



CONTEST DESCRIPTION

# **Outdoor Power and Recreation Equipment**

POST-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 2.3 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/outdoor-power-recreation-equipment/](https://www.skillscompetencescanada.com/en/skill_area/outdoor-power-recreation-equipment/)

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

To test each student's skill and knowledge in the areas of inspection, measurement, maintenance and repair of engines and systems related to the marine, small engine and powersports industries. Prepare each student for employment in the industry.

### **2.3 Duration of contest**

12 hours

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

Theory 35% Practical 65%

All phases of measurement will deal exclusively with metric only.

### 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
Motorcycle Powertrains	December 2023
Direct Current Electrical Diagnosis	December 2023
Outboard Service	December 2023
Engine Top End Measurement	December 2023

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

- To demonstrate the skill and knowledge involved with the service and repair of two and four stroke engines
- Use of metric precision measuring tools<sup>1</sup>
  - Micrometers
  - Dial bore gauge
  - Vernier caliper
  - Feeler gauge
  - Dial indicator
  - Plastigauge®
- Accurately measure and analyze engine components for wear<sup>1</sup>
- Metal cutting, tapping, drilling, filing
- Fuel Injection and Carburetor theory, adjustment procedures<sup>7</sup>
- Use of repair manuals for retrieval of procedures, specifications, and troubleshooting charts<sup>5</sup>
- Accurately perform compression, leak down, and crankcase pressure and vacuum test<sup>7</sup>
- Technical competence and safe work practice/procedures<sup>7</sup>
- Tool handling and recognition<sup>7</sup>
- CVT Transmission service and theory of operation
- Belt, Chain, Gear Final Drive System Service
- Multiplate Clutch and Constant Mesh Transmission operation
- Knowledge of Trade related Tire applications and designs<sup>7</sup>
- General knowledge of 4 Cycle theory
- General knowledge of 2 Cycle theory
- Use of Digital Volt-Ohm Meter<sup>9</sup>
- Electrical Measurements including Volts, Ohms, Amps, and Voltage Drops<sup>1</sup>
- Ignition, charging, starting, and lighting system theory, inspection, and diagnosis<sup>7</sup>

*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 Skills/Compétences Canada**

- All necessary equipment, engines, hand tools, measuring tools and specialty tools
- DVOM
- Compression Tester
- Leak down Tester
- Tec Angle Torque Wrench
- Dial Torque Wrench
- Micrometer Feed Torque Wrench
- Bit set
- Flashlight
- Screwdrivers
- Pliers
- Sockets, Ratchets, Extensions
- Wrenches
- Back Probes
- Feeler gauges
- Tape Measure
- Manufacturer Specific Tools
- Taps, Drills, Files
- Drill Press

**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.**

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

- Competitors are not required to supply any tools.

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

- Clean provincially supplied clothing or an unmarked t-shirt (work shirt) and work pants.

## **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

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

- Safety Glasses
- CSA approved Safety footwear
- Hearing protection (optional)
- Mechanics Gloves (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
Ohm's Law Circuit Building and Testing	12.5
Hand Skills Machine Shop Practices	12.5
Outboard Service	12.5
Engine Top End Measurement	12.5
DOHC Valve Adjustment	12.5
Motorcycle Powertrains	12.5
4 Stroke Bottom End Measurement	12.5
Electrical Diagnosis	12.5



## 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
Cell Phone	<ul style="list-style-type: none"> <li>Use not permitted during project work.</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 in the Outboard Motor Lower Unit Service, Powerhead Service Lab will be declared the winner.
- Tiebreaker #2: The competitor with the highest score in the Motorcycle Electrical diagnostic Lab will be declared the winner.
- Tiebreaker #3: The competitor with the highest score in the Bottom End Measurement Lab 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
Quebec	Alexandre Leblanc
Ontario	Rob Davidson – Chair
Manitoba	Rick Groff – Co-Chair
Saskatchewan	Cecil Machnee
Newfoundland and Labrador	Jeremy King

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