Auto Collision Repair
Study Guide

Assessments:
2002 Non-Structural Analysis & Damage Repair Technician
2005 Painting and Refinishing Technician

Aligned with the ASE/NATEF standards

Endorsed By:
The Oklahoma Automobile Dealers Association
Overview

This study guide is designed to help students prepare for the Auto Collision Repair assessments. It not only includes information about the assessments, but also the skills standards upon which the assessments are based and test taking strategies.

Each of the four sections in this guide provides useful information for students preparing for the Auto Collision Repair assessments.

- CareerTech and Competency-Based Education: A Winning Combination
- Auto Collision Repair assessments
  - Assessment Information
  - Standards and Test Content
  - Sample Questions
  - Abbreviations, Symbols, and Acronyms
- Strategies for Test Taking Success
- Notes

These assessments are aligned with the 2013 National Institute for Automotive Service Excellence (ASE)/National Automotive Technicians Education Foundation (NATEF) standards and endorsed by the Oklahoma Automobile Dealers Association (OADA). The assessments measure a student's ability to apply knowledge of the skills necessary for success in the Auto Collision Repair sector.

NATEF: www.natef.org

The NATEF task list was reviewed and updated in January 2013 by a national committee of individuals representing collision repair and refinish shop owners and technicians, collision repair and refinish instructors, collision repair and refinish equipment and parts suppliers, and the Inter-Industry Conference on Auto Collision Repair (I-CAR). The committee had the most current ASE collision repair and refinish task lists for reference purposes.

The OADA (405-521-1295) consists of new car and heavy-duty truck dealers and a primary purpose of their organization is to promote the common business interests of those engaged in the automotive industry.

Disclaimer

The Oklahoma Department of Career and Technology Education cannot vouch for the accuracy of the information contained in any linked site. Our intent is to simply provide a list of sites that we feel may be useful to you. Some of the links presented here are commercial sites. We do not endorse these sites or their products, and we do not request or accept any fee for inclusion on this list. The Department makes no representations or warranties, express or implied, with respect to the document, or any part thereof, including any warranties of title, noninfringement of copyright or patent rights of others, merchantability, or fitness or suitability for any purpose.

Equal Opportunity/Non Discrimination Statement

The Oklahoma Department of Career and Technology Education does not discriminate on the basis of race, color, national origin, sex/gender, age, disability, or veteran status. Inquiries concerning application of this policy may be referred to the ODCTE Compliance Coordinator, 1500 W. 7th Ave. Stillwater, OK 74074-4364, or call 1-800 522-5810 or (405) 377-2000.
CareerTech and Competency-Based Education: A Winning Combination

Competency-based education uses learning outcomes that emphasize both the application and creation of knowledge and the mastery of skills critical for success. In a competency-based education system, students advance upon mastery of competencies, which are measurable, transferable outcomes that empower students.

Career and technology education uses industry professionals and certification standards to identify the knowledge and skills needed to master an occupation. This input provides the foundation for development of curriculum, assessments and other instructional materials needed to prepare students for wealth-generating occupations and produce comprehensively trained, highly skilled employees demanded by the work force.

Tools for Success

CareerTech education relies on three basic instructional components to deliver competency-based instruction: skills standards, curriculum materials, and competency assessments.

Skills standards provide the foundation for competency-based instruction and outline the knowledge and skills that must be mastered in order to perform related jobs within an industry. Skills standards are aligned with national skills standards and/or industry certification requirements; therefore, a student trained to the skills standards is equally employable in local, state and national job markets.

Curriculum materials and textbooks contain information and activities that teach students the knowledge and skills outlined in the skills standards. In addition to complementing classroom instruction, curriculum resources include supplemental activities that enhance learning by providing opportunities to apply knowledge and demonstrate skills.

Competency Assessments test the student over material outlined in the skills standards and taught using the curriculum materials and textbooks. When used with classroom performance evaluations, written competency assessments provide a means of measuring occupational readiness.

Each of these components satisfies a unique purpose in competency-based education and reinforces the knowledge and skills students need to gain employment and succeed on the job.

Measuring Success

Evaluation is an important component of competency-based education. Pre-training assessments measure the student’s existing knowledge prior to receiving instruction and ensure the student’s training builds upon this knowledge base. Formative assessments administered throughout the training process provide a means of continuously monitoring the student’s progress towards mastery.

Written competency assessments provide a means of evaluating the student’s mastery of knowledge and skills. Coaching reports communicate competency assessment scores to students and provide a breakdown of assessment results by standard area. The coaching report also shows how well the student has mastered skills needed to perform major job functions and identifies areas of job responsibility that may require additional instruction and/or training.
Auto Collision Repair
Assessment Information

What are the Auto Collision Repair assessments?

The Non-Structural Analysis & Damage Repair Technician and Painting and Refinishing Technician assessments are end-of-program assessments for students in Auto Collision Repair education programs. The assessments provide an indication of student mastery of knowledge and concepts necessary for success in careers in these areas.

How were the assessments developed?

The assessments were developed by the Career-Tech Testing Center. The assessments and standards align with the ASE/NATEF Standards and are endorsed by the Oklahoma Automobile Dealers Association. Items were developed and reviewed by a committee of subject matter experts.

What do the assessments cover?

Specifically, the tests include multiple-choice test items over the following areas:

Non-Structure Analysis & Damage Repair Technician (55 questions)
- Preparation: 15%
- Outer Body Panel Repairs, Replacements and Adjustments: 35%
- Metal Finishing and Body Filling: 18%
- Moveable Glass and Hardware: 2%
- Metal Welding and Cutting: 25%
- Plastics and Adhesives: 5%

Painting and Refinishing Technician (55 questions)
- Safety Precautions: 13%
- Surface Preparation: 26%
- Spray Gun and Related Equipment Operation: 5%
- Paint Mixing, Matching and Applying: 16%
- Paint Defects – Causes and Cures: 29%
- Final Detail: 11%

What are the benefits of using these assessments?

Students receive a competency certificate for each assessment that he/she passes. This certificate may be included in his/her portfolio and used to communicate the student’s mastery of the subject matter to potential employers.
When should the assessment be taken?

The CareerTech Testing Center recommends that students take these assessments as soon as possible after receiving all standards-related instruction, rather than waiting until the end of the school year.

Is the assessment timed?

No. However, most students finish the assessment within one hour.

What resources can students use on these assessments?

Students are allowed to use calculators and scratch paper on CTTC competency assessments; however, these items must be provided by the testing proctor and returned to the proctor before the student’s exam is submitted for scoring. Calculator apps on cell phones and other devices may not be used on these assessments.

What accommodations can be made for students with Individualized Education Plans (IEPs)?

Accommodations are allowed for students with an Individualized Education Plan. Examples of allowable accommodations include:

- Extended time — This assessment is not timed; therefore, students may take as much time as needed to finish. The assessment must be completed in one testing session.
- Readers — A reader may be used to read the assessment to a student who has been identified as needing this accommodation.
- Enlarged text — Students needing this accommodation can activate this feature by clicking the \[\text{AA}\] icon in the upper right corner of the screen.

What can students expect on Test Day?

All CTTC assessments are web-based and delivered exclusively by a proctor in the school’s assessment center. The proctor cannot be an instructor or anyone who was involved with the students during instruction.

Assessments are delivered in a question-by-question format. When a question is presented, the student can select a response or leave the question unanswered and advance to the next question. Students may also flag questions to revisit before the test is scored. All questions must be answered before the test can be submitted for scoring.

After the assessment is scored, the student will receive a score report that not only shows the student’s score on the assessment, but also how the student performed in each standard area.
Can students retake the test?

Students may retake the test unless their school or state testing policies prohibit retesting. Students who can retest must wait at least three days between test attempts.
Standards and Test Content
Non-Structural Analysis & Damage Repair Technician

Preparation (8 questions)

1. Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan
2. Inspect, remove, label, store, and reinstall exterior trim and moldings
3. Inspect, remove, label, store, and reinstall interior trim and components
4. Inspect, remove, label, store, and reinstall body panels and components that may interfere with or be damaged during repair
5. Inspect, remove, label, store, and reinstall vehicle mechanical and electrical components that may interfere with or be damaged during repair
6. Protect panels, glass, interior parts, and other vehicles adjacent to the repair area
7. Soap and water wash entire vehicle; complete pre-repair inspection checklist
8. Prepare damaged area using water-based and solvent-based cleaners.
9. Remove corrosion protection, undercoatings, sealers, and other protective coatings as necessary to perform repairs
10. Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair

Outer Body Panel Repairs, Replacements, and Adjustments (19 questions)

1. Determine the extent of direct and indirect/hidden damage and direction of impact; develop and document a repair plan
2. Inspect, remove and replace bolted, bonded, and welded steel panel or panel assemblies
3. Determine the extent of damage to aluminum body panels; repair or replace
4. Inspect, remove, replace, and align hood, hood hinges, and hood latch
5. Inspect, remove, replace, and align deck lid, lid hinges, and lid latch
6. Inspect, remove, replace, and align doors, latches, hinges, and related hardware
7. Inspect, remove, replace, and align tailgates, hatches, liftgates, and sliding doors
8. Inspect, remove, replace, and align bumper bars, covers, reinforcement, guards, isolators, and mounting hardware
9. Inspect, remove, replace, and align fenders and related panels
10. Straighten contours of damaged panels to a suitable condition for body filling or metal finishing using power tools, hand tools, and weld-on pulling attachments
11. Weld damaged or torn steel body panels; repair broken welds
12. Restore corrosion protection
13. Replace door skins
14. Restore sound deadeners and foam materials
15. Perform panel bonding and weld bonding
16. Diagnose and repair water leaks, dust leaks, and wind noise
17. Identify one-time use fasteners

**Metal Finishing and Body Filling (10 questions)**

1. Remove paint from the damaged area of a body panel
2. Locate and repair surface irregularities on a damaged body panel
3. Demonstrate hammer and dolly techniques
4. Heat shrink stretched panel areas to proper contour
5. Cold shrink stretched panel areas to proper contour
6. Prepare and apply body filler
7. Identify different types of body fillers
8. Rough sand body filler to contour; finish sand
9. Determine the proper metal finishing techniques for aluminum
10. Determine proper application of body filler to aluminum

**Moveable Glass and Hardware (1 questions)**

1. Inspect, adjust, repair, or replace window regulators, run channels, glass, power mechanisms, and related controls
2. Inspect, adjust, repair, remove, reinstall, or replace weather-stripping
3. Inspect, repair or replace, and adjust removable power operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs
4. Inspect, remove, reinstall, and align convertible top and related mechanisms
5. Initialize electrical components as needed
Metal Welding and Cutting (14 questions)

1. Identify weldable and non-weldable substrates used in vehicle construction
2. Weld and cut high-strength steel and other steels
3. Weld and cut aluminum
4. Determine the correct GMAW (MIG) welder type, electrode/wire type, diameter, and gas to be used in a specific welding situation
5. Set up and adjust the GMAW (MIG) welder to “tune” for proper electrode stickout, voltage, polarity, flow rate, and wire-feed speed required for the substrate being welded
6. Store, handle, and install high-pressure gas cylinders
7. Determine work clamp (ground) location and attach
8. Use the proper angle of the gun to the joint and direction of gun travel for the type of weld being made in the flat, horizontal, vertical, and overhead positions
9. Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations
10. Protect computers and other electronic control modules during welding procedures
11. Clean and prepare the metal to be welded; assure good metal fit-up, apply weld-through primer if necessary, clamp or tack as required
12. Determine the joint type (butt weld with backing, lap, etc.) for weld being made
13. Determine the type of weld (continuous, stitch weld, plug, etc.) for each specific welding operation
14. Perform the following welds: continuous, plug, butt weld with and without backing, fillet, etc.
15. Perform visual and destructive tests on each weld type
16. Identify the causes of various welding defects; make necessary adjustments
17. Identify cause of contact tip burn-back and failure of wire to feed; make necessary adjustments
18. Identify cutting process for different substrates and locations; perform cutting operation
19. Identify different methods of attaching non-structural components (squeeze type resistant spot welds (STRSW), riveting, non-structural adhesive, silicon bronze, etc.

Plastics and Adhesives (3 questions)

1. Identify the types of plastics; determine reparable
2. Clean and prepare the surface of plastic parts; identify the types of plastic repair procedures
3. Repair rigid, semi-rigid, or flexible plastic panels
4. Remove or repair damaged areas from rigid exterior composite panels
5. Replace bonded rigid exterior composite body panels; straighten or align panel supports
Standards and Test Content
Painting and Refinishing Technician

Safety Precautions (7 questions)

1. Identify and take necessary precautions with hazardous operations and materials according to federal, state and local regulations.
2. Identify safety and personal health hazards according to OSHA guidelines and the “Right to Know Law”.
3. Inspect spray environment and equipment to ensure compliance with federal, state, and local regulations, and for safety and cleanliness hazards.
4. Select and use a NIOSH-approved air purifying respirator. Inspect condition and ensure fit and operation. Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation.
5. Select and use the NIOSH-approved supplied air (Fresh Air Make-up) respirator system. Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation.
6. Select and use the proper personal safety equipment for surface preparation, spray gun, and related equipment operation, paint mixing, matching and application, paint defects, and detailing (gloves, suits, hoods, eye, and ear protection, etc.)

Surface Preparation (14 questions)

1. Inspect, remove, store, and replace exterior trim and components necessary for proper surface preparation.
2. Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants.
3. Inspect and identify type of finish, surface condition, and film thickness; develop and document a plan for refinishing using a total product system.
4. Strip paint to bare substrate (paint removal).
5. Dry or wet sand areas to be refinished.
6. Featheredge areas to be refinished.
7. Apply suitable metal treatment or primer in accordance with total product systems.
8. Mask and protect other areas that will not be refinished.
9. Mix primer, primer-surfacer, or primer-sealer
10. Identify a complimentary color or shade of undercoat to improve coverage
11. Apply primer onto surface of repaired area
12. Apply two-component finishing filler to minor surface imperfections
13. Block sand area to which primer-surfacer has been applied
14. Dry sand area to which finishing filler has been applied
15. Remove dust from area to be refinished, including cracks or moldings of adjacent areas
16. Clean area to be refinished using a final cleaning solution
17. Remove, with a tack rag, any dust or lint particles from the area to be refinished
18. Apply suitable sealer to the area being refinished
19. Scuff sand to remove nibs or imperfections from a sealer
20. Apply stone chip resistance coating
21. Restore caulking and seam sealers to repaired areas
22. Prepare adjacent panels for blending
23. Identify the types of rigid, semi-rigid or flexible plastic parts to be finished; determine the materials needed, preparation, and refinishing procedures
24. Identify metal parts to be refinished; determine the materials needed, preparation, and refinishing procedures

**Spray Gun and Related Equipment Operation (3 questions)**

1. Inspect, clean, and determine condition of spray guns and related equipment (air hoses, regulators, air lines, air source, and spray environment)
2. Select spray gun setup (fluid needle, nozzle, and cap) for product being applied
3. Test and adjust spray gun using fluid, air and pattern control valves
4. Demonstrate an understanding of the operation of pressure spray equipment

**Paint Mixing, Matching and Applying (9 questions)**

1. Identify color code by manufacturer’s vehicle information label
2. Shake, stir, reduce, catalyze/activate, and strain refinish materials
3. Apply finish using appropriate spray technique (gun arc, angle, distance, travel speed, and spray pattern overlap) for the finish being applied
4. Apply selected product on test and let-down panel; check for color match
5. Apply single stage topcoat
6. Apply basecoat/clear coat for panel blending or panel refinishing
7. Apply basecoat/clear coat for overall refinishing
8. Remove nibs or imperfections from basecoat
9. Refinish rigid or semi-rigid plastic parts
10. Refinish flexible plastic parts
11. Apply multi-stage coats for panel blending and overall refinishing
12. Identify and mix paint using a formula
13. Identify poor hiding colors; determine necessary action
14. Tint color using formula to achieve a blendable match
15. Identify alternative color formula to achieve a blendable match
16. Identify the materials equipment, and preparation differences between solvent and waterborne technologies

**Paint Defects – Causes and Cures (16 questions)**

1. Identify blistering (raising of the paint surface, air entrapment); determine the cause(s) and correct the condition
2. Identify a dry spray appearance in the paint surface; determine the cause(s) and correct the condition
3. Identify the presence of fish-eyes (crater-like openings) in the finish; determine the cause(s) and correct the condition
4. Identify lifting; determine the cause(s) and correct the condition
5. Identify clouding (mottling and streaking in metallic finishes); determine the cause(s) and correct the condition
6. Identify orange peel; determine the cause(s) and correct the condition
7. Identify overspray; determine the cause(s) and correct the condition
8. Identify solvent popping in freshly painted surface; determine the cause(s) and correct the condition
9. Identify sags and runs in paint surface; determine the cause(s) and correct the condition
10. Identify sanding marks or sandscratch swelling; determine the cause(s) and correct the condition
11. Identify contour mapping/edge mapping while finish is drying; determine the cause(s) and correct the condition
12. Identify color difference (off-shade); determine the cause(s) and correct the condition
13. Identify tape tracking; determine the cause(s) and correct the condition
14. Identify low gloss condition; determine the cause(s) and correct the condition
15. Identify poor adhesion; determine the cause(s) and correct the condition
16. Identify paint cracking (shrinking, splitting, crowsfeet or line-checking, micro-checking, etc.); determine the cause(s) and correct the condition
17. Identify corrosion; determine the cause(s) and correct the condition
18. Identify dirt or dust in the paint surface; determine the cause(s) and correct the condition
19. Identify water spotting; determine the cause(s) and correct the condition
20. Identify finish damage caused by bird droppings, tree sap, and other natural causes; correct the condition
21. Identify finish damage caused by airborne contaminants (acids, soot, rail dust, and other industrial-related causes); correct the condition
22. Identify the die-back conditions (dulling of the paint film showing haziness); determine the cause(s) and correct the condition
23. Identify chalking (oxidation); determine the cause(s) and correct the condition
24. Identify bleed-through (staining); determine the cause(s) and correct the condition
25. Identify pin-holing; determine the cause(s) and correct the condition
26. Identify buffing-related imperfections (swirl marks, wheel burns); correct the condition
27. Identify pigment flotation (color change through film build); determine the cause(s) and correct the condition

**Final Detail (6 questions)**

1. Apply decals, transfers, tapes, woodgrains, pinstripes (painted and taped), etc.
2. Sand, buff and polish fresh or existing finish to remove defects as required
3. Clean interior, exterior, and glass
4. Clean body openings (door jams and edges, etc.)
5. Remove overspray
6. Perform vehicle clean-up; complete quality control using a checklist
Sample Questions

1. Technician A says that the repair plan can only be developed after the vehicle has been on a frame machine. Technician B says that the repair plan is developed before and during the repair process. Who is correct?
   
   a. Technician A  
   b. Technician B  
   c. Both Technician A and Technician B  
   d. Neither Technician A nor Technician B

2. What is a major characteristic of an aluminum panel?
   
   a. good memory  
   b. heavier than steel  
   c. lighter than steel  
   d. poor dent resistance

3. When aligning the doors on a four-door car, which should be aligned first?
   
   a. front door to the fender  
   b. front door to the rear door  
   c. front fender to the hood  
   d. rear door to the quarter panel

4. Porosity in welds can be caused by:
   
   a. excessive current.  
   b. ground too far away.  
   c. a lack of shielding gas.  
   d. travel speed too slow.

5. Which primer should be used on bare high strength steel (HSS)?
   
   a. adhesion promoter  
   b. lacquer primer  
   c. self-etching primer  
   d. zinc chromate

6. To help eliminate paint clogging the sand paper, the painter should use:
   
   a. block sanding.  
   b. disc sanding.  
   c. dry sanding.  
   d. wet sanding.
7. The type of metal conditioner to be used is determined by the:
   a. temperature at the time of application.
   b. thickness of the metal substrate.
   c. type of finish being used.
   d. type of metal to be treated.

8. A sealer should be applied:
   a. after the color coats.
   b. before sanding.
   c. before the color coats.
   d. between each color coat.

9. Technician A says to adjust air pressure at the air compressor. Technician B says pressure is best adjusted at the gun. Who is correct?
   a. Technician A
   b. Technician B
   c. Both Technician A and Technician B
   d. Neither Technician A nor Technician B

10. Technician A says some primers can be used direct to metal (DTM). Technician B says some primer surfacers can be used direct to metal (DTM). Who is correct?
    a. Technician A
    b. Technician B
    c. Both Technician A and Technician B
    d. Neither Technician A nor Technician B
Sample Questions — Key

1. Technician A says that the repair plan can only be developed after the vehicle has been on a frame machine. Technician B says that the repair plan is developed before and during the repair process. Who is correct?
   a. Technician A          Wrong, but plausible
   b. Technician B          Correct
   c. Both Technician A and Technician B Wrong, but plausible
   d. Neither Technician A nor Technician B Wrong, but plausible

2. What is a major characteristic of an aluminum panel?
   a. good memory           Wrong, but plausible
   b. heavier than steel    Wrong, but plausible
   c. lighter than steel    Correct
   d. poor dent resistance  Wrong, but plausible

3. When aligning the doors on a four-door car, which should be aligned first?
   a. front door to the fender Wrong, but plausible
   b. front door to the rear door Wrong, but plausible
   c. front fender to the hood Wrong, but plausible
   d. rear door to the quarter panel Correct

4. Porosity in welds can be caused by:
   a. excessive current.     Wrong, but plausible
   b. ground too far away.   Wrong, but plausible
   c. a lack of shielding gas. Correct
   d. travel speed too slow. Wrong, but plausible

5. Which primer should be used on bare high strength steel (HSS)?
   a. adhesion promoter      Wrong, but plausible
   b. lacquer primer         Wrong, but plausible
   c. self-etching primer    Correct
   d. zinc chromate          Wrong, but plausible

6. To help eliminate paint clogging the sand paper, the painter should use:
   a. block sanding.         Wrong, but plausible
   b. disc sanding.          Wrong, but plausible
   c. dry sanding.           Wrong, but plausible
   d. wet sanding.           Correct
7. The type of metal conditioner to be used is determined by the:

a. temperature at the time of application.  
   Wrong, but plausible  

b. thickness of the metal substrate.  
   Wrong, but plausible  

c. type of finish being used.  
   Wrong, but plausible  

d. type of metal to be treated.  
   Correct  

8. A sealer should be applied:

a. after the color coats.  
   Wrong, but plausible  

b. before sanding.  
   Wrong, but plausible  

c. before the color coats.  
   Correct  

  d. between each color coat.  
   Wrong, but plausible  

9. Technician A says to adjust air pressure at the air compressor. Technician B says pressure is best adjusted at the gun. Who is correct?

a. Technician A  
   Wrong, but plausible  

b. Technician B  
   Correct  

c. Both Technician A and Technician B  
   Wrong, but plausible  

d. Neither Technician A nor Technician B  
   Wrong, but plausible  

10. Technician A says some primers can be used direct to metal (DTM). Technician B says some primer surfacers can be used direct to metal (DTM). Who is correct?

a. Technician A  
   Wrong, but plausible  

b. Technician B  
   Wrong, but plausible  

c. Both Technician A and Technician B  
   Correct  

d. Neither Technician A nor Technician B  
   Wrong, but plausible
Abbreviations, Symbols and Acronyms

When abbreviations, symbols or acronyms are more commonly used in written and verbal communications within the automotive industry than the words they represent, they will also be used on the written examination required for competency. The following is a list of abbreviations, symbols and acronyms used on the automotive examinations.

' Feet
" Inches
° Degrees
$ Dollars
O₂ Oxygen
% Percent
2K a coating that needs a hardener
ABS anti-lock brake system
AC alternating current
A/C air conditioning
ASE Automotive Service Excellence
ATF automatic transmission fluid
BCM body control module
CAN/BUS Controller Area Network
CCA cold cranking amp
CV constant-velocity
CVT continuously variable transmission
DC direct current
DEF diesel exhaust fluid
DMM digital multimeter
DTC diagnostic trouble code
DVOM digital volt/ohm meter
ECM electronic control module
EGR exhaust gas recirculation
EVAP evaporative emission
Ft feet
FWD front wheel drive
GTX a name of a GE developed plastic (Noryl GTX)
HEPA high-efficiency particulate arrestance
Hg Mercury
HVAC heating, ventilation, and air conditioning
IAC idle air control
ID inside diameter
In inch
IP instrument panel
ISO International Organization for Standardization
kV kilovolts
MIG metal inert gas
MIL malfunction indicator lamp
mm millimeter
MPH miles per hour
MSDS material safety data sheet
NATEF National Automotive Technicians Education Foundation
NIOSH National Institute for Occupational Safety and Health
OBD On-Board Diagnostics
OEM original equipment manufacturer
OSHA Occupational Safety and Health Administration
PAG polyalkylene glycol
PCV positive crankcase ventilation
PM permanent generator
POA pilot operated absolute
PSI pounds per square inch
RPM revolutions per minute
SAI steering axis inclination
SMC sheet moulded compound
SRS supplemental restraint system
STRSW squeeze type resistance spot welding
TDC top dead center
TEO thermoplastic elastomeric olefin
TIG tungsten inert gas
TPS throttle position sensor
TSB Transportation Safety Bulletin
TV throttle valve
USB universal serial bus
V volt
VOC volatile organic compounds
Test Taking Strategies

This section of the study guide contains valuable information for testing success and provides a common-sense approach for preparing for and performing well on any test.

General Testing Advice

1. Get a good night’s rest the night before the test — eight hours of sleep is recommended.
2. Avoid junk food and “eat right” several days before the test.
3. Do not drink a lot or eat a large meal prior to testing.
4. Be confident in your knowledge and skills!
5. Relax and try to ignore distractions during the test.
6. Focus on the task at hand — taking the test and doing your best!
7. Listen carefully to the instructions provided by the exam proctor. If the instructions are not clear, ask for clarification.

Testing Tips

1. Read the entire question before attempting to answer it.
2. Try to answer the question before reading the choices. Then, read the choices to determine if one matches, or is similar, to your answer.
3. Do not change your answer unless you misread the question or are certain that your first answer is incorrect.
4. Answer questions you know first, so you can spend additional time on the more difficult questions.
5. Check to make sure you have answered every question before you submit the assessment for scoring — unanswered questions are marked incorrect.