2025 North West Regional Skills Canada Competition

Contest Description

Northwestern Polytechnic (NWP) Fairview Campus

April 10 & 11, 2025

EVENT: Automobile Technology	**LEVEL:** Secondary
DURATION OF CONTEST: 6.5 HOURS	**LOCATION:** NWP Fairview Campus – Automotive Shop

COMPETITION SCHEDULE:

ORIENTATION	April 10 6:00PM
COMPETITION	April 11 8:30AM-11:30 AM
LUNCH	11:30AM- 12:30PM
COMPETITION	12:30PM - 4:00PM
JUDGING	4:00PM - 5:30PM

ORIENTATION IS MANDATORY: Should a competitor not attend orientation they will be disqualified from the competition.

REGIONALIZED: YES
If YES, To compete at the Provincial Skills Canada Competition students must qualify at their Regional Skills Canada Competition.

AWARDS CEREMONY INFORMATION: April 11 @ 6 pm in the NWP Fairview Campus Theatre

CONTEST INTRODUCTION

To identify and evaluate a competitor's knowledge of the Automobile Technology trade. The competitor will display his or her understanding of specific areas of the automobile by demonstrating their skills in maintaining and repairing components related to those areas.

SKILLS AND KNOWLEDGE TO BE TESTED

Practical demonstrations – 100%

PROJECT DESCRIPTION

The competitor is required to complete seven competition areas. The areas are as follows:

1. Measuring Tools and Fastener Exercise

Competitors may be required to:

- Use imperial and metric measuring tools (including micrometers, dial calipers, dial indicators, telescopic gauges, small hole gauges, feeler gauges.)
- Calculate dimensions based on the measurements taken from supplied project jig.
- Identify and classify fasteners that are provided.

- Using supplied information (directions, tap drill charts and torque chart) perform correct drilling, correct tapping and installation of fasteners to project piece.
- Correctly set and use a torque wrench.

2. Brakes and Stability Control Systems

Competitors may be required to:

- Dis-assemble and assemble disc and drum brake assemblies.
- Measure minimum rotor thickness, maximum rotor thickness variation, and rotor run-out.
- Measure brake drum diameter and brake drum out of round.
- Properly adjust brake shoe to drum clearance.
- Identify whether a part is suitable for service or what tasks may be necessary to repair the component.
- Flare and bend brake tubing.

3. Suspension and Steering Systems

Competitors may be required to:

- Identify the type of suspension and steering systems used in a vehicle.
- Interpret alignment angles in relation to manufacturer's specification and vehicle handling.
- Dismount and mount a tire on a rim.
- Balance a tire and rim assembly.

4. Driveline

Competitors may be required to:

- Remove and install universal joints in a driveshaft
- Measure differential pinion bearing preload.
- Measure backlash in a differential assembly.
- Identify whether a gear tooth pattern is acceptable.
- Identify paths of power in a manual transmission.
- Calculate gear ratios in a manual transmission.
- Identify components in a manual transmission.

5. Body Electrical

Competitors may be required to:

- Perform electrical measurements on a vehicle electrical circuit to verify operation. The measurements will be done with a Digital Volt Ohm Meter - DVOM and/or a test light.
- Assemble basic electrical systems on a circuit board.

6. Engine Mechanical

Competitors may be required to:

- Remove and install components on an engine.
- Measure engine components for flatness, out of round, taper, diameter, endplay, clearance and lift. The competitor may be required to use dial indicators, straight edges, feeler gauges, micrometers, telescopic gauges, plastigage or calipers.

- Perform a cylinder leak down test.
- Properly install a timing chain/belt on an engine.

7. Drivability

Competitors may be required to:

- Use a scan tool to identify Diagnostic Trouble Codes - DTCs in the engine management system. Follow the manufacturer's diagnostic procedures to identify the cause of the DTC and the repair required to remedy the condition. This may require the competitor to use a DVOM and/or a test light to verify electrical circuits for voltage, amperage and resistance as well as identifying opens, shorts to ground, shorts to voltage and excessive resistance.
- Use a scan tool to activate engine management outputs.

EQUIPMENT & MATERIALS

Equipment and Materials Competitors Must Supply:

CSA Approved Safety Glasses	HB Pencil	Shop Coat or Coveralls
CSA Approved Footwear	Eraser	

Equipment and Materials Supplied by the Committee:

Hand Tools	Calculators as required	Material
Electrical Test Equipment Required to Perform the Tasks		Measuring Tools

JUDGING CRITERIA

The competitor will be explained the judging criteria for each competition at the start of the competition. All seven components are equally weighted, and the total is comprised of an average of all components.

TIE BREAKING PROCESS

In the event of a tie each competitor will be given points based on their standing in each of the individual competition areas:
1st place 5 points
2nd place 4 points
3rd place 3 points
4th place 2 points
5th place 1 point
The competitor with the highest total points will be the winner.

RELATED CAREER AND TECHNOLOGY STUDIES COURSES

Descriptions of all modules are located at the following website:
https://education.alberta.ca/media/160539/mec_sum.pdf

Please reference the "Automobile Technology Event Preparation Manual" to further detail the module requirements, which can be found with the scope document on the Skills Canada Alberta website.

MEC 1040: Engine Fundamentals
MEC 1090: Electrical Fundamentals
MEC 2150: Suspension Systems
MEC 2160: Steering Systems

MEC 2030: Lubrication & Cooling
MEC 2040: Fuel & Exhaust Systems
MEC 2060: Ignition Systems
MEC 2070: Emission Controls
MEC 2090: Electrical Components
MEC 2110: Braking Systems
MEC 2130: Drive Line
MEC 2140: Transmissions/Transaxles
MEC 3030: Engine Diagnosis
MEC 3040: Engine Tune Up
MEC 3060: Engine Reconditioning – Head
MEC 3070: Engine Reconditioning – Block
MEC 3090: Computer Systems
MEC 3130: Automatic Transmissions
MEC: 3150: Wheel Alignment

CLOTHING REQUIREMENT

It is important that competitors present a professional image and appearance. Appropriate work clothing must be worn to compete. All clothing must be neat and clean and free of rips and tears. Casual wear such as shorts will not be permitted. No loose-fitting clothes or jewelry.

SAFETY

The health, safety and welfare of all individuals involved with Skills Canada Alberta are of vital importance. Safety is a condition of participation with Skills Canada Alberta and shall not be sacrificed for the sake of expediency. At the discretion of the judges and technical committees, any competitor can be denied the right to participate should they not have the required proper safety equipment and/or act in an unsafe manner that can cause harm to themselves or others.

ADDITIONAL INFORMATION

Lunch will be provided for all competitors. Unfortunately, all allergies may not be able to be accommodated for. Please connect with the local Regional Coordinator for more information.
Parking information & venue maps:
Regulations & Policies: A copy of the Skills Canada Alberta Regional Regulations & Policies can be found at the following link: http://www.skillsalberta.com/policies-and-procedures

REGIONAL COMMITTEE MEMBERS