



2022-2023

Technical Skills Assessment

Heavy Equipment/Diesel Technology

Results by Standard

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

Assessment: Heavy Equipment/Diesel Technology	% Correct	% Correct	% Correct
Number tested: 71	20-21	21-22	22-23
CONTENT STANDARD 1.0: SAFETY AND TOOLS	80.37%	77.39%	72.40%
Performance Standard 1.1: Demonstrate General Lab Safety Rules and Procedures	83.44%	81.61%	75.99%
1.1.1 Perform a quality job hazard analysis	76.12%	60.00%	52.05%
1.1.2 Demonstrate the key attributes to contribute to an active safety culture	76.12%	71.79%	70.78%
1.1.3 Utilize proper ventilation procedures for working within the lab/shop area	92.54%	89.23%	87.67%
1.1.5 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	77.61%	82.31%	73.29%
1.1.6 Identify the location and use of eye wash stations	88.81%	86.15%	77.40%
1.1.7 Identify the location of the posted evacuation routes	82.09%	84.10%	82.19%
1.1.8 Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities (i.e., personal protection equipment - PPE)	98.51%	95.90%	91.78%
1.1.9 Identify and wear appropriate clothing for lab/shop activities	96.27%	96.15%	89.73%
1.1.10 Secure hair and jewelry for lab/shop activities	97.76%	93.08%	85.62%
1.1.12 Perform housekeeping duties	46.27%	46.92%	34.93%
Performance Standard 1.2: Demonstrate Safe Handling and Usage of Tools	75.00%	70.00%	66.10%
1.2.1 Identify appropriate tools and their usage in diesel service applications	40.30%	47.69%	31.51%
1.2.2 Identify standard and metric designation	45.52%	41.54%	39.73%
1.2.3 Demonstrate safe handling and use of hand and power tools	77.61%	73.08%	68.49%
1.2.4 Utilize safe procedures for handling of tools and equipment	97.01%	90.00%	84.25%
1.2.5 Identify and use proper placement of floor jacks and jack stands	90.05%	83.59%	83.11%
1.2.6 Identify situational tool restrictions	74.63%	66.15%	63.70%

Assessment: Heavy Equipment/Diesel Technology	% Correct	% Correct	% Correct
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CONTENT STANDARD 2.0: BASIC VEHICLE SERVICE AT A DOT LEVEL	61.94%	55.38%	59.59%
Performance Standard 2.1: Identify and Utilize Vehicle Service Information	80.60%	66.15%	67.12%
2.1.3 Demonstrate knowledge of special service messages, quotes, service campaigns/recalls, vehicle/service warranty applications, and service interval recommendations	80.60%	66.15%	67.12%
Performance Standards 2.2: Prepare A Vehicle For Service	55.72%	51.79%	57.08%
2.2.4 Demonstrate use of the three Cs (concern, cause, and correction)	55.72%	51.79%	57.08%
CONTENT STANDARD 3.0: DIESEL ENGINE SERVICE	67.74%	61.42%	61.64%
Performance Standard 3.1: Perform Preliminary Engine Inspection	64.93%	61.54%	60.27%
3.1.2 Identify engine fuel, oil, coolant, air, and other leaks; determine needed action	64.93%	61.54%	60.27%
Performance Standard 3.3: Understand and Diesel Engine Theory and Operation	68.99%	61.37%	62.25%
3.3.1 Describe the operation of a diesel engine	70.45%	67.69%	67.12%
3.3.2 Describe the operations of a diesel engines subsystems	67.16%	53.46%	56.16%
CONTENT STANDARD 4.0: PREVENTATIVE MAINTENANCE INSPECTIONS	86.57%	80.00%	76.71%
Performance Standard: 4.1: Perform Presentative Maintenance Inspections	86.57%	80.00%	76.71%
4.1.1 Perform a Form A Preventative Maintenance Inspection per Technology & Maintenance Council standards	86.57%	80.00%	76.71%
CONTENT STANDARD 6.0 : BRAKE SYSTEM	57.26%	55.38%	50.56%
Performance Standard 6.1: Understand Brake Theory and Operation	56.93%	55.38%	51.27%
6.1.1 Identify brake safety procedures per system manufacturer and type	47.76%	45.64%	39.73%
6.1.2 Identify brake components for air or hydraulic brake systems	75.37%	76.92%	77.40%
6.1.4 Identify wear limits in brake linings, drums and rotators	52.24%	48.46%	42.47%
Performance Standards 6.2: Assess Air Brakes - Mechanical/Foundation Brakes	80.60%	75.38%	69.86%
6.2.1 Inspect and measure brake shoes or pads; replace friction lining	80.60%	75.38%	69.86%
Performance Standard 6.3: Perform Wheel Bearing Service and Repair	50.25%	48.72%	42.47%
6.3.1 Inspect and service wheel bearings according to manufacturers specifications	50.25%	48.72%	42.47%
CONTENT STANDARD 7.0: ELECTRIC/ELECTRONIC SYSTEMS	59.66%	57.91%	53.12%
Performance Standard 7.1: Understand General Electrical Systems	54.23%	54.02%	47.41%
7.1.1 Identify safety procedures related to electrical system service	44.78%	50.77%	40.41%
7.1.4 Read and interpret electrical/electronic circuits using wiring diagrams	56.72%	67.69%	58.90%
7.1.5 Check continuity in electrical/electronic circuits using appropriate test equipment	47.76%	42.56%	31.05%
7.1.6 Check applied voltages, circuit voltages, and voltage drops in electrical/electronic circuits using appropriate test equipment	50.25%	49.74%	39.73%
7.1.7 Check current flow in electrical/electronic circuits and components using appropriate test equipment	53.73%	46.15%	47.95%

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7.1.8 Check resistance in electrical/electronic circuits and components using appropriate test equipment	50.25%	53.85%	49.32%
7.1.9 Locate shorts, grounds, and opens in electrical/electronic circuits	67.91%	69.23%	65.75%
7.1.10 Inspect and test fusible links, circuit breakers, relays, solenoids, and fuses; replace as needed	65.17%	60.00%	57.99%
Performance Standard 7.2: Perform Battery Service	63.38%	59.38%	57.63%
7.2.1 Identify battery type; perform appropriate battery load test; determine needed action	61.94%	64.62%	61.64%
7.2.2 Determine battery state of charge using an open circuit voltage test	44.78%	46.15%	49.32%
7.2.3 Inspect, clean, and service battery; replace as needed	69.65%	56.41%	56.62%
7.2.5 Charge battery using appropriate method for battery type	74.13%	69.74%	64.84%
7.2.6 Inspect, test, and clean battery cables and connectors; repair or replace as needed	45.52%	40.77%	49.32%
7.2.7 Jump start a vehicle using jumper cables and a booster battery or appropriate auxiliary power supply using proper safety procedures	71.64%	69.74%	59.82%
Perform Standard 7.3: Perform Starting System Service	59.70%	55.38%	54.79%
7.3.5 Perform starter current draw test; determine needed action	59.70%	55.38%	54.79%
Performance Standard 7.4: Perform Charging System Diagnosis and Repair	77.61%	76.92%	58.90%
7.4.6 Remove and replace alternator	77.61%	76.92%	58.90%
Performance Standard 7.5: Perform Lighting Systems Diagnosis Repair	83.58%	89.23%	80.82%
7.5.2 Test, replace, and aim headlights	83.58%	89.23%	80.82%
CONTENT STANDARD 8.0: TRANSPORTATION CAREERS	94.03%	89.23%	90.41%
Performance Standard 8.2: Explore Industry Ethics and Standards	94.03%	89.23%	90.41%
8.2.4 Demonstrate personal accountability and responsibility for your career and safety	94.03%	89.23%	90.41%