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Measuring method of dimensions and masses parameter for motorcycles and mopeds

摩托车和轻便摩托车尺寸和质量参数的测定方法

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Measuring method of dimensions and masses parameter for motorcycles and mopeds

1 Scope

This Standard specifies measuring conditions, measuring methods and value taking rules for dimensions and masses parameter for motorcycles and mopeds.

This Standard is applicable to motorcycles and mopeds (hereinafter referred to as “the vehicle”).

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/T 3730.3, *Motor vehicles and towed vehicles - Dimensions of vehicles - Terms and definitions*

GB/T 5359.1, *Term for motorcycles and mopeds - Part 1: Types of vehicles*

GB/T 5359.3, *Term for motorcycles and mopeds - Part 3: Dimensions of vehicle with two and three wheels*

GB/T 5359.4, *Term for motorcycles and mopeds - Part 4: Mass of vehicle with two and three wheels*

GB/T 8170, *Rules of rounding off for numerical values & expression and judgement of limiting values*

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 3730.3, GB/T 5359.1, GB/T 5359.3 and GB/T 5359.4 as well as the followings apply.

3.1 wheel center

the intersection of the longitudinal center plane of the wheel and the center of

rotation of the wheel

3.2 optional parts

in addition to the basic motorcycles provided by the manufacturer, the attachment that can be added or selected as an option for customers

3.3 standard parts

among the basic motorcycles provided by the manufacturer, the attachment that has already been used as a vehicle design standard configuration

3.4 attachment

parts that play an auxiliary role but will not affect the normal driving of the motorcycle after disassembly [such as air deflector, wind deflector, bumper, backrest, cargo basket, front (rear) shelf, rear luggage]

3.5 axle load specific value

the ratio of each wheel axle load to the curb weight of the whole vehicle

4 Basic measuring requirements

4.1 The vehicle shall be clean (no oil, dirt). The equipment shall be complete. The tire pressure is in accordance with the product technical documents.

4.2 The vehicle rests on the supporting plane in a vertical state. The wheels are in a straight running line. If there is a wind shield, the wind shield shall be placed in the working position; the retractable windshield shall be placed in the highest position. The doors and windows of the right three-wheeled motorcycle shall be closed.

4.3 Measuring instruments and equipment are as follows:

a) Steel tape: scale interval is 1mm;

b) Angle meter: scale interval is 5';

c) Height ruler: scale interval is 0.5mm;

d) Heavy hammer or square;

e) Three-dimensional coordinate measuring device;

f) Scale or electronic scale or vehicle load meter: scale interval is 0.2kg;

product technical documents. The occupant shall sit in the driving position of the vehicle in a normal driving position. The load shall be placed in the specified position. The total mass of the driver and his equipment is specified as 75kg. When it is less than 75kg, a counterweight shall be added to the corresponding seating position.

6.1.2 When measuring, the gearbox is placed in neutral. The brakes must not be used.

6.1.3 When determining the position of the center of mass in the case of factory-defined maximum total mass, the driver and occupant can be replaced by dummy. And fix them as one with the vehicle. Ensure that no displacement or change of posture occurs during the measurement process.

6.2 Driver and occupant positions

6.2.1 The driver's hands shall be placed on the direction grips. Feet shall be placed on the pedals. The feet and calves form 90°±5°. For vehicles with foot pedals, the position of the feet shall be in accordance with the manufacturer's regulations.

6.2.2 The occupant's hands shall be placed at the prescribed handrails. Feet shall be placed on a footrest or pedal. Maintain the habitual posture of ordinary occupants.

6.3 Vehicle dry mass, vehicle curb weight, and factory-specified maximum total mass

6.3.1 Determine the distributed mass of each wheel: According to states of vehicle dry mass, vehicle curb weight, and factory-specified maximum total mass, use two (or three) scales or electronic scales (the supporting table of each scale shall be in the same horizontal plane), to respectively weigh the distributed mass of each wheel.

6.3.2 Calculate the vehicle mass m under the following conditions according to the distributed mass of each wheel:

The vehicle dry mass / vehicle curb weight / factory-specified maximum total mass of two-wheeled motorcycle and regular three-wheeled motorcycle is calculated according to formula (3):

$$m = m_1 + m_2 \qquad \cdots\cdots (3)$$

The vehicle dry mass / vehicle curb weight / factory-specified maximum total mass of motorcycle with sidecar is calculated according to formula (4):

m_1' - After raising the wheel, distributed mass of front wheel when vehicle dry mass / factory-specified maximum total mass, in kilograms (kg);

m_2' - After raising the wheel, distributed mass of rear wheel when vehicle dry mass / factory-specified maximum total mass, in kilograms (kg);

m_1 - Distributed mass of front wheel when vehicle dry mass / factory-specified maximum total mass, in kilograms (kg);

m_2 - Distributed mass of rear wheel when vehicle dry mass / factory-specified maximum total mass, in kilograms (kg);

α - After raising the wheel, measured vehicle tilt angle, in degrees (°).

After raising the wheel, the weight of the wheel suspension locking tool shall be subtracted from the reading value of the non-elevating wheel.

7 Measurement results and value rules for measurement data

7.1 Measurement results

7.1.1 Fill in the record form after measuring the size parameters. See Annex A.

7.1.2 Fill in the record form after mass parameter measurement. See Annex B.

7.1.3 Fill in the record form after vehicle centroid height is measured. See Annex C.

7.2 Value rules for measurement data

7.2.1 The effective value of the measured data and the effective value of the calculated data are in accordance with Table 6.

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