testing
- Assembly / disassembly
- Basic systems
- ABS
- Routine maintenance / adjustments
- Diagnostics

Bending and flaring brake lines.

## Suspension and Steering

- Identify components
- Inspection and testing
- Assembly / disassembly
- Routine maintenance and adjustments
- Diagnostics

Take a measurement of wheel alignment and recommend what adjustments are required to put the system back in spec

Know all the different types of information that is listed on a tire, how to interpret and provide answers (tire size, load range, UTC info, manufactured build date etc.)

## Driveline

- Differential components
- Inspection and diagnoses
- Assembly and disassembly
- Routine maintenance and adjustments
- Drive shaft components
- Inspection and diagnoses
- Assembly and disassembly
- Routine maintenance and adjustments
- CV Shaft Components
- Inspection and diagnoses
- Assembly and disassembly
- Routine maintenance and adjustments

## Transmission (automatic and manual and Transaxles)

- Inspection and diagnoses
- Assembly and disassembly
- Routine maintenance and adjustments

## Competitors need to know how to use:

- Floor Jacks,
- Jack Stands
- Vehicle protective equipment
- Strut tamer
- Wheel alignment machine
- Vernier Calipers,
- Micrometers,
- Cylinder bore Gauge
- Feeler Blades
- Plasti-gauge,
- Dial indicators and how to mount them,
- DVOMs, (How to measure: Volts, ohms, amps,)
- Torque Wrenches
- Workshop manuals

- Wiring schematics
- Scan tools (DTC retrieval on the different modules. PID monitoring)

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