



CONTEST DESCRIPTION

Automobile Technology

SECONDARY AND POST-SECONDARY

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1 THE ESSENTIAL SKILLS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY

SCC is currently working with Employment and Social Development Canada (ESDC) in order to bring awareness to the importance of Essential Skills that are absolutely crucial for success in the workforce. Part of this ongoing initiative requires the integration and identification of Essential Skills in contest descriptions, projects, and project documents. The next phase and very important aspect of our Essential Skills (ES) initiative is to provide an ES report card to each competitor at the Skills Canada National Competition. The purpose of the ES report card is to inform the competitor about their current level of essential skills based on their competition scores. With this knowledge, the competitor will be made aware which essential 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 essential skills for the workplace in the legend below:

¹Numeracy, ²Oral Communication, ³Working with Others, ⁴Continuous Learning, ⁵Reading Text, ⁶Writing, ⁷Thinking, ⁸Document Use, ⁹Digital

These essential skills have been identified in section 3.2 of your Contest Description and if applicable, in your Project and all other supporting project documents.

2 CONTEST INTRODUCTION

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

<http://skillscompetencescanada.com/en/careers/transportation/automotive-service/>

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.

3 CONTEST DESCRIPTION

3.1 List of documents produced and timeline for when competitors have access to the documents.

DOCUMENT	DATE OF DISTRIBUTION VIA WEBSITE
Vehicle Manufacturer	Two weeks before the competition

3.2 Tasks that may be performed during the contest

- Workshop Procedures
 - Service Information Retrieval
 - Electronic system use
 - Traditional manual/information printouts use.⁵
 - Interprets work order information to convey diagnostic approach.⁸
 - Explanation of service work performed.
- Internal Combustion Engine Mechanical⁷
 - 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 ^{1,9}
- Drivability and Emissions⁷
 - Identify components
 - Starting and Charging Systems
 - Drivability diagnostics and repair
 - Test equipment usage
 - Scan Tool
 - Multi-meter (DVOM)
 - Lab-scope
 - System repair
 - Component operation and testing

- Electrical Systems
 - Batteries
 - Accessories
 - Testing and diagnosis
 - Body and Chassis Electrical
 - Electric Drive System Safety
- 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
- Suspension and Steering⁷
 - Identify components
 - Inspection and testing
 - Assembly / disassembly
 - Maintenance, repair and adjustment
 - Wheel Alignment
 - Diagnostics
- Manual Transmission and Drivetrain Components
 - Identify components
 - Inspection, measurement and testing¹
 - Assembly / disassembly
 - Maintenance / adjustments
 - Driveline measurements and adjustments
 - Component repair

Essential Skills – ¹Numeracy, ⁵Reading Text, ⁷Thinking (Critical Thinking, Job Task Planning & Organizing), ⁸Document Use, ⁹Digital

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- Fluke 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
- Differential Cylinder Pressure Tester
- 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
- Digital Storage Oscilloscopes

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 bring any tools or equipment.
- Competitors are required to bring at least 2 writing instruments with them.

4.3 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 SAFETY REQUIREMENTS

5.1 Safety workshop

Upon arrival at the Skill area, 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 Personal protective equipment (PPE) provided by Skills/Compétences Canada

- Not required PPE

5.3 Personal protective equipment (PPE) provided by competitors

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

Note: Contestants who do not have the required protective gear will not be allowed to participate in the contest.

6 ASSESSMENT

6.1 Point breakdown

POINT BREAKDOWN	/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 competitor orientation.

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

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 might 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 criterial 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 Test Project change at the Competition

Where the Test Project has been circulated to Competitors in advance, NTC shall change a maximum of 30% of the work content. Please refer to the Competition Rules.

8.4 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
Manitoba	Jim Voth
Ontario – Co-Chair	Martin Restoule
Québec	Vincent Brochu
Newfoundland and Labrador	Charlie Druken
Saskatchewan	James Halushka
Prince Edward Island	Jeff Dingwell
Alberta – Chair	Ricky Martineau
British Colombia	Jason Devisser
Northwest Territories	Richard Kent
Nova Scotia	James Bowes
New Brunswick	Brian Breau

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