

AUTOMOTIVE REFINISHING TECHNOLOGY (VIRTUAL)



PURPOSE

To evaluate each contestant's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of automotive refinishing technology.

First, download and review the General Regulations at: <http://updates.skillsusa.org>.

ELIGIBILITY

Open to active SkillsUSA members enrolled in programs with automotive refinishing technology as the occupational objective.

CLOTHING REQUIREMENT

Class D: Contest Specific — Blue Attire

- Official SkillsUSA light blue work shirt.
- Navy pants.
- Black, brown or tan leather work safety shoes (with protective toe cap).

Contest Clothing Notes (Apply ONLY to Virtual Competitions):

- Official SkillsUSA Competition Clothing recommended but NOT required.
- Contestant clothing options include the following:
 - Official Competition Clothing.
 - Trade Appropriate Clothing.
 - Professional Dress.
 - Business Casual.
- Clothing must meet industry safety standards.
- No identification of the contestant, school or state is allowed on clothing.
- No offensive, vulgar or inappropriate images or text are allowed on contestants clothing.
- No shorts or sleeveless shirts are allowed.
- Skirts must be at least knee-length.
- Proper Personal Protective Equipment (PPE) must be worn by contestant to meet

all state, local and school requirements due to COVID-19.

- Scoring deductions may only be given and/or disqualification of contestant if clothing safety standards are not met.

Note: Safety glasses with side shields or goggles (prescription glasses may be used only if they are equipped with side shields. If not, they must be covered with goggles).

These regulations refer to clothing items that are pictured and described at:

www.skillsusastore.org. If you have questions about clothing or other logo items, call 1-888-501-2183.

EQUIPMENT AND MATERIALS

Supplied by the contestant:

1. Computer with high-speed internet capability and camera to use applications such as Zoom, Teams, etc. The minimum recommended internet bandwidth speeds for joining Zoom meetings, accessing on-demand curriculum and other online operations is 2.0 Mbps up and down. You can test your current internet speeds by following this link: www.speedtest.net. Allow the page to load and click on GO.
2. A secondary camera(s) may be required to provide judges with the ability to view contestants from different angles. Additional camera requirements will be located on the SkillsUSA website at <http://updates.skillsusa.org>.
3. A contest Proctor will be required to be on site to assist judges. A local industry expert is preferred to serve as the Proctor and shall not be an individual that has been involved with the training of the contestant(s). The Proctor will serve as the onsite "hands and eyes" for the judges. Proctor will follow instructions from the judges for safety and operations related to the competition. Proctor may be asked by judges to perform several tasks such as operating a portable camera to show specific components or steps, measure parts, or any task that will provide judges with information needed to assist in accurate scoring of the contestant's work or presentation. However, the Proctor shall

not serve as a judge nor have any influence on contestant scores.

4. The contestant's instructor or advisor shall be on site to observe all competition activities to ensure a safe and healthy competition experience for all participants. That instructor or advisor will not be allowed to interact or interfere with the competitor unless a safety issue arises that requires interaction. Any other support or interaction between the contestant and the instructor/advisor will result in disqualification.
5. All competitors must create a one-page résumé and submit an electronic copy to the technical committee chair at least seven (7) days in advance of the competition. Failure to do so will result in a 10-point penalty. Instructions for submission of the electronic résumé copy will be provided on the SkillsUSA website at <http://updates.skillsusa.org>.

Note: Some or all of the items below may be provided by the technical committee but contestants should be prepared to provide them just in case the technical committee cannot provide them for the competition. Check the SkillsUSA website for updates at <http://updates.skillsusa.org>.

6. Various grits and styles of sandpaper
7. Clean-up thinner
8. Waterborne basecoats
9. Strainers
10. Reducer
11. Paint
12. UV Primer surface
13. Clear coats
14. DA sanders
15. Abrasive sanding pads
16. Sanding blocks
17. Paint panels
18. Necessary masking materials
19. Razor blades
20. Cleaning towels
21. Tack cloths
22. Painter's gloves
23. Waterborne cleaner
24. Sanding masks
25. Supplied air respirators
26. Safety glasses

27. Paint suits
28. Spray guns

Note: Your contest may also require a hard copy of your résumé as part of the actual contest. Check the Contest Guidelines and/or the updates page on the SkillsUSA website at <http://updates.skillsusa.org>.

SCOPE OF THE CONTEST

The contest will be consistent with the Collision Repair/Refinishing Technician Task list outlined in the guidelines published by the National Institute for Automotive Service Excellence (ASE) and the National Technicians Education Foundation (NATEF), www.natef.org. Contestants will demonstrate their ability to perform jobs of skills selected from the standards mentioned above as determined by the SkillsUSA Championships technical committee. Committee membership includes (but is not limited to): 3M Automotive Aftermarket Division, Akzo Nobel Coatings Inc., Axalta Performance Coatings, BC Marketing Inc., BASF, Collision Hub, Dan Am Air, LKQ Corp., National Institute for Automotive Service Excellence (ASE), PPG, WIN, Society of Collision Repair Specialist (SCRS), Saint-Gobain Norton, SATA Spray Equipment, Sherwin-Williams, State Farm Insurance Companies, New Pig & Carstar.

Knowledge Performance

The contest includes a written knowledge test given by ASE, which will consist of 50 questions covering the automotive refinishing areas that are identified in the NATEF Collision Repair/Refinishing Program Standards and the ASE Official Study Guide: Collision Repair/Refinish. The tests for the high school and college contestants will be comprised of surface preparation; spray gun operation and related equipment; paint mixing, matching, and applying; solving paint application problems; and finish defects, causes and cures and safety precautions.

Skill Performance

The contest includes a series of workstations, an interview process designed to assess skills in the following areas: spot repair, color tinting, featheredge, prime and block, paint id and masking. The overall appearance of the

finished product, speed and proper safety practices will be judged.

Note: “*” Denotes this material is covered on a separate written test prior to the official contest day.

Standards and Competencies

Note for Virtual Competitions: Contestants may not be required to perform all the standards and competencies listed in this section. However, contestants should be prepared to perform components in all areas. Prior to the competition, the technical committee may determine which standards and competencies contestants will be perform for the virtual contests. The technical committee will determine if additional information is needed for contestants prior to the competition. These changes will be posted on the SkillsUSA Championships contest update website at: <http://updates.skillsusa.org>.

Spot Repair

ART 1.0 — Prepare a panel surface for a basecoat blend in relationship to the tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE test)

- 1.1 Demonstrate proper safety procedures
- 1.2 Clean the entire area of panel being repaired; use appropriate cleaner to remove contaminants (we must use waterborne cleaner only due to fumes in the competition area)
- 1.3 Dry sand areas to be refinished.
- 1.4 Featheredge damaged areas to be refinished, sand remaining panel areas to no gloss.
- 1.5 Clean area to be refinished using a final cleaning solution
- 1.6 Remove dust from the area to be refinished, including cracks or moldings of adjacent areas
- 1.7 Remove, with a tack rag, any dust or lint particles from the area to be refinished

ART 2.0 — Prepare a panel surface for clearcoat application (full panel) in relationship to the tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE test)

- 2.1 Demonstrate proper safety procedures
- 2.2 Dry sand the areas to be refinished
- 2.3 Clean the area to be refinished using a final cleaning solution
- 2.4 Remove dust from area to be refinished, including cracks or moldings of adjacent areas
- 2.5 Remove, with a tack rag, any dust or lint particles from the area to be refinished

ART 3.0 — Prepare a panel surface for basecoat spot repair application in relationship to the tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE Test)

- 3.1 Demonstrate proper safety procedures
- 3.2 Remove, with a tack rag, any dust or lint particles from the area to be refinished
- 3.3 Apply clear blender if applicable to prevent metallic halo
- 3.4 Check and adjust spray gun operation
- 3.5 Apply finish using appropriate spray techniques (gun arc, gun angle, gun distance, gun speed and spray pattern overlap) for the finish being applied
- 3.6 Apply basecoat for panel blending or partial refinishing

ART 4.0 — Prepare a panel surface for full panel clearcoat application in relationship to the tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE Test)

- 4.1 Demonstrate proper safety procedures
- 4.2 Remove, with a tack rag, any dust or lint particles from the area to be refinished
- 4.3 Check and adjust spray gun operation
- 4.4 Apply clearcoat finish using appropriate spray techniques (gun arc, gun angle, gun distance, gun speed and spray pattern overlap of 75-90%) for the finish being applied

Color Tinting

ART 5.0 — Complete color assessment in relationship to the tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE Test)

- 5.1 Determine the type of mismatch problem encountered while evaluating the color sample
- 5.2 Determine adjustment that must be made to correct the hue/color, value/lightness or darkness, chroma/saturation/purity and flop

ART 6.0 — Surface cleaning application in relationship to tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing. (B2 ASE Test)

- 6.1 Clean entire panel; use appropriate cleaner to remove contaminants
- 6.2 Apply surface cleaner to remove contaminants

ART 7.0 — Repair damaged area in preparation for primers in relationship to tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE Test)

- 7.1 Sand area using dual action sander
- 7.2 Sand areas to show appropriate removal of material for good featheredge technique
- 7.3 Sand beyond the repair area for adhesion of primer

ART 8.0 — Apply UV primers application in relationship to tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE Test)

- 8.1 Apply UV primer surfacer onto surface of repaired area
- 8.2 Check and adjust spray gun operation
- 8.3 Apply finish using appropriate spray techniques (gun arc, gun angle, gun distance, gun speed and spray pattern overlap) for the finish being applied

- 8.4 Use UV light to dry according to material manufacturer recommendations

ART 9.0 — Perform proper block sanding techniques and final sand for basecoat application in relationship to tasks in the National Automotive Technicians Education

- 9.1 Dry sand the area to which two-component finishing filler has been applied
- 9.2 Dry sand the area to which UV primer-surface has been applied
- 9.3 Block the sand area to achieve levelness of repaired area

Paint Code ID and Masking

ART 10.0 — Locate and document vehicle manufacturers' paint code application in relationship to tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE Test)

- 10.1 Determine the type and color of paint already on the vehicle by manufacturer's vehicle information label
- 10.2 Identify the code using paint manufacture manuals and or computer to determine paint code location

ART 11.0 — Select the correct variant application if applicable in relationship to tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE Test)

- 11.1 Identify variant swatches/chips
- 11.2 Match variant to vehicle using color-corrected lighting
- 11.3 Identify variant that will produce the best possible blend

ART 12.0 — Appropriate masking techniques for refinishing fender and blending into adjacent panel (front door) application in relationship to tasks in the National Automotive Technicians Education Foundation (NATEF) Collision Repair and Refinishing Technical Standards for Painting and Refinishing (B2 ASE Test)

- 12.1 Mask and protect adjacent panels that will not be refinished
- 12.2 Mask door jambs and other aperture panels

Note: * Denotes this material is covered on a separate written test prior to the official contest day

ART 13.0 — Oral Assessment/Interview*

- 13.1 Exhibit personal skills such as attendance, time management and individual responsibility*
- 13.2 Demonstrate promptness when required to meet interviewer at specific time and location*

ART 14.0 — Maintain professional conduct*

- 14.1 Demonstrate courteous behavior while waiting for the interviewer*

ART 15.0 — Maintain professional appearance*

- 15.1 Demonstrate proper attire (SkillsUSA uniform — light blue shirt, dark blue pants)*

ART 16.0 — Complete job application and résumé *

- 16.1 Properly and legibly complete a job application

ART 17.0 — Demonstrate interview skills*

ASE Written Test

ART 18.0 — Contestants will be required to take a 50-question multiple-choice test prior to the official contest. A 100-point scale is used for this segment. Participants will be expected to successfully complete this segment. Participants should have some basic knowledge in math and science.

- 18.1 Contestants will take a 50-question multiple-choice test in the area of Painting and Refinishing
 - 18.1.1 Contestants will answer 50 questions in the area of painting and refinishing in the content areas of: surface preparation, spray gun operation and related equipment, paint mixing, matching and applying, solving paint application problems, finish defects, causes and cures and safety precautions and miscellaneous

This information is obtained through the National Institute for Automotive Service Excellence Painting and Refinishing (B2) Certification Test.

Committee Identified Academic Skills

The technical committee has identified that the following academic skills are embedded in this contest.

Math Skills

- Use fractions to solve practical problems.
- Use proportions and ratios to solve practical problems.
- Solve practical problems involving percentages.
- Make predictions using knowledge of probability.
- Make comparisons, predictions and inferences using graphs and charts.
- Solve problems using proportions, formulas and functions.
- Solve practical problems involving complementary, supplementary and congruent angles.
- Calculate percentages.

Science Skills

- Plan and conduct a scientific investigation.
- Describe and recognize elements, compounds, mixtures, acids, bases and salts.
- Describe and recognize solids, liquids and gases.
- Describe characteristics of types of matter based on physical and chemical properties.
- Use knowledge of physical properties (shape, density, solubility, odor, melting point, boiling point, color).
- Use knowledge of chemical properties (acidity, basicity, combustibility, reactivity).
- Use knowledge of classification of elements as metals, metalloids and nonmetals.
- Describe and demonstrate simple compounds (formulas and the nature of bonding).
- Use knowledge of temperature scales, heat and heat transfer.
- Use knowledge of the nature and technological applications of light.
- Use knowledge of work, force, mechanical advantage, efficiency and power.

- Use knowledge of simple machines, compound machines, powered vehicles, rockets and restraining devices.

Language Arts Skills

- Provide information in conversations and in group discussions.
- Provide information in oral presentations.
- Demonstrate use of such verbal communication skills as word choice, pitch, feeling, tone and voice.
- Demonstrate use of such nonverbal communication skills as eye contact, posture and gestures using interviewing techniques to gain information.
- Demonstrate comprehension of a variety of informational texts.
- Use text structures to aid comprehension
- Organize and synthesize information for use in written and oral presentations.
- Demonstrate knowledge of appropriate reference materials.
- Use print, electronic databases and online resources to access information in books and articles.
- Edit writing for correct grammar, capitalization, punctuation, spelling, sentence structure and paragraphing.

Connections to National Standards

State-level academic curriculum specialists identified the following connections to national academic standards.

Math Standards

- Problem-solving.
- Numbers and operations.
- Measurement.
- Geometry.
- Representation.
- Communication.
- Connections.

Source: NCTM Principles and Standards for School Mathematics. For more information, visit: <http://www.nctm.org>.

Science Standards

- Understands the structure and properties of matter.
- Understands the sources and properties of energy.

- Understands forces and motion.
- Understands the nature of scientific inquiry.

Source: McREL Compendium of National Science Standards. To view and search the compendium, visit: <http://www2.mcrel.org/compendium/browse.asp>.

Language Arts Standards

- Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context and graphics).
- Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Source: IRA/NCTE Standards for the English Language Arts. To view the standards, visit: www.ncte.org/standards.