2024 South East Regional Skills Canada Competition

Contest Description (Scope Document)

Medicine Hat College

April 19th, 2024

EVENT: Automobile Technology	**LEVEL:** Secondary
DURATION OF CONTEST: 6HRS	**LOCATION: Medicine Hat College T190**
COMPETITION SCHEDULE: ***ORIENTATION*** **7:45am – 8:15am** **COMPETITION 8:30am – 12:15pm** **LUNCH 12:15pm-12:45pm** **COMPETITION 12:45pm-2:45pm**	**REGIONALIZED: YES** **If YES, To compete at the Provincial Skills Canada Competition students must qualify at their Regional Skills Canada Competition.**
AWARDS CEREMONY INFORMATION: In Atrium at MHC afternoon the judging is completed	

CONTEST INTRODUCTION

To identify and evaluate a competitor's knowledge of the Automobile Technology trade. The competitor will display his or her understanding of specific areas of the automobile and demonstrate their skills for maintaining and repairing components related to those areas.

SKILLS AND KNOWLEDGE TO BE TESTED

Practical demonstrations – 100%

PROJECT DESCRIPTION

The competitors are required to complete nine competition areas. The areas are as follows:

Component Identification & Steering/Suspension

- The students will be identifying automotive components & correctly inspect a steering/suspension system. These components may be both on and off the vehicle. Service procedures for these systems may also be tested.
- Using supplied information (directions, tap drill charts and torque chart) correctly identify fasteners by markings, thread pitch and size.

Drivability & Scan Tools

- Use a scan tool to identify DTC's in the engine management system. Follow the manufacturer's diagnostic procedures to identify the cause of the DTC and the repair required to remedy the condition. This may require

the competitor to use a DVOM and/or a test light to verify electrical circuits for voltage, amperage and resistance as well as identifying opens, shorts to ground, shorts to voltage and excessive resistance.
- Use a scan tool to activate engine management outputs.

Body Electrical
- The students will be diagnosing basic electrical circuits and components using a DVOM. These could include series circuits, parallel circuits and series-parallel circuits. Relay operation may be incorporated into the circuits. DVOM use for making voltage measurements, voltage drops, amperage and resistance measurements.

Brakes and Stability
- The student may be required to identify components of the brake and stability systems. Component removal, inspection, measurement and replacement of the above systems may be tested. The students will do a double flare and line bending project.

Piston Removal and Cylinder Measurement
- The students will be required to correctly identify various engine components. The engine measurements may include crankshaft or connecting rod bore measurements, camshaft measurements, piston measurements and valve train measurements.

Cylinder Head Disassembly and Measurement
- Students will be required to disassemble and reassemble a cylinder head using proper techniques. They will be required to make measurements for the condition of the head and note any possible failures.

Manual Transmission Theory
- Students will be required to calculate the gear ratios for all forward and reverse gears for a given manual transmission. The students may also be required to identify the power flow for all gears as well.

Differential Inspection
- Students will be required to disassemble & reassemble a differential assembly. The students will also be required to perform various measurements & adjustments on the differential assembly that may include; measurement of pinion bearing pre-load, & measurement & adjustment of backlash.
- Trace the path of power through a standard open differential and analyze the gear contact pattern, make recommendations to correct pattern if required.

Wheel Bearing Adjustment, Rotor Inspection & Measurements
- Students will be required to disassemble & reassemble a disc brake & wheel bearing assembly. The students will also be required to perform various measurements & adjustments on the assembly that may include; rotor thickness, rotor run-out & wheel bearing pre-load.

EQUIPMENT & MATERIALS

Equipment and Materials Competitors Must Supply:

CSA Approved Safety Glasses	HB Pencil
CSA Approved Footwear	Eraser
Shop Coat or Coveralls	

Equipment and Materials Supplied by the Committee:

Hand tools	Calculators
Material	
Electrical Test Equipment Required to Perform the Tasks	

JUDGING CRITERIA

The competitor will be explained the judging criteria for each competition at the start of the competition. All seven components are equally weighted and the total is comprised of an average of all components combined.

TIE BREAKING PROCESS

In the event of a tie, a 25 question theory exam will be administered to break the tie.

RELATED CAREER AND TECHNOLOGY STUDIES COURSES

Descriptions of all modules are located at the following website:
https://education.alberta.ca/media/160539/mec_sum.pdf

Please reference the "Automobile Technology Event Preparation Manual" to further detail the module requirements, which can be found with the scope document on the Skills Canada Alberta website.

MEC 1040: Engine Fundamentals
MEC 1090: Electrical Fundamentals
MEC 2030: Lubrication & Cooling
MEC 2040: Fuel & Exhaust Systems
MEC 2060: Ignition Systems
MEC 2070: Emission Controls
MEC 2090: Electrical Components
MEC 2110: Braking Systems
MEC 2130: Drive Line
MEC 2140: Transmissions/Transaxles
MEC 2150: Suspension Systems
MEC 2160: Steering Systems
MEC 3030: Engine Diagnosis
MEC 3040: Engine Tune Up
MEC 3060: Engine Reconditioning – Head
MEC 3070: Engine Reconditioning – Block
MEC 3090: Computer Systems
MEC 3130: Automatic Transmissions
MEC: 3150: Wheel Alignment

CLOTHING REQUIREMENT

It is important that competitors present a professional image and appearance. Appropriate work clothing must be worn to compete. All clothing must be neat and clean and free of rips and tears. Casual wear such as shorts will not be permitted. No loose fitting clothes or jewelry.

SAFETY

The health, safety and welfare of all individuals involved with Skills Canada Alberta are of vital importance. Safety is a condition of participation with Skills Canada Alberta and shall not be sacrificed for the sake of expediency. At the discretion of the judges and technical committees, any competitor can be denied the right to participate should they not have the required proper safety equipment and/or act in an unsafe manner that can cause harm to themselves or others.

ADDITIONAL INFORMATION

Lunch will be provided for all competitors. Unfortunately, all allergies may not be able to be accommodated for. Please connect with the local Regional Coordinator for more information.
Parking information & venue maps: <INFO>
Regulations & Policies: A copy of the Skills Canada Alberta Regional Regulations & Policies can be found at the following link: http://www.skillsalberta.com/policies-and-procedures

COMMITTEE MEMBERS

Darren Fischer	Chad Schulz	Keon Clift	Jessica Hirsekorn
Dalton Anderson	Lee Eiserman	Corey Rogers	Erin Ferris