



CONTEST DESCRIPTION

# Automobile Technology

VIRTUAL 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 absolutely 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 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

During the SCNC 2022, the secondary category will be hosted virtually. The competition for your skill will consist of a total of 10 hours.

A detailed schedule will be posted on our website.

## 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.

## 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
Electude Login	One week prior to competition

### 3.2 Tasks that may be performed during the contest

#### **Workshop Procedures**

- Service Information Retrieval
- Electronic system use<sup>9</sup>
- Traditional manual/information printouts use.<sup>5</sup>
- Interprets work order information to convey diagnostic approach.<sup>5</sup>
- Explanation of service work performed.

#### **Internal Combustion Engine Mechanical<sup>7</sup>**

- Assembly / disassembly
- Identify components
- Component fault diagnosis
- Inspection and testing
- Diagnosis and service of cylinder heads and blocks
- Measurements with precision measuring tools which could include but not limited to; plastigauge, micrometers, feeler gauges, and straight edge <sup>1,9</sup>

#### **Drivability and Emissions<sup>7</sup>**

- Identify components
- Starting and Charging Systems
- Drivability diagnostics and repair
- Test equipment usage
- Scan Tool
- Multi-meter (DVOM)
- Lab-scope
- System repair
- Testing and diagnosis

#### **Body and Chassis Electrical**

- Electric Drive System Safety
- Component operation and testing Electrical Systems
- Batteries
- Accessories

- Testing and diagnosis of electrical circuits<sup>7</sup>

### **Braking Systems (excluding air brake systems)**

- Identify components
- Inspection and testing
- Assembly / disassembly
- Base Brake systems
- ABS / Traction / Stability/ Electric parking systems
- Maintenance, repairs, & adjustments (may include rotor and drum service).
- Diagnostics<sup>7</sup>

### **Suspension and Steering**

- Identify components
- Inspection and testing
- Tire Repair
- Assembly / disassembly
- Maintenance, repair and adjustment
- Wheel Alignment
- Diagnostics<sup>7</sup>

### **Manual Transmission and Drivetrain Components**

- Identify components
- Inspection, measurement and testing<sup>1</sup>
- Assembly / disassembly
- Maintenance / adjustments
- Driveline measurements and adjustments
- Component repair

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

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

### **4.1 Equipment and material provided by the competitor and/host facility**

- A vehicle (no specific make and model)
- Tire change machine
- Tire balance machine

Note: Vehicle should be lifted either on a Hoist or safely on jack stands

The Following is a suggested list of equipment and material that competitors may use to complete the competition task:

- Digital Multimeters
- Brake Resetting Gauge
- Jack stands
- Striking Straight Blade Pry Bar
- Standard Locking Pliers (10 Inch)
- Needle Nose Locking Pliers (6 Inch)

- Interlocking Channel Pliers (9 Inch)
- Flare Nut Socket Set (6-Point)
- Adapter (1/2 Internal Drive to 3/8 External Drive)
- Drive Breaker Bar
- Adjustable Wrench
- Flat Chisel
- Relay Test Jumper Kit
- AC/DC current adapter
- Spark tester
- Accessory lead kit
- DMM leads
- Cordless Work Lights
- Wrench Sets
- Fender Covers
- Strut Compressors / Stands
- Straight Edge
- Cordless 3/8" Drive Impact Wrench Kit
- Ratchet long
- Pullers
- Scrapers
- Metric impact sockets
- Std impact sockets
- Pry bars
- Piston ring installer
- Dial indicator vise grip base
- Engine Stands
- Shock Installation Tool Kit
- Jack Stands
- Flaring Kit (Double)(ISO)
- Impact Wrench
- Ball Joint/Disc Brake Dial Test indicator
- 3/8" Torque Wrench Click Type (5-75 ft. lb.)
- 1/2" Torque Wrench Click Type (50-250 ft. lb.)
- Ball Peen Hammer (32 oz)
- Caliper Dial Type (US and Metric 0-6")
- Tape Measure (US and Metric 16 feet)
- Flare Nut Wrench Set Metric (9-21mm)
- Crows Foot Set Metric (10-19 mm)
- Plier Kits (8 inch)
- Tubing Bender
- Tubing Cutter
- Back Probe Kits
- Jumper Kit



- Test light
- Pliers
- Magnet
- Feeler gauge
- Piston hammer
- Piston ring compressor
- Bore gauge
- Creepers
- 16 oz. Ball peen Hammers
- 3-PC. Pry Bar Set in Plastic Tray
- 4PC Universal Plier Set
- 3/8" Drive Speed Handle
- Magnetic base Digital Dial Indicator
- Drift Punch Set in Kit Bag
- Breaker bar
- Vernier caliper
- Socket and Wrench Set
- 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, no hats 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 COVID-19 Protocol

The COVID guidelines already in place within the participants' jurisdiction would need to be followed during the SCNC. It is the responsibility of the participants (Competitor, Proctors, NTC members, and anyone onsite during the competition) to ensure that the COVID guidelines are respected.

## 5.3 List of required personal protective equipment (PPE) provided by the competitor and/or host facility

- Safety Glasses (meets CSA Standard Z94.3 Class 1)
- CSA approved Safety shoes
- Hearing protection optional
- Nitrile and/or mechanics gloves are optional.

**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
Drivability	17
Suspension and Steering	17
Brakes and related systems	17
Manual Transmission	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	<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 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 criterion will be declared the winner.
- Tiebreaker #3: The competitor with the highest score in the Manual Transmission 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
Nova Scotia	James Bowes
New Brunswick	Brian Breau
Ontario	Martin Restoule – Co-Chair
Manitoba	Jim Voth
Saskatchewan	James Halushka
Alberta	Ricky Martineau - Chair
British Columbia	Jason Devisser
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)).