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Methods of road test for motorcycles and mopeds

摩托车和轻便摩托车道路试验方法

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1 Scope

This document specifies the test preparation requirements for road tests of motorcycles and mopeds; describes various performance test methods.

This document applies to road tests of motorcycles and mopeds (hereinafter referred to as "motorcycles").

This document does not apply to road tests of racing motorcycles.

2 Normative references

GB/T 1184-1996

GB/T 5359.1

GB/T 5359.2

GB/T 5359.3

GB/T 5359.4

GB/T 5373

GB/T 8170

GB 16169

GB 20073

GB/T 24156

3 Terms and definitions

Terms and definitions defined in GB/T 5359.1, GB/T 5359.2, GB/T 5359.3, GB/T 5359.4, GB/T 24156 apply to this document.

4.1.1.1 The test motorcycle must be accompanied by operating and maintenance

instructions or accompanying technical documentation.

4.1.1.2 Check the test motorcycle's manufacturer name, designation, model, motorcycle

identification number, engine number or motor number, motor controller information, power battery model and quantity,; record them in the test record form specified in

4.1.1.3 Inspect the assembly mass and integrity of all assemblies, components,

accessories of the test motorcycle; check for visible damage to exposed parts; ensure that all onboard tools are complete. Check the tightness of key fasteners, the lubrication (grease) filling and sealing conditions of all lubrication points, the proper operation of the electrical system, the proper operation of all control and braking systems in accordance with the operating and maintenance instructions or the motorcycle's accompanying technical documentation.

4.1.1.4 Adjust the test motorcycle in accordance with the operating and maintenance

instructions or the motorcycle's accompanying technical documentation, to ensure it is in normal technical condition.

4.1.2 Running-in of the test motorcycle

4.1.2.1 The test motorcycle shall be run-in on a smooth, gentle road as specified in the operating and maintenance instructions or the motorcycle's accompanying technical documentation.

4.1.2.2 During the run-in period, frequently check the tightness and working condition

of all motorcycle components; make timely adjustments and troubleshoot; record any faults in detail. The run-in mileage for test motorcycles using internal combustion If necessary, the test motorcycle's dimensions and mass may be measured in accordance with GB/T 5373 before the performance test.

4.2.1.1 Motorcycles equipped with internal combustion engines

4.2.1.1.1 The designation and quantity of fuel and lubricant used in the test motorcycle shall comply with the specifications in the motorcycle's technical documentation. Only fuel and lubricant from the same batch may be used when testing various performance indicators in the same test.

4.2.1.1.2 The specifications and operating pressure of the test motorcycle's tires shall comply with the specifications in the operating and maintenance instructions or the accompanying technical documentation. The pressure error shall not exceed ± 10 kPa.

4.2.1.1.3 No adjustments to the test motorcycle are permitted during the test.

4.2.1.1.4 Before each performance test, the test motorcycle shall be preheated and driven. Tests shall begin only after reaching the warm-up state specified in the operating and maintenance instructions or the accompanying technical documentation. Unless otherwise specified in the relevant documentation, the test motorcycle shall generally be driven normally for 15 minutes.

Note. This does not apply to starting performance tests.

4.2.1.1.5 The load capacity of the test motorcycle shall be determined based on the test objectives. Unless otherwise specified, a two-wheeled motorcycle shall carry one driver;

a sidecar motorcycle shall carry one driver and two passengers; a three-wheeled motorcycle shall be loaded to the maximum load capacity specified in the accompanying technical documentation. The total mass of the passengers and their equipment shall be $75 \text{ kg} \pm 5 \text{ kg}$. Ballast may be used in place of passengers; the ballast shall be located close to the passenger seats.

4.2.1.1.6 The impact of the on-board road tester on the axle load distribution and the resulting additional air resistance shall be minimized. Before testing, adjustments shall be made to ensure that the axle load distribution meets the requirements of the accompanying technical documentation.

4.2.1.2 Electric motorcycles

4.2.1.2.1 Before preheating the electric motorcycle, charge the battery at an ambient

temperature of 20 °C ~ 30 °C using the onboard charger (if installed) or an external charger recommended by the motorcycle manufacturer (the charger model/specifications shall be recorded). A 12-hour charging period is considered complete. If the standard instrument clearly indicates that the battery is not fully charged, the maximum charging time is. $3 \times \text{manufacturer-specified battery capacity (kWh)} / \text{actual power supplied (kW)}$. After charging is complete, drive the electric motorcycle for 2 km at 80% of the manufacturer's declared 10-minute maximum speed (v_{10}), to preheat the motor and drivetrain. Before each performance test, the test motorcycle shall be preheated and tested only after reaching the conditions specified in the operating and maintenance instructions or accompanying technical documentation.

If there are other special requirements, proceed in accordance with those requirements.

Note. This does not apply to starting performance tests.

4.2.1.2.2 Electric motorcycles must meet the test conditions specified in 4.2.1.1.2, 4.2.1.1.3, 4.2.1.1.5, 4.2.1.1.6.

4.2.2 Test equipment

The test equipment used is as follows.

a) Tape measure.

1) 3 m in length, which has a scale interval of 0.001 m;

2) 3 m ~ 50 m in length, which has a scale interval of 0.01 m.

b) Stopwatch. Class 1 accuracy, with scale interval of 0.01 s. If a stopwatch is used for timing, three stopwatches shall be used simultaneously; the measured values shall be calculated as the arithmetic mean. The deviation -- between the measured value of a single stopwatch and the arithmetic mean of the three stopwatches -- shall not exceed ± 0.3 s. If the measured value of any stopwatch deviates from the arithmetic mean of the three stopwatches by more than the specified value, the measured value of that stopwatch shall be invalid; the measured values of the other two stopwatches shall be used to calculate the average. If the deviation between the measured values of two stopwatches and the arithmetic mean of the three stopwatches exceeds the specified value, the test is invalid.

c) Electronic timer. Scale interval 0.1 ms.

d) On-motorcycle road test instrument.

e) Sound level meter. Type I, error not exceeding ± 0.5 dB (A).

f) Fuel consumption measuring device. Error not exceeding $\pm 2\%$.

g) Thermometer. Scale interval 1 °C.

h) Anemometer. Measuring range 0 m/s ~ 30 m/s, error not exceeding 0.4 m/s, capable of