

## **AUTO BODY REPAIRER & PAINTER (Time-Based)**

### **APPENDIX A**

O\*NET CODE 49-3021.00

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

### **WORK PROCESSES**

	<b>Approximate Hours</b>
<b>A. Shop Routine and Workplace Orientation</b>	<b>80</b>
1. Learn basic procedures and routines used in the day-to-day operation of an auto body repair shop.	
2. Use and maintain typical shop tools and equipment; safely operate tools and equipment.	
3. Learn and employ shop safety practices, including Right-to-Know and Safety Data Sheets (SDS).	
4. Demonstrate awareness of basic mechanical concepts and procedures.	
5. Read and understand shop policies and procedures.	
6. Read and follow work order(s).	
7. Understand Original Equipment Manufacturer (OEM) procedures and how to source information.	
8. Understand cycle time and how each role impacts the business.	
9. Identify tools of the trade, including but not limited to ratchets (manual and power), socket sets, wrenches (SAE & metric), screwdrivers, TORX bits, body hammer set, prybars, pliers, vise grips, air tools, etc.	
<b>B. Body Trim Removal</b>	<b>180</b>
1. Remove interior and exterior trim and moldings.	
2. Remove and install adhesive moldings and nameplates.	
3. Tag and bag fasteners and trim, and retrieve for reassembly without loss or damage.	
4. Detail vehicles.	

### **C. Basic Metal Work and Panel Replacement**

**1200**

1. Learn, understand, and explain the strains and stresses of damaged body panels.
2. Disassemble and reassemble bolt-on parts, including bumpers, Lights, fenders, hoods, decklids according to OEM specifications.
3. Disassemble used parts assemblies.
4. Disassemble, assemble, and align body panels.
5. Rough small dents with a hammer and dolly; ding small dents with a pick and file; Use metal shrinking and plastic filling techniques to repair small dents. Use all above procedures to repair large dents.
6. Learn and use various sandpaper grits when/where applicable.
7. Identify types of flexible bumpers and parts using various procedures repair accordingly, using techniques such as two-sided repair, hot stapling, finish sanding, application of flexible repair materials.
8. Research OEM procedures for proper removal of safety system components.

### **D. Metal Work**

**1200**

1. Remove heavily damaged panels and obstructions in preparation for metal repair work.
2. Assist with preparations for door panel, quarter panel, and pickup box side replacement, including drilling of spot welds.
3. Repair door panels, rocker panels, quarter panels, trunk lids, and hoods; transfer necessary parts to sites for repair.
4. Properly remove stationary and moveable glass.
5. Set up vehicle on frame straightening equipment and install measuring system. Locate vehicle anchoring points and remove components necessary to install such. Remove vehicle from frame equipment.
6. Remove and install mechanical components to allow for repairs.

### **E. Structural Repairs**

**1500**

1. Research OEM procedures.
2. Remove and replace outer door panels.
3. Use structural adhesives, foams, and sealers.

4. Use weld-through primers, adhesives, foams, and sealers.
5. Use appropriate anti-corrosion products pertaining to weld repairs.
6. Identify and research advanced high-strength steels and learn how to repair same.
7. Remove and replace bolt-on structural components.
8. Remove welded-on structural components; prepare vehicle; For reinstallation of welded structural components.
9. Test fit attached and adjacent panels before welding.

## **F. Welding**

**800**

1. Identify welding equipment.
2. Learn and understand welding terms and use appropriate PPE.
3. Protect vehicle and vehicle systems when welding.
4. Prepare surface metal for welding.
5. Perform test welds, such as: plug, seam, and stitch, prior to welding on vehicle.
6. Research OEM-recommended welding procedures, such as: Metal Inert Gas (MIG), MIG Pulse, MIG brazing, and squeeze-type resistance welding; use where appropriate.
7. Identify shielding gases to be used with each procedure.
8. Use proper weld primers and corrosion protection.
9. Maintain and care for welding equipment.

## **G. Mechanical Repairs to Collision Damage**

**1200**

1. Proper use of OEM or aftermarket scan tools as required by manufacturer guidelines for Pre-, in-Process, and Post-scans.
2. Obtain and utilize data from OEM sources to aid in diagnosing Advanced Driver Assistance Systems (ADAS), Supplemental Restraint Systems (SRS), steering, and suspension system damage.
3. Diagnose and repair minor wiring damage.
4. Troubleshoot simple electrical/lighting circuits and repair.
5. Diagnose and replace SRS per OEM procedures.
6. Diagnose steering and suspension components using comparative angles and measurements.
7. Develop a general understanding of wheel alignment.

8. Remove and replace steering and suspension components as needed.
9. Repair cooling system(s); identify appropriate coolant.
10. Repair air conditioning system(s); identify proper refrigerant and handle safely.

## **H. Aluminum Repair**

**640**

1. Work safely around aluminum and/or aluminum alloys.
2. Employ cleanliness procedures while working with aluminum and/or aluminum alloys.
3. Use OEM-recommended procedures when replacing aluminum panels, including use of fasteners and self-piercing rivet guns.
4. Straighten aluminum when required.
5. Prepare surfaces for welding.
6. Use aluminum welder; care for and maintain welder and welding wire.

## **I. Refinishing**

**1200**

1. Identify appropriate sandpaper for use in each step of the refinishing process.
2. Feather edge repaired panels for primer application.
3. Prepare surfaces for primer application (clean, tack off).
4. Use block sander or machine sander on primed areas to eliminate sand scratches and repair edges.
5. Sand repaired panels for refinish.
6. Prepare new, undamaged panels for refinish.
7. Prepare adjacent blend panels for refinish.
8. Mask jamb openings and protect vehicle from overspray.
9. Mask vehicle exterior to prevent overspray.
10. Prepare non-steel panels, for example: flexible bumpers, fiberglass, carbon fiber, for refinish.
11. Apply primer, base coat, and clear coat.
12. Color sand, de-nib, and buff newly sprayed finish(-es).
13. Buff existing panels.
14. Use computer mixing system to mix primer and paint on scale(s).

15. Utilize refinishing theories: color and color matching; color blending, Three-Stage refinishing, and water-based paint
16. Set up spray gun(s), with attention to nozzle settings, air pressure, and fan adjustments.
17. Identify paint defects and repair same.
18. Attend manufacturer-specific paint training(s).

**Approximate Total Hours      800**

*Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to <https://dol.ny.gov/public-work-and-prevailing-wage>*

# **AUTO BODY REPAIRER & PAINTER**

## **APPENDIX B**

### **RELATED INSTRUCTION**

#### **Safety and Health**

1. General Workplace Safety
2. Personal Protective Equipment (PPE)
3. Proper Lifting Techniques
4. Right-to-Know/ Safety Data Sheets (SDS)
5. EPA Regulations for Working with Refrigerants, and Obtaining Required Certifications
6. First Aid – minimum 6.5 hours every 3 years
7. Sexual Harassment Prevention Training – MUST comply with section 201-g of the Labor Law
8. Hazardous Waste Disposal and Hazardous Airborne Pollutants

#### **Schematics and Mathematics**

1. Reading Schematics
2. Reading Technical Manuals and Procedures
3. Trade Math

#### **Trade Theory and Skills**

1. Introduction to:
  - a. Collision Repair Process; Vehicle Construction Materials; Vehicle Terminology.
  - b. Parts Terminology; Industry Repair Terminology; Tools and Equipment.
  - c. Mechanical Systems Terminology; Safety Systems; Mechanical Repair Terms.
    - i. Refinishing and Corrosion Protection
2. Exterior Bolted-On Parts Replacement
3. Fixed and Moveable Glass and Its Replacement
4. Trim and Hardware Removal & Installation
5. Plastic and Composite Repair
6. Adhesive and Welded Plastic Repair

7. Damage Analysis and Repair to Steel and Aluminum Body Panels
8. Door Skin: Removal, Preparation, and Replacement
9. Supplemental Restraint Systems (SRS)
10. Pre- and Post-Repair Vehicle Systems Scanning
11. Calibration of SRS and Advanced Driver Assist Systems (ADAS)
12. Welded Panel Removal, Preparation, and Replacement
13. Corrosion Protection and Seam Sealing
14. Automotive Foams
15. Structural Set Up and Repair
16. Water Leak and Wind Noise Detection and Correction
17. New Vehicle Technology and Trends (Yearly)
18. Welding: Resistance Spot Welding; Gas Metal Arc Welding (GMAW) and Cutting.
  - a. GMAW Welding Qualification Test Preparation on steel substrate
19. 3D Vehicle Structure Measuring
20. Steering and Suspension Analysis
21. Lighting, Charging, and Starting Systems
22. Wire Harness Repair
23. Air Conditioning Systems and Repair
24. OEM Specific and Paint Manufacturer Specific Training
25. Cycle Time, Time Management, Communication, and Teamwork
26. Introduction to Management (At Option of Sponsor)

### **Other Related Topics as Necessary**

144 Hours of Related Instruction are Required for Each Apprentice for Each Year.  
Appendix B topics are approved by New York State Education Department.