
Impact test procedures for road vehicles — Seating and positioning procedures for anthropomorphic test devices — Procedure for the WorldSID 50th percentile male side-impact dummy in front outboard seating positions

Procédures d'essai de choc pour véhicules routiers — Procédures d'installation et de positionnement des dispositifs d'essais anthropomorphes — Procédure pour le mannequin WorldSID, 50ème percentile homme, de choc latéral pour positions de conducteur et passager avant droit



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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 10, *Impact test procedures*.

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Introduction

WorldSID is a world harmonized anthropomorphic test device for the evaluation of motor vehicle side-impact protection.

The aim of this International Standard is to provide a repeatable seating and positioning procedure that can be applied across the world vehicle fleet.

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1 Scope

This International Standard specifies the conditions and requirements for the recommended placement of the WorldSID 50th percentile male side-impact dummy (WS50), as defined in ISO 15830-1, ISO 15830-2, ISO 15830-3, and ISO 15830-4, when used in front outboard seating positions of motor vehicles for side-impact testing.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15830-1, *Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 1: Terminology and rationale*

ISO 15830-2, *Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 2: Mechanical subsystems*

ISO 15830-3, *Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 3: Electronic subsystems*

ISO 15830-4, *Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side impact dummy — Part 4: User's manual*

SAE J 826, *Devices for use in defining and measuring vehicle seating accommodation*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

test seat

seating position, driver, or front passenger that is to be evaluated

3.2

sagittal plane

vertical plane that divides the human body into left/right sections

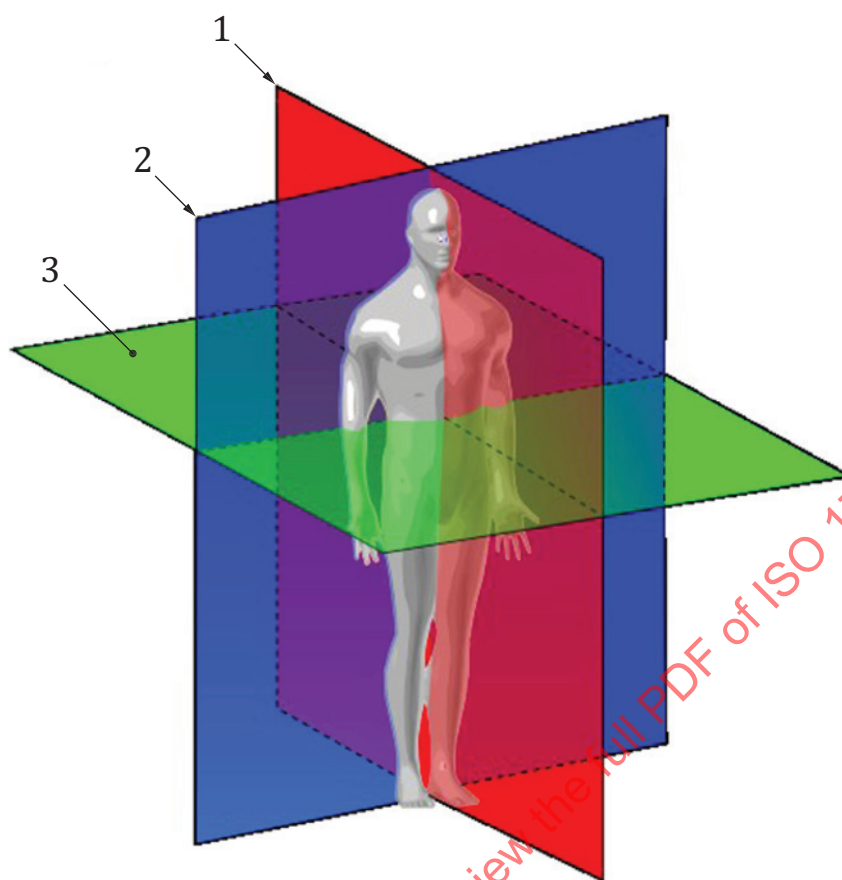
Note 1 to entry: See [Figure 1](#).

3.3

coronal plane

vertical plane that is perpendicular to the sagittal plane and that divides the human body into anterior/posterior sections

Note 1 to entry: See [Figure 1](#).



Key

- 1 sagittal plane
- 2 coronal plane
- 3 transverse plane

Figure 1 — Anatomical planes

4 Symbols and abbreviated terms

- X forward direction of the vehicle
- Y lateral direction of the vehicle
- Z downward direction of the vehicle

5 Requirements for vehicle seats preparation

5.1 Seat adjustments

- a) Position any adjustable parts that provide additional support so that they are in the lowest or fully retracted position, e.g.:
 - Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted, or deflated adjustment positions.

- Position an adjustable seat cushion length to the retracted position.
 - Position an adjustable leg support system in the rearmost position.
- b) Place adjustable pedals in the full forward position (towards the front of the vehicle).
 - c) The steering wheel is not intended to have an influence on the loading of the dummy. Therefore, set the steering wheel at the geometric highest driving position considering the full range of telescopic and tilt adjustment possibilities, in order to provide clearance for the legs and thorax.
 - d) Set the head restraint position to the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant, or in the fully up position if no design position is available.
 - e) Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant, or in the fully up position if no design position is available.

5.2 Seat markings

- a) Define the seat reference points (markings).
 - Identify and mark one seat reference point at the rear of the seat cushion.
 - In case the seat cushion pitch is adjustable, identify and mark a second reference point that is at least 300 mm forward of the rear reference point and draw a line through the two reference points.
- b) Define the seat centreline reference.
 - *In case of bucket seats:*
 Locate and mark for future reference the longitudinal centreline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the seating reference point (SRP) and the seat cushion upper surface determines the longitudinal centreline of a bucket seat cushion.
 - *For bench seats:*
 Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centreline of the steering wheel and the seat cushion upper surface.

5.3 Procedure for the test seat placement

5.3.1 Positioning of the test seat

- 1) Use the seat control that primarily moves the seat vertically to adjust the rearmost seat reference point defined in 5.2 (a) to the uppermost vertical location.
- 2) Use the seat control that primarily moves the seat fore-aft to adjust the rearmost seat reference point defined in 5.2 (a) to the rearmost location.
- 3) Determine and record the range of angles of the seat cushion pitch referring to the line defined in 5.2 (a) and using only the control(s) that primarily adjust(s) the cushion pitch, set cushion pitch as close as possible to the mid-angle.
- 4) Use the seat control that primarily moves the seat vertically to adjust the rearmost seat reference point defined in 5.2 (a) to the lowest vertical location. Verify that you are still at the rearmost seat track location. Record the X position.
- 5) Use the seat control that primarily moves the seat fore-aft to adjust the rearmost seat reference point defined in 5.2 (a) to the forward most location. Record the X position.