



SURFACE VEHICLE RECOMMENDED PRACTICE

J1834™

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Seat Belt Comfort, Fit, and Convenience - Truck and Bus

RATIONALE

Changes: (a) strengthen the recommendation for adjustable D-ring anchorages, (b) ensure that manufacturing tolerances are taken into consideration when determining maximum tether belt lengths, and (c) recommend a locating feature on end fittings with web slots that are firmly torqued in position so that the web slots will be perpendicular to the direction of force when the belt is under load.

1. SCOPE

This SAE Recommended Practice provides design, test, and performance guidelines on the comfort, fit, and convenience for active restraint systems for heavy trucks and multipurpose passenger vehicle applications over 10000 pounds gross vehicle weight rating (GVWR). The information pertains to the forward facing seating positions.

1.1 Purpose

The purpose of this document is to provide the engineer with general reference considerations for the design of active restraint systems that are comfortable and convenient to use for heavy truck and multipurpose passenger vehicle applications. The intent of this practice is to present a logical process by which the engineer and designer may evaluate restraint system designs, regarding comfort, fit, and convenience.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

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

SAE J833 Human Physical Dimensions

SAE J1516 Accommodation Tool Reference Point for Class B Vehicles

SAE J1522 Truck Driver Stomach Position

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https://www.sae.org/standards/content/J1834_202210/

Documents

Document Sharing Hub

2.1.2 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

FMVSS 101	Controls and Displays
FMVSS 105	Hydraulic Brake Systems
FMVSS 121	Air Brake Systems
FMVSS 208	Occupant Crash Protection
FMVSS 209	Seat Belt Assemblies
FMVSS 210	Seat Belt Assembly Anchorages

2.2 Related Publications

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

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J140	Seat Belt Hardware Test Procedures
SAE J339	Seat Belt Assembly Webbing Abrasion Test Procedure
SAE J383	Motor Vehicle Seat Belt Anchorages - Design Recommendations
SAE J384	Motor Vehicle Seat Belt Anchorages - Test Procedure
SAE J385	Motor Vehicle Seat Belt Anchorages - Performance Requirements
SAE J800	Motor Vehicle Seat Belt Assembly Installation

2.2.2 Other Publications

HS-801 277	Sources and Remedies for Restraint Systems' Discomfort and Inconvenience
DOT-HS-805-597	Comfort and Convenience Specifications for Safety Belts: Shoulder Belt Fit, Pressure and Pull Out Forces
DOT-HS-803-887	An Examination of the Comfort and Convenience of 1979 Safety Belt Systems

3. DEFINITIONS

3.1 ACCOMMODATION TOOL REFERENCE POINT

A two-dimensional side view line which defines a horizontal reference point as a function of H-point height to which stomach contours can be located in vehicle space. Three different lines are provided to accommodate truck driver populations with male/female ratios of 50/50, 75/25, and 90/10 to 95/5 (SAE J1516 and SAE J1522).

3.2 ACTIVE RESTRAINT BELT SYSTEM

A belt system that requires action (i.e., donning/doffing) by the vehicle occupant.

3.3 ADJUSTMENT HARDWARE

All hardware designed to adjust the length of the seat belt assembly to fit the user, including such hardware that may be integral with a buckle, attachment hardware, or retractor.

3.4 ANCHORAGE

The final point of attachment for transferring seat belt assembly loads to the vehicle structure.

3.5 ATTACHMENT HARDWARE

All hardware designed for securing the webbing of a seat belt assembly to a motor vehicle at the anchorage.

3.6 AUTOMATIC LOCKING RETRACTOR (ALR)

A retractor incorporating adjustment by means of a positive self-locking mechanism which is capable when locked of withstanding restraint forces.

3.7 BUCKLE

A quick-release mechanism which fastens a person in a seat belt assembly.

3.8 D-RING

A load-bearing device, through which safety belt webbing passes, which controls belt routing and support for the occupant's upper torso.

3.9 DOFFING

The act of removing and storing a seat belt assembly from the occupant.

3.10 DONNING

The act of positioning a seat belt assembly on the occupant.

3.11 EGRESS

The act of exiting (a vehicle).

3.12 EMERGENCY LOCKING RETRACTOR (ELR)

A retractor incorporating adjustment hardware by means of a locking mechanism that is activated by vehicle acceleration, webbing movement relative to the vehicle, or other automatic action during an emergency, and is capable, when locked, of withstanding restraint forces.

3.13 H-POINT

The H-point is the pivot center of the torso and thigh on the two- or three-dimensional devices used in defining and measuring vehicle seating accommodation (refer to SAE J826).

3.14 HARDWARE

Any metal or rigid plastic part of the seat belt assembly.

3.15 INGRESS

The act of entering (a vehicle).