



SURFACE VEHICLE RECOMMENDED PRACTICE

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Motor Vehicle Seating Systems

RATIONALE

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Foreword—This Document has not changed other than to put it into the new SAE Technical Standards Board Format.

1. Scope—This SAE Recommended Practice establishes uniform test procedures and certain minimum performance requirements for motor vehicle seats and seat adjusters. It is limited to tests that can be conducted on uniform test fixtures and equipment available in commercial laboratory test facilities. This practice includes a minimum requirement for horizontal forward loads encountered in vehicle forward impacts, and horizontal loads obtained by impacting the vehicle from the rear. The requirements and test procedures in this recommended practice reflect current technology and industry experience. It is intended to subject this recommended practice to a continuing review and revision as technology advances and experience is expanded.

2. References

2.1 Applicable Publications—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

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

SAE J787—Motor Vehicle Seat Belt Anchorage

SAE J826—Devices for Use in Defining and Measuring Vehicle Seating Accommodation

3. Definitions

3.1 Motor Vehicle Seat System—A structure engineered to seat the driver and/or passengers, including all pads, upholstery, decorative metal trim parts, and seat adjusters or supporting components.

3.2 Seat Adjuster—A device anchored to the structure which supports the seat frame assembly and provides for seat adjustments in the longitudinal and/or vertical direction. This includes any track, link, or power actuating assemblies necessary to adjust the position of the seat.

3.3 Seat Frame—The structural portion of a seat assembly. The frame may be constructed with springs attached directly to the structural frame or with the springs attached as a separate assembly.

3.4 Seat Back Frame Upper Crossbar—The uppermost horizontal structural member of a seat back frame.

3.5 Nonadjustable Seat—A motor vehicle seat which does not have a seat adjuster as defined in paragraph 3.2. This also includes those seats capable of movement for stowing the seat or other items.

3.6 Head Restraint—A head restraint is a device attached to a seat back or the vehicle structure and designed to reduce rearward movement of the head.

4. General Requirements

4.1 Simulated Inertia Loading—Each seat system or applicable component, together with its attachments, shall be capable of sustaining a horizontal forward and rearward (in relation to the vehicle) static load, unless otherwise noted below, when tested in accordance with 5.1.

- a. The seat frame shall not become detached from the seat adjuster or support system, and there shall be no separation of the seat adjuster mechanism under loading equal to 20 times the weight of all seat and seat adjuster components that are longitudinally adjustable.
- b. The seat system shall not become detached from the vehicle structure under loading equal to 20 times the weight of the applicable components.
- c. Restraining devices for folding seats or seat backs shall not become detached from the seat structure or disengaged under a horizontal forward load equal to 20 times the weight of the applicable fully trimmed component.

The seat adjusters or latching mechanisms need not be operable after the application of the test load. These load requirements are independent of any additional loads which may be imparted to the seat adjusters and seat frame due to seat belt installations. If seat belts are anchored to the seat system, SAE J787 should be followed.

4.2 Calculated Inertia Loading of Restraining Devices for Seat Backs and Folding Seats—Restraining devices for seat backs and folding seats in the vehicle latched seat position, when evaluated by calculation, must remain in the latched position when subjected to an inertia load of 20 g in the forward direction with respect to the seat (see Section 6.)

4.3 Simulated Occupant Loading—Each seat system, together with its attachments, shall be capable of sustaining a rearward static moment (in relation to the longitudinal axis of the vehicle) about the seat "H" point (see SAE J826) of 3300 in.-lb for each passenger for which the individual seat back is designed, when tested in accordance with 5.2. Seat adjuster and reclining seat mechanism shall not disengage from their present position during application of the test moment.

4.4 Simulated Occupant Loading of Head Restraint—The head restraint, its attachments, and designed supporting structure shall sustain a minimum force equivalent to 3300 in.-lb about the seat "H" point and shall not fail prior to the seat back when subjected to a gradual increase in force up to a maximum of 200 lb when tested in accordance with 5.3.

5. Test Procedures

5.1 Simulated Inertia Loading

5.1.1 ALL SEAT ADJUSTER AND SEAT FRAME COMBINATIONS, AND ALL NONADJUSTABLE FRONT SEATS AND FOLDING SEATS

- a. A diagonal strut should be secured in place on each side of the test seat frame from a point in the same horizontal plane as the c.g. of the fully trimmed seat frame to a point as far forward as possible of the seat adjuster attachments (See Figure 1).