

2009 AST HIGH SCHOOL CONTEST STATIONS

| TASK | ON-VEHICLE WORKSTATIONS | SPECIAL TOOLS PROVIDED |
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| <u>S1</u> Vehicle HVAC System Diagnosis and Testing Honda | 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. | DVOM |
| <u>S2</u> Vehicle Engine Performance Diagnosis & Testing Ford | Diagnose and repair faults related to the powertrain control module, drivability, and emissions. MIL on and a hard code is stored. 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. | Ford IDS Scan Tool (Run KOEO and KOER On Demand Self Test) DVOM Test Probes Service Literature |
| <u>S3</u> Vehicle Body Electrical Diagnosis and Testing Toyota | 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. | Toyota scan tool (Tech Stream) DVOM |
| BENCH WORKSTATIONS | | |
| <u>S4</u> Environment, Health and Safety CCAR | Students demonstrate their knowledge of automotive work related safety equipment, environmental issues, procedures and familiarity with MSDS and PPE. | Assorted personal protection equipment. MSDS. |
| <u>S5</u> Job Interview | Students demonstrate they can clearly and completely fill out a job application, communicate clearly and effectively and | Job application. PDP Level I & II. |

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| Mercedes-Benz | have appropriate professional behaviors during the job interview. Printed copy of resume required. | Must bring one-page, typewritten copy of résumé to the Contestant Orientation Meeting. |
| <u>S6</u> Electrical Circuit Diagnosis, Testing, and Wiring Repair Auto Technics | 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. | DVOM |
| <u>S7</u> Steering, Suspension and Wheel Alignment Hunter | 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. | Reference materials. |
| <u>S8</u> Manual Drive Train Service and Diagnosis PSU | Students will ask to identify components and power flow in a 6-speed manual transmission, as well as answer questions on transmission theory and diagnose transmission condition. | Standard hand and measurement tools. |
| <u>S9</u> Brake Service & Diagnosis Honda | 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. | Standard hand and measurement tools. |
| <u>S10</u> Automatic Transmission Service PSU | Students will demonstrate understanding of basic transmission service, mechanical adjustments, parts identification, normal measurements and inspection. Answer questions related to transmission power-flow. | Standard hand and measurement tools. |
| <u>S11</u> Engine Mechanical Service Toyota | Contestants will demonstrate their knowledge of the internal combustion gasoline engine. As well as use precision measurement instruments and the Factory Repair Manual to inspect various engine components. Con- | Precision Measurement Instruments. Factory Repair Manual |

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| | testants will be required to identify various engine components and answer engine mechanical questions. | |
| S12 Electronic Service Information Snap-on | Students locate specifications and other service information using electronic service information resources. | Snap-on ShopKey. Service Information. |
| S13 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"> • Engine Repair • Automatic Transmission/Transaxle • Manual Drive Train and Axles • Suspension and Steering • Brakes • Electrical/Electronic Systems • Heating and Air Conditioning • Engine Performance | Test booklet answer sheet, pencil. |

2009 AST COLLEGE CONTEST STATIONS

| TASK | ON-VEHICLE WORKSTATIONS | TOOLS PROVIDED |
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| <u>P1</u> Vehicle HVAC System Diagnosis and Testing Chrysler | 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. DVOM. Chrysler Star Mobile Scan Tool with wiTECH software. |
| <u>P2</u> Vehicle Engine Performance Diagnosis and Testing GM | Students diagnose and repair faults related to the power train 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. DVOM |
| <u>P3</u> Vehicle Wheel Alignment Hunter | 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 811 or later wheel alignment machine. Hunter DSP600 or later sensors. |
| BENCH WORKSTATIONS | | |
| <u>P4</u> Environment, Health and Safety CCAR | Automotive work related safety and environmental procedures and issues, including MSDS and PPE. | Assorted personal protection equipment. MSDS. |
| <u>P5</u> Customer Service Mercedes-Benz | Act in an appropriate and professional manner. Bench test electrical components to diagnose a no-start condition. Clearly and effectively communicate | Must bring printed copy of Resume to the Contestant Ori- |

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| | with the customer information on the diagnosis and repair of their vehicle. Printed copy of resume required. | entation Meeting. DVOM |
| P6 Electrical Circuit Testing Auto Technics | 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. | DVOM |
| P7 Electrical Diagnosis Snap-On | Electrical diagnosis through scope pattern interpretation. Basic Labscope operation. | Snap-On (Modis) For additional training information go to: http://www.snapon.com/Modis/flash/Modis_Test_Drive.asp |
| P8 Manual Drive Train Service and Diagnosis Ford | Service, testing and diagnosis of rear drive vehicle manual transmission. Endplay measurements and shim selection (2004 F-150), synchronizer blocking ring inspection and wear measurement (1996 F-150), shift fork to synchronizer sleeve inspection and measurement (1996 F-150). | M50D Man. Trans. Metric Depth Micrometer Metric Digital Caliper Metric Feeler Gauge Service Literature |
| P9 Brake Service and Diagnosis MegaTech | Service and testing ABS brake systems, interpreting Diagnostic Trouble Codes and diagnosing system faults. | Snap-On (Vantage Pro) For additional information go to: http://www1.snapon.com/Training/Solutions/Courses/VantagePRO.nws |
| P10 Automatic Transmission Service and Diagnosis GM | Service, testing and diagnosis of automatic transmission 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. | Standard hand and measurement tools. |

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| <p><u>P11</u> Engine Mechanical Service, diagnosis, and Precision Measurement Chrysler</p> | <p>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.</p> | <p>Standard hand and engine measurement tools.</p> |
| <p><u>P12</u> Electrical Service Information Snap-On</p> | <p>Students locate specifications and other service information using electronic service information resources.</p> | <p>Snap-on ShopKey. Service Information.</p> |
| <p><u>P13</u> Written Test ASE</p> | <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"> • Engine Repair • Automatic Transmission/transaxle • Manual Drive Train and Axles • Suspension and Steering • Brakes • Electrical/Electronic Systems • Heating and Air Conditioning • Engine Performance | <p>Test Booklet answer sheet, pencil.</p> |