Auto Body

Program / Hours: CIP 47.0603 Autobody Collision & Repair- 2 Year Half Day Program

Course Description:

Autobody Technology prepares students for careers and postsecondary education in the collision repair industry. Students develop knowledge and skills in shop safety, vehicle design and construction, estimating, structural damage analysis and repair, cutting and welding processes, corrosion protection, metal finishing, plastic repair, panel replacement and alignment, glass, trim and hardware repair, and masking procedures. Instruction also includes refinishing safety, surface preparation, automotive finishes, refinishing and blending operations, detailing, restraint systems, and advanced driver assistance systems (ADAS). Through a combination of hands-on laboratory experiences and online certification training, students apply industry-standard collision repair and refinishing techniques while developing the technical and employability skills needed for success in the transportation industry.

Learning Activities / Modes of Assessment:

- Small Group
- Large Group
- Independent Work
- One-on-One
- Classwork Activities
- Portfolio
- Documentation of all work
- Presentations
- Research Projects
- Research and Diagnostics
- Technology Use
- Tests and Quizzes

Individual Resources:

- ICar Curriculum online
- Online Resources
- PowerPoint Presentations
- Computer Applications
- Proprietary Software: CCC1 estimating, Car-O-Liner measuring, ICAR, PPG Paint
- Autobody Equipment and Tools
- Autobody Labs

Year / MP	Task #	Know	Understand	Do
Yr 1 – MP 1	101	Follow safety rules	Why safety rules exist and consequences of unsafe actions	Follow posted safety rules during all shop activities
Yr 1 – MP 1	102	Use PPE	When and why specific PPE is required	Correctly wear and inspect required PPE
Yr 1 – MP 1	103	Fire extinguishers	Fire classes and extinguisher types	Locate and demonstrate extinguisher use
Yr 1 – MP 1	104	Emergency switches	Purpose of emergency shut-off systems	Identify and operate emergency switches
Yr 1 – MP 1	109	Hand tool safety	Safe tool handling practices	Use hand tools safely
Yr 1 – MP 1	110	Power tool safety	Power tool hazards and safeguards	Operate power tools following safety procedures
Yr 1 – MP 1	112	Safety Data Sheets	Information contained on SDS sheets	Locate and interpret SDS information
Yr 1 – MP 1	113	Vehicle lifting	Lift points and load capacity	Secure vehicles on lifts or jack stands
Yr 1 – MP 1	201	Vehicle construction types	Differences between unibody and body-on-frame	Identify construction types on vehicles
Yr 1 – MP 1	202	Structural vs non-structural panels	How panel types affect vehicle safety	Identify structural and non-structural panels

Yr 1 – MP 1	203	Vehicle materials	Material properties and uses	Identify materials used in vehicle construction
Yr 1 – MP 1	2001	Vehicle identification number	What information the VIN provides	Identify vehicle using the VIN
Yr 1 – MP 1	2002	Customer and vehicle data	Why accurate information matters during estimating	Collect customer and vehicle data
Yr 1 – MP 1	2003	Estimating guides/software	Purpose of estimating systems	Create estimates using guides or software
Yr 1 – MP 1	2004	Damage types	Differences between direct and indirect damage	Identify types of vehicle damage
Yr 1 – MP 1	2005	Repair vs replace decisions	Factors that guide repair decisions	Determine repair vs replace
Yr 1 – MP 1	2006	Estimating workflow	Steps involved in estimating and sequencing repairs	Prepare a complete repair estimate
Yr 1 – MP 1	2007	Vehicle scanning	Why scans are required before and after repair	Explain need for pre and post repair scans
Yr 1 – MP 1	2008	OEM procedures	Importance of OEM documentation	Research OEM repair or replacement procedures
Yr 1 – MP 1	801	Structural damage types	How impact affects vehicle structure	Classify types of structural damage

Yr 1 – MP 1	802	Body dimension specs	Purpose of vehicle measurement systems	Interpret body dimension specifications
Yr 1 – MP 1	803	Tram gauge measurements	How length, width, and X measurements indicate structural damage	Use a tram gauge to measure vehicle structure
Yr 1 – MP 1	804	Datum line measurements	How height measurements relate to structural alignment	Diagnose vehicle height using datum line or electronic measuring
Yr 1 – MP 1	805	Vehicle measuring systems	Differences between mechanical and electronic systems	Identify and compare vehicle measuring systems
Yr 1 – MP 1	806	Structural damage repair types	How damage types affect repair approach	Explain repair methods for diamond, twist, sag, or mash damage
Yr 1 – MP 1	901	Pulling system setup	Why proper anchoring is critical for safe pulls	Mount and anchor a vehicle to a pulling system
Yr 1 – MP 1	902	Structural measurements	How measurement data guides repairs	Measure vehicle structure and analyze data
Yr 1 – MP 1	903	Structural correction data	How measurement data is used to restore specs	Interpret data and perform structural pull

Yr 1 – MP 2	1201	Cutting processes	When different cutting methods are used	Perform sheet metal cutting operations
Yr 1 – MP 2	1202	Sheet metal cutting	Safe cutting techniques	Cut sheet metal using shop equipment
Yr 1 – MP 2	1101	Attachment methods	Differences between welding and adhesives	Select proper attachment method
Yr 1 – MP 2	1102	Welding safety	Welding hazards and PPE requirements	Demonstrate proper welding safety practices
Yr 1 – MP 2	1103	MIG welder setup	Welder adjustment and wire selection	Set up and tune MIG welder
Yr 1 – MP 2	1104	Butt welds	Joint preparation and penetration standards	Complete a butt weld with backing
Yr 1 – MP 2	1105	Overlap welds	Overlap weld applications	Complete an overlap weld
Yr 1 – MP 2	1106	Plug welds	Purpose and placement of plug welds	Complete a plug weld
Yr 1 – MP 2	1107	Protection of adjacent components during welding and cutting	Why adjacent panels, glass, and interiors must be protected during hot work	Set up heat shields and protective materials prior to welding or cutting operations
Yr 1 – MP 2	1108	Squeeze-type resistance spot welding (STRSW)	How STRSW differs from MIG welding and when OEMs require its use	Demonstrate or explain STRSW operation following OEM guidelines

Yr 1 – MP 2	1001	Corrosion causes	How corrosion develops	Identify corrosion and OEM protections
Yr 1 – MP 2	1002	Corrosion protection	Proper corrosion prevention steps	Apply corrosion protection methods
Yr 1 – MP 2	1004	Seam sealers	Purpose of seam sealing	Apply seam sealers correctly
Yr 1 – MP 3	501	Metal straightening tools	How tool selection matches damage type	Select and use proper metal straightening tools
Yr 1 – MP 3	502	Stretched metal	How metal stretching affects repairability	Evaluate metal for stretch and repair feasibility
Yr 1 – MP 3	503	Sheet metal repair methods	Differences between weld-on and adhesive repairs	Repair sheet metal using weld-on or adhesive methods
Yr 1 – MP 3	504	Industry repair standards	Quality expectations for metal repairs	Repair metal panels to industry standards
Yr 1 – MP 3	505	Aluminum repair	Characteristics and safety concerns of aluminum	Identify aluminum panels and required repair tools
Yr 1 – MP 3	601	Body filler selection	Types of fillers and proper applications	Select correct body filler and tools
Yr 1 – MP 3	602	Surface preparation	Why surface prep is critical for adhesion	Prepare panel surface for body filler
Yr 1 – MP 3	603	Body filler application	Mixing ratios and application techniques	Mix and apply body filler to a repair area

Yr 1 – MP 3	604	Filler shaping	Proper sanding stages for contouring	Sand filler to correct contour
Yr 1 – MP 3	2101	Plastic identification	How plastic type determines repair method	Identify plastic type to make repair decisions
Yr 1 – MP 3	2103	Plastic adhesive repair	When adhesives are appropriate for plastic repairs	Repair plastic using two-part adhesive with or without reinforcement
Yr 1 – MP 3	2104	ADAS considerations	How bumper repairs affect ADAS systems	Research OEM procedures for ADAS-related bumper repairs
Yr 1 – MP 3	2105	Plastic welding	When plastic welding is required	Perform or explain nitrogen plastic welding repairs
Yr 1 – MP 4	301	Panel replacement principles	Attachment methods and alignment considerations	Identify proper method for panel replacement
Yr 1 – MP 4	302	Bolt-on panel alignment	Importance of gaps, flushness, and fit	Remove, reinstall, and align a bolt-on panel
Yr 1 – MP 4	303	Wheel and tire removal	Proper removal and installation procedures	Remove and reinstall wheel and tire assembly
Yr 1 – MP 4	304	Headlight aiming	Why proper headlight aim is critical for safety	Aim headlights using mechanical aiming equipment
Yr 1 – MP 4	701	Window regulators	How window regulator systems operate	Remove and reinstall a door window regulator

Yr 1 – MP 4	702	Moveable door glass	Proper glass handling procedures	Remove and reinstall moveable door glass
Yr 1 – MP 4	703	Stationary glass	General procedures for stationary glass removal	Describe removal and replacement of stationary glass
Yr 1 – MP 4	402	Fastener types	How fastener selection affects repairs	Determine and select proper fasteners
Yr 1 – MP 4	403	Adhesive-held trim	Proper adhesive removal and replacement	Remove and replace adhesive-held molding and trim
Yr 1 – MP 4	404	Seat installation	Seat mounting and safety considerations	Remove and install seats
Yr 1 – MP 4	406	Interior components	Interior attachment methods	Remove and install interior parts and hardware
Yr 1 – MP 4	407	Exterior components	Exterior attachment methods	Remove and install exterior parts and hardware
Yr 1 – MP 4	408	Exterior trim	Care required when removing trim and emblems	Remove and install exterior trim, moldings, and emblems
Yr 1 – MP 4	1510	Masking materials	Differences between masking materials	Identify appropriate masking materials
Yr 1 – MP 4	1511	Masking procedures	Importance of proper masking for refinishing	Perform masking on panels prior to refinishing

Yr 2 – MP 1	1301	Environmental regulations	Why environmental regulations matter in refinishing	Follow environmental safety regulations in the paint area
Yr 2 – MP 1	1302	Hazard warning information	How to identify hazardous materials	Locate and interpret hazardous warning information
Yr 2 – MP 1	1303	PPE for refinishing	Health risks from refinishing materials	Inspect and wear required PPE
Yr 2 – MP 1	1304	Safe painting practices	Risks associated with painting operations	Demonstrate safe painting practices
Yr 2 – MP 1	1305	Personal health hazards	Short- and long-term health effects	Identify personal health and safety hazards
Yr 2 – MP 1	1601	Spray booth operation	Airflow, filtration, and booth safety	Operate the spray booth correctly
Yr 2 – MP 1	1602	Paint mixing area	Importance of cleanliness and organization	Maintain the paint mixing area
Yr 2 – MP 1	1603	Spray gun setup	Gun adjustments and spray patterns	Set up, test, and adjust spray guns
Yr 2 – MP 1	1604	Spray gun maintenance	How equipment condition affects finish quality	Inspect, clean, and maintain spray guns
Yr 2 – MP 1	1605	Respirator systems	Why respirators are required during refinishing	Select and use NIOSH-approved respirators
Yr 2 – MP 1	1401	Paint systems	Differences between paint systems	Identify paint systems used in refinishing

Yr 2 – MP 1	1402	Paint defects	Causes and cures of paint defects	Diagnose common paint defects
Yr 2 – MP 1	1403	Undercoats	Purpose of primers and sealers	Select appropriate undercoats
Yr 2 – MP 1	1404	Topcoats	Differences among topcoat types	Identify and select correct topcoats
Yr 2 – MP 2	1501	Vehicle pre-wash	Why pre-cleaning is critical to refinishing	Perform complete pre-wash of vehicle
Yr 2 – MP 2	1502	Wax and grease remover	How contaminants affect finish quality	Use wax and grease remover correctly
Yr 2 – MP 2	1503	Sanding techniques	Featheredging and abrasive selection	Demonstrate sanding and featheredging techniques
Yr 2 – MP 2	1504	Wet and dry sanding	Differences between wet and dry sanding	Wet and/or dry sand and featheredge surfaces
Yr 2 – MP 2	1506	Paint codes	How paint codes ensure color accuracy	Locate and obtain vehicle paint code
Yr 2 – MP 2	1507	Undercoat application	When and how undercoats are applied	Apply undercoats to prepared surfaces
Yr 2 – MP 2	1508	Blend preparation	Why blending affects finish appearance	Prepare panels for blending

Yr 2 – MP 2	1510	Masking materials	Appropriate masking material selection	Identify correct masking materials
Yr 2 – MP 2	1511	Masking procedures	Preventing overspray and defects	Perform proper masking
Yr 2 – MP 2	1512	Abrasive selection	How grit choice affects results	Select appropriate abrasives
Yr 2 – MP 2	1701	Surface prep for topcoat	Cleaning and tack procedures	Prepare surfaces for topcoat systems
Yr 2 – MP 2	1702	Primer-sealer application	Purpose of primer-sealers	Apply primer-sealer
Yr 2 – MP 2	1703	Single-stage finishes	When to use single-stage finishes	Apply single-stage finish
Yr 2 – MP 2	1704	Basecoat/clearcoat	Layering and curing processes	Apply basecoat and clearcoat finish
Yr 2 – MP 2	1706	Paint mixing ratios	Why proper mixing is critical	Mix paint products according to manufacturer specs
Yr 2 – MP 2	1802	Blend basecoat/clearcoat	Techniques for seamless blending	Blend basecoat/clearcoat finish
Yr 2 – MP 2	1803	Tinting and blending	Color adjustment techniques	Tint and blend color coatings
Yr 2 – MP 3	1901	Overspray removal	Causes of overspray and safe removal methods	Remove overspray from finished surfaces

Yr 2 – MP 3	1902	Exterior cleaning	Proper exterior detailing procedures	Clean exterior of vehicle
Yr 2 – MP 3	1903	Interior cleaning	Interior detailing standards	Clean interior of vehicle
Yr 2 – MP 3	1904	Decals and stripes	Placement and alignment considerations	Apply decals and stripes accurately
Yr 2 – MP 3	1905	Color sanding and polishing	How sanding and polishing improve finish quality	Perform color sanding and polishing techniques
Yr 2 – MP 3	1906	Body openings	Importance of clean body openings	Clean body openings
Yr 2 – MP 3	1907	Glass cleaning	Techniques to prevent streaking and damage	Clean exterior and interior glass surfaces
Yr 2 – MP 4	2201	SRS safety procedures	Risk of accidental airbag deployment	Research manufacturer SRS safety procedures
Yr 2 – MP 4	2202	Supplemental restraint systems	Types of restraint systems	Identify supplemental restraint systems
Yr 2 – MP 4	2203	Seat belt systems	Seat belt system components	Remove and reinstall seat belt components
Yr 2 – MP 4	2301	ADAS systems	How ADAS components function	Explain function and components of ADAS
Yr 2 – MP 4	2302	High-voltage vehicles	Safety precautions for EV and hybrid vehicles	Describe precautions when working on high-voltage vehicles