SAE International™

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J2376

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New-Vehicle Collision Repair Information

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1. Scope

This SAE Recommended Practice defines the various types of information required by the collision repair industry to properly restore light-duty, highway vehicles to their pre-accident condition. Procedures and specifications are defined for damage-related repairs to body, mechanical, electrical, steering, suspension, and safety systems. The distribution method and publication timeliness are also considered.

1.1 Purpose

The purpose of this document is to assist vehicle and equipment manufacturers, and information providers in providing timely information, in user-friendly formats, to facilitate economical, high-quality repair of collision-damaged, light-duty, highway vehicles by dealer-owned and independently owned collision repair shops.

1.2 Rationale

This document has undergone its first five-year update.

2. References

2.1 Applicable Publication

The following publication forms a part of this specification to the extent specified herein. Unless otherwise specified, the latest issue of each publication shall apply.

2.1.1 SAE PUBLICATION

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1828—Uniform Reference And Dimensional Guidelines For Unibody Vehicles

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this document.

2.2.1 SAE PUBLICATIONS

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1142—Towability Design Criteria and Equipment Usage
SAE J1344—Marking of Plastic Parts
SAE J1555—Recommended Practice For Optimizing Automobile Damageability
SAE J1556—Stationary Safety Glazing Replacement
SAE J2184—Service Garage Lifting Locations
SAE J2235—Paint and Trim Code Locations
SAE J2621—Qualifying Aftermarket Two-Component Rigid Structural Foams

2.2.2 UNIFORM PROCEDURES FOR COLLISION REPAIR

Available for download from the I-CAR International web site: http://www.i-car.com.

I-CAR Uniform Procedures for Collision Repair (web download)

2.2.3 TECH-COR RESEARCH BULLETINS

Available for download from the Tech-Cor, Inc. web site: http://www.tech-cor.net.

Tech-Cor Research Bulletins (web download)

2.2.4 REPAIR METHODS MANUALS

Available by subscription from The Motor Insurance Repair Research Centre web site: http://www.thatcham.org.

Repair Methods Manuals (CD-ROM or print)

3. Definitions

3.1 Drive-Away Time

The minimum time required for an adhesive system to reach the vehicle maker's specified strength following replacement of a glass part.

3.2 Structural Parts

Parts that support vehicle weight and absorb road shock, while maintaining the vehicle shape. Structural parts also absorb and manage collision energy.

3.3 Tracking Offset

The separation between the track of the rear wheels and the track of the front wheels of a vehicle, with zero thrust angle, as it travels in a straight line.

4. Publication Requirements

4.1 Delivery Format

Collision repair information can be published in print form, such as repair manuals, technical service bulletins (field bulletins), towing manuals, etc. Electronic formats such as floppy discs, CD-ROMS, and the internet may also be used.

4.2 Timeliness

To be most effective, collision repair information should be made available, to all repair facilities who request it, no later than the introduction date of each new vehicle platform. Information should be updated on a timely basis, whenever significant changes occur in areas such as procedures, specifications, prices, etc.

4.3 Content Level

The contents should describe the necessary vehicle-specific repair processes and specifications that will enable trained, experienced repair technicians to restore the vehicle to its pre-accident condition. Common repair practices should not be included. Descriptions of new or unique designs, materials, tools, processes, fasteners, and hazardous materials must be included, as well as unusual safety hazards.

4.4 Industry Segments

The affected industry segments include vehicle manufacturers, repair facilities, insurers, information providers, training organizations, and manufacturers of products and equipment in the following areas:

a. Body repair
b. Refinishing
c. Structural parts straightening and replacement
d. Wheel alignment
e. Mechanical and electrical repairs
f. Hydraulic repair

5. Technical Contents

5.1 Safety Precautions

Include special warnings and procedures, related to the vehicle repair, to avoid personal injury and property damage. It is not necessary to include standard industrial safety practices.

5.1.1 Personal Protection

Safety equipment and precautions.

5.1.2 Hazardous Materials

Handling and disposal.

5.1.3 Air-Bag Handling

Manual deployment, shipping, and disposal.

5.1.4 Pulling Precautions

Recommended anchoring locations.

5.2 Restraint Systems

Include information on disarming, post deployment service, diagnostics, repairs, replacement, and operational verification for the following items, whether mechanically or electronically controlled:

a. Air-bag system
b. Seat-belt system
c. Knee bolsters
d. Integrated child-safety seat
e. Side-impact airbags

5.3 Materials Identification and Repair Processes

Include methods of identification, special procedures for repairing, joining and attaching (including adhesive bonding), and requirements for corrosion protection for the various materials in the vehicle. Include heat limitations where applicable.

5.3.1 STEEL

Include coated steels, special alloys, and the use of weld-through primers and weld-bond adhesives.

5.3.2 ALUMINUM

Include special alloys, the use of structural adhesives and special rivets.

5.3.3 MAGNESIUM

5.3.4 PLASTICS AND COMPOSITES

Include the use of plastic welding and structural adhesives.

5.3.5 STRUCTURAL FOAM

5.3.6 ENERGY-ABSORBING FOAM

5.3.7 ACOUSTIC FOAM

5.3.8 SPECIAL COATINGS

5.4 Structural Straightening

5.4.1 VEHICLE DIMENSION SPECIFICATIONS

Specify the locations and measurement tolerances, in three dimensions, of frame, underbody, upperbody, and engine compartment control and reference points, in mm (inches). Use an equipment-specific coordinate system when appropriate. See SAE J1828.

5.4.2 VEHICLE CLAMPING AND PULLING

Identify the anchoring locations and methods.

5.4.3 STRESS-RELIEVING

Specify the maximum heating temperature and heating time for the various types of materials used in vehicle structures, including the following:

a. Mild steels
b. High-strength steels (including boron alloys)
c. Aluminum alloys

5.5 Structural Sectioning

Identify crush zones, cross members and reinforcements, and define cut locations, joint configurations, and partial-panel availability, for all structural items including the following:

a. Front and rear unibody rails
b. Front and rear frame rails
c. A, B, C, and D pillars
d. Rocker panels and floorpans
e. Quarter panels and wheelhouses

5.6 Glass Replacement

Specify special replacement procedures, including fasteners, modular glass, integral moldings, bonding adhesives, drive-away times, etc.

5.6.1 STATIONARY GLASS

Include the following types:

a. Windshield
b. Backlite
c. Quarter window
d. Side or door window
e. Roof window

5.6.2 MOVABLE GLASS

Include the following types:

a. Door
b. Roof
c. Quarter
d. Hatch
e. Backlite
f. Vent window

5.6.3 SPECIALTY GLASS

Include the following types:

a. Heated (including full-view and wiper-parking areas)
b. Integral antenna systems
c. Applied tint
d. Outside rear-view mirrors
e. Any other type of specialty glass, including head-up display, heat- or rain-sensing, etc.

5.7 Refinishing

Include paint codes and special application information.

5.7.1 SURFACE PREPARATION

Include requirements for application of the following:

a. Corrosion protection—Include procedures for new replacement parts.
b. Primer and sealer
c. Adhesion promoter

5.7.2 FINISH APPLICATION

Include special color-matching procedures for the following finishes:

a. Single-stage
b. Multi-stage

5.7.3 SPECIAL APPLICATIONS

Include special requirements for applying the following:

a. Stone guard coating
b. Stripes
c. Decals
d. Color-compatible primer
e. Chip-resistant primer

5.8 Wheel-Alignment Specifications

Include standard conditions of loading, ride-height, etc. See SAE J1555.

5.8.1 FRONT WHEELS

Camber, caster, SAI, included angle and toe, in degrees

5.8.2 REAR WHEELS

Camber and toe, in degrees

5.8.3 THRUST ANGLE

Maximum allowable, in degrees

5.8.4 TRACKING OFFSET

Maximum allowable, in mm (inches)

5.9 Steering, Suspension, and Brakes

Include diagnostic, repair, and operational verification information. Include diagnostic dimensions for wheelbase and lower ball-joint locations, and information on electronically controlled systems.

5.9.1 FOUR-WHEEL STEERING

5.9.2 ANTI-LOCK BRAKES

Include proportioning systems for brake force distribution

5.9.3 TRACTION- AND STABILITY-CONTROL SYSTEMS

Include active skid and yaw control.

5.9.4 COLLAPSIBLE STEERING COLUMN

5.10 Miscellaneous Information

5.10.1 FASTENER INFORMATION

Describe special tools, reuse limitations, and torque specifications, when required.

a. Trim clips
b. Molding fasteners
c. One-time fasteners
d. Anti-theft fasteners

5.10.2 SPECIAL PARTS AVAILABILITY

Include ordering information, when applicable, for the following.

a. Service-unique replacement parts, including special instructions
b. Emission labels
c. Miscellaneous information labels
d. Anti-theft labels
e. VIN labels