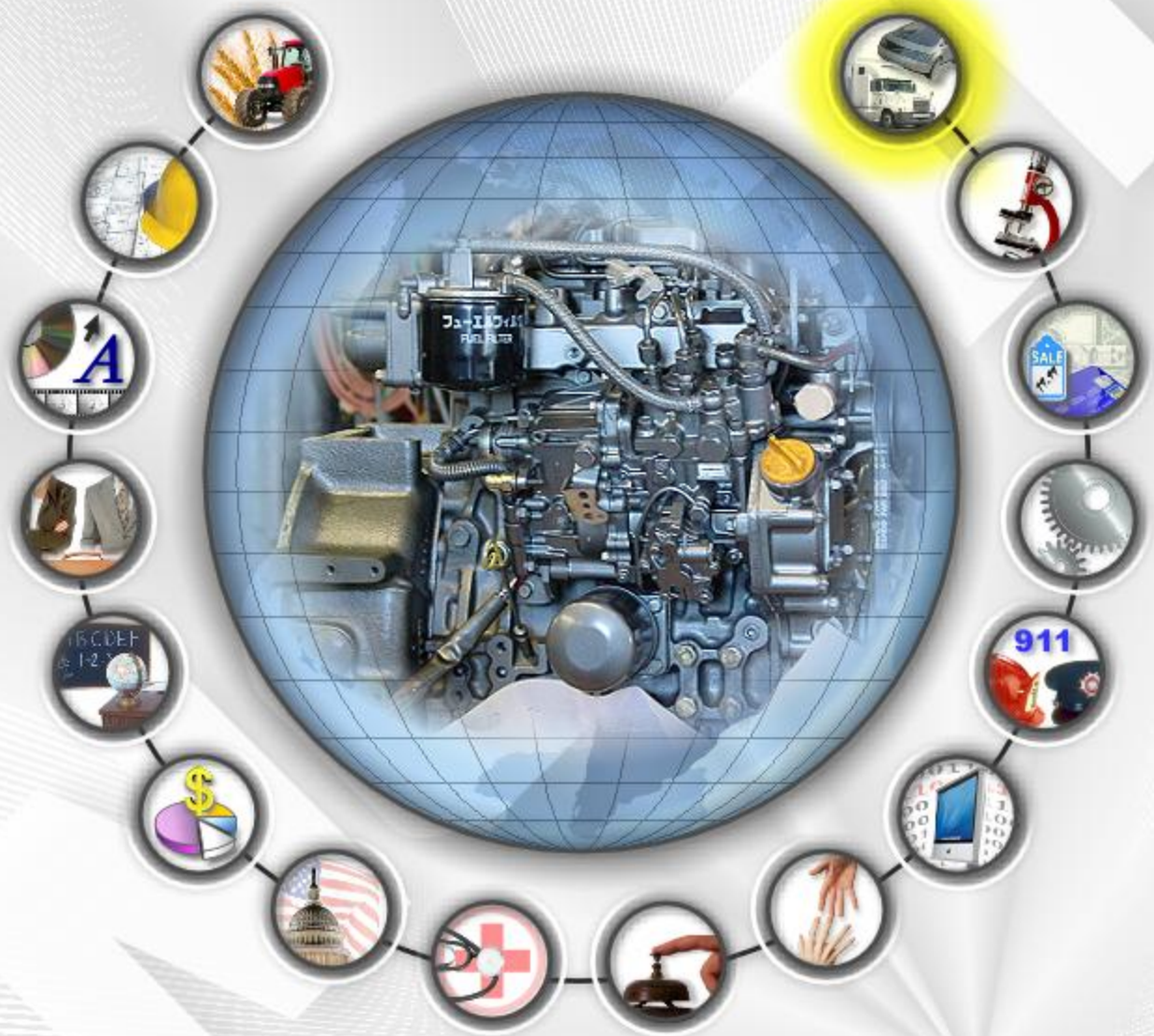




Job Ready Assessment Blueprint

Diesel Technology



Test Code: 4027 / Version: 01

"Measuring What Matters"

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
- Exhibit familiarity with basic fabrication techniques
- Identify and select lines and fittings (SAE flare, pipe, hoses, tubing, etc.)
- Identify, select, and use hand tools and basic shop equipment
- Identify and select proper fasteners



Diesel Engines

- Display knowledge of diesel engine terminology
- Display knowledge of diesel engine operation
- Display understanding of exhaust and induction systems
- Identify components and functions of cooling systems
- Identify components and functions of lubricating systems
- Identify components and functions of fuel systems
- Display knowledge of diesel engine assembly

Suspension and Steering

- Identify and repair cab components
- Identify, maintain, and repair tires, rims, 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 (front, rear)
- Maintain proper vehicle alignment

Specific Competencies and Skills continued:

Brakes

- Identify, inspect, and repair hydraulic foundation brake system components and functions
- Identify, inspect, and repair air foundation brake system components and functions
- Identify, inspect, and repair air system components



Electrical and Electronic Systems

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

Preventive Maintenance

- Perform troubleshooting and preventive maintenance on engine systems
- Perform troubleshooting and preventive maintenance on cab and hood
- Perform troubleshooting and preventive maintenance on frame and chassis
- Perform troubleshooting and preventive maintenance on clutch and drive train

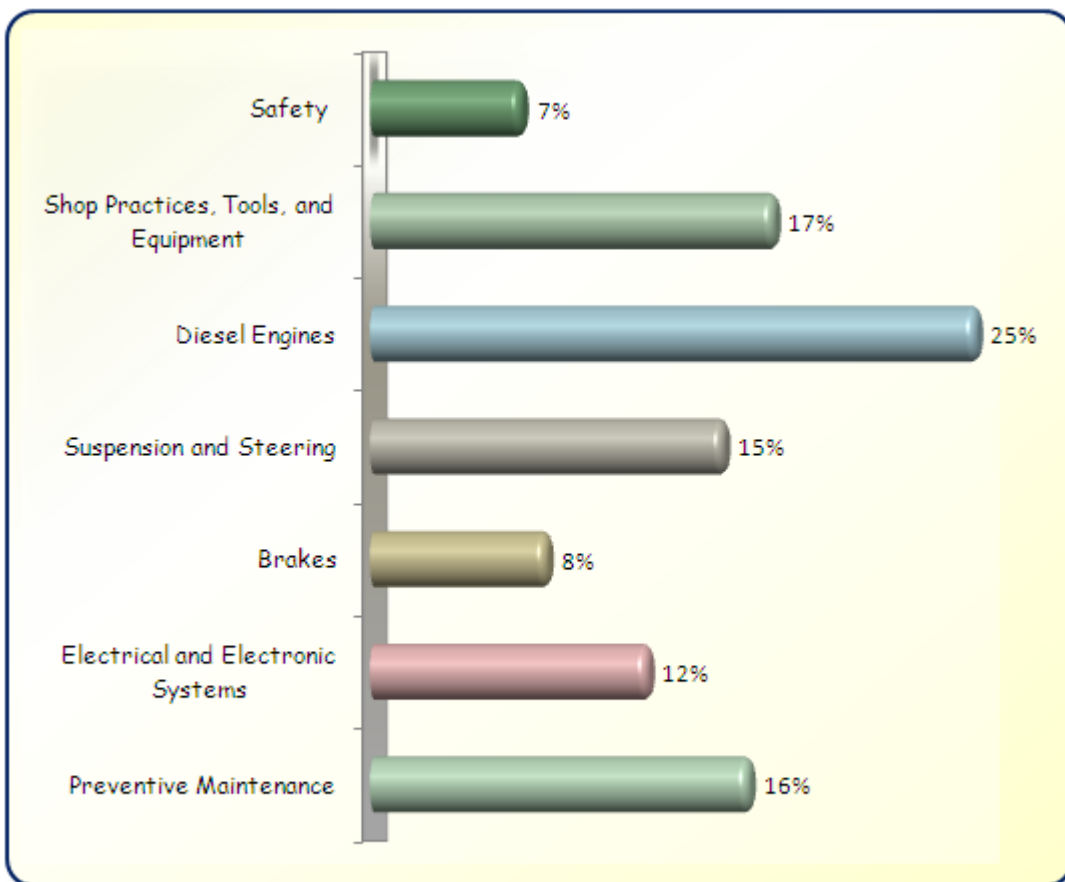


Written Assessment:

Administration Time: 3 hours

Number of Questions: 155

Areas Covered:



Sample Questions:

If battery acid gets in the eyes, the first action should be to

- A. apply pressure to the eyes
- B. flush eyes with sods
- C. flush eyes with cool water
- D. wipe eyes with a cloth

To safely lift a diesel engine, use a/an

- A. two-ton hydraulic floor jack
- B. rope and pulley hung from an overhead beam
- C. a lifting device of adequate capacity
- D. tractor mounted front-end-loader

The primary purpose of a turbocharger is to

- A. increase the volumetric efficiency
- B. eliminate the need for an aftercooler
- C. increase engine brake efficiency
- D. decrease throttle response delay

The two long main components of the chassis frame are called the

- A. frames
- B. crossmembers
- C. rails
- D. channels

How many pins are in a standard Tractor/Trailer light cord plug?

- A. 5
- B. 7
- C. 8
- D. 10

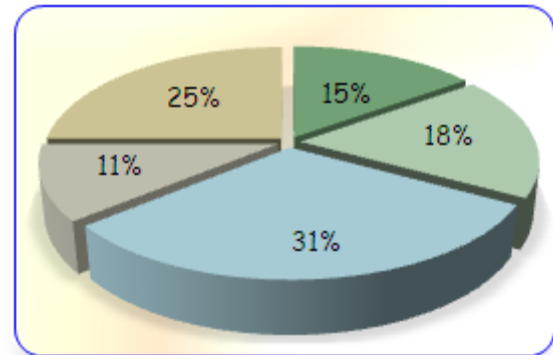


Performance Assessment:

Administration Time: 2 hours, 30 minutes

Number of Jobs: 5

Areas Covered:



15% Check and Adjust Rocker Level Clearance

Use of manuals or electronic media, procedure used to check valve adjustment, procedure used to adjust valves, accuracy of specifications, accuracy of positioning engine for valve adjustment, accuracy of adjustment for valve clearance, and time to complete Job 1.

18% Cylinder Liner Installation

Look up liner protrusion specifications, installation of liner with hold-downs, measurement of installed height, measurement of liner protrusion specifications, accuracy of counterbore measurement, accuracy of liner flange thickness measurement, calculation of liner protrusion, accuracy of comparison measurements, and time to complete Job 2.

31% Electrical Testing

Use of meter to perform high-rate discharge test, open circuit battery voltage, determination of battery state of charge, battery capacity rating, discharge rate, duration of capacity test, acceptable battery voltage, battery voltage under test conditions, results of test, battery bounce-back (recovery) voltage, use of meter to perform starter draw test, disable engine to prevent starting, crank engine, starter draw amperage, starter cranking voltage, use of meter to perform alternator maximum output test, engine operated at correct test RPM, battery voltage at maximum output, alternator maximum output, and time to complete Job 3.

11% Perform Coolant System Inspection

Apply and record test pressure used for the system, pressure test the pressure cap and serviceability, record maximum pressure held by the pressure cap, perform SCA test on provided coolant sample, determine the freeze point of the sample, and time to complete Job 4.

25% Wheel Bearing Adjustment and Brake Stroke Measurement

Follow TMC guidelines to adjust wheel bearing, identify type of wheel nut system, apply and record initial torque, perform and record initial back-off, perform and record final adjusting nut torque, perform and record final back-off, perform and record jam-nut torque, measure and record endplay, record endplay specifications, determine/record if endplay is to specifications, brake stroke measurement, record push-rod retracted length, brake stroke measurement, record push-rod extended length, calculate/record actual push-rod stroke to 1/8 inch, time to complete Job 5.

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 Association for Career and Technical Education (ACTE), the leading professional organization for career and technical educators, commends all students who participate in career and technical education programs and choose to validate their educational attainment through rigorous technical assessments. In taking this assessment you demonstrate to your school, your parents and guardians, your future employers and yourself that you understand the concepts and knowledge needed to succeed in the workplace. Good Luck!

