



2021-2022

Technical Skills Assessment

Automotive Maintenance and Light Repair

Results by Standard

Legend (%)		
0-50%	51-75%	76-100%

Assessment: Automotive Maintenance and Light Repair Number tested: 276	% Correct 17-18	% Correct 18-19	% Correct 20-21	% Correct 21-22
Content Standard 1.0: Identify and utilize safety procedures and proper tools	72.51%	76.64%	74.28%	74.82%
Performance Standard 1.1: Demonstrate general lab safety rules and procedures	76.00%	78.87%	76.66%	77.19%
1.1.1 Describe general shop safety rules and procedures	80.15%	90.70%	90.19%	90.49%
1.1.2 Utilize safe procedures for handling of tools and equipment	32.06%	26.74%	23.46%	26.06%
1.1.3 Identify and use proper placement of floor jacks and jack standards	88.55%	86.43%	80.77%	81.69%
1.1.4 Identify and use proper procedures for safe vehicle life operation	75.19%	84.69%	87.69%	85.21%
1.1.5 Utilize proper ventilation procedures for working within the lab/shop area	65.27%	66.67%	64.42%	66.73%
1.1.6 Identify marked safety areas	95.80%	95.35%	91.54%	91.55%
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 safety equipment	80.92%	75.97%	76.15%	76.06%
1.1.8 Identify the location and use of eye wash stations	85.11%	84.11%	81.92%	84.15%
1.1.9 Identify the location of the posted evacuation routes	75.38%	72.87%	69.04%	73.06%
1.1.10 Comply with the required use of safety glasses, ear protection, gloves and shoes during lab/shop activities	62.79%	74.03%	61.92%	55.99%
1.1.11 Identify and wear appropriate clothing for lab/shop activities	87.40%	87.60%	88.08%	86.62%
1.1.12 Secure hair and jewelry for lab/shop activities	98.47%	--	--	--
1.1.13 Identify safety aspects of supplemental restraint systems (SRS), electronic brake control systems, and hybrid vehicle high voltage circuits	76.34%	70.16%	63.08%	73.24%
1.1.14 Identify safety aspects of high voltage circuits (such as high intensity discharge (HID) lamps, ignition systems, injection systems, etc.)	80.92%	85.27%	87.31%	82.75%
1.1.16 Handle and dispose of hazardous waste and materials	90.08%	91.47%	89.81%	88.73%
Performance Standard 1.2: Identify and utilize proper tools	51.53%	62.53%	59.23%	59.86%

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1.2.3 Demonstrate safe handling and use of appropriate tools	57.63%	96.90%	96.54%	96.13%
1.2.5 Demonstrate proper use of precision measuring tools (e.g., micrometer, dial-indicate, dial-caliper)	45.42%	45.35%	40.58%	41.73%
Content Standard 2.0: Perform basic vehicle service	79.10%	87.86%	83.59%	85.80%
Performance Standard 2.1: Identify and utilize vehicle service information	69.47%	81.78%	77.31%	82.39%
2.1.2 Locate and utilize Technical Service Bulletins (TSBs)	69.47%	81.78%	77.31%	82.39%
Performance Standard 2.2: Prepare a vehicle for the customer	82.32%	90.89%	86.73%	87.50%
2.2.2 Verify vehicle repair	82.32%	90.89%	86.73%	87.50%
Content Standard 3.0: Apply concepts of engine repair (A1)	53.50%	59.92%	55.38%	57.04%
Performance Standard 3.1: Demonstrate general engine service techniques	61.45%	55.62%	52.50%	52.99%
3.1.3 Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action	61.45%	55.62%	52.50%	52.99%
Performance Standard 3.3: Perform lubrication and cooling systems service and repair	45.55%	62.79%	57.31%	59.74%
3.3.3 Inspect and test coolant; drain and recover coolant; flush and refill cooling system with recommended coolant; bleed air as required	38.55%	82.95%	79.23%	82.04%
3.3.4 Perform oil and filter change	49.05%	52.71%	46.35%	48.59%
Content Standard 4.0: Analyze automatic transmission/transaxle for service (A2)	69.21%	72.80%	71.79%	73.30%
Performance Standard 4.1: Perform general transmission/transaxle service	69.69%	72.71%	70.46%	73.17%
4.1.1 Research applicable vehicle and service information, fluid type, vehicle service history, service precautions, and technical service bulletins	61.96%	65.37%	64.74%	69.60%
4.1.2 Check fluid level in a transmission, or a transaxle equipped with a dip-stick	89.31%	92.64%	92.69%	92.25%
4.1.4 Check transmission fluid condition; check for leaks	73.28%	74.81%	65.38%	64.79%
Performance Standard 4.2: Perform in-vehicle transmission/transaxle service and repair	66.79%	73.26%	78.46%	73.94%
4.2.4 Drain and replace fluid and filter(s)	66.79%	73.26%	78.46%	73.94%
Content Standard 5.0: Analyze manual drivetrain and axles for service (A3)	61.58%	56.59%	57.69%	61.97%
Performance Standard 5.1: Perform general drive train service	73.28%	67.44%	68.08%	73.59%
5.1.2 Drain and refill manual transmission/transaxle and final drive unit	73.28%	67.44%	68.08%	73.59%

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Performance Standard 5.3: Perform drive shaft and half shaft, universal and constant velocity (CV) joint service and repair	33.59%	25.97%	29.23%	32.04%
5.3.2 Diagnose, inspect, service and replace shafts, yokes, boots, and universal/CV joints	33.59%	25.97%	29.23%	32.04%
Performance Standard 5.4: Assess differential case assembly for service	77.86%	76.36%	75.77%	80.28%
5.4.2 Clean and inspect differential housing; check for leaks; inspect housing vent	77.86%	76.36%	75.77%	80.28%
Content Standard 6.0: Perform suspension and steering service and repair (A4)	62.94%	63.36%	63.61%	65.74%
Performance Standard 6.1: Prepare vehicle for general suspension and steering systems service	76.72%	78.88%	75.77%	80.28%
6.1.2 Disable and enable supplemental restraint system (SRS)	76.72%	78.88%	75.77%	80.28%
Performance Standard 6.2: Perform steering systems service and repair	69.47%	74.42%	77.69%	76.06%
6.2.4 Identify and inspect various suspension system components	69.47%	74.42%	77.69%	76.06%
Performance Standard 6.3: Investigate wheel alignment conditions	56.11%	50.00%	50.38%	51.76%
6.3.2 Perform prealignment inspection and measure vehicle ride height, perform necessary action	56.11%	50.00%	50.38%	51.76%
Performance Standard 6.4: Perform wheel and tire service and repair	59.05%	63.57%	60.51%	61.91%
6.4.1 Inspect tire condition; identify tire wear patterns; check for correct size and application (load and speed ratings) and adjust air pressure; determine necessary action	65.27%	71.06%	66.79%	68.19%
6.4.3 Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic)	54.96%	--	--	--
6.4.4 Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor	52.29%	63.18%	65.38%	62.68%
6.4.5 Balance wheel and tire assembly.	--	53.49%	51.15%	57.75%
6.4.6 Repair tire according to industry standards	45.04%	--	--	--
6.4.8 Determine necessary action to remedy tire air loss.	--	51.55%	46.15%	46.48%
Performance Standard 6.5: Related Suspension and Steering Service	--	61.21%	63.13%	65.57%
6.5.1 Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.	--	70.93%	73.85%	75.00%
6.5.2 Inspect power steering fluid level and condition.	--	73.64%	72.31%	76.41%
6.5.4 Identify proper fluid type per manufacturer specification.	--	81.91%	80.77%	83.57%
6.5.6 Remove, inspect, replace, and/or adjust power steering pump drive belt.	--	53.88%	58.08%	59.86%
6.5.8 Inspect pitman arm, relay (center link/intermediate) rod, idler arm, mountings, and steering linkage damper.	--	38.28%	45.19%	46.92%

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6.5.10 Inspect upper and lower control arms, bushings, and shafts.	--	71.71%	73.46%	77.82%
6.5.13 Inspect upper and lower ball joints (with or without wear indicators).	--	65.70%	65.19%	66.55%
6.5.18 Inspect front strut bearing and mount.	--	56.59%	52.69%	57.39%
Content Standard 7.0: Analyze brake systems for service and repair (A5)	66.43%	70.05%	68.42%	69.44%
Performance Standard 7.1: Demonstrate knowledge of general brake systems	57.63%	57.49%	55.51%	56.92%
7.1.2 Describe procedure for performing a road test to check brake system operation, including the anti-lock brake system (ABS)	55.34%	52.33%	43.08%	54.93%
7.1.3 Demonstrate knowledge of basic hydraulic principles	59.16%	60.08%	61.73%	57.92%
Performance Standard 7.2: Perform hydraulic system service and repair	72.90%	72.48%	73.08%	77.82%
7.2.6 Bleed and/or flush brake system	72.90%	72.48%	73.08%	77.82%
Performance Standard 7.3: Perform drum brake service and repair	69.92%	79.46%	75.85%	76.55%
7.3.1 Remove, clean, inspect, and measure brake drum diameter; determine necessary action	80.92%	82.56%	85.77%	84.86%
7.3.4 Inspect wheel cylinders for leaks and proper operation; remove and replace as needed	72.90%	79.84%	74.23%	72.18%
7.3.5 Preadjust brake shoes and parking brake; install brake drums or drum/hub assemblies, wheel bearings; make final checks and adjustments	50.76%	50.39%	39.23%	44.37%
7.3.6 Install wheel and torque lug nuts to proper specifications	72.52%	92.25%	90.00%	90.67%
Performance Standard 7.4: Perform disc brake service and repair	75.03%	72.48%	72.31%	72.99%
7.4.1 Remove and clean caliper assembly; inspect for leaks and damage/wear to caliper housing; determine necessary action	69.85%	63.57%	69.23%	71.48%
7.4.2 Clean, inspect and lubricate clipper mounting and slides/pins for proper operation wear, and damage; determine necessary action	79.39%	79.65%	80.96%	81.51%
7.4.4 Lubricate and reinstall caliper, pads, and related hardware; seat pads and inspect for leaks	89.69%	--	--	--
7.4.5 Clean and inspect rotor, measure rotor thickness, thickness variation, and lateral runout; determine necessary action	63.74%	--	--	--
7.4.7 Lubricate and reinstall caliper, brake	--	90.31%	86.15%	84.86%
7.4.9 Clean and inspect rotor and mounting surface,	--	60.08%	54.04%	58.80%
7.4.10 Check brake pad wear indicator; determine necessary action	79.39%	--	--	--
7.4.15 Check brake pad wear indicator.	--	74.03%	80.77%	73.94%

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Performance Standard 7.6: Perform miscellaneous service and repair (wheel bearings, parking brakes, electrical, etc.)	53.05%	55.62%	53.27%	53.87%
7.6.1 Remove, clean, inspect, repack, and install wheel bearings, races, seals; install hub and adjust bearings	45.80%	48.06%	42.69%	45.07%
7.6.2 Check parking brake cables and components for wear, binding, and corrosion; clean, lubricate, adjust or replace as needed	67.56%	63.18%	63.85%	62.68%
Content Standard 8.0: Analyze electrical/electronic system (A6)	49.80%	53.41%	52.49%	54.06%
Performance Standard 8.1: Perform general electronic systems service	48.70%	51.62%	51.19%	53.14%
8.1.1 Research applicable vehicle and service information vehicle service history, service precautions, and technical service bulletins	43.13%	39.15%	33.46%	34.15%
8.1.2 Demonstrate knowledge of electrical/electronic series, parallel and series-parallel circuits using principles of electricity (Ohm's and Watt's Law)	50.64%	51.68%	49.36%	49.18%
8.1.3 Use and interpret wiring diagrams to trace electrical/electronic circuits	74.43%	71.51%	75.00%	75.18%
8.1.4 Demonstrate proper use of digital multimeter (DMM) when measuring source voltage, voltage drop (including grounds), current flow, and resistance	33.78%	37.60%	39.23%	45.07%
8.1.5 Research the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits	27.10%	37.02%	37.12%	39.26%
8.1.6 Check operations of electrical circuits with a test light	59.35%	59.50%	59.04%	64.44%
Performance Standard 8.2: Perform battery service	55.22%	65.31%	65.38%	69.89%
8.2.4 Inspect and clean battery; fill battery cells, clean battery cables, connectors, clamps, and terminals	56.68%	--	--	--
8.2.5 Inspect and lean battery; fill battery cells, check battery cables, connectors, clamps, and terminals	--	76.74%	73.85%	75.70%
8.2.7 Identify high voltage circuits of electric or hybrid electric vehicle and related safety precautions	52.29%	--	--	--
8.2.8 Identify safety precautions for high voltage systems on electric, hybrid-electric, and diesel vehicles.	--	53.88%	56.92%	64.08%
Performance Standard 8.6: Perform accessories service and repair	48.28%	51.36%	46.73%	43.31%
8.6.1 Disable and enable the airbag system for vehicle service; verify indicator lamp operation	48.28%	51.36%	46.73%	43.31%
10) Content Standard 10.0: Analyze engine performance (A8)	50.10%	55.62%	54.04%	58.89%
Performance Standard 10.2: Analyze computerized engine controls	30.34%	42.25%	39.42%	46.65%
10.2.1 Retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data; clear codes when applicable	51.15%	55.81%	49.62%	53.87%
10.2.2 Describe the importance of operating all OBDII monitors for repair verification	9.54%	28.68%	29.23%	39.44%

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Performance Standard 10.3: Perform fuel, air induction, and exhaust systems service and repair	66.79%	66.67%	69.62%	69.72%
10.3.2 Inspect, service, or replace air filters, filter housing and intake duct work	66.79%	66.67%	69.62%	69.72%
Performance Standard 10.4: Perform emissions control systems service and repair	72.90%	71.32%	67.69%	72.54%
10.4.1 Demonstrate knowledge of basic emission control components	72.90%	71.32%	67.69%	72.54%

