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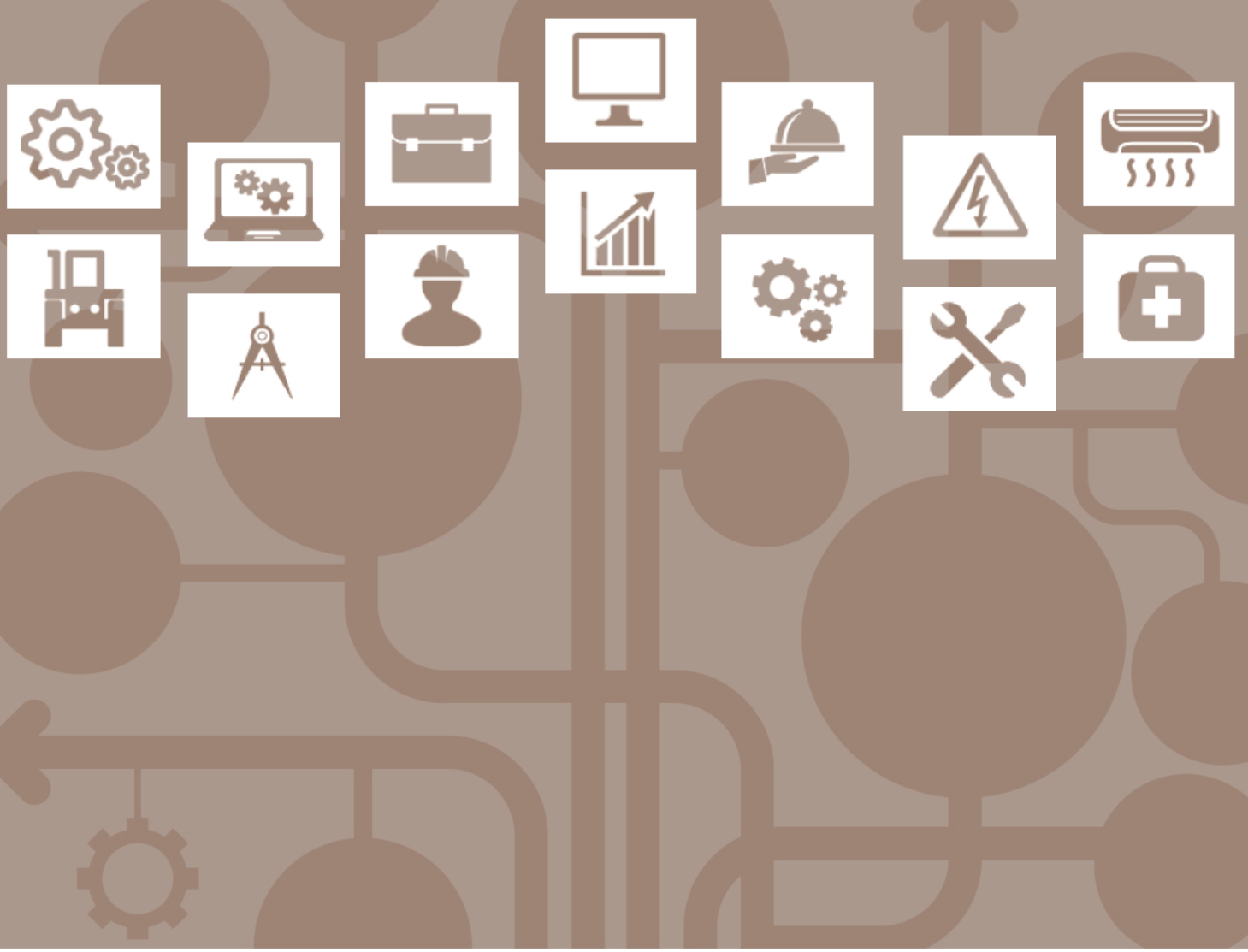
Entry Level Assessment Blueprint

Diesel Technology



Test Code: 4127 / Version: 01

Specific Competencies and Skills Tested in this Assessment:

Safety

- Demonstrate understanding of fire safety
- Demonstrate understanding of personal, environmental, and equipment safety

Shop Practices, Tools, and Equipment

- Perform precision measuring (e.g., micrometers, torque meters)
- Exhibit familiarity with basic fabrication techniques
- Identify and select lines and fittings (e.g., SAE flare, pipe, hoses, tubing)
- Identify, select, and use hand tools
- Identify, select, and use basic shop equipment
- Identify and select proper fasteners

Diesel Engines

- Display knowledge of diesel technology terminology
- Display knowledge of diesel engine operation
- Display understanding of exhaust and induction systems, including exhaust management systems
- Identify components and functions of cooling systems
- Display understanding of engine electronics and multiplexing
- Identify components and functions of lubricating systems
- Identify components and functions of fuel systems
- Display knowledge of diesel engine disassembly
- Display knowledge of diesel engine assembly

Suspension and Steering

- Identify, maintain, and repair tires, rims, and wheels
- Identify and repair chassis components
- Identify, maintain, and repair power steering systems
- Identify, maintain, and repair steering axle components
- Identify, maintain, and repair suspension types (i.e., front, rear)
- Maintain proper vehicle alignment

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Specific Competencies and Skills continued:

Brakes

- Identify, inspect, and repair hydraulic foundation brake system components and functions
- Identify and inspect ABS, ATC, and VSS
- Identify, inspect, and repair air foundation brake system components and functions
- Identify and inspect supply system components
- Identify, inspect, and repair air system components

Electrical and Electronic Systems

- Apply understanding of basic electrical principles
- Apply understanding of electrical schematics
- Service and inspect batteries
- Diagnose and repair starting systems
- Diagnose and repair lighting systems
- Diagnose and repair charging systems

Drivetrains

- Inspect and adjust the clutch
- Diagnose and repair transmissions (i.e., manual, automatic, hybrids)
- Interpret drive line langles and perform failure analysis on U-joints
- Install and replace U-joints
- Diagnose and display understanding of differentials functionality, including interaxles

Preventive Maintenance

- Perform troubleshooting and preventive maintenance on engine systems
- Perform troubleshooting and preventive maintenance on transmissions (i.e., manual, automatic, hybrids)
- Perform troubleshooting and preventive maintenance on cooling and lubrication systems
- Perform troubleshooting and preventive maintenance on brake systems
- Perform troubleshooting and preventive maintenance on frame and chassis
- Perform troubleshooting and preventive maintenance on clutch and drivetrain

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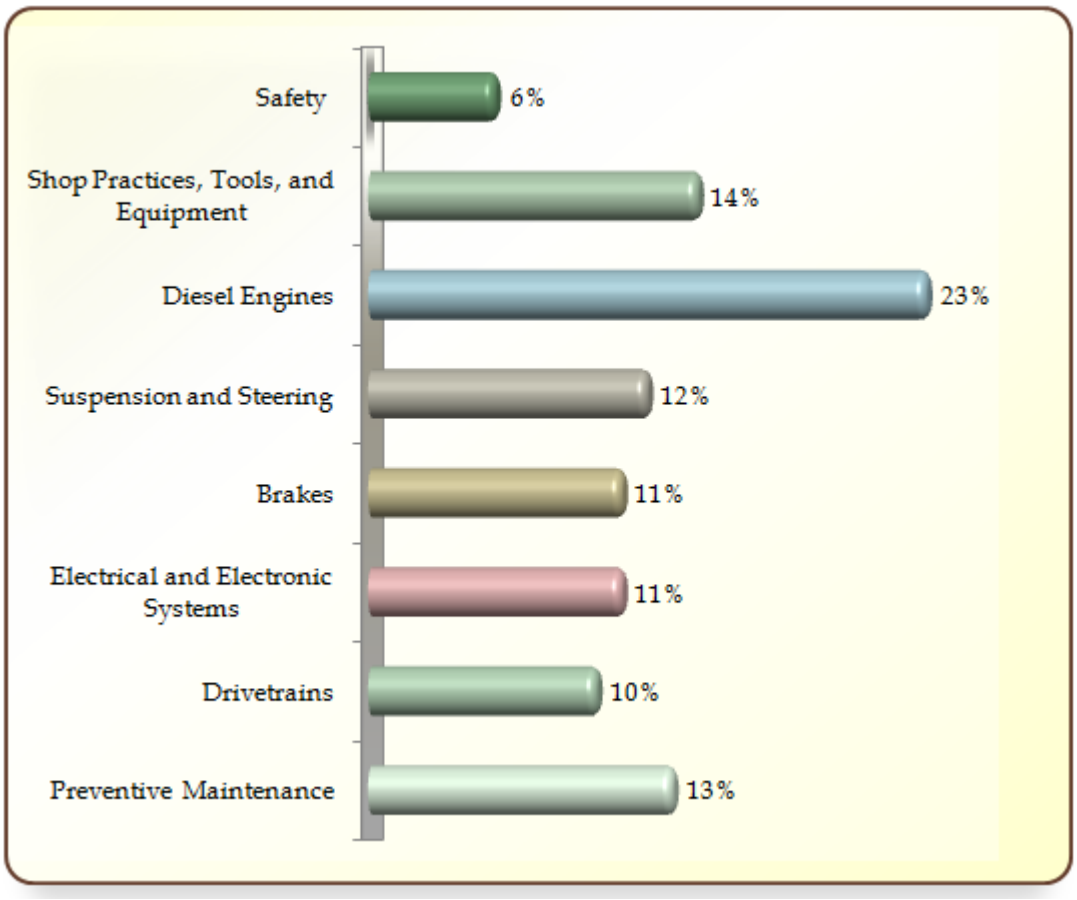
Written Assessment:

Administration Time: 3 hours
Number of Questions: 178

Areas Covered:



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Sample Questions:

Use of a brass hammer can prevent
- A. oxidation
- B. sparks
- C. fluxation
- D. rust

Use a _____ to measure the wear of an engine cylinder.
- A. small-bore gauge
- B. dial-bore gauge
- C. depth micrometer
- D. vernier caliper

Motion is a form of _____ energy.
- A. kinetic
- B. thrust
- C. electrical
- D. nuclear

The sealing lip on a wheel seal must face
- A. the fluid to be confined
- B. away from the fluid
- C. away from the shaft splines
- D. toward the shaft splines

Electric current is measured in
- A. amps
- B. volts
- C. ohms
- D. watts

On a truck equipped with air brakes, the air governor should cut out between
- A. 60 to 70 psi
- B. 90 to 110 psi
- C. 100 to 115 psi
- D. 120 to 130 psi

Another name for the interaxle differential unit is the
- A. hypoid gear-set
- B. spinout preventer
- C. power divider
- D. splitter gears

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Sample Questions (continued)

Check cooling system supplemental coolant additives (SCA) level

A. monthly
B. with every other oil change
C. once a year
D. at every service interval

Use Plastigage® to check

A. crankshaft radial runout
B. journal diameter
C. bearing oil clearance
D. connecting rod side clearance

The angle of an SAE flare fitting is

A. 15 degrees
B. 37 degrees
C. 45 degrees
D. 90 degrees

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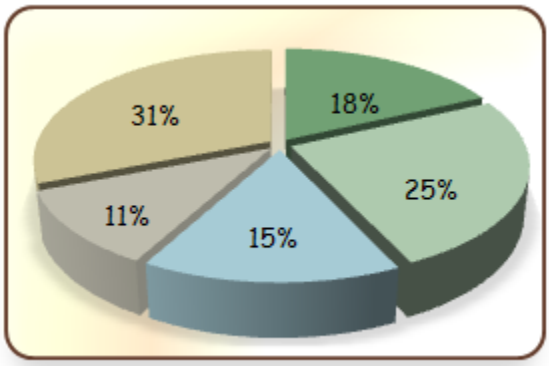
Performance Assessment:



Administration Time: 2 hours, 30 minutes
Number of Jobs: 5

Areas Covered:

18% **Cylinder Liner Installation**
Participant will follow procedures for installation of a cylinder liner.

25% **Perform a Wheel Bearing Adjustment and Brake Stroke Measurement**
Participant will adjust wheel bearings according to Technical and Maintenance Council guidelines and apply brake stroke measurement.

15% **Check and Adjust Rocker Level Clearance**
Participant will check and adjust rocker lever clearance in the engine provided.

11% **Perform a Coolant System Inspection**
Participant will pressure test an engine cooling system and record findings.

31% **Electrical Testing**
Participant will perform a battery discharge test, starter draw test, and alternator output test using the appropriate test meters.

Sample Job: Perform a Coolant System Inspection

Maximum Time: 30 minutes

Participant Activity: The participant will pressure test the engine cooling system, record the test pressure, pressure test the pressure cap and serviceability, record maximum pressure, perform SCA test on coolant sample, and determine the freeze point of the sample.

The National Institute for Automotive Service Excellence (ASE) is the most-widely recognized professional journeyman credential in the automotive service industry, validating technician knowledge against established industry standards. ASE applauds all students successfully completing Career and Technical Education programs in the Transportation and Logistics cluster and their willingness to demonstrate their knowledge through third party assessments developed by industry experts. ASE believes this is the first step in a process which will define a technician's skill level throughout their career.

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