

Seat belt assemblies for motor vehicles —

Part 1: Specification for restraining devices for adults

UDC [614.862 – 053.2]:629.113:656.13

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The preparation of this British Standard was entrusted by the Automobile Standards Committee (AUE/-) to Technical Committee AUE/7, upon which the following bodies were represented:

- Automobile Association
- Child Accident Prevention Trust
- Consumer Policy Committee of BSI
- Consumers Association
- Department of Transport (Highways)
- Department of Transport (Transport and Road Research Laboratory)
- Institute for Consumer Ergonomics Ltd
- Man-made Fibres Producers Committee
- Medical Research Council
- Ministry of Defence
- Motor Industry Research Association
- National Automobile Safety Belt Association
- Royal Automobile Club
- Royal Society for the Prevention of Accidents
- Society of Motor Manufacturers and Traders Ltd
- University of Birmingham

This British Standard, having been prepared under the direction of the Automobile Standards Committee, was published under the authority of the Board of BSI on 29 January 1988. It comes into effect on a date to be announced (see foreword)

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First published as
BS 3254 July 1960
First revision in Parts,
Part 1 January 1988

The following BSI references
relate to the work on this
standard:
Committee references AUE/7
Draft for comment 86/75130 DC

ISBN 0 580 16389 X

Amendments issued since publication

Amd. No.	Date of issue	Comments
7735	September 1993	Indicated by a sideline in the margin

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Foreword

This Part of BS 3254 has been prepared under the direction of the Automobile Standards Committee. Together with BS 3254-2, it supersedes BS 3254:1960 but will not become effective until statutory requirements are amended to make reference to BS 3254-1 and BS 3254-2. BS 3254:1960 will remain in existence for the foreseeable future.

Although the wearing of a seat belt or harness is known to give valuable protection in certain types of motoring accident, such equipment cannot be expected to prevent injury or even death in severe accidents. It is felt that, under certain accident conditions, assemblies which also provide restraint for the upper part of the body will give increased protection.

Each unit is intended for use by not more than one person at a time.

The protection offered by the belt will depend partly on its correct installation and also on the type of car seat used by the wearer.

If the seat is of the tip-up type a belt passing over the shoulder and anchored as near as possible at shoulder level will be more effective than one passing over the shoulder to the floor. In general the more rigid the seat the greater the safety with most types of belt.

The attention of users is drawn to the necessity of discarding any seat belt or harness which has been subjected to stresses arising from a severe accident, and to the need for inspection of the complete installation after any accident.

Requirements for restraining devices for children are dealt with in BS 3254-2.

Certification requirement. Attention is drawn to the fact that the Road Vehicles (Construction and Use) Regulations 1986, as amended, require seat belts to be certified with a designated approval mark. For seat belts within the scope of this British Standard, the designated approval mark is the registered certification trade mark of the British Standards Institution (Kitemark). (Details of the certification scheme are given on the inside back cover.)

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. General

1 Scope

This Part of BS 3254 specifies requirements for seat belts and harnesses, made of webbing, for separate use, i.e. as individual equipment, by adult occupants of motor vehicles.

Manufacturing requirements are specified for the materials used and for the finish of buckles and metal parts.

This Part of BS 3254 does not specify requirements for the parts of the vehicle to which the seat belt assemblies are to be anchored.

The tests specified are restricted to the determination of the strength and durability characteristics of a belt or harness assembly and of its components.

NOTE The titles of the publications referred to in this standard are listed on the page 14.

2 Definitions

For the purposes of this Part of BS 3254, the following definitions apply.

2.1

adjusting device

a device to permit the assembly to be adjusted to the requirements of the individual wearer. It may be part of the securing buckle

2.2

automatic locking belt

a seat belt with a mechanism attached to a part of the harness strap which retracts this portion of the strap when not in use and also allows withdrawal and retraction of the strap whilst being worn, but is so designed that in the event of an emergency it locks against further withdrawal

2.3

retractable belt

a belt in which one portion of the harness is retracted by a mechanism when not in use and has to be fully drawn out when in use or alternatively can only be withdrawn whilst a manual control is being operated

2.4

seat belt; harness

an arrangement of webbing straps and a buckle, or buckles, firmly secured to the structure of a motor vehicle and designed to prevent or lessen injury to the wearer in the event of certain types of accident

NOTE This is referred to in the general sense as an "assembly".

2.5

securing buckle

a buckle of quick-release pattern, not likely to be opened unintentionally, that secures the wearer within the assembly

2.6

shoulder harness

that part of an assembly which restrains the upper portion of the body of the wearer

2.7

waist strap; lap strap; body strap

a seat belt or part of an assembly which passes across the waist, lap or body of the wearer

Section 2. All seat belt assemblies

3 Design

The design of seat belt assemblies shall be based on the following assumptions.

- a) The wearer weighs 90.7 kg.
- b) The accident conditions are such as to impose a maximum loading on the assembly equivalent to 20 times the mass of the wearer along the longitudinal axis of the vehicle when travelling horizontally in a forward direction.
- c) The design of any separable parts shall be such that either the separate parts of the assembly cannot be put together incorrectly, or that their connection other than as intended will permit the components to separate again under a force of not more than 22 N, or will not adversely affect their function.

CAUTION. When the assembly is installed, the vehicle structure¹⁾ together with any reinforcing plates supplied with the assembly have to be strong enough to sustain the test load specified in Appendix G. Data on tested anchorage installations should be sought from the vehicle manufacturer.

When an anchoring cross bar is provided for the attachment of more than one seat belt or harness, its strength and the strength of its attachments to the vehicle structure have to be sufficient to sustain the sum of the effects of loads from all the individual belts or harnesses.

4 Construction

The assembly shall comprise the following.

- a) Body-restraining components.
- b) Force-carrying components which may be continuous with the body-restraining components.
- c) At least two anchoring attachments, to secure the body-restraining or force-carrying components to the vehicle.
- d) Means of adjusting the body-restraining components to suit the individual wearer. Where manual adjustment is required, at least one adjusting device shall comply with 7.6.
- e) Means of securing the wearer within the body-restraining components.
- f) Where practicable, means for stowing the belt or harness clear of the floor and seat.

A lap belt or a lap strap component of an assembly shall have two anchoring attachments intended to be fixed to the floor of the vehicle in such a manner as to eliminate undue lateral compression of the seat or the wearer.

5 Testing

5.1 General

An assembly or component part subjected to any specified performance test shall not, under any circumstances, be put into service.

5.2 Type testing

New and unused sample assemblies representative of each design and samples of component parts and attachment fittings shall be submitted for examination and testing for compliance with this Part of BS 3254. Each assembly shall be tested without alteration, and samples of component parts and attachment fittings shall provide the specimens where required by the individual tests.

5.3 Routine testing

New and unused sample assemblies shall be selected at intervals or from a batch of fixed size for testing and examination for compliance with this Part of BS 3254.

6 Webbing

6.1 Width

When measured as described in Appendix A, webbing which may come into contact with the body of the wearer shall comply with the following minimum width dimensions.

- a) Waist, lap or body strap webbing: not less than 46 mm.
- b) Shoulder harness webbing: not less than 35 mm.

6.2 Breaking force

When tested as described in Appendix B, the webbing shall not break at a force of less than:

- a) 13.3 kN for waist, lap or body strap webbing;
- b) 10 kN for shoulder harness webbing.

6.3 Reduction of width under load

When tested as described in Appendix B, webbing which may come into contact with the body of the wearer shall comply with the following.

- a) Waist, lap or body straps: under a force of 10 kN the webbing shall not be reduced in width to less than 46 mm.

¹⁾ The structure of a vehicle is not normally considered to include the car seat.