



# Automotive Service Technician 2018-19 State Results

Statistics data includes students taking exams in the original testing period and includes students retaking exams. The Score Distribution and Standards performance tables show results for original testing period only for accurate evaluation of live testing performance.

## Statistics

| Categories      | Performance |
|-----------------|-------------|
| Participants    | 20          |
| Pass Rate       | 15          |
| Pass Percentage | 75.0%       |
| Average Score   | 65.1        |
| Cut Score       | 62          |

## Score Distribution

| % Range | # Scores in Range |
|---------|-------------------|
| 0-12    | 0                 |
| 12-22   | 0                 |
| 22-32   | 0                 |
| 32-42   | 0                 |
| 42-52   | 4                 |
| 52-62   | 1                 |
| 62-72   | 10                |
| 72-82   | 3                 |
| 82-92   | 2                 |
| 92-100  | 0                 |

## Automotive Service Technician

### 1) CONTENT STANDARD 1.0: Identify and Utilize Safety Procedures and Proper Tools



#### 1) Performance Standard 1.1: Demonstrate General Lab Safety Rules and Procedures



1) 1.1.1 Describe general shop safety rules and procedures



2) 1.1.2 Utilize safe procedures for handling of tools and equipment



3) 1.1.3 Identify and use proper placement of floor jacks and jack stands



4) 1.1.4 Identify and use proper procedures for safe vehicle lift operation



5) 1.1.5 Utilize proper ventilation procedures for working within the lab/shop area



6) 1.1.6 Identify marked safety areas



7) 1.1.7 Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment



8) 1.1.8 Identify the location and use of eye wash stations



9) 1.1.9 Identify the location of the posted evacuation routes



10) 1.1.10 Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities



11) 1.1.11 Identify and wear appropriate clothing for lab/shop activities



13) 1.1.13 Research safety aspects of supplemental restraint systems (SRS), electronic brake control systems, and hybrid vehicle high voltage circuits



14) 1.1.14 Research safety aspects of high voltage circuits (such as high intensity discharge (HID) lamps, ignition systems, injection systems, etc.)



#### 2) Performance Standard 1.2: Identify and Utilize Proper Tools



1) 1.2.1 Identify tools and their usage in automotive applications



3) 1.2.3 Demonstrate safe handling and use of appropriate tools



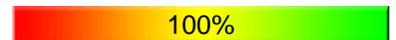
### 2) CONTENT STANDARD 2.0: Perform Basic Vehicle Service



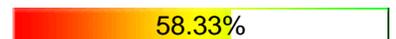
#### 1) Performance Standard 2.1: Identify and Utilize Vehicle Service Information



4) 2.1.4 Locate Vehicle Identification Number (VIN) and production date code



#### 2) Performance Standard 2.2: Prepare a Vehicle for Service



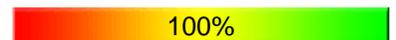
1) 2.2.1 Identify information needed and the service requested on a repair order



3) 2.2.3 Demonstrate use of the three Cs (concern, cause, and correction)

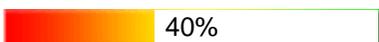
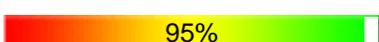
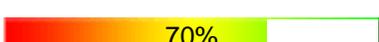
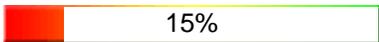
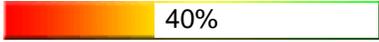
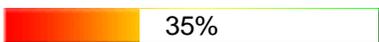


#### 3) Performance Standard 2.3: Prepare a Vehicle for the Customer



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| 1) 2.3.1 Ensure vehicle is prepared to return to customer per school/company policy (floor mats, steering wheel cover, etc.)  | 100%   |
| 3) CONTENT STANDARD 3.0: Apply Concepts of Engine Repair (A1)   | 56.88% |
| 1) Performance Standard 3.1: Perform General Engine Diagnosis   | 72.5%  |
| 4) 3.1.4 Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action  | 60%    |
| 9) 3.1.9 Research hybrid vehicle internal combustion engine service precautions   | 85%    |
| 4) Performance Standard 3.4: Perform Lubrication and Cooling Systems Diagnosis and Repair   | 51.67% |
| 1) 3.4.1 Perform cooling system pressure and dye tests to identify leaks; check coolant condition and level; inspect and test radiator, pressure cap, coolant recovery tank, and heater core and galley plugs; determine necessary action | 75%    |
| 2) 3.4.2 Identify causes of engine overheating  | 50%    |
| 3) 3.4.3 Inspect, replace, and adjust drive belts, tensioners, and pulleys; check pulley and belt alignment   | 45%    |
| 4) 3.4.4 Inspect and test coolant; drain and recover coolant; flush and refill cooling system with recommended coolant; bleed air as required   | 65%    |
| 10) 3.4.10 Perform engine oil and filter change   | 37.5%  |
| 4) CONTENT STANDARD 4.0: Analyze Automatic Transmission/Transaxel Systems (A2)  | 70.83% |
| 1) Performance Standard 4.1: Perform General Transmission/Transaxle Diagnosis   | 75%    |
| 1) 4.1.1 Identify and interpret transmission/transaxle concern, differentiate between engine performance and transmission/transaxle concerns; determine necessary action  | 67.5%  |
| 2) 4.1.2 Research applicable vehicle and service information fluid type, vehicle service history, service precautions, and technical service bulletins  | 100%   |
| 4) 4.1.4 Check fluid level in a transmission or a transaxle equipped with a dip-stick   | 70%    |
| 2) Performance Standard 4.2: Perform In-Vehicle Transmission/Transaxle Maintenance and Repair   | 50%    |
| 4) 4.2.4 Drain and replace fluid and filter(s)  | 50%    |
| 5) CONTENT STANDARD: 5.0: Analyze Manual Drivetrain and Axle Systems (A3)   | 85%    |
| 5) Performance Standard 5.5: Assess Ring and Pinion Gears and Differential Case Assembly  | 85%    |
| 2) 5.5.2 Check and adjust differential housing fluid level  | 85%    |
| 6) CONTENT STANDARD 6.0: Analyze Suspension and Steering Systems (A4)   | 56.25% |

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| 2) Performance Standard 6.2: Perform Steering Systems Diagnosis and Repair   | 46.67% |
| 10) 6.2.10 Flush, fill, and bleed power steering system  | 70%    |
| 11) 6.2.11 Inspect for power steering fluid leakage; determine necessary action  | 70%    |
| 12) 6.2.12 Remove, inspect, replace, and adjust power steering pump drive belt   | 0%     |
| 6) Performance Standard 6.6: Perform Wheel and Tire Diagnosis and Repair   | 62%    |
| 1) 6.6.1 Inspect tire condition; identify tire wear patterns; check for correct tire size and application (load and speed ratings) and adjust air pressure; determine necessary action | 90%    |
| 2) 6.6.2 Diagnose wheel/tire vibration, shimmy, and noise; determine necessary action  | 30%    |
| 3) 6.6.3 Rotate tires according to manufacturers recommendations   | 70%    |
| 5) 6.6.5 Diagnose tire pull problems; determine necessary action   | 80%    |
| 10) 6.6.10 Identify and test tire pressure monitoring system (indirect and direct) for operation; verify operation of instrument panel lamps   | 40%    |
| 7) CONTENT STANDARD 7.0: Analyze Brake Systems (A5)  | 58.5%  |
| 1) Performance Standard 7.1: Perform General Brake Systems Diagnosis   | 70%    |
| 1) 7.1.1 Identify and interpret brake system concerns; determine necessary action  | 50%    |
| 2) 7.1.2 Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins  | 70%    |
| 3) 7.1.3 Describe procedure for performing a road test to check brake system operation; including an anti-lock brake system (ABS)  | 77.5%  |
| 4) 7.1.4 Install wheel and torque lug nuts   | 75%    |
| 2) Performance Standard 7.2: Perform Hydraulic System Diagnosis and Repair   | 68%    |
| 2) 7.2.2 Measure brake pedal height, travel, and free play (as applicable); determine necessary action   | 80%    |
| 6) 7.2.6 Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, and wear; check for loose fittings and supports; determine necessary action | 82.5%  |
| 9) 7.2.9 Select, handle, store, and fill brake fluids to proper level  | 35%    |
| 12) 7.2.12 Bleed and/or flush brake system   | 60%    |
| 3) Performance Standard 7.3: Perform Drum Brake Diagnosis and Repair   | 69%    |
| 2) 7.3.2 Remove, clean, inspect, and measure brake drum diameter; determine necessary action   | 70%    |
| 3) 7.3.3 Refinish brake drum and measure final drum diameter; compare with   |        |

|   |   |
|---|---|
| specifications  |     |
| 4) 7.3.4 Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble |    |
| 5) 7.3.5 Inspect wheel cylinders for leaks and proper operation; remove and replace as needed   |    |
| 6) 7.3.6 Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; perform final checks and adjustments                                      |    |
| 4) Performance Standard 7.4: Perform Disk Brake Diagnosis and Repair  |    |
| 1) 7.4.1 Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pulsation concerns; determine necessary action   |    |
| 2) 7.4.2 Remove and clean caliper assembly; inspect for leaks and damage/wear to caliper housing; determine necessary action  |    |
| 3) 7.4.3 Clean and inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine necessary action  |    |
| 5) 7.4.5 Lubricate and reinstall caliper, pads, and related hardware; seat pads and inspect for leaks   |    |
| 6) 7.4.6 Clean and inspect rotor; measure rotor thickness, thickness variation, and lateral runout; determine necessary action  |   |
| 7) 7.4.7 Remove and reinstall rotor   |  |
| 9) 7.4.9 Refinish rotor off vehicle; measure final rotor thickness and compare with specifications  |  |
| 10) 7.4.10 Retract and re-adjust caliper piston on an integrated parking brake system   |  |
| 11) 7.4.11 Check brake pad wear indicator; determine necessary action   |  |
| 12) 7.4.12 Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturers recommendations   |  |
| 6) Performance Standard 7.6: Perform Miscellaneous Diagnosis and Repair (Wheel Bearings, Parking Brakes, Electrical, etc.)  |  |
| 2) 7.6.2 Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings   |  |
| 3) 7.6.3 Check parking brake cables and components for wear, binding, and corrosion; clean, lubricate, adjust or replace as needed  |  |
| 4) 7.6.4 Check parking brake operation and parking brake indicator light system operation; determine necessary action   |  |
| 5) 7.6.5 Check operation of brake stop light system   |  |

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| 6) 7.6.6 Replace wheel bearing and race   | 45%    |
| 7) 7.6.7 Inspect and replace wheel studs  | 90%    |
| 8) 7.6.8 Remove and reinstall sealed wheel bearing assembly   | 25%    |
| 8) CONTENT STANDARD 8.0: Analyze Electrical/Electronic Systems (A6)   | 60%    |
| 1) Performance Standard 8.1: Perform General Electronic Systems Diagnosis   | 45%    |
| 2) 8.1.2 Demonstrate knowledge of electrical/electronic series, parallel, and series-parallel circuits using principles of electricity (Ohms Law) | 45%    |
| 3) Performance Standard 8.3: Perform Starting System Diagnosis and Repair   | 65%    |
| 4) 8.3.4 Remove and install starter in a vehicle  | 65%    |
| 4) Performance Standard 8.4: Perform Charging System Diagnosis and Repair   | 61.25% |
| 1) 8.4.1 Perform charging system output test; determine necessary action  | 75%    |
| 2) 8.4.2 Diagnose (troubleshoot) charging system for causes of undercharge, no-charge, or overcharge conditions                                   | 20%    |
| 3) 8.4.3 Inspect, adjust, or replace generator (alternator) drive belts; check pulleys and tensioners for wear; check pulley and belt alignment   | 75%    |
| 10) CONTENT STANDARD 10.0: Analyze Engine Performance   | 62.5%  |
| 2) Performance Standard 10.2: Analyze Computerized Engine Controls  | 62.5%  |
| 1) 10.2.1 Retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data; clear codes when applicable                    | 47.5%  |
| 2) 10.2.2 Access and use service information to perform step-by-step (troubleshooting) diagnosis  | 77.5%  |