SURFACE VEHICLE RECOMMENDED PRACTICE

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Seat Belt Restraint System Hardware - Glossary of Terms

RATIONALE

This technical report is being stabilized because it covers technology, products, or processes for which technical expertise no longer resides in the owning committee.

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1. SCOPE

This SAE Recommended Practice provides a Glossary of Terms commonly used to describe Seat Belt Restraint Systems Hardware and their function. These terms are currently defined in various SAE Recommended Practices but are sometimes inconsistent. It is intended for this document to supersede the definitions found in separate SAE Recommended Practices.

2. REFERENCES

There are no referenced publications specified herein.

3. DEFINITIONS

3.1 Adjustable Guide Loop

A Guide Loop which can position the shoulder belt to multiple positions.

Also known as an Adjustable D-Ring, Adjustable Height Guide Loop, Adjustable Upper Anchorage, Adjustable Turning Loop, or Height Adjuster.

3.2 Adjustable Hardware

Hardware designed to allow adjustment of a seat belt assembly to accommodate various size occupants. This may include hardware that may be integral with the buckle, latch plate, guide loop, or retractor assembly.

3.3 All Belts To Seat (ABTS)

A seat belt assembly in which all the anchorage points are secured into the seat assembly. Also known as Seat Integrated Restraints (SIR), Belt in Seat (BIS), or Integrated Restraints.

3.4 Anchorages

Seat belt anchorage means any component, other than the webbing or straps, involved in transferring seat belt loads to the vehicle structure, including, but not limited to, the attachment hardware, seat frames, seat pedestals, the vehicle structure itself, and any part of the vehicle whose failure causes separation of the belt from the vehicle structure.

3.5 Attachment Hardware

Attachment hardware means any or all hardware designed for securing the webbing of a seat belt assembly to a motor vehicle.

NOTE: If the seat belt is attached to a seat, the seat is not attachment hardware.

3.6 Attachment Point(s)

The geometric locations where the seat belt assembly is attached to the seat system or vehicle.

3.7 Automatic Belt

A belt system that is donned and adjusted with little or no action by the occupant(s). Also known as a passive belt.

3.8 Automatic Locking Retractor (ALR)

A retractor incorporating a positive self locking mechanism that remains engaged, locked, and capable of withstanding restraint forces once webbing has initially been extracted. This locking mechanism is reset when the webbing is allowed to retract back into the retractor.

3.9 Belt Extender

An add on accessory consisting of a length of seat belt webbing with matching buckle and latch plate intended to allow the seat belt system to accommodate larger occupants.

3.10 Belt Tension Sensor (BTS)

A component of a seat belt assembly intended to monitor seat belt webbing tension which is used as part of an occupant presence system.

3.11 Buckle

The primary quick release component of a seat belt assembly which accepts and connects to a latch plate, and is intended to facilitate wearing and removal of the seat belt by an occupant.

3.12 Dual Spool Retractor

A retractor that contains two separate spools in order to route and store the seat belt webbing. One spool is for the shoulder belt portion and the other spool is for the lap belt portion.

3.13 Detachable Anchorage (See Quick Connect Anchorage)

A connector between two parts of a seat belt assembly intended to facilitate reconfigurability of the seat or seat belt by the end user of the vehicle. Typically requires a key or key like device in order to release as specified by FMVSS 208 S4.2.7.4 and S4.2.7.5.

3.14 Dual Mode Retractor

An ELR (Emergency Locking Retractor) which can be converted to an ALR (Automatic Locking Retractor) at the option of a user. Also known as a Convertible Retractor.

3.15 Dual Pretensioner Seat Belt System

A seat belt system that incorporates two pretensioners.

3.16 Dual Tension Retractors

A seat belt retractor incorporating a feature that provides two levels of webbing tension. A lower level of belt tension when worn by the occupant, and a higher belt tension when not worn to assist in webbing stowage. Also known as Tension Reducer Retractors.

3.17 Dynamic Test

A test of restraint system components or assemblies through application of forces as a function of time. Generally correlates to the timing of a crash loading event.

3.18 Electric Retractor

A retractor incorporating a reusable electrical device which acts to tighten the webbing in response to pre-determined pre-crash criteria such as occupant status and dynamic vehicle steering and handling inputs. May also handle webbing retraction and extraction functions under normal use. Also known as a Motorized Retractor, Reversible Retractor, Electric Pretensioner

3.19 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.

3.20 Emergency Tensioning Retractor (ETR)

A retractor incorporating a pretensioning device. See Pretensioner. Also known as a Retractor Pretensioner.

3.21 Energy Management (EM) Webbing Loop, Energy Absorbing (EA) Webbing Loop

A loop of webbing sewn into the lap or shoulder belt intended to affect occupant loads and occupant kinematics by controlled release of the stitching.

3.22 Escutcheon

A trim piece intended to facilitate the routing of the seat belt webbing from the vehicle body or seat to the vehicle interior. Also known as a bezel.

3.23 Film Spooling

Webbing payout from a locked retractor under crash loads resulting from tightening of the wraps of webbing upon itself on the spool. Also known as pack down.

3.24 Guide Loop

A load bearing device through which the seat belt webbing passes and changes direction. It is typically located on the shoulder portion of the seat belt assembly, but may be applicable wherever the webbing changes direction and carries restraint loads. Also known as a D- Ring, Turning Loop, Pillar Loop, or Sash Guide.

3.25 Hardware

Hardware means any metal or rigid plastic part of a seat belt assembly.

3.26 Highway Vehicle

Self-propelled motor vehicles having four or more wheels, and designed for use on public roads. Included are passenger cars, trucks, buses, and multipurpose passenger vehicles.

3.27 Inflatable belt

A seat belt assembly containing a section of webbing that is capable of being inflated during a crash.

3.28 Latch Plate

A load bearing device through which the seat belt webbing either passes or is permanently attached. Allows the webbing to change direction and connect with the buckle. Also known as a Tongue, tip, or simply as a Latch. Latch Plate variants include free falling/dropping, sliding, cinching/locking, semi-cinching, dual mode, switchable dual mode, sewn-in.

3.29 Latch plate: Dropping, free falling, and sliding types

A latch plate which permits webbing transfer through the latch plate in two directions in response to loading and will fall under its own weight along a vertical length of webbing.

3.30 Latch plate: Free running types, Self Parking Tongue

A latch plate which permits webbing transfer through the latch plate in two directions in response to loading and will remain in place under its own weight along a vertical length of webbing, but can easily be moved

3.31 .Latch Plate: Locking, or Cinching types

A latch plate which limits transfer of the webbing through the latch plate in at least one direction in response to loading sufficient to meet the child seat requirements of FMVSS 208 S7.1.1.5, the loop load requirements of 7.1 of SAE J140 and SAE J141, also with dynamic crash loading.

3.32 Latch Plate: Semi Cinching type

A latch plate which limits transfer of the webbing through the latch plate in at least one direction in response to loading sufficient to meet the child seat requirements of FMVSS 208 S7.1.1.5, but is not intended to limit the transfer of webbing during dynamic (crash) loading.

3.33 Latch Plate: Dual Mode type

A latch plate which is designed to perform as a dropping latch plate when the seat belt is stowed, but functions in a manner similar to a cinching or semi-cinching latch plate while worn.

3.34 Latch Plate: Crash Locking

A latch plate which is designed to perform as a dropping latch plate or free running latch plate when the seat belt is stowed and when worn during normal use, but functions as a cinching or semi-cinching latch plate during dynamic crash loading. Also known as Dynamic Locking or Safety Locking.

3.35 Latch Plate: Switchable Dual Mode type

A latch plate which provides the user with a method to select the way in which the latch plate operates.. Allows the user to select either a dropping mode, or a locking, cinching or semi-cinching mode.

3.36 Latch Plate: Sewn-in type

A latch plate that is sewn directly to the separate shoulder and lap portions of the webbing thus prohibiting webbing transfer through the latch plate. Used with dual retractor/dual spool type seat belt system.

3.37 Load Limiter

A seat belt feature that modulates the seat belt tension at a level intended to control the forces that are imparted to the occupant during a crash. Also known as a Force Limiter

3.38 Load Limiting Retractor

A load limiter device integral to the retractor. Variants include constant, digressive, progressive, two stage, and adaptive/intelligent/programmable.

3.39 Load Limiting Retractor – CONSTANT

A retractor which incorporates a mechanism which provides a controlled constant level of load limiting as a crash event progresses.

3.40 Load Limiting Retractor – Digressive

A retractor which incorporates a mechanism which provides a controlled decreasing level of load limiting as a crash event progresses.

3.41 Load Limiting Retractor – Progressive

A retractor which incorporates a mechanism which provides a controlled increasing level of load limiting as a crash event progresses.

3.42 Load Limiting Retractor – Two Stage

A retractor which incorporates a device which allows for two distinct levels of load limiting based on pre-determined crash inputs.

3.43 A Load Limiting Retractor – Adaptive, programmable, or Intelligent

A retractor which allows for customized levels of load limiting based on vehicle, occupant, and crash inputs.

3.44 MPV

Multipurpose Passenger Vehicle

3.45 Payout

The length of seat belt webbing extracted out of a retractor during loading. May consist of webbing distance to lock, film spooling, webbing stretch, and load limiting.

3.46 Pelvic Restraint

A seat belt assembly or portion thereby, intended to restrain and control movement of the pelvis. .

3.47 Pretensioner

A device or mechanism incorporated into a seat belt system which deploys under predetermined crash criteria and is designed to tighten the webbing. Typical application locations include the retractor, buckle, or outboard lap anchor. Some systems may incorporate multiple pretensioners in any combination.

3.48 Quick Connect Anchorage

A connector between two parts of a seat belt assembly intended to be a manufacturing or service aid. Not intended to facilitate usage of the seat belt by an occupant.

3.49 Retractor - Locking

A retractor incorporating adjustment hardware by means of a locking mechanism and is capable when locked of withstanding restraint forces.

3.50 Retractor - Non-Locking

A retractor from which the webbing is intended to be extended to its full length by the occupant when worn. In this fully extended position the retractor is capable of sustaining restraint forces. It stores the seat belt webbing when not in use.

3.51 Seat Belt Assembly

Any strap, webbing, or similar device designed to restrain an occupant in a motor vehicle during a crash. Includes all necessary buckles and other fasteners, and all hardware designed for installing such seat belt assembly in a motor vehicle.

3.52 Seat Belt Reminder

A visible and audible signal which complies with FMVSS 208 S7.3 and is intended to indicate that the driver's seat belt is not fastened. Also known as Seat Belt Warning System, and Seat Belt Telltale.

3.53 Enhanced Seat Belt Reminder

A visible and audible signal which goes beyond the requirements of FMVSS 208 S7.3 and is intended to indicate that the driver and/or other passengers that their seat belt is not fastened. Also known as a Belt Minder.

3.54 Seat Belt Monitor

A visible and/or audible signal which is intended to inform the driver that a seat belt buckle for a seating position has changed state from buckled to unbuckled.

3.55 Seat Belt Tether

Any strap, belt, or similar device (webbing, wire cable, solid link, etc.) that aids in the transfer of restraint loads.

3.56 Seat Belt Load Indicator

A means to indicate whether forces greater than or equal to a predetermined level were applied to the belt during a collision to aid in determining whether the belt was loaded and needs to be replaced.

3.57 Seat System

The support and positioning mechanism for the occupant upon which the occupant sits. It may serve as the attachment point for belt hardware. It may include the seat back, seat cushion, seat adjusters, head rest, recliners, arm rest, etc.