

# **SkillsUSA**

## **2011 Contest Projects**

### **Automotive Service Technology**

Click the “Print this Section” button above to automatically print the specifications for this contest. Make sure your printer is turned on before pressing the button.

**Automotive Service Technology**

Again this year, Delmar, a part of Cengage Learning is making their online ASE Test Preparation tools available to all instructors and competitors immediately. This means that some competitors may be able to use the tool in advance of their district and state competitions.

Instructors should only share the material with competitors.

Access will be terminated when the National Competition begins.  
Please use the contact information below to get the necessary link  
[jonathan.sweeney@cengage.com](mailto:jonathan.sweeney@cengage.com) | [www.delmarlearning.com](http://www.delmarlearning.com)

High school students participating in the 2011 National Automotive Service Technology competition will be tested using the ChiltonPRO [www.ChiltonPRO.com](http://www.ChiltonPRO.com) Automotive Repair Information system in the high school electronic service information station. To gain FREE access to the system please contact Celia McCarty at [celia.mccarty@contractor.cengage.com](mailto:celia.mccarty@contractor.cengage.com).

## 2011 AST HIGH SCHOOL CONTEST STATIONS

TASK	ON-VEHICLE WORKSTATIONS	SPECIAL TOOLS PROVIDED
<p><u>S1</u> Vehicle HVAC System Diagnosis and Testing</p>	<p>Students will be judged on their ability to read and use electronic schematics and service information, correctly use test equipment, and use diagnostic strategies to identify root cause. Car is bugged. Students will be asked to explain the logic behind the troubleshooting procedure.</p>	<p>Toyota Scantool – Techstream</p>
<p><u>S2</u> Vehicle Engine Performance Diagnosis &amp; Testing</p>	<p>Students will be required to use a repair order to identify customer complaint. They will also be required to 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 read schematics/wiring diagrams, locate information using factory service information, correctly connect and use test equipment, and use diagnostic strategies to identify root cause. Car is bugged. Parts replacement may be required.</p>	
<p><u>S3</u> Vehicle Body Electrical Diagnosis and Testing</p>	<p>Diagnose electrical circuits on car related to battery, starting, charging, lighting, and accessories. 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.</p>	

BENCH WORKSTATIONS		
S4 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.	Prior training in PDP Level I & II to be completed. <b>Contestant must bring printed copy of Resume to the Contestant Orientation Meeting.</b>
S5 Environment, Health and Safety	Students demonstrate their knowledge of automotive work related safety equipment, environmental issues, procedures and familiarity with MSDS and PPE.	Access to CCAR's S/P2® e-learning program is provided free of charge to competitors in the SkillsUSA Competition. BEFORE the competition, instructors are asked to contact CCAR by email at <a href="mailto:skillsusa@ccar-greenlink.org">skillsusa@ccar-greenlink.org</a> to receive their students' log-on information for the S/P2 website. Students MUST COMPLETE the S/P2 courses IN ADVANCE of the competition. Any questions, call toll free: 1-888-772-3535.
S6 Electrical Circuit Diagnosis, Testing, and Wiring Repair.	Students will measure resistance, voltage, amperage with a shunt, and voltage drop measurements on a bench circuit board. Students will demonstrate proper circuit diagnosis to locate faults placed in various electrical circuits.	
S7 Electronic Service Information	Students locate specifications and other service information using electronic service information resources.	Chilton Pro
S8 Steering and suspension	Component identification and wheel alignment theory diagnosis. Identify vehicle suspension and steering components, wheel alignment tools & adjustment components. Answer questions on wheel alignment theory & diagnosis of related conditions. Exhibit the ability to properly use reference materials and work orders.	

S9 Brake Service & Diagnosis	Students will be judged on their ability to inspect, service, and determine necessary action related to disc and drum brake systems. Tasks may include part identification, inspection, measurements, disassemble and assemble.	
S10 Manual Drive Train Service and Diagnosis	Students will be asked to identify components and power flow of a manual transmission, as well as answer questions on transmission theory. Students will also be required to diagnose a transmission condition.	
S11 Automatic Trans- mission Service	Students will demonstrate 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 Service  Toyota Cole Stutz	Contestants will demonstrate their knowledge of the internal combustion gasoline engine. As well as use precession measurement instruments and the Factory Repair Manual to inspect various engine components. Contestants will be required to identify various engine components and answer engine mechanical questions.	
S13 Written Test ASE	<p>Given by ASE, this 100 question written test will test the student's technical knowledge of automobile diagnosis and repair in the vehicle system specialty areas of:</p> <ul style="list-style-type: none"> <li>• Engine Repair</li> <li>• Automatic Transmission/Transaxle</li> <li>• Manual Drive Train and Axles</li> <li>• Suspension and Steering</li> <li>• Brakes</li> <li>• Electrical/Electronic Systems</li> <li>• Heating and Air Conditioning</li> <li>• Engine Performance</li> </ul>	Test booklet answer sheet, pencil.

## 2011 AST COLLEGE CONTEST STATIONS

TASK	ON-VEHICLE WORKSTATIONS	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. Car is bugged Parts replacement. Use of repair order.	A/C Pressure gauges. Chrysler Star Mobile or wiTECH software.
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.	G.M. Tech 2 Scan Tool.
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. Use of repair order.	Hunter will provide WA400 consoles with Hawkeye Elite sensors running Winalign 12 software.
<b>BENCH WORKSTATIONS</b>		
P4 Customer Service	Act in an appropriate and professional manner. Bench test electrical components to diagnose a no-start condition. Clearly and effectively communicate with the customer information on the diagnosis and repair of their vehicle. Printed copy of resume required.	<b>Must bring printed copy of Resume to the Contestant Orientation Meeting.</b>

P5 Environment, Health and Safety	Students demonstrate their knowledge of automotive work related safety equipment, environmental issues, procedures and familiarity with MSDS and PPE.	Access to CCAR's S/P2® e-learning program is provided free of charge to competitors in the SkillsUSA Competition. BEFORE the competition, instructors are asked to contact CCAR by email at <a href="mailto:skillsusa@ccar-greenlink.org">skillsusa@ccar-greenlink.org</a> to receive their students' log-on information for the S/P2 website. Students MUST COMPLETE the S/P2 courses IN ADVANCE of the competition. Any questions, call toll free: 1-888-772-3535.
P6 Electrical Circuit Testing	Students will measure resistance, voltage, amperage with a shunt, and voltage drop measurements on a bench circuit board. Students will demonstrate proper circuit diagnosis to locate faults placed in various electrical circuits.	
P7 Electrical Service Information	Students locate specifications and other service information using electronic service information resources.	Mitchell 1- Shop-Key Electronic Service Information.
P8 Electrical Diagnosis	Electrical diagnosis through scope pattern interpretation. Basic Labscope operation.	Snap-On (Modis) For additional training information go to: <a href="http://www1.snapon.com/diagnostics/us/ForumsandTraining/TrainingSolutions/Courses.htm">http://www1.snapon.com/diagnostics/us/ForumsandTraining/TrainingSolutions/Courses.htm</a>
P9 Brake Service and Diagnosis	Service and testing of ABS brake systems, interpret customer concerns and diagnose system faults.	Snap-On (Vantage Pro) For additional information go to: <a href="http://www1.snapon.com/diagnostics/us/ForumsandTraining/TrainingSolutions/Courses.htm">http://www1.snapon.com/diagnostics/us/ForumsandTraining/TrainingSolutions/Courses.htm</a>

P10 Manual Drive Train Service and Diagnosis	Service, testing and diagnosis of manual transmission or transaxle drive train components. Students will demonstrate understanding of basic transmission service, mechanical adjustments, parts identification, normal measurements and inspection. Perform bench diagnosis of transmission and identify faulty components.	
P11 Automatic Transmission Service and Diagnosis	Service, testing and diagnosis of automatic transmission or transaxle drive train components. Students will demonstrate understanding of basic transmission service, diagnosis of solenoids and sensor, mechanical adjustments, 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 perform precision measurements and diagnostics on an overhead cam engine to diagnose and determine proper corrective action. This may include checking: timing, valve lash, camshaft or crankshaft endplay, Timing chain or belt stretch and basic engine measurements.	Metric precision measuring tools
P13 Written Test  ASE	Given by ASE, this 100 question written test will test the student's technical knowledge of automobile diagnosis and repair in the vehicle system specialty areas of: <ul style="list-style-type: none"> <li>• Engine Repair</li> <li>• Automatic Transmission/transaxle</li> <li>• Manual Drive Train and Axles</li> <li>• Suspension and Steering</li> <li>• Brakes</li> <li>• Electrical/Electronic Systems</li> <li>• Heating and Air Conditioning</li> <li>• Engine Performance</li> </ul>	Test Booklet answer sheet, pencil.