

ICS 43.140



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

GB/T 33438-2016

**Test method for the crash rider protection of motorcycles and
mopeds**

摩托车和轻便摩托车碰撞乘员防护试验方法

(English Translation)

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Foreword

This Standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard is drafted using re-drafting method, with reference to ISO 13232:2005 "Motorcycles - Test and analysis procedures for research evaluation of rider crash protective devices fitted to motorcycles", the consistency with ISO 13232:2005 is non-equivalent.

1 Scope

This Standard specifies the terms and definitions, test contents, test preparation and test methods, test data measurement and test record of crash rider protection of motorcycles.

This Standard applies to motorcycles and mopeds (hereinafter referred to as motorcycles).

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this document. For undated references, the latest edition (including all modifications) applies to this document.

GB 811 Helmets for motorcyclists

3 Terms and definitions

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

3.1 Crash

Unexpected contact between motorcycles and obstructions.

3.2 Protection

Reduction of the severity or frequency of the injury to the riders in a crash.

3.3 Protective device

Devices on the motorcycle used to protect or reduce the injury to the riders in a crash. test results;

- shape and internal dimension of the compartment and type of protective system that may affect the crash test results;
- engine's power method and cooling method;
- motorcycle's mass that may affect the crash test results;
- motorcycle's optional equipment or device that may affect the crash test results.

3.11 Compartment

The space accommodates the rider (can be surrounded by the top cover, floor, side wall, door, glass window and front wall, rear wall or seat back support).

3.12 R point

The reference point specified by the manufacturer for each seat and related to the structure of the motorcycle (see Annex A).

3.13 H point

The reference point for each seat as determined by the procedure (see Annex A).

4 Test contents

4.4

After the crash test, if there is continuous leakage of liquid such as fuel, coolant and lubricating oil, record the amount of leakage in 5 min after the crash; if the liquid from the

fuel supply system is mixed with the liquid from other systems, and the liquid is not easy to be separated and identified, then all the collected liquid shall be included when recording the continuous leakage.

4.5

For electric motorcycles, record the state of the battery after the crash test, including the connection state, short circuit, combustion, scattering, breakage, etc. measurement results.

4.3

Thigh protection characteristic (FPC), see Annex B

4.2

Chest protection characteristic (ThPC), see Annex B

4.1

Head protection characteristic (HPC), see Annex B

5 Test preparation and test methods

5.4.2.4

Use a removable external cable as far as possible. If a non-removable external cable is used, each cable shall not be more than 0.33 kg, and the length shall not be less than 12 m. The total mass of all cables at the attachment point of between the dummy and the motorcycle shall not exceed 4 kg. The cable is connected to the dummy by a connector mounted on the back of the pelvis. The cable shall be arranged so that each cable is not interfered with. In addition to the cable ends, the cable cannot be attached to the motorcycle, dummy or other cables.

5.3.3 Adjustment of motorcycle

5.3.3.1

Before the test, the motorcycle shall be adjusted according to the following requirements. In the case of a test comparison, no matter baseline motorcycles or modified motorcycles, in principle, except for the added, reduced or adjusted device, the state of motorcycles shall be consistent.

5.3.3.2

The motorcycle shall meet the normal factory-exit conditions specified by the manufacturer, and comply with the requirements of whole vehicle and device state; special motorcycles shall also be attached with additional devices, such as alarm lamps, containers, etc.

5.3.3.3

The motorcycle using steering handle or steering wheel shall meet the following conditions.

- For the motorcycle using steering handle, the direction of the steering handle shall be in a normal center position; during the test, it shall ensure that the wheel is in the same direction as the test direction; if necessary, it may add the positioning device, but the positioning device cannot fix the steering handle and excessively interfere the free rotation.
- For the motorcycle using steering wheel, if the steering wheel is adjustable, it shall be adjusted to the normal position specified by the manufacturer; if the manufacturer does not specify, it shall be adjusted to the intermediate position of the adjustable range; during the test, it shall ensure that the wheel is in the same direction as the test direction. At the end of the acceleration process, the steering wheel shall be in a free state and at the position where the motorcycle is in a straight line specified by the manufacturer.

5.3.3.4

If the motorcycle has a compartment or a driving protective device, various movable parts (such as glass, etc.) shall be in the closed position. In order to facilitate the test measurement, with the consent of the manufacturer, the movable glass may be put down, as long as the position of the steering handle is equivalent to the position of the closed glass at this time.

5.3.3.5

The shift lever shall be in a neutral position.

5.3.3.6

The throttle, brake or clutch operating mechanism shall be in a normal free state.

5.3.3.7

If equipped with doors, the doors shall be closed but not locked.

5.3.3.8

If a movable roof or removable roof is installed, it shall be in a proper position and closed. In order to facilitate the test measurement, with the consent of the

5.5 Driving of test motorcycle

5.5.1

The motorcycle is not driven by its own power. In order to ensure that the motorcycle is scheduled to run on the track and speed, it may use the motorcycle moving auxiliary device; the device only involved in the motorcycle fixing and moving, without affecting changes in the state of the motorcycle in the crash.