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Australian Standard 2596—1983

SEAT BELT ASSEMBLIES FOR MOTOR VEHICLES

STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests are represented on Committee AU/8:

Australian Automobile Association

Australian Federation of Consumer Organizations Inc.

Confederation of Australian Industry

Department of Defence

Department of Motor Transport, N.S.W.

Department of Transport and Construction

Federation of Automotive Products Manufacturers

National Association of Testing Authorities Australia

Road Traffic Board, S.A.

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AUSTRALIAN STANDARD

SEAT BELT ASSEMBLIES FOR MOTOR VEHICLES

AS 2596—1983

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PREFACE

This standard was prepared by the Association's Committee on Adult Seat Belts as a metricated and updated standard to eventually replace AS E35, Part I—1970, Seat Belt Assemblies for Motor Vehicles, and AS E35, Part II—1970, Seat Belt Assemblies (Including Retractors) for Motor Vehicles. The standard represents a major advance on AS E35 by specifying dynamic testing for all seat belt assemblies. AS E35 is to be withdrawn at a date to be decided and after sufficient time has elapsed for manufacturers and others to change to this standard.

This standard is based on Australian Design Rule No 4C and D — Seat Belts, and is intended to cover seat belt assemblies supplied for installation during vehicle manufacture, for replacement of seat belts already installed, and for installation in vehicles not fitted with seat belts during manufacture.

Provision is made in the standard for part seat belt assemblies, which are intended to permit replacement of half an assembly that has suffered non-impact damage, and for special application seat belt assemblies. The latter are intended to allow a manufacturer to provide a special unit, e.g. for handicapped persons or motor sports, using components that comply with the standard, but in an arrangement which cannot reasonably be destructively tested where manufactured as 'one off'.

The low combination belt and low harness belt arrangements have been omitted.

Emergency locking retractors of both the single (webbing)-sensitive type and dual sensitive type are provided for, but only the latter type is acceptable for new vehicles or to replace seat belts installed in new vehicles.

Seat belt performance is influenced by the geometry of the attachment points to the vehicle. For seat belts intended for new vehicles, or to replace seat belts installed in new vehicles, the vehicle geometry can readily be adopted for testing purpose. For seat belts intended as general purpose, i.e. to be installed in used vehicles not previously fitted with seat belts, the wide range of vehicle geometries and the scope for variation of anchorage positions makes it necessary to specify how a test geometry be established.

Acknowledgement is made to the Department of Transport and Construction for use of material taken from Australian Design Rule No 4C and D—Seat Belts.

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FOREWORD

Seat belts complying with this standard will give valuable protection in the majority of accidents if properly installed and correctly worn.

Lap-sash belts or harness belts are preferable to lap belts because of the greater protection they provide.

Each seat belt is intended to be worn by only one person, and a seat belt should never be worn around a child being carried on the lap of the adult.

A firmly adjusted adult seat belt will provide significant protection for a child where a child restraint is not available and a child is able to sit up alone. A loosely adjusted adult seat belt provides little protection for a child.

Seat belts will be effective only when they are correctly installed in accordance with the instructions required by this standard and supplied (where appropriate) with each assembly. Recommendations for anchorage of seat belt assemblies are provided in Appendix A.

Seat belts should be adjusted as firmly as possible, consistent with comfort.

Pregnant women and obese persons should wear a lap-sash seat belt as tightly adjusted as comfort allows, with the buckle over the hip and the lap section of the belt as low as possible and below the bulge.

An assembly that has been tested under load should never be installed in a vehicle, and an assembly that has been used in a severe accident should always be renewed and the removed seat belt should not be made available for re-use. In both cases the protective properties of the assembly may have been reduced.

A seat belt may be intended for installation by—

(a) the vehicle manufacturer, in a new vehicle;

(b) others, to replace a seat belt (or part belt) installed by the vehicle manufacturer in a new vehicle;

(c) others, in a used vehicle where a seat belt was not fitted by the vehicle manufacturer; or

(d) others, for a special and unique situation, e.g. for a handicapped person.

The particular requirements depend on the intended installation. Geometry for testing is that of the new vehicle where a seat belt is for a new vehicle. Geometry for testing is specified for other seat belts. Provision of instructions for use, instructions for installation, and anchor fittings are at the option of the vehicle manufacturer where a seat belt or part seat belt is intended for a new vehicle. Provision of instructions for use and anchor fittings are optional for a seat belt to replace a seat belt installed in a new vehicle. It is mandatory that the emergency locking retractor for a seat belt intended for a new vehicle, or for a replacement seat belt installed in a new vehicle, be of the dual-sensitive type. For other seat belts, the emergency locking retractor may be of the single (webbing)-sensitive type. The particular requirements are summarized in Appendix B.

SPECIFICATION

1 SCOPE. This standard specifies requirements for seat belt assemblies and part assemblies, intended for use by adults and larger children or in conjunction with certain child restraints in accordance with AS 1754, and for installation in motor vehicles except omnibuses exceeding 3.5 t gross vehicle mass, specially constructed vehicles, vehicles exceeding 4.5 t gross vehicle mass, and motor cycles.

NOTES:

1. Seat belts assemblies for omnibuses exceeding 3.5 t, specially constructed vehicles, and vehicles exceeding 4.5 t, may be covered by another standard that will be based on Australian Design Rule No 32A, Seat Belts for Heavy Vehicles; but seat belts to this standard are suitable for use in these vehicles. Seat belts to this standard are not intended for use on mopeds.
2. 'Larger children' means, for the purpose of this standard, children of dimension equal to or greater than the 50th percentile six-year-old child (see Appendix D).
3. Child restraint requirements are specified in AS 1754.

Recommendations for anchoring of seat belt assemblies are provided in Appendix A.

2 APPLICATION. This standard applies to seat belt assemblies and part assemblies, intended for—

(a) installation during vehicle manufacture;

(b) installation to replace seat belts already installed; and

(c) installation in vehicles not fitted with seat belts during manufacture.

A summary of requirements according to intended installation is given in Appendix B.

3 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

AS 1587	Methods for Measurements of Textile Fabrics—Length, Width Thickness, Mass per Unit Length and Mass per Unit Area
AS 1753	Webbing for Restraining Devices for Occupants of Motor Vehicles
AS 1754*	Child Restraints for Passenger Cars and Derivatives
AS 2597	Methods of Testing Seat Belts
ASTM B 117	Method of Salt Spray (Fog) Testing
SAE J826b	(Jan 74) Recommended Practice for Devices for use in Defining and Measuring Vehicle Seating Accommodations
SAE J941e	(March 77) Recommended Practice for Motor Vehicle Driver's Eye Range
SAE J1100	Motor Vehicle Dimensions

4 DEFINITIONS. For the purpose of this standard the following definitions apply.

4.1 Seat belt assembly.

4.1.1 *Seat belt assembly*—an arrangement of components including straps, anchor fittings, securing buckle, and adjustment devices, designed to restrain a motor vehicle occupant in the event of an impact.

4.1.2 *General purpose seat belt assembly*—a seat belt assembly designated for installation in a particular vehicle model or a range of vehicle models, including the necessary attachments for installation.

NOTE: A general purpose seat belt assembly is to comply with all requirements of the standard, and is not intended to be supplied as a part seat belt.

4.1.3 *Original equipment seat belt assembly*—a part belt or seat belt assembly for installation in one or more vehicle models as designated by the vehicle manufacturer.

NOTES:

1. Original equipment seat belt assemblies or part assemblies may be for initial installation during manufacture of vehicles, or replace seat belt assemblies or part assemblies initially installed during manufacture of the vehicle. When intended for installation during manufacture of vehicles, the requirements of Clauses 16, 17 and 18 may not apply.
2. An emergency locking retractor of an original equipment seat belt assembly or part seat belt is to be of the dual-sensitive type.
3. Attachments may not be included with the assembly, as these may be provided by the vehicle manufacturer, or the original attachments may be used when an initial seat belt is replaced.

4.1.4 *Special application seat belt assembly*—a seat belt assembly designated for installation in a particular vehicle or a range of vehicles for use in a designated manner, including the necessary attachments for installation.

4.2 Belt.

4.2.1 *Harness belt*—an assembly consisting of one or more straps designed to provide pelvic restraint, and two or more torso straps designed to provide upper torso restraint, the harness straps passing over the shoulders of the wearer and being anchored to the vehicle behind the seat back and at or above shoulder height of the wearer (see Fig. 1).

4.2.2 *Lap belt*—an assembly designed to provide pelvic restraint only, the two ends being anchored to the vehicle behind and below the seat cushion (see Fig. 2).

4.2.3 *Lap-sash belt*—an assembly combining a lap strap and a torso strap, the ends of the lap strap being anchored to the vehicle behind the seat and below the seat cushion level, and the upper end of the torso strap being anchored to the side frame or upper structure of the vehicle at or above shoulder height of the wearer (see Fig. 3).

4.2.4 *Part seat belt*—each of the two parts of a seat belt assembly which are separated by the unlatching of the securing buckle.

4.3 Buckle.

4.3.1 *Securing buckle*—a buckle assembly of the quick-release type.

4.3.2 *Buckle component*—each one of the parts of the buckle assembly designed to be latched to each other to complete the buckle assembly.

4.4 Retractor.

4.4.1 *Retractor*—a device that automatically stores all or part of the webbing of a seat belt assembly.

4.4.2 *Automatic length-adjusting and locking retractor*—a retractor incorporating a self-actuating mechanism which automatically locks the retractor at the webbing extension selected by the user.

*In course of revision.