

# Regional Scope Document

## *AUTOMOTIVE SERVICE (Secondary) 2021*

### **Purpose of the Challenge:**

To evaluate performance in areas such as theory, diagnosis and repair of automotive systems.

### **Regional Skills will be done in two parts:**

**First part:** An online interactive skill and knowledge test.

**Second part:** The top four competitors will have a face to face hands-on skills and knowledge test.

### **Online Interactive Skills & Knowledge Test:**

#### **Competition Topics May Include:**

#### **1. DRIVABILITY PROBLEM – FUEL / IGNITION / EMISSION**

*May Include:*

- a) Use of fuel pressure testing equipment.
- b) Primary and secondary ignition scope pattern analysis (ignition scope will be connected to vehicle).
- c) Use of “scan tool” to access data stream trouble codes and information.
- d) Use of “four gas analyzer” for testing vehicle emissions.
- e) Testing emission control devices or systems.
- f) Use of service manuals or electronic information systems for accessing test procedures or technical data.

#### **2. “MIL” LIGHT – DIAGNOSE CAUSE**

*May Include:*

- a) Use of “scan tool” to retrieve fault codes and/or clear codes.
- b) Use of service manuals or electronic information systems for accessing test procedures or technical data.

#### **3. ELECTRICAL SYSTEMS – LIGHT OR ACCESSORY CIRCUITS**

*May Include:*

- a) Visual inspection of components and/or wiring/connection integrity.
- b) Use of digital “D.V.O.M.” for testing components and/or wiring/connection integrity.
- c) Use of service manuals or electronic information systems for accessing test procedures, wiring schematics or technical data.

**4. CRANKING SYSTEMS – DIAGNOSIS**

*May Include:*

- a) Use of “A.V.R.” tester for battery, alternator, starter and circuit testing.
- b) Use of digital “D.V.O.M.” for “voltage drop” testing and/or wiring/connection integrity.
- c) Use of service manuals or electronic information systems for accessing test procedures or technical data.

**5. COMPONENT TESTING – ELECTRICAL / ELECTRONIC**

*May Include:*

- a) Use of digital “D.V.O.M.” for circuit testing.
- b) Use of service manuals or electronic information systems for accessing test procedures or technical data.

**6. C.V. JOINT – DISASSEMBLE, INSPECT, REASSEMBLE**

*May Include:*

- a) Use of hand tools required to disassemble and reassemble component.
- b) Visual inspection of parts and written recommendations.
- c) Use of service manuals or electronic information systems for accessing test procedures or technical data.

**7. DIFFERENTIAL RWD – INSPECT AND ADJUST**

*May Include:*

- a) Visual inspection of parts and written recommendations.
- b) Testing and/or adjusting pinion bearing preloads.
- c) Testing and/or adjusting differential side bearing preloads.
- d) Testing and/or adjusting pinion and ring gear backlash.
- e) Use of “marking” compounds to interpret “drive and coast” patterns.
- f) Use of service manuals or electronic information systems for accessing test procedures or technical data.

**8. BRAKES – INSPECT, EVALUATION AND REASSEMBLY**

*May Include:*

- a) Visual inspection of parts and written recommendations.
- b) Use of applicable measuring tools (micrometer, calipers, drum gauge, etc.).
- c) Reassembly of brake system.
- d) Use of service manuals or electronic information systems for accessing test procedures or technical data.

**9. ENGINE BLOCK – COMPONENT INSPECTION AND MEASUREMENT**

*May Include:*

- a) Visual inspection of parts and written recommendations.
- b) Use of applicable measuring tools (bore gauge, micrometers, calipers, etc.).
- c) Use of service manuals or electronic information systems for accessing test procedures or technical data.

**10. THEORY EXAM – COMPONENT IDENTIFICATION AND WRITTEN EXAM**

*May Include:*

- a) Multiple choice exam that includes questions from all automotive mechanical systems.
- b) Multiple choice questions/answers for identifying various automotive components.

**11. TOOLS AND EQUIPMENT – FABRCATION**

*May Include:*

- a) Select and operate appropriate fabricating hand tools
- b) Select and operate appropriate fabricating shop equipment

**12. WHEELS, TIRES AND HUBS**

*May Include:*

- a) Mounting and balancing tires
- b) Repairing tire punctures
- c) Measuring and analyzing tire wear
- d) Suspension Diagnosis

**Hands on Skill and Knowledge Test**

**1. ELECTRICAL SYSTEMS – LIGHT OR ACCESSORY CIRCUITS**

*May Include:*

- a) Visual inspection of components and/or wiring/connection integrity.
- b) Use of digital “D.V.O.M.” for testing components and/or wiring/connection integrity.
- c) Use of service manuals or electronic information systems for accessing test procedures, wiring schematics or technical data.

**2. BRAKES – INSPECT, EVALUATION AND REASSEMBLY**

*May Include:*

- a) Visual inspection or parts and written recommendations.
- b) Use of applicable measuring tools (micrometer, calipers, drum gauge, etc.).
- c) Reassembly of brake system.
- d) Use of service manuals or electronic information systems for accessing test procedures or technical data.

### 3. WHEELS, TIRES AND HUBS

*May Include:*

- a) Mounting and balancing tires
- b) Repairing tire punctures
- c) Measuring and analyzing tire wear
- d) Suspension Diagnosis

#### **Specific Requirements:**

- CSA safety footwear and safety glasses, Coveralls and Face masks to be supplied by the contestant.
- Tools, and equipment will be supplied by the committee.
- Contestants may supply and use their own DVOM.
- All Covid-19 safety protocols will be implemented.
- FACE MASKS ARE REQUIRED

#### **Safety Instructions:**

Safety awareness/requirements will be maintained within minimum industry standards at all times. A contestant will not be allowed to compete without the safety equipment noted on this document.

#### **Equipment / Tools / Materials**

##### **Supplied by Committee:**

- All necessary tools and equipment

##### **Supplied by Contestant:**

- CSA Approved or Similar Safety Footwear
- Coveralls or Shop Skirt and Pants
- Safety Glasses
- Face Masks

## Judging / Distribution of Marks

Each student will be evaluated on:

a) Diagnosis / Repair / Adjustment procedures and sequences	20 points
b) Accuracy of Diagnosis / Repairs / Adjustments	20 points
c) Correct use of equipment and tools	20 points
d) Correct Safety Procedures	20 points
e) Efficient use of written and electronic information systems	<u>20 points</u>
<b>Total</b>	<b>100 points</b>

**Note: If Theory Exam is used it will be based on 100 points**

## Technical Committee:

VCC Skills Representative – Ryan Lee and Cateno Vassallo

Alex Romashenko  
Robert Kunka  
Greg Henderson – Department Head  
Jason Devisser – Skills Canada Technical Chair  
Bill Barnes  
Gary Mui  
Louis Lui  
Andu Keddis  
Mike Coard  
Alex Wu  
Ralph Spolowicz  
Jay Copeland  
Herb Ruppe  
Eric Rasmusson  
Ben Yazdani