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

GB 17354-2024

Front and rear protective devices for passenger cars

乘用车前后端保护装置

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "Directives for standardization - Part

1.Rules for the structure and drafting of standardizing documents". This document replaces GB 17354-1998 "Front and rear protective devices for passenger cars". Compared with GB 17354-1998, in addition to structural adjustments and editorial changes, the main technical changes are as follows: - MODIFY the definition of the term "protective device" (see

3.1 of this document,

2.1 of the 1998 edition); - DELETE the term "vehicle model" and its definition (see

2.2 of the 1998 edition); - DELETE the term "mass of load test vehicle" and its definition (see

2.3 of the 1998 edition); - MODIFY the definition of the term "reference line" (see

3.2 of this document,

2.6 of the 1998 edition); - MODIFY the definition of the term "reference height" (see 3.3 of this document,
2.5 of the 1998 edition); - MODIFY the term and definition of "vehicle corner"; ADD the schematic diagram of corner of bumper (see 3.4 of this document,
2.6 of the 1998 edition); - MODIFY the requirements for lighting and signaling devices (see 4.3 of this document,
3.1 of the 1998 edition); - ADD the relevant technical requirements for hybrid and pure electric vehicles (see

1 Scope

China's mandatory national standard for the front and rear protective devices of passenger cars. The bumper is not a safety device for the occupants: at the speeds where it matters they are protected by the crash structure and the restraints. It is a damage limitation device, and its purpose is that a low-speed impact - a car park knock, a nose-to-tail in traffic - damages the bumper and nothing else. That is a large economic matter, because the cost of repairing minor collisions is what sets insurance premiums, and a design in which a five kilometre-an-hour impact bends the bonnet, breaks a lamp and pushes the radiator costs far more than one in which it marks a plastic cover. The standard specifies the impact tests at defined speeds and angles and the requirement that the lighting, the bonnet, the boot, the doors and the cooling system remain functional afterwards.

This document specifies the technical requirements, test methods and determination of the same type of front and rear protection devices for passenger cars. This document applies to the front and rear protection devices of M1 vehicles.

2 Normative references

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

GB 4785 Prescription for installation of the external lighting and light-signaling devices for motor vehicles and their trailers

3 Terms and definitions

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

3.1 protective device A device located at the front and rear ends of a vehicle to protect the

vehicle from serious damage in the event of a low-speed collision. NOTE. It includes the bumper skin and its fixings, foam parts, crossbeams and their connecting parts, rear apron, longitudinal beams and energy-absorbing components, as well as other components installed on the bumper skin.

3.2 reference line When the A plane of the impactor (see Figure 1) is perpendicular to the horizontal ground, the intersection of the symmetrical horizontal plane of the impact and the contour of the impact head itself.

3.3 reference height The vertical distance between the horizontal plane passing through the reference line of the impactor and the horizontal ground.

3.4 corner of bumper When the vehicle suspension is in the normal driving state specified by the manufacturer, the impactor is at a reference height of 450 mm, and the contour of the impactor head is 60° to the vertical plane of the longitudinal center of the vehicle, the contact point between the impactor and the vehicle (see Figure 2).

4 Technical requirements

4.1 The test shall be carried out in accordance with the test method specified in Clause

5. The test vehicle shall meet the requirements of

4.2 The vehicle doors shall not be opened during the collision; the front hood (lid), trunk lid and vehicle doors shall be able to open and close normally after the test.

4.3 The lighting and signaling devices that are mandatory to be installed as specified in GB 4785 shall be able to work normally. If the filament is broken, it shall work normally after replacing the bulb.

4.4 The fuel system and cooling system of the vehicle shall be leak-free and work normally. For hybrid and pure electric vehicles, their charging system and power system shall work normally.

4.5 The exhaust system of the vehicle shall not be damaged or misaligned to prevent its normal operation.

4.6 The transmission system, suspension system (including tires), steering system and braking system of the vehicle shall work normally.

4.7 The connection between the front and rear beams of the vehicle and the body shall not be detached, the longitudinal beam structural parts of the body shall not be cracked, and the rear panel shall not be cracked.

5 Test methods

5.1 Test site The test site shall be able to accommodate the drive system of the impactor,

skidding of the test vehicle after collision, and the equipment required for the test. The ground of the test site shall be horizontal, hard and flat.

5.2 Test vehicle preparation

5.2.1 The test vehicle shall be stationary.

5.2.2 The wheels of the test vehicle shall be in the straight-ahead position.

5.2.3 The tires of the vehicle shall meet the air pressure specified by the manufacturer.

5.2.4 The parking brake shall be released, and the vehicle shall be in neutral.

5.2.5 For vehicles equipped with height-adjustable suspension and vehicles equipped with automatic leveling suspension (which can automatically level the vehicle according to the load), it shall be adjusted to the normal driving state specified by the manufacturer before test.

5.2.6 The test vehicle loaded weight is the curb weight of the vehicle plus the mass of the driver and passenger specified in Table 1 (each driver and each passenger has a mass of 75 kg respectively).

5.3.1 Requirements for the impactor

5.3.1.5 The first contact point between the impactor and the vehicle shall be the contact point between the impactor and the front and rear protection devices. When the vehicle is at the curb weight state and the test vehicle loaded weight state respectively, the front and rear protection devices between the corner of bumper shall intersect with the horizontal plane passing through the impactor's reference line.

5.3.2 Installation of the impactor The impactor can be fixed on a pendulum or on a mobile trolley.

5.4.1 Longitudinal collision test

5.4.1.1 The test is divided into two collision tests in front of the vehicle and two collision tests in the rear. The two collision tests in each direction are carried out at the curb weight state and the test vehicle loaded weight state, respectively.

5.4.1.2 For the two collision tests in each direction, it shall be ensured that the impact head contour of the impactor does not exceed the area defined by the two planes passing through the corners of bumper and parallel to the longitudinal symmetry plane of the vehicle; for the second collision test in each direction, the position of the median vertical plane of the impactor shall be not less than 300 mm from the position in the first collision test.