



Job Ready Assessment Blueprint

Automotive Technician-Advanced



Test Code: 4008 / Version: 01

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General Assessment Information

Blueprint Contents

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Test Type: The Automotive Technician-Advanced assessment is included in NOCTI's Job Ready assessment battery. Job Ready assessments measure technical skills at the occupational level and include items which gauge factual and theoretical knowledge. Job Ready assessments typically offer both a written and performance component and can be used at the secondary and post-secondary levels. Job Ready assessments can be delivered in an online or paper/pencil format.

Revision Team: The assessment content is based on input from secondary, post-secondary, and business/industry representatives from the states of Connecticut, Kentucky, Michigan, North Carolina, Pennsylvania, and West Virginia.



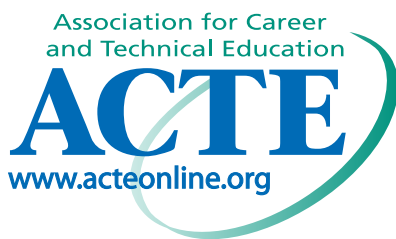
47.0604- Automobile/
Automotive Mechanics
Technology/Technician



Career Cluster 16-
Transportation, Distribution,
and Logistics



49-3023.01- Automotive
Master Mechanics



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!



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.



NATIONAL COLLEGE CREDIT RECOMMENDATION SERVICE
University of the State of New York - Regents Research Fund

In the lower division
baccalaureate/associate degree
category, 3 semester hours in
Automotive Trades or Automotive
Technician

Written Assessment

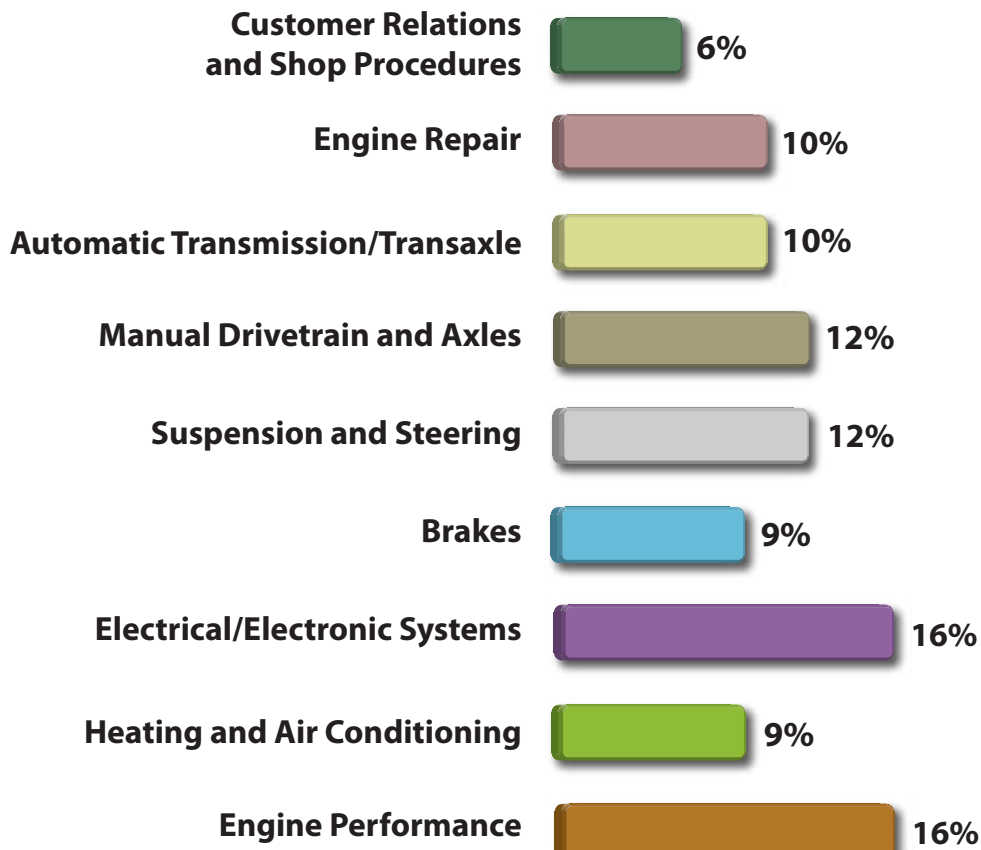
NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

Administration Time: 3 hours

Number of Questions: 203

Number of Sessions: This assessment may be administered in one, two, or three sessions.

Areas Covered



Specific Competencies and Skills Tested in this Assessment

Customer Relations and Shop Procedures

- Interpret repair and work orders
- Exhibit understanding of appropriate customer interactions
- Exhibit understanding of environmental requirements
- Display understanding of safe working environment and shop procedures

Engine Repair

- Perform engine service and diagnosis
- Perform cylinder head and valve train diagnosis and repair
- Perform engine block assembly diagnosis and repair
- Perform lubrication and cooling systems diagnosis and repair
- Perform exhaust inspection and service
- Perform mechanical timing and front-end service

Automatic Transmission/Transaxle

- Diagnose general transmission/transaxle concerns
- Maintain and adjust transmission/transaxle
- Perform in-vehicle transmission/transaxle service
- Perform off-vehicle transmission/transaxle service
- Diagnose transmission/transaxle electronic issues

Manual Drivetrain and Axles

- Diagnose general drivetrain concerns
- Diagnose and repair manual transmission/transaxle issues
- Perform in-vehicle manual transmission/transaxle service
- Perform off-vehicle manual transmission/transaxle service
- Diagnose and repair four-wheel drive/all-wheel drive components
- Diagnose and repair general axle concerns

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Specific Competencies and Skills (continued)

Suspension and Steering

- Diagnose, service, and repair steering systems
- Diagnose, service, and repair suspension systems
- Perform wheel alignment diagnosis, adjustment, and repair
- Diagnose, service, and repair wheels and tires

Brakes

- Diagnose and repair hydraulic systems
- Diagnose and repair drum brakes
- Diagnose and repair disc brakes
- Diagnose and repair power assist systems
- Diagnose and repair parking brake systems
- Diagnose and repair ABS (antilock brake systems) and TCS (traction control systems)

Electrical/Electronic Systems

- Perform electrical/electronic system diagnosis
- Perform battery diagnosis and service
- Diagnose and repair starting systems
- Diagnose and repair charging systems
- Diagnose and repair lighting systems
- Diagnose and repair accessory devices and systems



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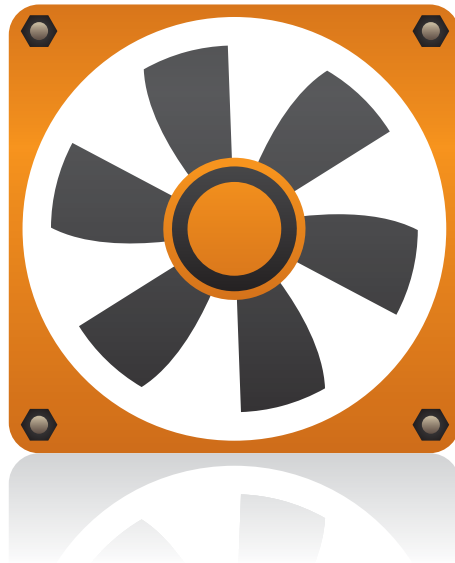
Specific Competencies and Skills (continued)

Heating and Air Conditioning

- Perform service and maintenance on heating and AC (air conditioning) systems
- Diagnose and repair AC system components
- Diagnose and repair heating systems
- Diagnose and repair heating and AC control systems
- Demonstrate knowledge of refrigerant recovery, recycling, and handling

Engine Performance

- Diagnose general engine drivability concerns
- Diagnose ignition systems
- Diagnose and repair fuel and air induction systems
- Diagnose and repair exhaust and emissions control systems
- Diagnose and repair computerized engine control systems
- Determine proper procedures for diagnosing intermittent issues



Sample Questions

Greasy or oily rags should be stored in a/an

- A. specified area of the shop
- B. covered metal container
- C. outside container
- D. marked storage shelf

The fluid in an automatic transmission is brown and has a burnt odor. This would indicate

- A. engine coolant in the fluid
- B. damaged holding members
- C. stuck governor
- D. normal fluid characteristics

When replacing the left front caliper on a diagonally split brake system, the correct bleeding sequence is

- A. left front, right rear
- B. right front, left front
- C. right rear, left front
- D. left rear, right front

The type of refrigerant that was replaced by R-134a in automotive applications is known as

- A. R-12
- B. R-22
- C. R-66
- D. R-134

A defective thermostat will affect emissions, fuel mixture, and

- A. engine drivability
- B. engine blow by
- C. alternator output
- D. mass airflow signal

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Sample Questions (continued)

When checking the main bearing clearance with Plastigage[®],

- A. rotate crankshaft after tightening the cap
- B. rotate crankshaft before tightening the cap
- C. do not tighten the cap
- D. do not rotate the crankshaft

The clutch pressure plate assembly turns only when the

- A. engine is running
- B. clutch pedal is depressed
- C. clutch pedal is released
- D. transmission is in gear

A properly operating ABS system will

- A. decrease braking force on selected wheels
- B. increase the braking distance on low-traction surfaces
- C. always reduce braking distance on paved roads
- D. increase braking force on selected wheels

Most fuel pressure regulators increase fuel pressure as

- A. the vacuum decreases
- B. oil pressure increases
- C. the vacuum increases
- D. oil pressure decreases

The exhaust gas recirculation (EGR) system is used to reduce

- A. CO₂
- B. NO_x
- C. HC
- D. CO

Performance Assessment

NOCTI performance assessments allow individuals to demonstrate their acquired skills by completing actual jobs using the tools, materials, machines, and equipment related to the technical area.

Administration Time: 3 hours and 10 minutes

Number of Jobs: 8

Areas Covered:

8% Identification of Parts

Identify engine parts, automatic transmission/transaxle parts, manual drive train and axle parts, suspension, steering and brake parts, electrical and electronic parts, heating and air conditioning parts, engine performance parts, and time to complete Job 1.

18% Disc Brake Assembly

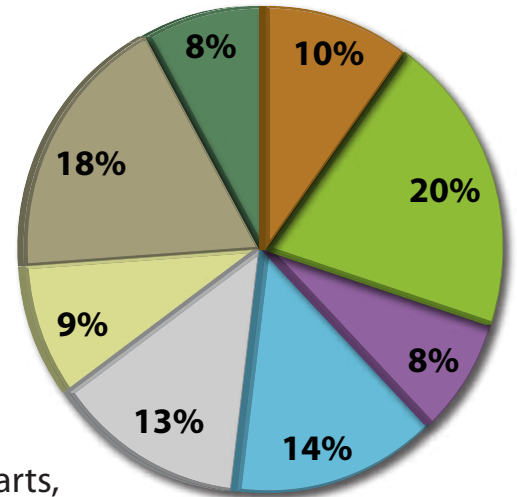
Remove caliper mounting bolts, replace brake pads, record caliper mounting bolt torque specs, remount and torque caliper, measure and record rotor thickness, determine usability of rotor, and time to complete Job 2.

9% Tire Service and Balance

Dismount the tire from the wheel, mount replacement tire on wheel, inflate tire, balance tire and wheel assembly, and time to complete Job 3.

13% Cylinder Head Service

Cylinder head – look up and record max allowable clearance, measure cylinder head surface straightness, record measurements, determine cylinder head condition. Cylinder head valve – look up and record valve stem diameter specs, measure exhaust valve stem, record actual measurements, determine cylinder head valve condition, and time to complete Job 4.



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Areas Covered (continued)

14% Perform Fuel System Pressure Test

Look up and record fuel pressure specs, install fuel pressure tester, power up fuel pump – inspect for leaks, record fuel pressure, start engine, observe record regulated pressure, compare regulated fuel pressure to specs, manually test fuel pressure regulator, perform a leak down test, drain and disconnect test equipment, and time to complete Job 5.

8% Windshield Washer Circuit Inoperative

Diagnosis of windshield washer system fault, determine necessary repairs, follow written instructions, and time to complete Job 6.

20% Test and Diagnose Battery, Starting, and Charging System

Perform open circuit voltage test, look up and record battery load test specs, perform and record battery capacity test, look up and record starter draw specs, perform and record starter draw test, ground circuit voltage drop test, manufacturer's alternator output specs, alternator test and recommendations, and time to complete Job 7.

10% Test Electronic Engine Control Component

Retrieve and document numerical trouble codes, use service manual to identify trouble code(s) set, identify and locate trouble code components, do not clear codes or repair, and time to complete Job 8.

Sample Job

Tire and Service Balance

Maximum Time: 20 minutes

Participant Activity: The participant will adhere to all safety procedures. Participant will dismount the tire from the wheel, mount replacement tire on the wheel, inflate the tire to 28 psi, balance the tire and wheel assembly, and notify the evaluator for inspection.

