

Standards/Measurement Criteria

Automotive Technologies

Automotive Collision Repair - Option B

CIP No. 47.0600

*This indicates the “technical skill standards” for this program that will be assessed on the end-of-program Automotive Technologies standards assessment. It is expected that all program standards are taught and locally assessed. The remaining employability and foundation standards will be updated and state assessments developed at a future date.

1.0 CONDUCT A CAREER SURVEY FOR AUTOMOTIVE TECHNOLOGIES

- 1.1 Identify work activities associated with career pathways in automotive technology
- 1.2 Relate interests, skills and personal orientation to career choices
- 1.3 Explain how personal choices affect career plans
- 1.4 Develop a portfolio of career opportunity information

2.0 DEVELOP JOB SEARCH SKILLS TO OBTAIN A JOB IN THE AUTOMOTIVE INDUSTRY

- 2.1 Explain the steps in a job search
- 2.2 Identify employment opportunities
- 2.3 Critique a job application

3.0 PRACTICE EMPLOYABILITY SKILLS FOR THE AUTOMOTIVE INDUSTRY

- 3.1 Apply basic oral and written communication skills
- 3.2 Contribute to a team effort
- 3.3 Conform to a personal/professional code of ethic

4.0 SUCCESSFUL EMPLOYMENT IN THE AUTOMOTIVE INDUSTRY

- 4.1 Demonstrate regular attendance and punctual arrival
- 4.2 Exhibit appropriate dress and grooming for employment in the automotive industry
- 4.3 Understand the importance of enthusiasm and confidence about work and learning new tasks
- 4.4 Plan and organize appropriate resources
- 4.5 Understand the importance of completing tasks accurately
- 4.6 Follow directions and procedures
- 4.7 Give and receive constructive feedback when appropriate
- 4.8 Develop skills to work with minimal supervision
- 4.9 Develop productive, collaborative relationships with members of a work group

5.0 PARTICIPATE IN LEADERSHIP ACTIVITIES SUCH AS THOSE SUPPORTED BY THE CAREER AND TECHNICAL STUDENT ORGANIZATION SkillsUSA

- 5.1 Determine the roles and responsibilities that leaders and members bring to an organization
- 5.2 Identify characteristics of an effective team player
- 5.3 Identify characteristics of effective teams
- 5.4 Practice techniques to involve each member of the team
- 5.5 Demonstrate team work
- 5.6 Practice effective meeting management
- 5.7 Participate in career development events
- 5.8 Practice decision-making process

6.0 EXPLORE THE LEGAL AND ETHICAL ENVIRONMENT OF THE AUTOMOTIVE INDUSTRY

- 6.1 Explain legal responsibilities of employees to comply with government laws and regulations
- 6.2 Define ethics in the business environment
- 6.3 Investigate the ethical behaviors employers expect of employees
- 6.4 Examine alternative responses to workplace situations based on personal, professional, and legal responsibilities
- 6.5 Examine workplace issues including safety, drug testing, harassment, discrimination, privacy rights, etc.
- 6.6 Examine the relationship between ethics and the law

7.0 EXPLORE ECONOMIC PRINCIPLES OF THE AUTOMOTIVE TECHNOLOGY INDUSTRY

- 7.1 Define the five management functions: planning, organizing, directing, staffing, and controlling
- 7.2 Compare management styles, including the styles related to cultural differences
- 7.3 Describe the effects of group dynamics on group decision-making and consensus building
- 7.4 Describe how global competition from auto manufacturers affects automotive technology and business in the United States

8.0 DEVELOP TECHNOLOGICAL LITERACY TO SUPPORT AUTOMOTIVE TECHNOLOGY OPERATIONS

- 8.1 Demonstrate basic usage of computers (input, storage, output)
- 8.2 Access automotive information electronically (via Internet, CD-ROM, etc.)
- 8.3 Demonstrate the use of basic Input/Output devices such as keyboards, scanners, printers and peripherals
- 8.4 Apply file and disk management techniques

9.0 APPLY PROBLEM SOLVING AND DECISION MAKING PROCESSES TO AUTOMOTIVE TECHNOLOGY

- 9.1 Apply problem-solving processes
- 9.2 Describe methods of establishing priorities
- 9.3 Prepare a plan of work and schedule
- 9.4 Apply strategy based diagnostics to solve common problems

10.0 APPLY MATHEMATICAL PROCESSES TO PROBLEMS IN AUTOMOTIVE TECHNOLOGY

- 10.1 Express problems in automotive technology using numeric, symbolic and/or graphic representations
- 10.2 Perform mathematical calculations in the context of automotive technology problems
- 10.3 Use technology in the solution of math-related problems

11.0 APPLY MEASUREMENT TECHNIQUES TO PROBLEMS IN AUTOMOTIVE TECHNOLOGY

- 11.1 Demonstrate knowledge of metric and English units of measurement
- 11.2 Identify common measurement tools used in automotive technology and their functions
- 11.3 Determine degree of accuracy required for a measurement task and select appropriate measurement equipment

12.0 PRACTICE SAFE WORKING PROCEDURES FOR THE AUTOMOTIVE INDUSTRY

- 12.1 Identify responsibilities of professionals in automotive technology in creating/maintaining a safe work environment
- 12.2 Explain appropriate safety precautions around common job-site hazards
- 12.3 Identify and use personal protective equipment when performing tasks
- 12.4 Explain the importance of the OSHA (Occupational Safety and Health Administration) standards, HazCom (Hazard Communication Standard) requirements and MSDS (Material Safety Data Sheets)
- 12.5 Describe safety and environmental policies and procedures

13.0 PRACTICE SAFE USE OF TOOLS AND EQUIPMENT IN AUTOMOTIVE TECHNOLOGY

- 13.1 Identify and demonstrate safe use of basic hand tools in automotive technology
- 13.2 Identify and demonstrate safe use of power tools and equipment in automotive technology
- 13.3 Practice basic procedures for safe storage and upkeep of tools
- 13.4 Identify shop equipment and use it safely

14.0 EXPLORE ELECTRICAL/ELECTRONICS TECHNOLOGY

- 14.1 Investigate the use of electronics in the automotive industry (communications, micro-technology, etc.)
- 14.2 Identify electrical/electronic components
- 14.3 Express the scientific laws related to electricity
- 14.4 Explore the functions and applications of basic electrical components (e.g., solenoid, switch, light circuit)
- 14.5 Build a simple electrical/electronic circuit with components that simulate a typical automotive circuit
- 14.6 Identify electrical symbols on an automotive wiring diagram and trace the flow of electricity through a basic circuit
- 14.7 Explain and measure voltage and resistance, and demonstrate voltage drop measurement

15.0 EXPLORE METHODS OF ENERGY APPLICATIONS

- 15.1 Explain how energy is converted to useful purposes and applied in the automotive industry
- 15.2 Investigate hydraulic power system(s)
- 15.3 Investigate mechanical power system(s)
- 15.4 Investigate alternative energy production and use

16.0 EXPLORE AUTOMOTIVE TECHNOLOGY

- 16.1 Discuss environmental issues and trends in the automotive industry
- 16.2 Examine the operation of powertrain system(s)
- 16.3 Examine the operation of suspension system(s)
- 16.4 Examine the operation of braking system(s)
- 16.5 Examine the operation of the computerized emission, body and powertrain management systems
- 16.6 Examine the operation of the exhaust system
- 16.7 Examine the operation of the electrical system
- 16.8 Perform threading and thread restoration operations
- 16.9 Perform operational checks on a vehicle
- 16.10 Examine tire technology and basic service procedures for tires
- 16.11 Demonstrate preventative maintenance procedures on a vehicle
- 16.12 Describe the basic parts and operating principles of the internal combustion engine
- 16.13 Identify common automotive fasteners (name, thread pitch, and diameter)

17.0 DEVELOP AN INDIVIDUAL CAREER PLAN FOR THE AUTOMOTIVE INDUSTRY

- 17.1 Investigate career options including entrepreneurship in the automotive field
- 17.2 Develop career goals in the automotive field based on interests, aptitudes, and research
- 17.3 Review/revise career plan/goals on annual basis
- 17.4 Manage personal and career goals
- 17.5 Describe factors that contribute to job satisfaction and success in the automotive industry.

18.0 PREPARE FOR EMPLOYMENT IN THE AUTOMOTIVE INDUSTRY

- 18.1 Develop a résumé
- 18.2 Complete job application process
- 18.3 Demonstrate interviewing skills
- 18.4 Research an automotive organization as a potential employee

19.0 PARTICIPATE IN WORK-BASED LEARNING EXPERIENCES IN THE AUTOMOTIVE TECHNOLOGY INDUSTRY

- 19.1 Use technology appropriate for the job
- 19.2 Demonstrate positive work behaviors
- 19.3 Demonstrate positive interpersonal behaviors
- 19.4 Demonstrate safe and healthy work behaviors in the automotive technology environment
- 19.5 Analyze the relationship of customer service and customer satisfaction on the success of an automotive business
- 19.6 Manage customer relations in the automotive field

20.0 DEMONSTRATE ORAL COMMUNICATION SKILLS FOR THE AUTOMOTIVE INDUSTRY

- 20.1 Use questioning techniques to obtain needed information from customers
- 20.2 Interpret oral and non-verbal communications of audience
- 20.3 Demonstrate active listening during communications with automotive customers and coworkers.
- 20.4 Deliver automotive related presentation incorporating both appropriate verbal and non-verbal communication techniques
- 20.5 Communicate using equitable and culturally sensitive language for a diverse audience
- 20.6 Demonstrate effective telephone technique

21.0 DEMONSTRATE WRITTEN COMMUNICATION SKILLS FOR THE AUTOMOTIVE INDUSTRY

- 21.1 Conduct formal/informal research to collect appropriate topical information
- 21.2 Organize information and develop an outline
- 21.3 Write automotive business communication using appropriate format for the situation
- 21.4 Using appropriate technology, prepare a draft document using established rules for grammar, spelling and sentence construction
- 21.5 Utilize multiple technologies for written and presentation communications

22.0 EVALUATE THE ROLE OF SMALL AUTOMOTIVE BUSINESSES IN THE ECONOMY

- 22.1 Evaluate the role of small automotive businesses on local, state, national and international economies
- 22.2 Evaluate a business plan for an automotive operation

23.0 EVALUATE LEADERSHIP STYLES APPROPRIATE FOR THE AUTOMOTIVE INDUSTRY

- 23.1 Determine personal characteristics of effective leaders in the automotive industry
- 23.2 Compare/contrast leadership and management styles in the automotive industry
- 23.3 Describe how cultural/ethnic differences affect leadership styles within a group in the automotive industry
- 23.4 Describe how cultural/ethnic differences affect interpersonal interactions/communications within a group in the automotive industry

24.0 DETERMINE APPROPRIATE TOOL CARE AND DEFINE A SAFE AUTOMOTIVE TECHNOLOGY WORK ENVIRONMENT

- 24.1 Identify visual controls (e.g., monitors, read outs)
- 24.2 Apply applicable electrical, mechanical, hydraulic, hazardous waste and pneumatic safety rules and procedures
- 24.3 Use preventative maintenance checklists
- 24.4 Practice clean and orderly work habits
- 24.5 Identify and use appropriate hand tools
- 24.6 Perform lockout and tag out

25.0 PROCESS WORK ORDERS FOR AUTOMOTIVE SERVICE AND/OR REPAIR

- 25.1 Interpret specifications or drawings
- 25.2 Record accurate and truthful data
- 25.3 Demonstrate record keeping on work order and job ticket with estimated time and cost for jobs, and order parts
- 25.4 Obtain appropriate repair information from service information
- 25.5 Interpret a written work order and determine appropriate order for task performance

26.0 PARTICIPATE IN LEADERSHIP ACTIVITIES SUCH AS THOSE SUPPORTED BY CAREER AND TECHNICAL STUDENT ORGANIZATION SkillsUSA

- 26.1 Determine the roles and responsibilities that leaders and members bring to an organization
- 26.2 Identify characteristics of an effective team player
- 26.3 Identify characteristics of effective teams
- 26.4 Practice techniques to involve each member of the team
- 26.5 Demonstrate team work
- 26.6 Practice effective meeting management
- 26.7 Participate in career development events
- 26.8 Practice decision-making process

The measurement criteria attached to the following standards represent the National Automotive Technicians Education Foundation (NATEF) Task List Priority Items. These tasks (measurement criteria) will need to be taught to your students in order for them to successfully pass the **two** Automotive Service Excellence (ASE) tests.” For additional information, go to the website: www.natef.org.

***27.B PERFORM NON-STRUCTURAL ANALYSIS AND DAMAGE REPAIR (BODY COMPONENTS)**

(Preparation)

- 27.1b Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan. HP-I
- 27.2b Inspect, remove, store, and replace exterior trim and moldings. HP-I
- 27.3b Inspect, remove, store, and replace interior trim and components. HP-I
- 27.4b Inspect, remove, store, and replace non-structural body panels and components that may interfere with or be damaged during repair. HP-I
- 27.5b Inspect, remove, store, and replace all vehicle mechanical and electrical components that may interfere with or be damaged during repair. HP-G
- 27.6b Protect panels, glass, and parts adjacent to the repair area. HP-I
- 27.7b Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants from those areas to be repaired. HP-I
- 27.8b Remove corrosion protection, undercoatings, sealers, and other protective coatings necessary to perform repairs. HP-I
- 27.9b Inspect, remove, and replace repairable plastics and other components that are recommended for off-vehicle repair. HP-G
- 27.10b Apply safety procedures associated with vehicle components and systems according to manufacturers specifications/procedures. HP-G
- 27.11b Apply environmental practices associated with vehicle components and systems such as substrates, fluids, refrigerants, batteries, etc. HP-I

(Outer Body Panel Repairs, Replacements, and Adjustments)

- 27.12b Determine the extent of direct and indirect damage and direction of impact; develop and document a repair plan. HP-I
- 27.13b Inspect, remove and replace bolted, bonded, and welded steel panel or panel assemblies. HP-I
- 27.14b Determine the extent of damage to aluminum body panels; repair or replace in accordance with manufacturer’s specifications. HP-G
- 27.15b Inspect, remove, replace, and align hood, hood hinges, and hood latch. HP-I
- 27.16b Inspect, remove, replace, and align deck lid, lid hinges, and lid latch. HP-I
- 27.17b Inspect, remove, replace, and align doors, tailgates, hatches, lift gates, latches, hinges, and related hardware. HP-I
- 27.18b Inspect, remove, replace, and align bumper bars, covers, reinforcement, guards, isolators, and mounting hardware. HP-I

27.19b Inspect, remove, replace and align front fenders, headers, and other panels.
HP-I

27.20b Straighten and rough-out contours of damaged panels to a suitable condition for body filling or metal finishing using power tools, hand tools, and weld-on pull attachments. HP-I

27.21b Weld damaged or torn steel body panels; repair broken welds. HP-I

27.22b Restore corrosion protection. Caulking/Seam Sealing. HP-I

27.23b Replace door skins according to manufacturer's procedures. HP-G

27.24b Restore sound deadeners and foam materials. HP-G

27.25b Perform panel bonding according to manufacturer's specifications. HP-G

27.26b Diagnose and repair water leaks, dust leaks, and wind noise. HP-G

(Metal Finishing and Body Filling)

27.27b Remove paint from the damaged area of a body panel. HP-I

27.28b Locate and reduce surface irregularities on a damaged body panel. HP-I

27.29b Demonstrate hammer and dolly techniques. HP-I

27.30b Heat shrink stretched panel areas to proper contour according to manufacturer's specifications. HP-G

27.31b Cold shrink stretched panel areas to proper contour. HP-G

27.32b Mix body filler. HP-I

27.33b Apply body filler; shape during curing. HP-I

27.34b Rough sand cured body filler to contour; finish sand. HP-I

(Moveable Glass and Hardware)

27.35b Inspect, adjust, repair or replace window regulators, run channels, glass, power mechanisms, and related controls. HP-G

27.36b Diagnose and repair water leaks, dust leaks, and wind noises; inspect, repair, and replace weather-stripping. HP-G

27.37b Inspect, repair or replace, and adjust removable, manually or power operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs. HP-G

27.38b Inspect, remove, reinstall, and align convertible top and related mechanisms. HP-G

(Metal Welding and Cutting)

27.39b Identify weldable and non-weldable materials used in collision repair.
HP-I

27.40b Weld and cut high-strength steel and other steels using manufacturer's specifications/procedures. HP-I

27.41b Weld and cut aluminum using manufacturer's specifications/procedures.
HP-G

27.42b Determine the correct welder type, electrode, wire type, diameter, and gas to be used in a specific welding situation. HP-I

- 27.43b 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 material being welded. HP-I
- 27.44b Store, handle, and install high-pressure gas cylinders. HP-I
- 27.45b Determine work clamp (ground) location and attach. HP-I
- 27.46b 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. HP-I
- 27.47b Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations. HP-I
- 27.48b Protect computers and other electronic control modules during welding procedures according to manufacturer’s specifications. HP-I
- 27.49b Clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, and clamp as required. HP-I
- 27.50b Determine the joint type (butt weld with backing, lap, etc.) for weld being made according to manufacturer’s/industry specifications. HP-I
- 27.51b Determine the type of weld (continuous, butt weld with backing, plug, etc.) for each specific welding operation according to manufacturer’s/industry specifications. HP-I
- 27.52b Perform the following welds: continuous, stitch, tack, plug, butt weld with and without backing, and lap joints. HP-I
- 27.53b Perform visual and tests on each weld type. HP-I
- 27.54b Identify the causes of various welding defects; make necessary adjustments. HP-I
- 27.55b Identify cause of contact tip burn-back and failure of wire to feed; make necessary adjustments. HP-I
- 27.56b Identify cutting process for different materials and locations in accordance with manufacturer’s procedures; perform cutting operation. HP-G
- (Plastics and Adhesives)**
- 27.57b Identify the types of plastics; determine repairability. HP-I
- 27.58b Identify the types of plastics repair procedures; clean and prepare the surface of plastic parts. HP-I
- 27.59b Replace or repair rigid, semi-rigid, and flexible plastic panels according to manufacturer’s/industry specifications. HP-G
- 27.60b Remove or repair damaged areas from rigid exterior sheet-molded compound (SMC) panels. HP-G
- 27.61b Replace bonded sheet-molded compound (SMC) body panels; straighten or align panel supports. HP-G

***28.B PERFORM PAINTING AND REFINISHING OF VEHICLES**

(Safety Precautions)

- 28.1b Identify and take necessary precautions with hazardous operations and materials according to federal, state, and local regulations. HP-I
- 28.2b Identify safety and personal health hazards according to OSHA guidelines and the “Right to Know Law”. HP-I
- 28.3b Inspect spray environment to ensure compliance with federal, state and local regulations, and for safety and cleanliness hazards. HP-I
- 28.4b Select and use the NIOSH approved personal sanding respirator. Inspect condition and ensure fit and operation. Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation. HP-I
- 28.5b Select and use the NIOSH approved (Fresh Air Make-up System) personal painting/refinishing respirator system. Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation. HP-I
- 28.6b 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.). HP-I
- 28.7b Lifting, raising, and supporting vehicles.
- 28.8b Disable and disarm airbags (SRS).

(Surface Preparation)

- 28.9b Inspect, remove, store, and replace exterior trim and components necessary for proper surface preparation. HP-I
- 28.10b Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants. HP-I
- 28.11b Inspect and identify substrate, type of finish and surface condition; develop and document a plan for refinishing using a total product system. HP-I
- 28.12b Remove paint finish in accordance with manufacturer’s recommendations. HP-I
- 28.13b Dry or wet sand areas to be refinished. HP-I
- 28.14b Featheredged damaged areas to be refinished. HP-I
- 28.15b Apply suitable metal treatment or primer in accordance with total product systems. HP-I
- 28.16b Mask and protect other areas that will not be refinished. HP-I
- 28.17b Mix primer, primer-surfacer or primer-sealer. HP-I
- 28.18b Apply primer onto surface of repaired area. HP-I
- 28.19b Apply two-component finishing filler to minor surface imperfections. HP-I
- 28.20b Dry or wet sand area to which primer-surfacer has been applied. HP-I
- 28.21b Dry sand area to which two-component finishing filler has been applied. HP-I
- 28.22b Remove dust from area to be refinished, including cracks or moldings of adjacent areas. HP-I

- 28.23b Clean area to be refinished using a final cleaning solution. HP-I
- 28.24b Remove, with a tack rag, any dust or lint particles from the area to be refinished. HP-I
- 28.25b Apply suitable sealer to the area being refinished when sealing is needed or desirable. HP-I
- 28.26b Scuff sand to remove nibs or imperfections from a sealer. HP-I
- 28.27b Apply stone chip resistant coating. HP-I
- 28.28b Restore sprayable corrosion-resistant coatings, to repaired areas. HP-I
- 28.29b Prepare adjacent panels for blending. HP-I
- 28.30b Prepare plastic panels for refinishing. HP-I
- (Spray Gun and Related Equipment Operation)**
- 28.31b Inspect, clean, and determine condition of spray guns and related equipment (air hoses, regulators, air lines, air source, and spray environment). HP-I
- 28.32b Check and adjust spray gun operation for HVLP (high volume, low pressure) or LVLP (low volume, low pressure) guns. HP-I
- 28.33b Set-up (fluid needle, nozzle, and cap), adjust, and test spray gun using fluid, air, and pattern control valves. HP-I
- (Paint Mixing, Matching, and Applying)**
- 28.34b Determine type and color of paint already on vehicle by manufacturer's vehicle information label. HP-I
- 28.35b Shake, stir, reduce, catalyze/activate, and strain paint according to manufacturer's procedures. HP-I
- 28.36b Apply finish using appropriate spray techniques (gun arc, gun angle, gun distance, gun speed, and spray pattern overlap) for the finish being applied. HP-I
- 28.37b Apply selected product on test and let-down panel in accordance with manufacturer's recommendations; check for color match. HP-I
- 28.38b Apply single stage topcoat for refinishing. HP-I
- 28.39b Apply basecoat/clearcoat for panel blending or partial refinishing. HP-I
- 28.40b Apply basecoat/clearcoat for overall refinishing. HP-G
- 28.41b Denib, buff, and polish finishes where necessary. HP-I
- 28.42b Identify the types of rigid, semi-rigid or flexible plastic parts to be refinished; determine the materials, preparation, and refinishing procedures. HP-I
- 28.43b Refinish rigid, semi-rigid and flexible plastic parts. HP-G
- 28.44b Apply multi-stage (tricoat) coats for panel blending or overall refinishing. HP-G
- 28.45b Identify and mix paint using a formula. HP-G
- 28.46b Identify poor hiding colors; determine necessary action. HP-G
- 28.47b Tint color using formula to achieve a blendable match. HP-G

- 28.48b Identify alternative color formula to achieve a blendable match. HP-G
(Paint Defects - Causes and Cures)
- 28.49b Identify blistering (raising of the paint surface); determine the cause(s) and correct the condition. HP-G
- 28.50b Identify blushing (milky or hazy formation); determine the cause(s) and correct the condition. HP-G
- 28.51b Identify a dry spray appearance in the paint surface; determine the cause(s) and correct the condition. HP-G
- 28.52b Identify the presence of fish-eyes (crater-like openings) in the finish; determine the cause(s) and correct the condition. HP-G
- 28.53b Identify lifting; determine the cause(s) and correct the condition. HP-G
- 28.54b Identify clouding (mottling and streaking in metallic finishes); determine the cause(s) and correct the condition. HP-G
- 28.55b Identify orange peel; determine the cause(s) and correct the condition. HP-G
- 28.56b Identify overspray on adjacent panels; determine the cause(s) and correct the condition. HP-G
- 28.57b Identify solvent popping in freshly painted surface; determine the cause(s) and correct the condition. HP-G
- 28.58b Identify sags and runs in paint surface; determine the cause(s) and correct the condition. HP-G
- 28.59b Identify sanding marks (sandscratch swelling); determine the cause(s) and correct the condition. HP-G
- 28.60b Identify contour mapping (shrinking and splitting) while finish is drying; determine the cause(s) and correct the condition. HP-G
- 28.61b Identify color difference (off-shade); determine the cause(s) and correct the condition. HP-G
- 28.62b Identify tape tracking; determine the cause(s) and correct the condition. HP-G
- 28.63b Identify low gloss condition; determine the cause(s) and correct the condition. HP-G
- 28.64b Identify poor adhesion; determine the cause(s) and correct the condition. HP-G
- 28.65b Identify paint cracking (crowsfeet or line-checking, micro-checking, etc.); determine the cause(s) and correct the condition. HP-G
- 28.66b Identify corrosion; determine the cause(s) and correct the condition. HP-G
- 28.67b Identify dirt or dust in the paint surface; determine the cause(s) and correct the condition. HP-I
- 28.68b Identify water spotting; determine the cause(s) and correct the condition. HP-G
- 28.69b Identify finish damage caused by bird droppings, tree sap, and other natural causes; correct the condition. HP-G
- 28.70b Identify finish damage caused by airborne contaminants (acids, soot, and other industrial-related causes); correct the condition. HP-G

- 28.71b Identify die-back conditions (dulling of the paint film showing haziness); determine the cause(s) and correct the condition. HP-G
- 28.72b Identify chalking (oxidation); determine the cause(s) and correct the condition. HP-G
- 28.73b Identify bleed-through (staining); determine the cause(s) and correct the condition. HP-G
- 28.74b Identify pin-holing; determine the cause(s) and correct the condition. HP-G
- 28.75b Identify buffing-related imperfections (swirl marks, wheel burns); correct the condition. HP-I
- 28.76b Identify pigment floatation (color change through film build); determine the cause(s) and correct the condition. HP-G
- 28.77b Measure mil thickness. HP-I
- (Final Detail)**
- 28.78b Apply decals, transfers, tapes, woodgrains, pinstripes (painted and taped), etc. HP-G
- 28.79b Buff and polish finish to remove defects as required. HP-I
- 28.80b Clean interior, exterior, and glass. HP-I
- 28.81b Clean body openings (door jambs & edges, etc.). HP-I
- 28.82b Remove overspray. HP-I