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AS 2597
UDC 614.895.1:001.4:629.113:656.13.08

Australian Standard 2597

WITHDRAWN: 1 DEC 1996

METHODS OF TESTING SEAT BELTS

ALL PARTS
SUPERSEDED BY AS/NZS 2596:1995

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GENERAL INTRODUCTION

These standards are referred to in AS 2596, Seat Belt Assemblies for Motor Vehicles.

The standards are derived from tests given in AS E35, Part I, Seat Belt Assemblies for Motor Vehicles, AS E35, Part II, Seat Belt Assemblies (Including Retractors) for Motor Vehicles, and Australian Design Rule No 4C and D—Seat Belts.

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

LIST OF METHODS

AS number	Published	Title
2597.1	1983	Determination of Webbing Durability in Adjustment Duty
2597.2	1983	Determination of Webbing Durability in Withdrawing and Retracting Duty Through a Sash Guide
2597.3	1983	Determination of Fatigue Resistance of a Flexible Member
2597.4	1983	Determination of Potential for Inadvertent Buckle Release
2597.5	1983	Determination of Fatigue Effect on Buckle Release Force
2597.6	1983	Determination of Adjustment Device Forces
2597.7	1983	Determination of Locking Angle of Tilt-lock Adjustment Device
2597.8	1983	Determination of Free-end Device Strength
2597.9	1983	Preparation and Conditioning of Test Specimens for Retractor Function
2597.10	1983	Determination of Static Strength and Dummy Displacement
2597.11	1983	Determination of Webbing Retraction Force
2597.12	1983	Determination of Retractor Locking Under Acceleration
2597.13	1983	Determination of Dynamic Performance

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
METHODS OF TESTING SEAT BELTS

AS 2597.1 DETERMINATION OF WEBBING DURABILITY IN ADJUSTMENT DUTY

1 SCOPE. This standard sets out the method for determining the durability of seat belt webbing, including that intended for use in a tilt-lock type adjustment device, under simulated adjustment operations. The components for testing are all those with which the webbing makes rubbing contact except a sash guide used in conjunction with an emergency locking retractor.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1753 Webbing for Restraining Devices for Occupants of Motor Vehicles
AS 2596 Seat Belt Assemblies for Motor Vehicles.

3 DEFINITIONS. For the purpose of the standard, the definitions given in AS 2596 apply.

4 PRINCIPLE. Adjustment operations of a seat belt may result in abrasion between the webbing and other components. Abrasion may cause reduction of strength of the webbing, and the extent of abrasion will be influenced by the details of the components, the geometry of the system and the applied tensile force within the webbing. A test for adequate dry breaking tensile strength of the webbing is taken to indicate the suitability of the components with respect to abrasion caused by adjustment operations.

5 APPARATUS. The following apparatus is required:

(a) A test rig in which the component can be held and the webbing can be pulled through the component in the nominated directions and with the nominated forces. Where the component is a tilt-lock adjuster, the apparatus shall facilitate rotation of the adjuster from a fully locked angle to at least a fully unlocked angle at each reversal of motion of the webbing, the axis of rotation being parallel to the plane of the webbing and normal to the longitudinal axis of the webbing.

(b) A mechanism to oscillate the webbing through the device for a stroke of not less than 150 mm and not greater than 200 mm, while subjecting the stroked webbing to a tensile force of not less than 13 N at all times during the stroke.

(c) A device to register the number of cycles completed, i.e. not less than 2500.

(d) A device to apply a tensile force to the webbing of 14.7 kN or 75 percent of the dry tensile breaking strength, whichever is the greater.

NOTE: Special jaws are necessary to prevent excessive slip of the webbing and breakage of the webbing at the grips.

6 TEST SPECIMEN. Test specimens comprising each component, and the webbing, shall be dry, unused, and not previously tested. Webbing specimens for determination of dry tensile breaking strength shall be from adjacent webbing.

7 PROCEDURE. The procedure shall be as follows:

(a) Establish the dry tensile breaking strength of the webbing, being that determined in accordance with AS 1753 by test of webbing that was adjacent to the test specimen.

(b) Mount the component in the test rig in accordance with Fig. 1, Fig. 2,or Fig. 3, as appropriate.

(c) Apply a tensile force of not less than 13 N to the webbing.

(d) Oscillate the webbing through the component for 2500 cycles. Where the component is an adjuster, the component shall be rotated between the two positions illustrated in Fig. 1 at the completion of each stroke. The stroke shall be greater than 150 mm and not greater than 200 mm.

ISBN 0 7262 2833 8