

# Instructional Framework

## Automotive Collision Repair

47.0600.30



This Instructional Framework identifies, explains, and expands the content of the standards/measurement criteria, and, as well, guides the development of multiple-choice items for the Technical Skills Assessment. This document corresponds with the Technical Standards endorsed in July 2021.

### Domain 1: Non-Structural Analysis and Repairs

Instructional Time: 25 - 35%

#### STANDARD 1.0 PERFORM NON-STRUCTURAL ANALYSIS AND DAMAGE REPAIR

1.1 Use proper personal safety equipment and take necessary precautions with hazardous operations and materials in accordance with federal, state, and local regulations	<ul style="list-style-type: none"><li>• Safety</li><li>• PPE Instruction</li></ul>
1.2 Use OEM (Original Equipment Manufacturer/Manufacturing) procedures to identify material and composition of the vehicle being repaired (i.e., mid steel, high strength steel, ultra-high strength steel, aluminum, composites, carbon fiber, etc.)	<ul style="list-style-type: none"><li>• OEM Procedures<ul style="list-style-type: none"><li>○ Mid steel</li><li>○ High strength steel</li><li>○ Ultra-high strength steel</li><li>○ Aluminum</li><li>○ Composites</li><li>○ Carbon fiber</li></ul></li></ul>
1.3 Use procedures and precautions that apply to the vehicle being repaired	<ul style="list-style-type: none"><li>• Safety</li><li>• Hybrid/electric/alternate fuel safety protocols</li></ul>
1.4 Identify vehicle system precautions and/or inspections and recommended procedure before inspecting or replacing components [i.e., supplemental restraint system (SRS), advanced driver assistance systems (ADAS), hybrid/electric/alternative fuel vehicles, locations, etc.]	<ul style="list-style-type: none"><li>• Vehicle system precautions and/or inspections<ul style="list-style-type: none"><li>○ Supplemental restraint system (SRS)</li><li>○ Advanced driver assistance systems (ADAS)</li><li>○ Hybrid/electric/alternative fuel vehicles, locations, etc.</li></ul></li></ul>
1.5 Perform vehicle clean-up; complete quality control using a checklist on operations performed (e.g., review estimate and develop a repair plan; secure and store any items in the repair area; remove necessary trim and panels for repair, and bag and tag hardware; vacuum glass from doors, quarters, and floors; and wipe clean any materials on panels and interior parts)	<ul style="list-style-type: none"><li>• Review estimate and develop a repair plan</li><li>• Secure and store any items in the repair area</li><li>• Remove necessary trim and panels for repair, and bag and tag hardware</li><li>• Vacuum glass from doors, quarters, and floors</li></ul>

	<ul style="list-style-type: none"> <li>• Wipe clean any materials on panels and interior parts</li> </ul>
1.6 Review damage report and analyze damage to determine appropriate methods for overall repair and develop and document a repair plan	<ul style="list-style-type: none"> <li>• Review estimate and develop a repair plan</li> <li>• Repair methods</li> <li>• Repair plan</li> </ul>
1.7 Inspect, remove, protect, label, store, inventory, and reinstall exterior trim and moldings	<ul style="list-style-type: none"> <li>• Follow storage protocol, bag and tag items</li> <li>• Trim and molding procedures</li> </ul>
1.8 Inspect, remove, protect, label, store, inventory, and reinstall interior trim and components	<ul style="list-style-type: none"> <li>• Follow storage protocol, bag and tag items</li> <li>• Removing and installing trim procedures</li> <li>• Importance of labeling and storage</li> </ul>
1.9 Inspect, remove, protect, label, store, inventory, and reinstall body panels and components that may interfere with or be damaged during repair	<ul style="list-style-type: none"> <li>• Follow storage protocol, bag and tag items</li> <li>• Removing and installing body panels procedures</li> <li>• Importance of labeling and storage</li> </ul>
1.10 Inspect, remove, protect label, store, inventory, and reinstall vehicle mechanical and electrical components that may interfere with or be damaged during repair	<ul style="list-style-type: none"> <li>• Follow storage protocol, bag and tag items</li> <li>• Use proper methods when handling electrical components</li> <li>• Importance of labeling and storage</li> </ul>
1.11 Protect panels, glass, interior parts, and other vehicles adjacent to the repair area	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Protect panels (glass and interior)</li> <li>• Protect adjacent repair area</li> </ul>
1.12 Wash entire vehicle with soap and water and complete pre-repair inspection checklist (e.g., secure and store any items in the way of vehicle repair; remove and store any item removed for repair; bag and tag any hardware for easy reassembly; wash vehicle with soap and water; and cover any adjacent panels, glass, and trim to protect from damage during repair)	<ul style="list-style-type: none"> <li>• Secure and store any items in the way of vehicle repair</li> <li>• Remove and store any item removed for repair</li> <li>• Bag and tag any hardware for easy reassembly</li> <li>• Wash vehicle with soap and water</li> <li>• Cover any adjacent panels, glass, and trim to protect from damage during repair</li> </ul>
1.13 Prepare damaged area using water-based and solvent-based cleaners	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Cleaning procedures</li> </ul>
1.14 Remove corrosion protection, undercoating, sealers, and other protective coatings as necessary to perform repairs	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Protective coatings removal procedures</li> </ul>
1.15 Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair	<ul style="list-style-type: none"> <li>• Assembly and disassembly procedures</li> </ul>

**STANDARD 2.0 PERFORM OUTER BODY PANEL REPAIRS, REPLACEMENTS, AND ADJUSTMENTS**

2.1 Inspect/locate direct, indirect, or hidden damage and direction of impact	<ul style="list-style-type: none"><li>• Inspect vehicle</li><li>• Direct and indirect damage differences</li></ul>
2.2 Inspect, remove, and replace welded steel panel or panel assemblies	<ul style="list-style-type: none"><li>• Safety</li><li>• Repair plan</li></ul>
2.3 Determine the extent of damage to aluminum body panels and repair, or replace	<ul style="list-style-type: none"><li>• Repair plan</li><li>• Pre-repair procedures</li><li>• Repair procedures</li></ul>
2.4 Inspect, remove, replace, and align hood, hood hinges, and hood latch	<ul style="list-style-type: none"><li>• Safety</li><li>• Aluminum Repair Plan</li><li>• Aluminum repair procedure per manufacturer recommendation</li></ul>
2.5 Inspect, remove, replace, and align deck lid, lid hinges, and lid latch	<ul style="list-style-type: none"><li>• Panel alignment repair plan</li><li>• Adjustment procedures</li></ul>
2.6 Inspect, remove, replace, and align doors, latches, hinges, and related hardware	<ul style="list-style-type: none"><li>• Repair plan</li><li>• Adjustment procedures</li><li>• Bag and tag</li></ul>
2.7 Inspect, remove, replace, and align tailgates, hatches, liftgates, and sliding doors	<ul style="list-style-type: none"><li>• Repair plan</li><li>• Adjustment procedures</li></ul>
2.8 Inspect, remove, replace, overhaul, and align bumpers, covers, reinforcement, guards, impact absorbers, and mounting hardware	<ul style="list-style-type: none"><li>• Safety</li><li>• Repair plan</li><li>• Repair procedures</li></ul>
2.9 Inspect, remove, replace, and align fenders, and related panels	<ul style="list-style-type: none"><li>• Safety</li><li>• Repair plan</li></ul>
2.10 Restore corrosion protection during and after the repair	<ul style="list-style-type: none"><li>• Safety</li><li>• Repair plan</li><li>• Restore protective coatings</li></ul>
2.11 Replace door skins	<ul style="list-style-type: none"><li>• Safety</li><li>• Repair plan</li><li>• Repair procedures</li></ul>

2.12 Restore sound deadeners and foam materials	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Repair procedures</li> </ul>
2.13 Perform panel bonding and weld bonding	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Repair plan</li> <li>• Repair procedures</li> </ul>
2.14 Diagnose and repair water leaks, dust leaks, and wind noise	<ul style="list-style-type: none"> <li>• Diagnose and inspect vehicle symptoms</li> </ul>
2.15 Identify one-time use fasteners	<ul style="list-style-type: none"> <li>• Inspect hardware</li> <li>• Fastener types</li> <li>• Remove and replace procedures</li> </ul>
2.16 Weld damaged or torn steel body panels and repair broken welds	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Inspect and repair panels</li> <li>• Repair procedures</li> </ul>
2.17 Inspect, identify labels/decals, and replace as necessary	<ul style="list-style-type: none"> <li>• Source decals and labels</li> </ul>
<b>STANDARD 3.0 PERFORM METAL FINISHING AND BODY FILLING</b>	
3.1 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	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Repair plan</li> <li>• Cleaning procedures</li> </ul>
3.2 Locate and repair surface irregularities and straighten contours on a damaged body panel using power tools, hand tools, and weld-on pulling attachments	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Proper tool usage</li> <li>• Body panel repair procedures</li> </ul>
3.3 Demonstrate hammer and dolly techniques	<ul style="list-style-type: none"> <li>• Hammer techniques</li> <li>• Dolly techniques</li> </ul>
3.4 Heat shrink stretched panel areas to proper contour	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Proper tool usage</li> <li>• Heat shrink procedures</li> </ul>
3.5 Cold shrink stretched panel areas to proper contour	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Cold shrink procedures</li> </ul>
3.6 Identify body filler defects and correct the cause and conditions (i.e., pinholing, ghosting, staining, over catalyzing, etc.)	<ul style="list-style-type: none"> <li>• Pinholing</li> <li>• Ghosting</li> </ul>

	<ul style="list-style-type: none"> <li>• Staining</li> <li>• Over catalyzing</li> </ul>
3.7 Identify different types of body fillers	<ul style="list-style-type: none"> <li>• Uses of different fillers</li> </ul>
3.8 Shape body filler to contour and finish sanding	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Body filler sanding techniques</li> </ul>
3.9 Perform proper metal finishing techniques for aluminum	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Aluminum vs. steel sanding difference</li> </ul>
3.10 Perform proper application of body filler to aluminum	<ul style="list-style-type: none"> <li>• Aluminum vs. steel body filler difference</li> </ul>
3.11 Locate and repair surface irregularities and straighten contours on a damaged panel using Glue-Pulling Dent Repair (GPDR)	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Plastic repair procedures</li> <li>• Glue-Pulling Dent Repair (GPDR)</li> </ul>
3.12 Mix and apply body filler	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Mixing procedures</li> </ul>
<b>STANDARD 4.0 DETERMINE MOVEABLE GLASS AND HARDWARE REQUIREMENTS</b>	
4.1 Inspect, adjust, overhaul, repair, or replace window regulators, run channels, glass, power mechanisms, and related controls	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Repair procedures</li> <li>• Window component service procedures</li> </ul>
4.2 Inspect, adjust, repair, remove, reinstall, or replace weather-stripping	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Weatherstrip service procedures</li> </ul>
4.3 Inspect, remove, repair or replace, and adjust removable power-operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Sunroof repair procedures</li> <li>• Diagnose and adjust power sunroofs</li> </ul>
4.4 Inspect, remove, reinstall, and align convertible top and related mechanisms	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Repair procedures</li> </ul>
4.5 Identify or recalibrate electrical components that may need to be initialized	<ul style="list-style-type: none"> <li>• Initialize procedures</li> </ul>

## Domain 2: Spray Equipment, Mix Match Paint, Paint Application, and Final Detail

### Instructional Time: 25 - 35%

#### STANDARD 8.0 PERFORM SPRAY GUN AND RELATED EQUIPMENT OPERATION

8.1 Inspect, clean, and determine condition of spray guns and related equipment (e.g., air hoses, regulators, air lines, air source, spray environment, and filters)	<ul style="list-style-type: none"> <li>• Spray gun and related equipment tools and procedures               <ul style="list-style-type: none"> <li>○ Air hoses</li> <li>○ Regulators</li> <li>○ Air lines</li> <li>○ Air source</li> <li>○ Spray environment</li> <li>○ Filters</li> </ul> </li> </ul>
8.2 Select spray gun setup (e.g., fluid needle, nozzle, and cap) for product being applied	<ul style="list-style-type: none"> <li>• Spray gun setup               <ul style="list-style-type: none"> <li>○ Fluid needle</li> <li>○ Nozzle</li> <li>○ Cap</li> </ul> </li> </ul>
8.3 Test and adjust spray gun using fluid, air and pattern control valves	<ul style="list-style-type: none"> <li>• Spray out pattern test</li> </ul>
8.4 Operate pressure spray equipment	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Equipment operation procedures</li> </ul>

#### STANDARD 9.0 PERFORM PAINT MIXING, MATCHING, AND APPLYING PROCEDURES

9.1 Identify color code by manufacturer's vehicle information label	<ul style="list-style-type: none"> <li>• Manufacturers paint code locations</li> <li>• Color Identify procedures</li> </ul>
9.2 Identify product expiration dates	<ul style="list-style-type: none"> <li>• Born on dates</li> </ul>
9.3 Identify and mix paint using a formula	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Paint mixing procedures</li> </ul>
9.4 Shake, stir, reduce, catalyze/activate, and strain refinish materials	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Pre-refinishing procedures</li> </ul>
9.5 Identify the materials equipment and preparation differences between solvent and waterborne technologies	<ul style="list-style-type: none"> <li>• Refinishing tools and procedures</li> <li>• Solvent technologies</li> <li>• Waterborne technologies</li> </ul>

9.6 Apply finish using appropriate spray techniques (e.g., gun arc, angle, distance, travel speed, and spray pattern overlap) for the finish being applied	<ul style="list-style-type: none"> <li>● Apply finish using appropriate techniques <ul style="list-style-type: none"> <li>○ Gun arc</li> <li>○ Angle</li> <li>○ Distance</li> <li>○ Travel speed</li> <li>○ Spray pattern overlap</li> </ul> </li> </ul>
9.7 Apply selected product on test or let-down panel with appropriate let-down metal or plastic; check for color match, and properly store and maintain a color catalog	<ul style="list-style-type: none"> <li>● Safety</li> <li>● Product application</li> <li>● Color match check</li> <li>● Store and maintain color catalog</li> </ul>
9.8 Identify poor hiding colors; determine necessary action	<ul style="list-style-type: none"> <li>● Poor hiding colors</li> <li>● Refinishing plan</li> </ul>
9.9 Explain alternate methods of matching color including computerized color matching	<ul style="list-style-type: none"> <li>● Alternate color matching techniques</li> <li>● Computerized color matching</li> </ul>
9.10 Explain the method of paint application of single stage topcoats	<ul style="list-style-type: none"> <li>● Paint application</li> <li>● Single stage topcoats</li> </ul>
9.11 Tint color using formula to achieve a blendable match	<ul style="list-style-type: none"> <li>● Color match techniques</li> <li>● Color formula</li> </ul>
9.12 Identify alternative color formula to achieve a blendable match	<ul style="list-style-type: none"> <li>● Selecting alternate colors</li> </ul>
9.13 Remove nibs or imperfections from basecoat	<ul style="list-style-type: none"> <li>● Nib sanding techniques</li> </ul>
9.14 Apply basecoat/clearcoat for panel blending, panel refinishing, and cut ins	<ul style="list-style-type: none"> <li>● Blending techniques</li> <li>● Refinishing techniques</li> <li>● Cut ins</li> </ul>
9.15 Apply multi-stage coats for panel blending and overall refinishing	<ul style="list-style-type: none"> <li>● Refinishing techniques</li> <li>● Multi-stage coats</li> </ul>
9.16 Apply basecoat/clearcoat for overall refinishing	<ul style="list-style-type: none"> <li>● Basecoat/application</li> <li>● Refinishing techniques</li> </ul>
9.17 Refinish plastic parts	<ul style="list-style-type: none"> <li>● Plastic refinishing techniques</li> </ul>

<b>STANDARD 10.0 DETERMINE PAINT DEFECTS, CAUSES, AND CURES</b>	
10.1 Identify blistering (raising of the paint surface, air entrapment) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Blistering</li> <li>● Condition</li> </ul>
10.2 Identify a dry spray appearance in the paint surface and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Dry spray appearance</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.3 Identify the presence of fisheyes (crater-like openings) in the finish and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Fisheye identification</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.4 Identify lifting and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Lifting</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.5 Identify clouding (mottling and streaking in metallic finishes) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Clouding</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.6 Identify orange peel and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Orange peel</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.7 Identify overspray and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Overspray</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.8 Identify solvent popping in freshly painted surface and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Solvent popping</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.9 Identify sags and runs in paint surface and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Sags and runs</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.10 Identify sanding marks or sand scratch swelling and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Sanding marks or sand scratch swelling</li> <li>● Correction</li> <li>● Condition</li> </ul>



10.11 Identify contour mapping/edge mapping while finish is drying and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Contour mapping/edge mapping</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.12 Identify color difference (off-shade) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Color difference (off-shade)</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.13 Identify tape tracking and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Tape tracking</li> <li>● Masking procedures</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.14 Identify low gloss condition and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Low gloss condition</li> <li>● Cut and buff procedures</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.15 Identify poor adhesion and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Poor adhesion</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.16 Identify paint cracking (i.e., shrinking, splitting, crow's feet or line-checking, micro-checking, etc.) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Paint cracking <ul style="list-style-type: none"> <li>○ Shrinking</li> <li>○ Splitting</li> <li>○ Crow's feet</li> <li>○ Line-checking</li> <li>○ Micro-checking</li> </ul> </li> <li>● Correction</li> <li>● Condition</li> </ul>
10.17 Identify corrosion and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Corrosion</li> <li>● Correction</li> <li>● Condition</li> </ul>
10.18 Identify dirt or dust in the paint surface and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Dust in finish</li> <li>● Paint correction</li> <li>● Condition</li> </ul>

10.19 Identify water spotting and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>• Water spotting</li> <li>• Correction</li> <li>• Condition</li> </ul>
10.20 Identify finish damage caused by bird droppings, tree sap, and other natural causes and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>• Natural cause finish damage</li> <li>• Paint correction procedures</li> <li>• Condition</li> </ul>
10.21 Identify finish damage caused by airborne contaminants (e.g., acids, soot, rail dust, and other industrial-related causes) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>• Airborne contaminants <ul style="list-style-type: none"> <li>◦ Acids</li> <li>◦ Soot</li> <li>◦ Rail dust</li> <li>◦ Industrial-related causes</li> </ul> </li> <li>• Paint correction procedures</li> <li>• Condition</li> </ul>
10.22 Identify die-back conditions (dulling of the paint film showing haziness) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>• Die-back conditions</li> <li>• Correction</li> <li>• Condition</li> </ul>
10.23 Identify chalking (oxidation) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>• Chalking</li> <li>• Correction</li> <li>• Condition</li> </ul>
10.24 Identify bleed-through (staining) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>• Bleed through</li> <li>• Undercoat selection</li> <li>• Correction</li> <li>• Condition</li> </ul>
10.25 Identify pin-holing and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>• Pin holes</li> <li>• Proper filler mix techniques</li> <li>• Correction</li> <li>• Condition</li> </ul>
10.26 Identify buffing-related imperfections (swirl marks, wheel burns) and correct the condition	<ul style="list-style-type: none"> <li>• Buffing-related imperfections</li> <li>• Cut and buff procedures</li> <li>• Detail</li> <li>• Correction</li> <li>• Condition</li> </ul>

10.27 Identify pigment floatation (color change through film build) and correct the cause(s) and the condition	<ul style="list-style-type: none"> <li>● Pigment floatation</li> <li>● Correction</li> <li>● Condition</li> </ul>
<b>STANDARD 11.0 PERFORM FINAL PAINTING AND REFINISHING DETAIL</b>	
11.1 Sand, buff, and polish fresh finish to remove defects and texture as required	<ul style="list-style-type: none"> <li>● Cut and buff techniques</li> <li>● Detailing techniques</li> </ul>
11.2 Sand, buff, and polish existing finish to recondition defects as required and match existing finish	<ul style="list-style-type: none"> <li>● Sand, buff, and polish techniques</li> </ul>
11.3 Apply decals, transfers, tapes, stone guards, moldings, and emblems, etc.	<ul style="list-style-type: none"> <li>● Apply decals and trim</li> </ul>
11.4 Clean interior, exterior, and glass	<ul style="list-style-type: none"> <li>● Clean glass</li> </ul>
11.5 Clean body openings (i.e., door jambs, gaps, and edges, etc.)	<ul style="list-style-type: none"> <li>● Door jambs</li> <li>● Gaps</li> <li>● Edges</li> </ul>
11.6 Remove overspray	<ul style="list-style-type: none"> <li>● Detailing techniques</li> <li>● Remove overspray</li> </ul>
11.7 Perform vehicle clean-up and complete quality control using a checklist on operations performed [e.g., unmask vehicle and place trash in receptacle; steel wool all glass and chrome; (for minor buff, nib sand imperfections in paint, buff imperfections out of panel, and polish areas buffed to remove swirl marks); wash vehicle with soap and water and vacuum interior; and clean glass and apply dressing to tires and trim following safety precautions]	<ul style="list-style-type: none"> <li>● Vehicle clean-up</li> <li>● Quality control checklist <ul style="list-style-type: none"> <li>○ Unmask vehicle and place trash in receptacle</li> <li>○ Steel wool all glass and chrome (for minor buff, nib sand imperfections in paint, buff imperfections out of panel, and polish areas buffed to remove swirl marks)</li> <li>○ Wash vehicle with soap and water and vacuum interior</li> <li>○ Clean glass and apply dressing to tires and trim following safety precautions</li> </ul> </li> </ul>
11.8 Perform nib sanding to remove small imperfections as required	<ul style="list-style-type: none"> <li>● Safety</li> <li>● Nib sanding procedures</li> </ul>

## Domain 3: Plastic Repairs, Surface Prep, and Welding/Cutting

Instructional Time: 10 - 15%

### STANDARD 5.0 PERFORM PLASTICS, ADHESIVES, AND WELDING REPARABILITY

5.1 Identify the types of plastics and determine reparability	<ul style="list-style-type: none"><li>• Types of plastics</li><li>• Reparability</li></ul>
5.2 Clean and prepare the surface of plastic parts and identify the types of plastic repair procedures	<ul style="list-style-type: none"><li>• Safety</li><li>• Plastic repair procedures</li></ul>
5.3 Repair rigid, semi-rigid, and flexible plastic panels	<ul style="list-style-type: none"><li>• Safety</li><li>• Plastic repair procedures</li></ul>
5.4 Remove, replace, or repair damaged areas of rigid exterior composite panels	<ul style="list-style-type: none"><li>• Safety</li><li>• Plastic repair procedures</li></ul>
5.5 Replace bonded rigid exterior composite body panels and straighten or align panel supports	<ul style="list-style-type: none"><li>• Replacement procedures</li><li>• Alignment procedures</li></ul>
5.6 Repair plastic parts by welding (e.g., nitrogen and airless)	<ul style="list-style-type: none"><li>• Plastic welding<ul style="list-style-type: none"><li>○ Nitrogen</li><li>○ Airless</li></ul></li></ul>
5.7 Perform a single-sided adhesively bonded cosmetic repair	<ul style="list-style-type: none"><li>• Safety</li><li>• Single-sided adhesively bonded cosmetic repair</li></ul>
5.8 Perform a double-sided adhesively bonded repair	<ul style="list-style-type: none"><li>• Safety</li><li>• Double-sided adhesively bonded repair</li></ul>
5.9 Perform an adhesively bonded or welded tab repair	<ul style="list-style-type: none"><li>• Safety</li><li>• Adhesively bonded or welded tab repair</li></ul>
5.10 Shape and reform damaged plastic	<ul style="list-style-type: none"><li>• Safety</li><li>• Shape and reform damaged plastic</li></ul>

### STANDARD 7.0 PERFORM SURFACE PREPARATION FOR PAINTING AND REFINISHING

7.1 Inspect, remove, store, protect, and replace exterior trim and components necessary for proper surface preparation	<ul style="list-style-type: none"><li>• Removal and installation procedures</li></ul>
--	---

7.2 Wash entire vehicle with soap and water and use appropriate cleaner to remove contaminants	<ul style="list-style-type: none"> <li>• Pre-repair procedure</li> <li>• Washing procedures</li> </ul>
7.3 Inspect and identify type of finish, surface condition, and film thickness and develop and document a plan for refinishing using a total product system	<ul style="list-style-type: none"> <li>• Inspect</li> <li>• Pre-repair plan for refinish</li> </ul>
7.4 Remove paint finish as needed	<ul style="list-style-type: none"> <li>• Diagnose finish</li> <li>• Repair plan</li> </ul>
7.5 Sand areas to be refinished	<ul style="list-style-type: none"> <li>• Sanding procedures</li> </ul>
7.6 Select appropriate sandpaper to featheredge areas to be refinished	<ul style="list-style-type: none"> <li>• Featheredge panels</li> <li>• Select abrasives</li> </ul>
7.7 Apply suitable metal treatment or primer in accordance with total product systems	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Apply suitable metal treatments</li> </ul>
7.8 Mask and protect other areas that will not be refinished	<ul style="list-style-type: none"> <li>• Protect adjacent panels</li> </ul>
7.9 Demonstrate different masking techniques (i.e., recess/back masking, foam door type, etc.)	<ul style="list-style-type: none"> <li>• Recess/backmasking</li> <li>• Foam door type</li> </ul>
7.10 Mix primer, primer surfacer, and primer sealer following the paint technical data sheet instructions according to the manufacturer	<ul style="list-style-type: none"> <li>• Mix undercoats</li> <li>• Interpret PDS sheets</li> </ul>
7.11 Identify a complimentary color or shade of undercoat to improve coverage	<ul style="list-style-type: none"> <li>• Colored undercoats</li> </ul>
7.12 Apply primer onto surface of repaired area, demonstrating control of primer application by keeping the areas as small as possible	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Apply primers</li> </ul>
7.13 Apply two-component finishing filler to minor surface imperfections	<ul style="list-style-type: none"> <li>• Minor imperfection correction</li> </ul>
7.14 Guide coat and block sand area with correct grade/grit sandpaper to which primer surfacer has been applied	<ul style="list-style-type: none"> <li>• Using guide coats</li> <li>• Repair procedures</li> </ul>
7.15 Dry sand area to which two-component finishing filler has been applied	<ul style="list-style-type: none"> <li>• Finish sanding techniques</li> <li>• Dry sand finishing filler</li> </ul>
7.16 Remove dust from area to be refinished, including cracks or moldings of adjacent areas	<ul style="list-style-type: none"> <li>• Remove dust</li> </ul>

7.17 Clean area to be refinished using a recommended final cleaning solution	<ul style="list-style-type: none"> <li>• Cleaning panels with appropriate cleaners</li> </ul>
7.18 Use a tack rag to remove any dust or lint particles from the area to be refinished	<ul style="list-style-type: none"> <li>• Tack rag vehicle</li> </ul>
7.19 Apply suitable primer sealer to the area being refinished	<ul style="list-style-type: none"> <li>• Applying sealers</li> </ul>
7.20 Scuff sand to remove nibs or imperfections from a sealer	<ul style="list-style-type: none"> <li>• Nib sanding minor imperfections</li> </ul>
7.21 Apply stone chip resistant coating	<ul style="list-style-type: none"> <li>• Apply chip guard</li> </ul>
7.22 Restore caulking and seam sealers to repaired areas and replacement panels as required	<ul style="list-style-type: none"> <li>• Seam sealers</li> </ul>
7.23 Prepare adjacent panels for blending using paint manufacturers procedures	<ul style="list-style-type: none"> <li>• Prepare panels for blending</li> </ul>
7.24 Identify the types of rigid, semi-rigid or flexible plastic parts to be refinished; determine the materials needed, preparation, and refinishing procedures	<ul style="list-style-type: none"> <li>• Identify plastics</li> <li>• ISO numbers</li> <li>• Repair procedures</li> </ul>
7.25 Identify metal parts to be refinished and determine the materials needed, preparation, and refinishing procedures	<ul style="list-style-type: none"> <li>• Repair/refinish procedures</li> </ul>
7.26 Identify chip resistant coatings and texture match	<ul style="list-style-type: none"> <li>• Identify chip finish</li> <li>• Test samples of finish</li> </ul>
7.27 Identify caulking and seam sealers that may need replacement	<ul style="list-style-type: none"> <li>• Vehicle inspection</li> </ul>
7.28 Identify refinishing guidelines for stationary glass flange areas to be refinished	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Manufacturers glass setting guidelines</li> </ul>
<b>STANDARD 16.0 PERFORM METAL WELDING AND CUTTING</b>	
16.1 Identify the considerations for cutting, removing, and welding various types of steel, aluminum, and other metals	<ul style="list-style-type: none"> <li>• Cutting, removing, and welding various types of steel, aluminum, and other metals</li> </ul>
16.2 Determine the correct GMAW (MIG) welder type, electrode/wire type, diameter, and gas to be used in a specific welding situation	<ul style="list-style-type: none"> <li>• Welding procedure plans <ul style="list-style-type: none"> <li>○ GMAW (MIG) welder type</li> <li>○ Electrode/wire type</li> <li>○ Diameter</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Gas</li> </ul>
16.3 Set up, attach work clamp (ground), and adjust the GMAW (MIG) welder to "tune" for proper electrode stick out, voltage, polarity, flow rate, and wire-feed speed required for the substrate being welded	<ul style="list-style-type: none"> <li>● Setup procedures</li> <li>● Work clamp (ground)</li> <li>● GMAW (MIG) welder adjust <ul style="list-style-type: none"> <li>○ Popper electrode stick out,</li> <li>○ Voltage</li> <li>○ Polarity</li> <li>○ Flow rate</li> <li>○ Wire-feed speed</li> </ul> </li> </ul>
16.4 Perform visual evaluation and destructive test on each weld type (e.g., metal coupons or like substrate)	<ul style="list-style-type: none"> <li>● Visual evaluation and destructive test <ul style="list-style-type: none"> <li>○ Metal coupons</li> <li>○ Like substrate</li> </ul> </li> </ul>
16.5 Store, handle, and install high-pressure gas cylinders; test for leaks	<ul style="list-style-type: none"> <li>● Safety</li> <li>● Welding cylinder handling procedures</li> <li>● Leak testing procedures</li> </ul>
16.6 Determine the proper angle of the gun to the joint and direction of gun travel for the type of weld being made	<ul style="list-style-type: none"> <li>● Determine welding gun angle and direction of travel</li> <li>● Welding procedures</li> </ul>
16.7 Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations	<ul style="list-style-type: none"> <li>● Protect areas near weld</li> </ul>
16.8 Identify hazards and foam coatings and flammable materials prior to welding/cutting procedures	<ul style="list-style-type: none"> <li>● Safety</li> <li>● Welding safety procedures</li> <li>● Hazards</li> <li>● Foam coatings</li> <li>● Flammable materials</li> </ul>
16.9 Protect computers and other electronic control modules during welding procedures	<ul style="list-style-type: none"> <li>● Protect electronic components</li> </ul>
16.10 Clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, clamp or tack as required	<ul style="list-style-type: none"> <li>● Clean and prepare metal for welding</li> <li>● Welding procedures</li> <li>● Metal fit-up</li> <li>● Weld-through primer application</li> <li>● Necessary clamping and tacking</li> </ul>

16.11 Determine the joint type (i.e., butt weld with backing, lap, etc.) for weld being made	<ul style="list-style-type: none"> <li>● Joint type <ul style="list-style-type: none"> <li>○ Butt weld with backing</li> <li>○ Lap, etc.</li> </ul> </li> </ul>
16.12 Determine the type of weld (i.e., continuous, stitch weld, plug, etc.) for each specific welding operation	<ul style="list-style-type: none"> <li>● Types of welds <ul style="list-style-type: none"> <li>○ Continuous</li> <li>○ Stitch weld</li> <li>○ Plug, etc.</li> </ul> </li> </ul>
16.13 Perform welds (e.g., plug, butt weld with and without backing, and fillet, etc.) in the flat, horizontal, vertical, and overhead positions	<ul style="list-style-type: none"> <li>● Perform welds <ul style="list-style-type: none"> <li>○ Plug</li> <li>○ Butt weld with and without backing</li> <li>○ Fillet</li> </ul> </li> <li>● Positions <ul style="list-style-type: none"> <li>○ Flat</li> <li>○ Horizontal</li> <li>○ Vertical</li> <li>○ Overhead</li> </ul> </li> </ul>
16.14 Identify the causes of various welding defects and make necessary adjustments	<ul style="list-style-type: none"> <li>● Welding defect causes</li> <li>● Adjustments</li> </ul>
16.15 Identify cause of contact tip burn-back and failure of wire to feed and make necessary adjustments	<ul style="list-style-type: none"> <li>● Burn back and wire failure causes</li> <li>● Adjustments</li> </ul>
16.16 Identify cutting process for different substrates and locations and perform cutting operation	<ul style="list-style-type: none"> <li>● Safety</li> <li>● Cutting procedures</li> </ul>
16.17 Identify different methods of attaching non-structural components [i.e., squeeze type resistant spot welding (STRSW), riveting, structural adhesive, MIG bronze, rivet bonding, weld bonding, etc.]	<ul style="list-style-type: none"> <li>● Attaching non-structural component methods <ul style="list-style-type: none"> <li>○ Squeeze type resistance spot welding (STRSW)</li> <li>○ Riveting</li> <li>○ Structural adhesive</li> <li>○ MIG bronze</li> <li>○ Rivet bonding</li> <li>○ Weld bonding</li> </ul> </li> </ul>



## Domain 4: Safety and Vehicle Construction

Instructional Time: 10 - 15%

### STANDARD 6.0 APPLY SAFETY PRECAUTIONS WHEN PAINTING AND REFINISHING

6.1 Use the proper personal safety equipment for surface preparation, spray gun and related equipment operation, paint mixing, matching and application, paint defects, and detailing (i.e., gloves, suits, hoods, eye and ear protection, etc.) and take necessary precautions with hazardous operations and materials according to federal, state, and local regulations	<ul style="list-style-type: none"><li>● PPE for painting and refinishing<ul style="list-style-type: none"><li>○ Gloves</li><li>○ Suits</li><li>○ Hoods</li><li>○ Eye and ear protection</li></ul></li></ul>
6.2 Identify safety and personal health hazards according to OSHA guidelines and the Right to Know Law	<ul style="list-style-type: none"><li>● Safety</li><li>● Health hazards</li><li>● OSHA</li><li>● Right to Know Law</li></ul>
6.3 Inspect spray environment and equipment to ensure compliance with federal, state, and local regulations, and for safety and cleanliness hazards	<ul style="list-style-type: none"><li>● Safety</li><li>● State and local compliance</li></ul>
6.4 Use a NIOSH approved supplied air (Fresh Air Make-up) respirator system and perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation	<ul style="list-style-type: none"><li>● NIOSH</li><li>● OSHA Regulation</li><li>● Inspect and maintain a fresh air supplied respirator</li></ul>
6.5 Perform vehicle clean-up and complete quality control using a checklist on operations performed (e.g., use soap, water, and sponge to wash vehicle, wheel wells, wheels, door jams, hood, and truck jams; dry vehicle using an absorbent towel; clean all glass and chrome; in booth, pick up any loose paper and tape; sweep, clean floor and walls, and remove water from floors and walls with broom and squeegee)	<ul style="list-style-type: none"><li>● Use soap, water, and sponge to wash vehicle, wheel wells, wheels, door jams, hood, and truck jams</li><li>● Dry vehicle using an absorbent towel</li><li>● Clean all glass and chrome</li><li>● In booth, pick up any loose paper and tape</li><li>● Sweep, clean floor and walls, and remove water from floors and walls with broom and squeegee</li></ul>

### STANDARD 12.0 PERFORM DAMAGE ANALYSIS

12.1 Position the vehicle for inspection under proper lighting, take photos from various angles to identify the vehicle, and document damage	<ul style="list-style-type: none"><li>● Vehicle inspection procedures</li><li>● Proper lighting</li><li>● Photos from various angles</li><li>● Damage documentation</li></ul>
--	---

12.2 Identify components to be removed to gain access to damaged areas	<ul style="list-style-type: none"> <li>• Gain access for inspection</li> </ul>
12.3 Analyze damage to determine appropriate methods for overall repairs	<ul style="list-style-type: none"> <li>• Analyze damage</li> <li>• Determine repair methods</li> </ul>
12.4 Determine the direction, point(s) of impact, and extent of direct, indirect, and inertia damage	<ul style="list-style-type: none"> <li>• Determine direct and indirect damage</li> </ul>
12.5 Gather details of the incident/accident necessary to determine the full extent of vehicle damage	<ul style="list-style-type: none"> <li>• Gather accident information</li> <li>• Develop a repair plan</li> </ul>
12.6 Identify and record pre-existing damage	<ul style="list-style-type: none"> <li>• Record preexisting damage</li> </ul>
12.7 Identify and record prior repairs	<ul style="list-style-type: none"> <li>• Identify prior repairs</li> </ul>
12.8 Perform visual inspection of structural components and members	<ul style="list-style-type: none"> <li>• Perform damage analysis</li> </ul>
12.9 Identify structural damage using measuring tools and equipment	<ul style="list-style-type: none"> <li>• Measure damage on vehicle structure</li> </ul>
12.10 Perform visual inspection of non-structural components and members	<ul style="list-style-type: none"> <li>• Perform overall visual inspection</li> </ul>
12.11 Determine parts, components, material type(s), and procedures necessary for a proper repair	<ul style="list-style-type: none"> <li>• Identify components</li> </ul>
12.12 Identify type and condition of finish and determine refinish labor operations as required	<ul style="list-style-type: none"> <li>• Identify vehicle finish</li> <li>• Determine labor</li> </ul>
12.13 Identify suspension, electrical, and mechanical component physical damage	<ul style="list-style-type: none"> <li>• Identify supplemental damage</li> </ul>
12.14 Identify safety systems physical damage	<ul style="list-style-type: none"> <li>• Identify safety systems damage</li> </ul>
12.15 Identify interior component damage	<ul style="list-style-type: none"> <li>• Identify interior component damage</li> </ul>
12.16 Identify add-on accessories and modifications	<ul style="list-style-type: none"> <li>• Identify add on components</li> </ul>
12.17 Identify single (one time) use components	<ul style="list-style-type: none"> <li>• Identify one time use components</li> </ul>
12.18 Document illuminated dash malfunction indicator lamp(s) (MIL)	<ul style="list-style-type: none"> <li>• Document MIL faults</li> <li>• Scan pre-post</li> </ul>

12.19 Perform a pre-repair inspection of the vehicle with the customer and record fit and finish concerns (e.g., color mismatch, factory gaps, unrelated prior damage and prior repairs)	<ul style="list-style-type: none"> <li>● Pre-repair inspection with customer <ul style="list-style-type: none"> <li>○ Color mismatch</li> <li>○ Factory gaps</li> <li>○ Unrelated prior damage and prior repairs</li> </ul> </li> </ul>
<b>STANDARD 13.0 PERFORM ESTIMATION</b>	
13.1 Record customer/vehicle owner information	<ul style="list-style-type: none"> <li>● Record customer information</li> </ul>
13.2 Record vehicle identification number (VIN) information, including nation of origin, make, model, restraint system, body type, production date, engine type, build data, and assembly plant	<ul style="list-style-type: none"> <li>● Record VIN numbers</li> <li>● Record vehicle build data</li> </ul>
13.3 Record vehicle mileage and options, including trim level, paint code, transmission, accessories, and modifications	<ul style="list-style-type: none"> <li>● Record vehicle mileage</li> <li>● Record vehicle options</li> </ul>
13.4 Identify safety systems and determine precautions, inspections, and replacement items as required	<ul style="list-style-type: none"> <li>● Safety</li> <li>● Inspect safety components</li> </ul>
13.5 Apply appropriate estimating and parts nomenclature (terminology)	<ul style="list-style-type: none"> <li>● Use appropriate estimating terminology</li> </ul>
13.6 Apply appropriate estimating sequence	<ul style="list-style-type: none"> <li>● Follow estimating sequence</li> </ul>
13.7 Utilize estimating procedure pages	<ul style="list-style-type: none"> <li>● Procedural page knowledge</li> </ul>
13.8 Apply estimating footnotes, headnotes, and line notes as needed	<ul style="list-style-type: none"> <li>● Apply head and foot notes as necessary</li> </ul>
13.9 Identify operations requiring labor value judgment	<ul style="list-style-type: none"> <li>● Identify judgement calculations</li> </ul>
13.10 Select appropriate labor code for each operation (e.g., structural, non-structural, mechanical, and refinish)	<ul style="list-style-type: none"> <li>● Labor code selection <ul style="list-style-type: none"> <li>○ Structural</li> <li>○ Non-structural</li> <li>○ Mechanical</li> <li>○ Refinish</li> </ul> </li> </ul>
13.11 Price OEM parts, optional OEM parts, aftermarket parts, recyclable/used parts, remanufactured, rebuilt, and reconditioned parts and verify availability, compatibility, and condition	<ul style="list-style-type: none"> <li>● Compare LKQ parts quality prices with OEM</li> </ul>
13.12 Determine necessary sublet operation	<ul style="list-style-type: none"> <li>● Determine supplements</li> </ul>
13.13 Determine included and non-included operations and	<ul style="list-style-type: none"> <li>● Determine included/non-included operations</li> </ul>

miscellaneous items	
13.14 Recognize and apply overlap deductions	<ul style="list-style-type: none"> <li>Identify overlap procedures</li> </ul>
13.15 Determine additional material and charges	<ul style="list-style-type: none"> <li>Determine additional charges</li> </ul>
13.16 Determine refinishing material and charges	<ul style="list-style-type: none"> <li>Determine refinish charges</li> </ul>
13.17 Apply math skills to establish charges and totals	<ul style="list-style-type: none"> <li>Apply math to determine totals</li> </ul>
13.18 Identify differences between electronically generated and manually generated estimates	<ul style="list-style-type: none"> <li>Compare electronic and manual estimates</li> </ul>
13.19 Identify procedures to restore corrosion protection and establish labor values, and material charges	<ul style="list-style-type: none"> <li>Restore corrosion protection</li> </ul>
13.20 Recognize the cost-effectiveness of the repair and determine the approximate vehicle retail and repair value	<ul style="list-style-type: none"> <li>Establish cost of repair threshold</li> </ul>
13.21 Recognize the differences in estimating platforms when using different information provider systems	<ul style="list-style-type: none"> <li>Recognize various estimating platforms</li> </ul>
13.22 Verify accuracy of estimate compared to the actual repair and replacement operations	<ul style="list-style-type: none"> <li>Verify estimate accuracy</li> </ul>
13.23 Determine telematic/connectivity of the vehicle and place vehicle in service mode	<ul style="list-style-type: none"> <li>Verify vehicle connectivity</li> </ul>
13.24 Identify vehicle safety recalls using the vehicle identification number (VIN)	<ul style="list-style-type: none"> <li>Determine safety recalls through vehicle VIN</li> </ul>
13.25 Review damage report to determine appropriate methods for overall repair and communicate with team members to verify accuracy and resolve discrepancies	<ul style="list-style-type: none"> <li>Review repair plan</li> <li>Create a repair plan</li> </ul>
<b>STANDARD 14.0 DETERMINE VEHICLE CONSTRUCTION AND PARTS IDENTIFICATION</b>	
14.1 Identify type of vehicle construction (e.g., unibody, body-over-frame, and alternates)	<ul style="list-style-type: none"> <li>Types of vehicle construction <ul style="list-style-type: none"> <li>Unibody</li> <li>Body-over-frame</li> <li>Alternates</li> </ul> </li> </ul>
14.2 Recognize the different collision damage between unibody and	<ul style="list-style-type: none"> <li>Collision damage</li> </ul>

body-over-frame vehicles	<ul style="list-style-type: none"> <li>○ Unibody</li> <li>○ Body-over-frame vehicles</li> </ul>
14.3 Identify impact energy absorbing components	<ul style="list-style-type: none"> <li>● Identify safety crush zones</li> </ul>
14.4 Identify different types of substrates (i.e., steel types, aluminum, magnesium, plastic, composites, etc.) and determine reparability	<ul style="list-style-type: none"> <li>● Substrates <ul style="list-style-type: none"> <li>○ Steel types</li> <li>○ Aluminum</li> <li>○ Magnesium</li> <li>○ Plastic</li> <li>○ Composites</li> </ul> </li> </ul>
14.5 Identify vehicle glass components and repair/replacement procedures	<ul style="list-style-type: none"> <li>● Glass component</li> <li>● Repair techniques</li> </ul>
14.6 Identify add-on accessories	<ul style="list-style-type: none"> <li>● Source aftermarket accessories</li> </ul>
<b>Domain 5: Customer Service</b> <b>Instructional Time: 5 - 10%</b>	
<b>STANDARD 15.0 PERFORM CUSTOMER RELATIONS AND SELLING SKILLS</b>	
15.1 Introduce yourself and acknowledge, greet, and assist customer/client/visitor	<ul style="list-style-type: none"> <li>● Customer relations skills</li> </ul>
15.2 Listen to customer/client, collect information, and identify customers/client's concerns, needs, and expectations	<ul style="list-style-type: none"> <li>● Customer relations skills</li> <li>● Listening skills</li> </ul>
15.3 Establish cooperative attitude with customer/client	<ul style="list-style-type: none"> <li>● Establish customer rapport</li> </ul>
15.4 Empathize with dissatisfied customer/client and seek resolution	<ul style="list-style-type: none"> <li>● Problem solving</li> <li>● Empathy skills</li> </ul>
15.5 Identify customer/client's preferred communication method and frequency to inform customer/client about parts and the repair process	<ul style="list-style-type: none"> <li>● Customer communication preference</li> </ul>
15.6 Identify basic claims handling procedures and explain to customer/client (i.e., gathering pertinent customer information, explanation of claim to client, progression of vehicle repair, insurance requirements, etc.)	<ul style="list-style-type: none"> <li>● Claims handling and explanation <ul style="list-style-type: none"> <li>○ Gathering pertinent customer information</li> <li>○ Explanation of claim to client</li> <li>○ Progression of vehicle repair</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Insurance requirements</li> </ul>
15.7 Project positive attitude and professional appearance	<ul style="list-style-type: none"> <li>● Proper dress code</li> <li>● Positive attitude</li> </ul>
15.8 Provide and review warranty information	<ul style="list-style-type: none"> <li>● Inform customers of warranty information</li> </ul>
15.9 Provide and review technical and consumer protection information	<ul style="list-style-type: none"> <li>● Inform customer of consumer information</li> </ul>
15.10 Estimate and explain duration of out-of-service time	<ul style="list-style-type: none"> <li>● Discuss out of service time with customer</li> </ul>
15.11 Demonstrate negotiation skills to obtain a mutual agreement	<ul style="list-style-type: none"> <li>● Practice negotiations skills</li> </ul>
15.12 Explain estimate to customer/client (i.e., cost of repairs, insurance deductibles, additional costs as client responsibility, etc.)	<ul style="list-style-type: none"> <li>● Cost of repairs</li> <li>● Insurance deductibles</li> <li>● Additional costs as client responsibility</li> </ul>

