



# Auto Collision Repair

## Study Guide

Assessments:

2002 Non-Structural Analysis &  
Damage Repair Technician

2005 Painting and Refinishing Technician

Aligned with the ASE/  
NATEF standards



OKLAHOMA  
CareerTech

CTTC CareerTech Testing Center

## 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, resources that can be used to prepare for the assessments and test taking strategies.

Each of the four sections in this guide provides useful information for students preparing for the Automotive 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 2020 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](http://www.natef.org)

The ASE Education Foundation task list was reviewed and updated in February 2020 by a national committee to review the tasks used in the collision repair and refinish accreditation program. The committee consisted of individuals representing collision repair and refinish shop owners and technicians, collision repair and refinish instructors, collision repair and refinish equipment and parts suppliers.

The committee reviewed the standards, task list, tools and equipment list, program hours, and instructor qualifications. The committee had the most current National Institute for Automotive Service Excellence (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.

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## 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.

**Certification 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, certification 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.

Certification assessments provide a means of evaluating the student's mastery of knowledge and skills. Coaching reports communicate 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 assessment developed?

The assessments were developed by the CareerTech 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.

The NATEF committee assigned a priority number, which determines the significance of each task for test development: HP-I or HP-G to all skills. These priority numbers pertain to requirements for instruction on tasks as follows:

HP-I: 95% must be taught in the curriculum.

HP-G: 90% must be taught in the curriculum.

## What does the assessment cover?

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

### Non-Structural Analysis & Damage Repair Technician (55 questions)

Safety Precautions	9%
Preparation	18%
Outer Body Panel Repairs, Replacements and Adjustments	28%
Metal Finishing and Body Filling	20%
Moveable Glass and Hardware	7%
Plastics, Adhesives and Welding	18%

### Painting and Refinishing Technician (55 questions)

Safety Precautions	5%
Surface Preparation	33%
Spray Gun and Related Equipment Operation	4%
Paint Mixing, Matching and Applying	18%
Paint Defects – Causes and Cures	27%
Final Detail	13%

## What are the benefits of using this assessment?

Students receive a 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 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  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 student 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 shows the student's score on the assessment and 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 retest must wait at least three days between attempts.

# Auto Collision Repair Skills Standards Instructional Ratings

**AUTO COLLISION REPAIR  
2002 NON-STRUCTURAL ANALYSIS & DAMAGE REPAIR TECHNICIAN  
SKILLS STANDARDS  
Desired Skills Level Ratings**

- Duty D: Safety Precautions
- Duty E: Preparation
- Duty F: Outer Body Panel Repairs, Replacements, and Adjustments
- Duty G: Metal Finishing and Body Filling
- Duty H: Moveable Glass and Hardware
- Duty I: Plastics, Adhesives and Welding

For every task, the following safety requirements must be strictly enforced:

Comply with personal and environmental safety practices associated with clothing and proper Personal Protection Equipment (PPE); hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations. Identify vehicle precautions and/or inspections to include but not limited to Supplemental Restraint System (SRS) Inspection, Advanced Driver Assistance Systems (ADAS), hybrid/electric/alternative fuel vehicles, locations and recommended procedures before inspecting or replacing components.

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**DUTY D: Safety Precautions (5 questions)**

CODE	TASK	P#
D.01	Select and use proper personal safety equipment; take necessary precautions with hazardous operations and materials in accordance with federal, state, and local regulations.	HP-I
D.02	Locate OEM procedures to identify material and composition of the vehicle being repaired (mild steel, high strength steel, ultra-high strength steel, aluminum, etc.).	HP-I
D.03	Locate procedures and precautions that may apply to the vehicle being repaired.	HP-I
D.04	Identify vehicle system precautions and/or inspections to include but not limited to supplemental restraint system (SRS), advanced driver assistance systems (ADAS), hybrid/electric/alternative fuel vehicles, locations and recommended procedures before inspecting or replacing components.	HP-I
D.05	Perform vehicle clean-up; complete quality control using a checklist on operations performed.	HP-I

**DUTY E: Preparation (10 questions)**

CODE	TASK	P#
E.01	Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan	HP-I
E.02	Inspect, remove, protect, label, store, inventory, and reinstall exterior trim and moldings	HP-I
E.03	Inspect, remove, protect, label, store, inventory, and reinstall interior trim and components.	HP-I
E.04	Inspect, remove, protect, label, store, inventory, and reinstall body panels and components that may interfere with or be damaged during repair.	HP-I
E.05	Inspect, remove, protect, label, store, inventory, and reinstall vehicle mechanical and electrical components that may interfere with or be damaged during repair	HP-G
E.06	Protect panels, glass, interior parts, and other vehicles adjacent to the repair area.	HP-I
E.07	Soap and water wash entire vehicle; complete pre-repair inspection checklist.	HP-I
E.08	Prepare damaged area using water-based and solvent-based cleaners.	HP-I
E.09	Remove corrosion protection, undercoating, sealers, and other protective coatings as necessary to perform repairs.	HP-I
E.10	Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair.	HP-I

**DUTY F: Outer Body Panel Repairs, Replacements, and Adjustments (15 questions)**

CODE	TASK	P#
F.01	Inspect/locate direct, indirect, or hidden damage and direction of impact.	HP-I
F.02	Inspect, remove and replace welded steel panel or panel assemblies.	HP-G
F.03	Determine the extent of damage to aluminum body panels; repair or replace.	HP-G
F.04	Inspect, remove, replace, and align hood, hood hinges, and hood latch.	HP-I
F.05	Inspect, remove, replace, and align deck lid, lid hinges, and lid latch.	HP-I
F.06	Inspect, remove, replace, and align doors, latches, hinges, and related hardware.	HP-I



CODE	TASK	P#
F.07	Inspect, remove, replace and align tailgates, hatches, liftgates and sliding doors.	HP-G
F.08	Inspect, remove, replace, overhaul, and align bumpers, covers, reinforcements, guards, impact absorbers, and mounting hardware.	HP-I
F.09	Inspect, remove, replace and align fenders, and related panels.	HP-I
F.10	Restore corrosion protection during and after the repair.	HP-I
F.11	Replace door skins.	HP-G
F.12	Restore sound deadeners and foam materials.	HP-G
F.13	Perform panel bonding and weld bonding.	HP-G
F.14	Diagnose and repair water leaks, dust leaks, and wind noise.	HP-G
F.15	Identify one-time use fasteners.	HP-G
F.16	Weld damaged or torn steel body panels; repair broken welds.	HP-G
F.17	Inspect, identify labels/decals and replace as necessary.	HP-G

### **DUTY G: Metal Finishing and Body Filling (11 questions)**

CODE	TASK	P#
G.01	Prepare a panel for body filler by abrading or removing the coatings; featheredge, refine scratches, and clean the surface before the application of body filler.	HP-I
G.02	Locate and repair surface irregularities and straighten contours on a damaged body panel using power tools, hand tools, and weld-on pulling attachments.	HP-I
G.03	Demonstrate hammer and dolly techniques.	HP-I
G.04	Heat shrink stretched panel areas to proper contour.	HP-G
G.05	Cold shrink stretched panel areas to proper contour.	HP-I
G.06	Identify body filler defects; correct the cause and condition. (Pinholing, ghosting, staining, over catalyzing, etc.)	HP-I
G.07	Identify different types of body fillers.	HP-G
G.08	Shape body filler to contour; finish sand.	HP-I
G.09	Perform proper metal finishing techniques for aluminum.	HP-G
G.10	Perform proper application of body filler to aluminum.	HP-G
G.11	Locate and repair surface irregularities and straighten contours on a damaged panel using Glue-Pulling Dent Repair (GPDR)	HP-G
G.12	Mix and apply body filler	HP-I

**DUTY H: Moveable Glass and Hardware (4 questions)**

CODE	TASK	P#
H.01	Inspect, adjust, overhaul repair or replace window regulators, run channels, glass, power mechanisms, and related controls	HP-I
H.02	Inspect, adjust, repair, remove, reinstall, or replace weather-stripping	HP-G
H.03	Inspect, remove, repair or replace, and adjust removable power operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs	HP-G
H.04	Inspect, remove, reinstall, and align convertible top and related mechanisms	HP-G
H.05	Identify or recalibrate electrical components that may need to be initialized.	HP-G

**DUTY I: Plastics, Adhesives and Welding (10 questions)**

CODE	TASK	P#
I.01	Identify the types of plastics; determine repairability.	HP-I
I.02	Clean and prepare the surface of plastic parts; identify the types of plastic repair procedures.	HP-I
I.03	Repair rigid, semi-rigid, and flexible plastic panels.	HP-I
I.04	Remove, replace, or repair damaged areas of rigid exterior composite panels.	HP-G
I.05	Replace bonded rigid exterior composite body panels; straighten or align panel supports.	HP-G
I.06	Repair plastic parts by welding (nitrogen, airless).	HP-G
I.07	Perform a single-sided adhesively bonded cosmetic repair.	HP-I
I.08	Perform a double-sided adhesively bonded repair.	HP-I
I.09	Perform an adhesively bonded or welded tab repair.	HP-I
I.10	Shape and reform damaged plastic.	HP-G

**AUTO COLLISION REPAIR  
2005 PAINTING AND REFINISHING TECHNICIAN  
SKILLS STANDARDS  
Desired Skills Level Ratings**

- Duty S: Safety Precautions
- Duty T: Surface Preparation
- Duty U: Spray Gun and Related Equipment Operation
- Duty V: Paint Mixing, Matching and Applying
- Duty W: Paint Defects – Causes and Cures
- Duty X: Final Detail

For every task, the following safety requirements must be strictly enforced:

Comply with personal and environmental safety practices associated with clothing and proper Personal Protection Equipment (PPE); hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations. Identify vehicle precautions and/or inspections to include but not limited to Supplemental Restraint System (SRS) Inspection, Advanced Driver Assistance Systems (ADAS), hybrid/electric/alternative fuel vehicles, locations and recommended procedures before inspecting or replacing components.

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**DUTY S: Safety Precautions (3 questions)**

CODE	TASK	P#
S.01	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.); take necessary precautions with hazardous operations and materials according to federal, state, and local regulations.	HP-I
S.02	Identify safety and personal health hazards according to OSHA guidelines and the “Right to Know Law”.	HP-I
S.03	Inspect spray environment and equipment to ensure compliance with federal, state and local regulations, and for safety and cleanliness hazards.	HP-I
S.04	Select and use a 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	HP-I
S.05	Perform vehicle clean-up; complete quality control using a checklist on operations performed.	HP-I

**DUTY T: Surface Preparation (18 questions)**

CODE	TASK	P#
T.01	Inspect, remove, store, protect, and replace exterior trim and components necessary for proper surface preparation.	HP-I
T.02	Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants.	HP-I
T.03	Inspect and identify type of finish, surface condition, and film thickness; develop and document a plan for refinishing using a total product system.	HP-I
T.04	Remove paint finish as needed.	HP-I
T.05	Properly sand areas to be refinished.	HP-I
T.06	Identify and select appropriate sandpaper to featheredge areas to be refinished.	HP-I
T.07	Apply suitable metal treatment or primer in accordance with total product systems.	HP-I
T.08	Mask and protect other areas that will not be refinished.	HP-I
T.09	Demonstrate different masking techniques (recess/back masking, foam door type, etc.).	HP-I
T.10	Mix primer, primer-surfacer and primer-sealer following paint manufacturers technical data sheet instructions.	HP-I
T.11	Identify a complimentary color or shade of undercoat to improve coverage.	HP-G
T.12	Apply primer onto surface of repaired area; demonstrating control of primer application by keeping the areas small as possible.	HP-I
T.13	Apply two-component finishing filler to minor surface imperfections.	HP-I
T.14	Guide coat and block sand area with correct grade/grit sandpaper to which primer-surfacer has been applied.	HP-I
T.15	Dry sand area to which two-component finishing filler has been applied.	HP-I
T.16	Remove dust from area to be refinished, including cracks or moldings of adjacent areas.	HP-I
T.17	Clean area to be refinished using a recommended final cleaning solution.	HP-I
T.18	Remove, with a tack rag, any dust or lint particles from the area to be refinished.	HP-I
T.19	Apply suitable primer sealer to the area being refinished.	HP-I

CODE	TASK	P#
T.20	Scuff sand to remove nibs or imperfections from a sealer.	HP-I
T.21	Apply stone chip resistant coating.	HP-G
T.22	Restore caulking and seam sealers to repaired areas and replacement panels as required.	HP-G
T.23	Prepare adjacent panels for blending using paint manufacturer's procedures.	HP-I
T.24	Identify the types of rigid, semi-rigid or flexible plastic parts to be refinished; determine the materials needed, preparation, and refinishing procedures.	HP-I
T.25	Identify metal parts to be refinished; determine the materials needed, preparation, and refinishing procedures.	HP-I
T.26	Identify chip resistant coatings and texture match.	HP-G
T.27	Identify caulking and seal sealers that may need replacement.	HP-G
T.28	Identify refinishing guidelines for stationary glass flange areas to be refinished.	HP-I

**DUTY U: Spray Gun and Related Equipment Operation (2 questions)**

CODE	TASK	P#
U.01	Inspect, clean, and determine condition of spray guns and related equipment (air hoses, regulators, air lines, air source, spray environment, and fillers).	HP-I
U.02	Select spray gun setup (fluid needle, nozzle, and cap) for product being applied.	HP-I
U.03	Test and adjust spray gun using fluid, air and pattern control valves.	HP-I
U.04	Demonstrate an understanding of the operation of pressure spray equipment.	HP-G

**DUTY V: Paint Mixing, Matching and Applying (10 questions)**

CODE	TASK	P#
V.01	Identify color code by manufacturer's vehicle information label.	HP-I
V.02	Shake, stir, reduce, catalyze/activate, and strain refinish materials.	HP-I
V.03	Apply finish using appropriate spray techniques (gun arc, angle, distance, travel speed, and spray pattern overlap) for the finish being applied.	HP-I
V.04	Apply selected product on test or let-down panel; check for color match, properly store and maintain a color catalog.	HP-I
V.05	Understand the application of single stage topcoats.	HP-G
V.06	Apply basecoat/clearcoat for panel blending, panel refinishing and cut-in's.	HP-I
V.07	Apply basecoat/clearcoat for overall refinishing.	HP-G
V.08	Remove nibs or imperfections from basecoat.	HP-I
V.09	Identify product expiration dates as applicable.	HP-I
V.10	Refinish plastic parts.	HP-I
V.11	Apply multi-stage coats for panel blending and overall refinishing.	HP-G
V.12	Identify and mix paint using a formula.	HP-I
V.13	Identify poor hiding colors; determine necessary action.	HP-G
V.14	Tint color using formula to achieve a blendable match.	HP-G
V.15	Identify alternative color formula to achieve a blendable match.	HP-I
V.16	Identify the materials equipment, and preparation differences between solvent and waterborne technologies.	HP-G

**DUTY W: Paint Defects – Causes and Cures (15 questions)**

CODE	TASK	P#
W.01	Identify blistering (raising of the paint surface, air entrapment); correct the cause(s) and the condition.	HP-G
W.02	Identify a dry spray appearance in the paint surface; correct the cause(s) and the condition.	HP-I
W.03	Identify the presence of fish-eyes (crater-like openings) in the finish; correct the cause(s) and the condition.	HP-I
W.04	Identify lifting; correct the cause(s) and the condition.	HP-G
W.05	Identify clouding (mottling and streaking in metallic finishes); correct the cause(s) and the condition.	HP-I
W.06	Identify orange peel; correct the cause(s) and the condition.	HP-I
W.07	Identify overspray; correct the cause(s) and the condition.	HP-I

CODE	TASK	P#
W.08	Identify solvent popping in freshly painted surface; correct the cause(s) and the condition.	HP-G
W.09	Identify sags and runs in paint surface; correct the cause(s) and the condition.	HP-I
W.10	Identify sanding marks or sandscratch swelling; correct the cause(s) and the condition.	HP-I
W.11	Identify contour mapping/edge mapping; correct the cause(s) and the condition.	HP-G
W.12	Identify color difference (off-shade); correct the cause(s) and the condition.	HP-G
W.13	Identify tape tracking; correct the cause(s) and the condition.	HP-G
W.14	Identify low gloss condition; correct the cause(s) and the condition.	HP-G
W.15	Identify poor adhesion; correct the cause(s) and the condition.	HP-G
W.16	Identify paint cracking (shrinking, splitting, crowsfeet or line-checking, micro-checking, etc.); correct the cause(s) and the condition.	HP-G
W.17	Identify corrosion; correct the cause(s) and the condition.	HP-G
W.18	Identify dirt or dust in the paint surface; correct the cause(s) and the condition.	HP-I
W.19	Identify water spotting; correct the cause(s) and the condition.	HP-G
W.20	Identify finish damage caused by bird droppings, tree sap, and other natural causes; correct the condition.	HP-G
W.21	Identify finish damage caused by airborne contaminants (acids, soot, rail dust, and other industrial-related causes); correct the condition.	HP-G
W.22	Identify die-back conditions (dulling of the paint film showing haziness); correct the cause(s) and the condition.	HP-G
W.23	Identify chalking (oxidation); correct the cause(s) and the condition.	HP-G
W.24	Identify bleed-through (staining); correct the cause(s) and the condition.	HP-G
W.25	Identify pinholing; correct the cause(s) and the condition.	HP-G
W.26	Identify buffing-related imperfections (swirl marks, wheel burns); correct the condition.	HP-I
W.27	Identify pigment flotation (color change through film build); correct the cause(s) and the condition.	HP-G

**DUTY X: Final Detail (7 questions)**

CODE	TASK	P#
X.01	Apply decals, transfers, tapes, stone guards, moldings, and emblems, etc.	HP-G
X.02	Sand, buff and polish fresh finish to remove defects and texture as required.	HP-I
X.03	Sand, buff and polish existing finish to recondition defects as required, match existing finish.	HP-I
X.04	Clean interior, exterior, and glass.	HP-I
X.05	Clean body openings (door jambs, gaps, and edges, etc.).	HP-I
X.06	Remove overspray.	HP-I
X.07	Perform vehicle clean-up; complete quality control using a checklist.	HP-I
X.08	Measure and record film thickness before and after buffing.	HP-I
X.09	Perform nib sanding to remove small imperfections as required.	HP-I



## 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 auto collision repair examinations.

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

## 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.







