



CONTEST DESCRIPTION

# **Automobile Technology**

SECONDARY

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## **1 THE SKILLS FOR SUCCESS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY**

In response to the evolving labour market and changing skill needs, the Government of Canada has launched the new Skills for Success (*former Essential Skills*) model defining nine key skills needed by Canadians to participate in work, in education and training, and in modern society more broadly. SCC is currently working with Employment and Social Development Canada (ESDC) to bring awareness of the importance of these skills that are crucial for success in Trade and Technology careers. Part of this ongoing initiative requires the integration and identification of the Skills for Success in contest descriptions, projects, and project documents. The next phase and very important aspect of our Skills for Success (SfS) initiative is to provide a *Skills Report Card* to each competitor at the Skills Canada National Competition. The purpose of the report card is to inform the competitor about their current level of nine identified Skills for Success based on their competition scores. With this knowledge, the competitor will be made aware which skill may require improvement. Full implementation is expected in the next Skills Canada National Competition. The following 9 skills have been identified and validated as key skills for success for the workplace in the legend below:

<sup>1</sup>Numeracy, <sup>2</sup>Communication, <sup>3</sup>Collaboration, <sup>4</sup>Adaptability, <sup>5</sup>Reading, <sup>6</sup>Writing, <sup>7</sup>Problem Solving, <sup>8</sup>Creativity and Innovation, <sup>9</sup>Digital

These Skills for Success have been identified in section 2.4 and/or 3.2 (to be completed by SCC) of your Contest Description and if applicable, in your Project and supporting documents.

## **2 CONTEST INTRODUCTION**

### **2.1 Description of the associated work role(s) or occupation(s)**

[https://www.skillscompetencescanada.com/en/skill\\_area/automobile-technology/](https://www.skillscompetencescanada.com/en/skill_area/automobile-technology/)

### **2.2 Purpose of the Challenge**

Assess the competitor skills in correctly inspecting, repairing and adjusting detached and / or mounted auto parts, as compared to industry standards. Practical assignments will be based on selected areas of the scope document.

### **2.3 Duration of contest**

12 hours

### **2.4 Skills and Knowledge to be tested.**

The following will be tested during the contest: Service Information Retrieval, Engine Mechanical, Engine Management, Ignition Systems, Vehicle Emission Systems, Electrical Accessories, Electrical, Braking systems, Suspension and Steering, and Power Trains.<sup>1,5,7,9</sup>

### 3 CONTEST DESCRIPTION

- 3.1 List of documents produced and timeline for when competitors have access to the documents on the Skills/Compétences Canada website.

DOCUMENT	DATE OF DISTRIBUTION
No other document will be available prior to competition days	

- 3.2 Tasks that may be performed during the contest.

#### **Workshop Procedures that include<sup>2,5,9</sup>**

- Service Information Retrieval
- Electronic system use
- Traditional manual/information printouts use.
- Interprets work order information to convey diagnostic approach.
- Explanation of service work performed.

#### **Internal Combustion Engine Mechanical Assembly / Disassembly<sup>1,7,9</sup>**

- Identify components
- Component fault diagnosis
- Inspection and operational testing (including compression, leak-down and timing)
- Diagnosis and service of engine cylinder heads and blocks
- Measurements with precision measuring tools which could include but not limited to; Plastigage®, micrometers, feeler gauges, and straight edges

#### **Engine Management and Emissions<sup>7,9</sup>**

- Drivability diagnostics and repair
- Test equipment usage
- Scan Tool
- Multi-meter (DVOM)
- Lab-scope
- System repair

#### **Component operation and testing of Electrical Systems<sup>7,9</sup>**

- Starting and Charging Systems
- Batteries (12volt, High Voltage)
- Accessories
- Testing and diagnosis Body and Chassis Electrical
- Electric Drive System operation and Safety

#### **Braking Systems (excluding air brake systems)<sup>7,9</sup>**

- Base Brake systems
- ABS / Traction / Stability/ Electric parking systems

- Maintenance, repairs, & adjustments (may include rotor and drum service).
- Diagnostics

#### **Suspension and Steering<sup>7,9</sup>**

- Maintenance, repair and adjustment
- Diagnostics
- Component replacement
- Wheel Alignment

#### **Manual Transmission and Drivetrain Components<sup>1,7,9</sup>**

- Inspection, measurement and testing
- Maintenance / adjustments
- Driveline measurements and adjustments
- Component repair

*Skills for Success – <sup>1</sup>Numeracy, <sup>2</sup>Communication, <sup>5</sup>Reading, <sup>7</sup>Problem Solving, <sup>9</sup>Digital*

## **4 EQUIPMENT, MATERIAL, CLOTHING**

### **4.1 Equipment and material provided by Skills/Compétences Canada**

- Automotive Technician general hand/ power tools
- Precision Measuring tools for engines, brakes and driveline
- Digital multimeter and accessories
- Digital storage oscilloscope
- Diagnostic scan tools
- Wheel alignment equipment
- Hydraulic brake line service tools
- Brake machining equipment
- Diagnostic test leads
- Engine assembly tools and holding fixtures
- Engine cylinder diagnostic tools
- Vehicle lifting and support equipment
- Electric Vehicle Personal Protective Equipment, test equipment

**COMPETITORS WILL BE REQUIRED TO USE THE MATERIAL AND EQUIPMENT PROVIDED BY SCC. ALL OTHER MATERIAL AND EQUIPMENT WILL BE REMOVED FROM THE SKILL AREA.**

### **4.1 Equipment and material provided by the competitor.**

- Competitors are not required to bring any tools or equipment.
- Competitors are required to bring at least 2 writing instruments with them



#### **4.2 Required clothing provided by the competitor.**

- A professional image must be portrayed. Appropriate work apparel must be worn. (Provincial shirts, coveralls, shop coats, work pants only and shirts must be tucked in)

### **5 HEALTH AND SAFETY**

#### **5.1 Safety program**

SCC has implemented a comprehensive safety program as health and safety is an integral part of our competitions. Our safety program includes guidelines and procedures to make the work environment in each skill area safer.

##### **5.1.1 Safety manual**

As part of our program a safety manual has been created to monitor and document health and safety within each skill area. It includes a definite plan of action designed to prevent accidents. The safety manual will be provided for every skill and these instructions must be followed and respected by all participants and officials at the SCNC.

##### **5.1.2 Safety workshop**

During orientation, Competitors will participate in a Safety workshop and they will be expected to work and maintain a safe working area during the competition. Any Competitor breaking any health, safety, and environmental rules, may be required to undertake a second safety workshop, this will not affect the Competitor's competition time.

#### **5.2 List of required personal protective equipment (PPE) provided by Skills/Compétences Canada**

- Nitrile Gloves (Large and Extra Large)
- Hearing Protection (in-ear style)

#### **5.3 List of required personal protective equipment (PPE) provided by the competitor**

- 2 pairs of Clear Safety Glasses (meets CSA Standard Z94.3 Class 1)
- CSA approved Safety shoes
- Hearing protection optional (specialized if required)

**Note:** Competitors who do not have the required protective equipment will not be allowed to participate in the competition.

## 6 ASSESSMENT

### 6.1 Point breakdown

**Note:** This list is subject to change.

TASKS	/100
Engine Mechanical	16
Electrical	17
Engine Management	17
Suspension and Steering	17
Brakes and related systems	17
Drivetrain	16

## 7 CONTEST SPECIFIC RULES

Contest specific rules cannot contradict or take priority over the Competition Rules. They do provide specific details and clarity in areas that may vary from contest to contest. Any additional contest rules will be reviewed during the competitor orientation.

TOPIC/TASK	CONTEST SPECIFIC RULE
(Use of technology - personal laptops, tablets and mobile phones)	<ul style="list-style-type: none"> <li>Competitors are not allowed cameras, cell phones and or other personal electronics in the skill area.</li> </ul>

## 8 ADDITIONAL INFORMATION

### 8.1 Interpreter

If a competitor requires the help of an interpreter once onsite during the competition, the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 1 month prior to the competition or this service may not be guaranteed.

### 8.2 Ties

- Tiebreaker #1: The competitor with the highest score at the Electrical station criteria will be declared the winner.
- Tiebreaker #2: The competitor with the highest score in the Engine Mechanical criteria will be declared the winner.
- Tiebreaker #3: The competitor with the highest score in the Driveline criteria will be declared the winner.

### 8.3 Competition rules

Refer to the competition rules of the Skills Canada National Competition which can be found on our website.

## 9 NATIONAL TECHNICAL COMMITTEE MEMBERS

MEMBER ORGANIZATION	NAME
Newfoundland and Labrador	Charlie Druken
Prince Edward Island	Jeff Dingwell – Co-Chair
Nova Scotia	Jimmy Bowes
New Brunswick	Brian Breau
Quebec	Vincent Brochu
Ontario	Martin Restoule - Chair
Manitoba	Jim Voth
Saskatchewan	James Halushka
Alberta	Russ Belek
British Columbia	Cateno Vassallo
Northwest Territory	Nathan Doering

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Nathalie Maisonneuve ([nathaliem@skillscanada.com](mailto:nathaliem@skillscanada.com)).