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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 13057-2023

Strength of seats and their anchorages of passenger vehicles

客车座椅及其车辆固定件的强度

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020
Directives for standardization - Part

1.Rules for the structure and drafting of standardizing documents. This document replaces
GB 13057-2014, Strength of the seats and their anchorages of passenger vehicles.
Compared with GB 13057-2014, in addition to structural adjustments and editorial changes,
the main technical changes of this document are as follows:

- a) Change the "Scope" (see Chapter 1; Chapter 1 of the 2014 edition);
- b) Change the definitions of "forward-facing seat", "locking system", "seat spacing" and "restraining barrier" (see 3.1, 3.4, 3.11, 3.12; 3.2, 3.5, 3.13, 3.14 of the 2014 edition);
- c) Add the terms "adjustment system", "displacement system", "anchorage", "seat attachment" and "three-dimensional H-point machine", as well as their definitions (see 3.2, 3.3, 3.5, 3.6, 3.8);
- d) Remove the terms "seat type", "adjustment system", "displacement system", "anchorage", "attachment fittings" and "manikin", as well as their definitions (see 3.1, 3.3, 3.4, 3.6, 3.7, 3.9, 3.12 of the 2014 edition);
- e) Remove the requirements for the restraint effect of seats (or restraining barriers) on occupants (see 4.1.2.1; 4.1.2.1 of the 2014 edition);
- f) Change the requirements and injury criterion for occupant protection of seats (or restraining barriers) (see 4.1.2.2 and 4.1.2.3; 4.1.2.2 of the 2014 edition);
- g) Add "Figure 1 - Schematic diagram of the restraining barrier and area A not in contact" (see Figure 1);

1 Scope

China's mandatory national standard for the strength of seats and their anchorages in passenger vehicles. In a collision the seat has to do two jobs at once: hold its occupant, and not become a projectile for the person behind. Both are tested here, because the seat is the structure through which the restraint system reaches the body - the belt is anchored to it or beside it, and a seat that tears from the floor takes the belted occupant with it. The rear impact case is the one that shapes the design of bus and coach seats: the passenger behind is thrown into the seat back, and the seat must absorb that impact without collapsing forward onto the seat in front and without presenting a rigid edge to the head. The standard specifies the loads, the test methods and the requirements for seats and anchorages.

This document specifies the technical requirements and test methods for the strength of seats and their anchorages of passenger vehicles. This document applies to forward-facing passenger seats and their anchorages for Class II, Class III and Class B passenger

vehicles in categories M2 and M3, as well as to restraining barriers and their anchorages installed in front of the seats on such passenger vehicles. This document does not apply to rearward-facing seats, side-facing seats and their anchorages, nor to the driver's seat and its anchorages.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB 11551-2014, The protection of the occupants in the event of a frontal collision for motor vehicle

GB 14166, Safety-belts, restraint systems, child restraint systems and ISOFIX child restraint systems for occupants of power-driven vehicles

GB 14167, Safety-belt anchorages, ISOFIX anchorages systems and ISOFIX top tether anchorages for vehicles

GB 15083-2019, Strength requirement and test method of automobile seats, their anchorages and any head restraints

GB/T 15089, Classification of power-driven vehicles and trailers

GB/T 29120-2012, Procedure for H-point and R-point determination

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB 11551-2014, GB 14166, GB 14167, GB 15083-2019, GB/T 15089, GB/T 29120-2012, as well as the following apply.

3.1 forward-facing seat The seat used when the vehicle is driving; it is arranged facing the front of the vehicle, and the angle formed by the symmetrical vertical plane of the seat and the symmetrical vertical plane of the vehicle is $0^\circ \pm 10^\circ$. [Source: GB 15083-2019, 3.2.1]

3.2 adjustment system A device that can adjust the position of the seat or its components to suit the occupant's riding posture. [Source: GB 15083-2019, 3.7, modified]

3.4 locking system A device that ensures that the seat or its components remain in the position in which they are used. [Source: GB 15083-2019, 3.9, modified]

3.5 anchorage A part of the body used to fix the seat, including bolts and other parts used to install the seat to the body.

4.1 Requirements for seats

4.1.1 General Each type of seat and restraining barrier shall meet the dynamic test requirements specified in 4.1.2.

4.1.2 Dynamic test requirements

4.1.2.3 The HYBRID III dummy equipped with test instruments shall meet the allowable injury criterion specified in Appendix A. The allowable injury criterion is.

4.1.2.5 When the manufacturer chooses to conduct the test using the test method specified in 5.3, the first row of seats (or restraining barriers), the second row of seats and the dummy injury criterion shall comply with the requirements of 4.1.2.1, 4.1.2.2,

4.1.2.3 and 4.1.2.4.

4.2 Requirements for anchorages

4.2.1 When there are multiple types of anchorages on a vehicle model, each type of anchorages shall be subjected to the tests specified in

5.1 and 5.2, or the test specified in 5.3, and shall meet the requirements of 4.1.

4.2.2 If the combination of one type of seat and one type of anchorages meets the requirements of 4.1, when this type of seat is combined with other types of anchorages, the anchorages may only be tested in accordance with the provisions of 5.4. After the test, the anchorages are not allowed to be completely separated, and the anchorages or their surrounding areas are allowed to have permanent deformation (including partial fracture).

4.3 Seat installation requirements

4.3.1 All seats shall meet the requirements of

4.1 and comply with the following conditions.

4.3.2 Seats are tested in accordance with the requirements of

5.1 and 5.2, or 5.3, except for the following circumstances.

4.3.3 When the seats are not subjected to the test specified in 5.1, the strength of the anchorages at the installation position shall be tested according to the test state of the second row of seats in

5.2.2.3 and shall meet the requirements of 4.1.2.4.

5.1.2 Test procedure

5.1.2.1 Test platform fixation Fix the test platform on the trolley in a manner that does not