



## Job Ready Assessment Blueprint

### Automotive Technician-Advanced



Test Code: 4008 / Version: 01

## General Assessment Information

### Blueprint Contents

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**Test Type:** The Automotive Technician-Advanced industry-based credential 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

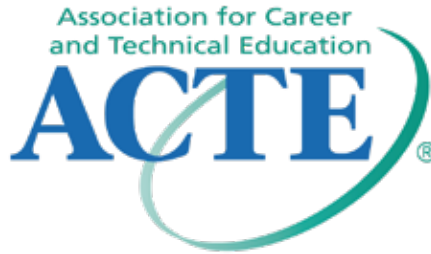


Career Cluster 16-  
Transportation, Distribution,  
and Logistics



49-3023.01- Automotive  
Master Mechanics

## General Assessment Information (continued)



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 Automotive Lift Institute (ALI) applauds students who successfully complete a Career and Technical Education program and validate their knowledge and skills with credentials such as ALI's lift safety certificate course and NOCTI industry-based assessments. As the world's most-widely recognized source for promoting the safe design, construction, installation, inspection, and use of automotive lift products, ALI believes in the importance of third-party, industry-driven credentials and their importance as a foundation for defining 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

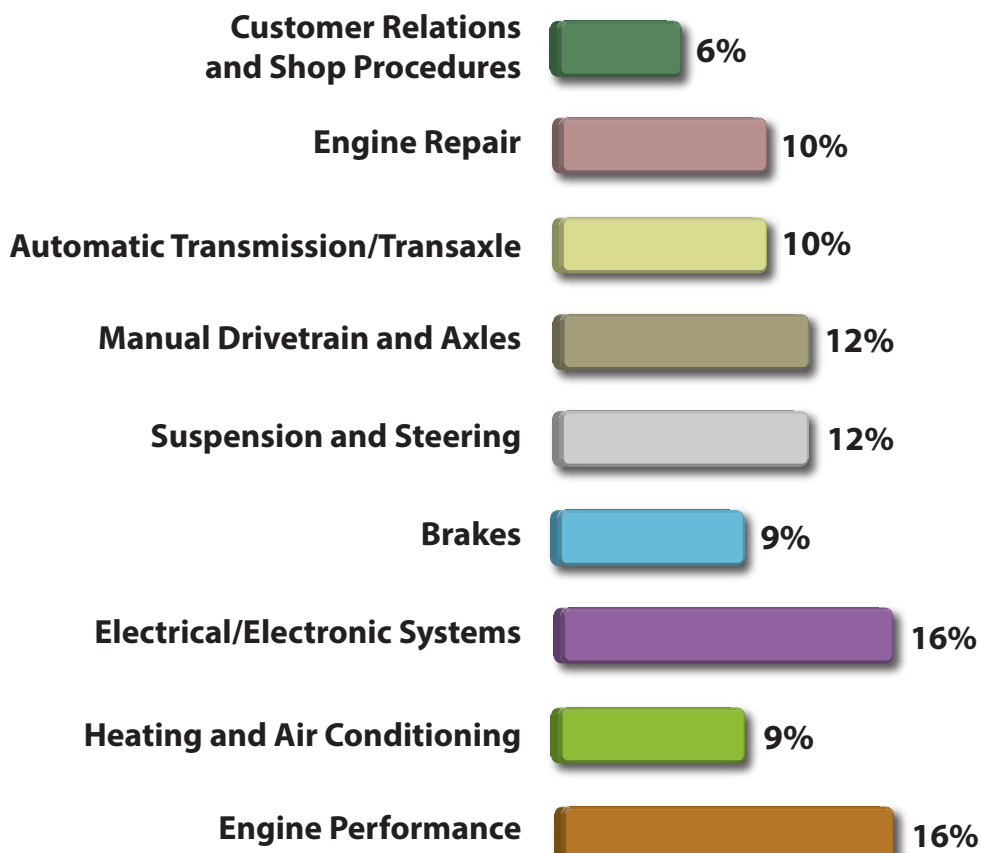
NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

**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 Standards and Competencies Included 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 Standards and Competencies (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 Standards and Competencies (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<sup>®</sup>,**

- 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. CO<sub>2</sub>
- B. NO<sub>x</sub>
- 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

Participants will identify engine, automatic transmission/transaxle, manual drive train and axle, suspension and steering, brake, electrical, heating/air conditioning, and engine performance parts.

#### 18% Disc Brake Assembly

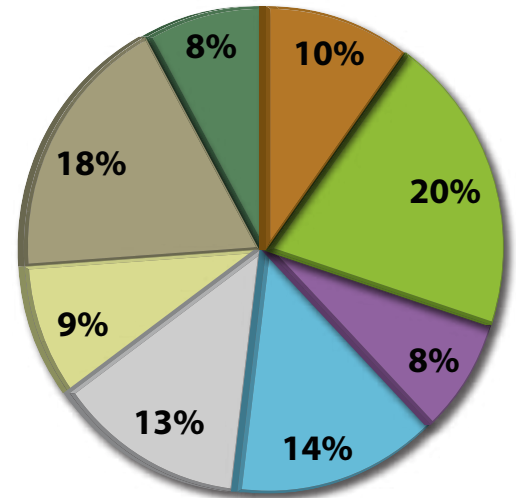
Participants will remove caliper mounting bolts, replace brake pads, record caliper mounting bolt torque specs, remount the torque caliper, measure and record rotor thickness, record the manufacturers discard specs, set up rotor on lathe and refinish surface, measure and record rotor thickness, and determine usability of rotor.

#### 9% Tire Service and Balance

Participants will dismount the tire from the wheel, mount replacement tire, inflate the tire to 28 psi, and balance the tire and wheel assembly.

#### 13% Cylinder Head Service

Participants will look up and record allowable clearance, measure cylinder head surface straightness, record measurements, determine cylinder head condition, record valve stem diameter specs, measure exhaust valve stem diameter, record measurements, and determine cylinder head valve condition.



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## Areas Covered (continued)

### **14% Perform Fuel System Pressure Test**

Participants will look up and record fuel pressure specs, install fuel pressure tester, power up fuel pump and inspect for leaks, record fuel pressure, start the engine and record regulated pressure, compare to specs, perform a leak down test, and drain and disconnect test equipment.

### **8% Windshield Washer Circuit Inoperative**

Participants will diagnose windshield washer system fault, determine repairs, and follow written instructions.

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

Participants will perform an open circuit voltage test, look up and record battery load test specs, perform battery capacity test, record starter draw specs, perform starter draw test and ground circuit voltage drop test, record manufacturers alternator output specs, perform alternator output test, and record alternator recommendations.

### **10% Test Electronic Engine Control Component**

Participants will retrieve and document numerical trouble codes, identify trouble codes set, identify trouble code components, and do not clear codes or repair.

## 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.

