STATE SKILL PERFORMANCE PROJECT

SkillsUSA®

Introduction

Thank you for your dedication to ensuring student growth and achievement through the management of this SkillsUSA state competition event. The SkillsUSA state director and the national SkillsUSA organization appreciate your commitment to preparing America's future workforce. The purpose of this document is to equip you with the necessary competition specifications that will allow you to host a successful state competition.

Competition Technical Standards

The state director will provide the state technical committee with a copy of the current SkillsUSA Championships Technical Standards. The Technical Standards are the official competition guide/rules for the national SkillsUSA Championships. SkillsUSA Championships clothing requirements included in the technical standards have been established for the National Leadership and Skills Conference.

Disclaimer

The state project information is confidential. To ensure fairness and integrity in all competitive events, please do not share this packet with teachers or students. The following suggested SkillsUSA State Skill Performance Project is intended as a supplement to the guidance found in the SkillsUSA Championships Technical Standards. While most state competitive events are modeled after the national Technical Standards, rules for state events may vary from the national guidelines based on the time and/or equipment available at the state level. It is crucial that all student competitors understand any state specific requirements which should be communicated as state competition updates.

State Competition Update - Optional

Definition: A competition update is anything that is not already listed in the SkillsUSA Championships Technical Standards that a competitor and/or advisor needs to be aware of and/or bring for the upcoming state competition.

State specific competition updates may include a list of materials the competitor must bring, state specific scorecard, and/or clothing allowances. Please be sure to check the "Supplied by the Technical Committee and Competitor(s)" section in the SkillsUSA Championships Technical Standards and adjust these requirements as necessary. The state technical committee, working with the state director, should establish any additional requirements needed to successfully complete the state-level competition.

The following items should be reviewed, and a State Specific Competition Update posted if applicable:

1. Supplied by the State Technical Committee:
2. Supplied by the Competitors:

Competition Site Logistics

Materials (and quantity):

- All necessary tools and equipment for the competition
- All necessary service publications for the competitors

Tools (and quantity):

- See example station "special tools provided"

Equipment (and quantity):

- Cars for on-vehicle stations and service equipment for selected bench stations

Electrical needs (voltage & amperage):

120 Volt (20 amp) outlet(s) per station depending on equipment's manufacturer requirements. Please adjust the power requirements based on the specific equipment and facility utilities/rules

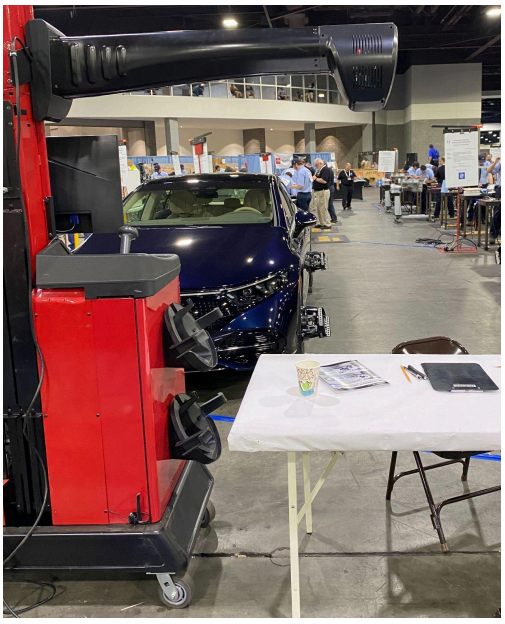
Competition utility requirements (water, plumbing, etc.): NA

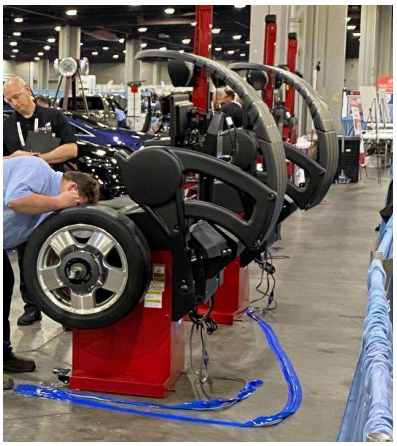
Estimated overall cost per competitor: NA

Sample State Competition Schedule

Time	Item	Item Description
8:00 a.m.	Welcome/Orientation	Welcome competitors to the competition and go through a brief review of the competition.
8:30 a.m. - 12:00 p.m.	Skill Performance Begins	Competitors rotate through stations, (time limit will be determined by competition coordinator, ensure equal amount of time per competitor per station)
12:00 p.m.	Lunch	
1:00 p.m. - 3:00 p.m.	Skill Performance continues	Competitors rotate through stations until each has completed all available stations
TBD	Written Knowledge Test	State will determine when test will be given pre-conference or onsite

Competition Layout Details

Example Steering & Suspension Station	Example Bench Trainer Station
	

Example SP2 Safety Station	Example Bench Equipment Station
	

Competition Project

Suggested High School Stations

Tasks	On-Vehicle Stations	Special Tools Provided
S1 Vehicle HVAC System Diagnosis and Testing	• Students will identify components related to an automotive air conditioning system and answer questions related to the general understanding of system operation. • Students will then be expected to perform a diagnosis of a simulated fault using a repair order, supplied service information, pressure gauges, and thermometer readings.	

S2 Vehicle Engine Performance Diagnosis & Testing	• Students will diagnose and repair faults related to the engine control and emissions system. This includes drivability, MIL-ON, DTC and Engine Control Module related issues. • Students will be expected to use basic diagnostic strategies to identify root cause, read schematics/wiring diagrams, correctly connect, and use test equipment.	
S3 Vehicle Body Electrical Diagnosis and Testing	• Diagnose electrical circuits related to electrical circuits on a car. • Students will be expected to read electrical wiring diagrams, correctly connect test equipment, and use diagnostic strategies to identify root causes. Station will have a bugged car with a repair order.	Digital Volt Ohm Meter, Relay test harness.
BENCH WORKSTATIONS		
S4 Tire/Wheel Service	Competitors will demonstrate their knowledge on wheel balancing and tire and/or wheel defects or problems.	Diagnostic Wheel Balancing Machines

S5 Environment, Health and Safety	Students demonstrate their knowledge of automotive work-related safety equipment, environmental issues, procedures and familiarity with SDS and PPE.	Competitors must bring a printed copy of the S/P2 Automotive Safety and Automotive Pollution Prevention certificates to the competitor Orientation Meeting.

S6 Electrical / Electronic Systems	• Competitors will take resistance, amperage, voltage, and voltage drop measurements on an automotive lighting system trainer. • Students will also demonstrate proper circuit construction from a wiring diagram incorporating all components of a normal circuit as well as circuit failure diagnosis	Double-sided Automotive Lighting Systems Trainers
S7 Job Interview	Students demonstrate they can clearly and completely fill out a job application, communicate clearly and effectively and have appropriate professional behaviors during the job interview. Printed copy of resume required.	**Competitors must bring at least 2 printed copies of Resume to the competitor Orientation Meeting.**

S8 Steering and Suspension	• Be familiar with and answer questions about steering and suspension components, tire information and wear patterns, wheel alignment procedures, printouts and diagnosis. • Exhibit the ability to properly use printed reference materials and work orders/printouts.	
S9 Brake Service & Diagnosis	• Students will demonstrate their ability to inspect, service, and determine necessary action related to disc and drum brake systems. • Part and component identification, inspection, measurement, disassembly and assembly may be required.	Four-wheel ABS trainer
S10 Manual Drive Train Service and Diagnosis	• Students will demonstrate their understanding of basic manual transmission/transaxle service, mechanical adjustments, parts identification, power flow, normal measurements and inspection. • Removal and replacement of components may be required.	

S11 Automatic Transmission Service	• Students will demonstrate their understanding of basic automatic transmission service, mechanical adjustments, parts identification, normal measurements and inspection. • Removal and replacement of components may be required.	
S12 Engine Mechanical	• Competitors will demonstrate their knowledge of the internal combustion gasoline engine by identification of various engine components and answering questions about engine mechanical operation. • Competitors will use precision measuring tools and OEM Service Information to inspect various engine components.	Digital Micrometer, Digital Dial Indicator, Digital Caliper and general precision measuring tools used in engine measurement and inspection.
S13 Written Test	The written test covers technical knowledge of automobile diagnosis and repair in the vehicle system specialty areas of: • Engine Repair • Automatic Transmission/Trans axle • Manual Drivetrain and Axles	

	• Suspension and Steering • Brakes • Electrical/Electronic Systems • Heating and Air Conditioning • Engine Performance	

Sample Postsecondary Stations (Optional)

Tasks	On-Vehicle Stations	Special Tools Provided
P1 Vehicle HVAC System Diagnosis and Testing	• Perform diagnosis and repair of a problem related to the HVAC/Climate Control system on a CAN bus vehicle. • Students will be expected to read schematics, locate information in service information, correctly connect and use test equipment, and use diagnostic strategies to identify root cause. • Students will be required to verify proper operation. • Car is bugged. Parts replacement. Use of repair order.	A/C Pressure gauges. OEM Service procedures and diagnostic strategies

P2 Vehicle Engine Performance Diagnosis and Testing	• Students diagnose faults related to the engine control module, drivability and emissions, using service information and diagnostic equipment. • Students will be expected to read schematics, locate information in service information, correctly connect and use test equipment, and use diagnostic strategies to identify root cause. • Car is bugged. Use of repair order.	
P3 Vehicle Wheel Alignment	• Students will demonstrate their understanding of wheel alignment angles, setup and use of alignment measuring equipment, and diagnosis of customer concerns including vehicle handling and tire wear issues. • Use of repair order.	

BENCH WORKSTATIONS		
P4 Hybrid Safety	Perform isolation of high voltage systems and verify that the voltage has dropped to a safe level.	"Hybrid and All Electric Vehicles Technology Trainer"

P5 Environment, Health and Safety	Students demonstrate their knowledge of automotive work-related safety equipment, environmental issues, procedures and familiarity with SDS and PPE.	Competitors must bring a printed copy of the S/P2 Automotive Safety and Automotive Pollution Prevention certificates to the Competitor Orientation Meeting.
P6 Electrical / Electronic Systems	• Students will demonstrate the proper use of the digital multimeter (DMM) while measuring resistance, amperage, voltage, and voltage drops in basic circuits. • Students will also demonstrate proper circuit construction from a wiring diagram incorporating all components of a normal circuit as well as circuit diagnosis and troubleshooting.	Troubleshooting Trainer
P7 Customer Service	• Act in an appropriate and professional manner. • Inspect and diagnose components in the Accessory Belt Drive System. • Clearly and effectively communicate with the customer information on the diagnosis and repair of their	Must bring at least 2 printed copies of Resume to the competitor Orientation Meeting.

	vehicle. Printed copy of resume required.	

P8 Electrical Diagnosis	• Electrical diagnosis through code retrieval and scope pattern interpretation. • Basic scan-tool and Labscope operation.	
P9 Brake Service and Diagnosis	Inspection, diagnosis, and repair of the brake system and ABS Wheel Speed Sensors.	
P10 Manual Drive Train Service and Diagnosis	• Students will demonstrate their understanding of basic manual transmission/transaxle service, mechanical adjustments, parts identification, power flow, normal measurements and inspection. • Removal and replacement of components may be required. • Demonstrate proper use of electronic service information to complete the above task.	Online Service Information.
P11 Automatic Transmission	• Students will demonstrate understanding of basic transmission service, diagnosis of solenoids and sensors, mechanical adjustments,	

Service and Diagnosis	parts identification, normal measurements, and inspection. • Perform bench diagnosis of transmission. Identify faulty components/circuits.	

P12 Engine Mechanical Service, Diagnosis, and Precision Measurement	• Students will demonstrate understanding of basic engine service, diagnosis, and mechanical understanding. • Use various tools and Repair Manual to locate specification and engine repair information. • Properly diagnose and repair the engine assembly.	
P13 Written Test	Written test covers technical knowledge of automobile diagnosis and repair in the vehicle system specialty areas of: • Engine Repair • Automatic Transmission/Transaxle • Manual DriveTrain and Axles • Suspension and Steering • Brakes • Electrical/Electronic Systems • Heating and Air Conditioning • Engine Performance	

Competition Modification Suggestion

Depending on the number of registered competitors and equipment available, a competition schedule can be set to allow a maximum skill performance time per station. Schedules should be set up to ensure all competitors have an equal amount of time at each station.