INTERNATIONAL STANDARD

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Motorcycles — Measurement method for gaseous exhaust emissions and fuel consumption —

Part 1: General test requirements

Motocycles — Méthode de mesure des émissions de gaz d'échappement et de la consommation de carburant —

Partie 1: Exigences générales d'essai

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6460-1 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 22, *Motorcycles*.

ISO 6460-1, together with ISO 6460-2 and ISO 6460-3, cancels and replaces ISO 6460:1981 and ISO 7860:1995, which have been technically revised.

ISO 6460 consists of the following parts, under the general title *Motorcycles — Measurement method for gaseous exhaust emissions and fuel consumption*:

— *Part 1: General test requirements*

— *Part 2: Test cycles and specific test conditions*

— *Part 3: Fuel consumption measurement at a constant speed*

Introduction

For measurement of motorcycle fuel consumption, the carbon balance method, where the fuel consumption is calculated from analysis of the carbon quantity in the exhaust gas, is now widely used in addition to the conventional fuel flow measurement. Therefore, the measurement of exhaust gas and that of fuel consumption are inseparably related to each other.

ISO 6460 now covers in one single series of standards the two subjects that were previously covered separately by ISO 6460:1981 and ISO 7860:1995. This part of ISO 6460 defines fundamental elements such as the measurement accuracy, test vehicle conditions and the details of the carbon balance method. Measurement of gaseous exhaust emissions and fuel consumption of test cycles can be conducted by means of this part of ISO 6460 and ISO 6460-2:2007. Together with ISO 6460-3, they also give details of those measurements at a constant speed.

While the most up-to-date technologies are reflected in the ISO 6460 series, further technical development in the following aspects will be necessary in the future, when measurement of exhaust gas at a lower level is required:

— cleaning of the background air (i.e. the air in the test room which is used for the dilution air);

— heating of the sampling line;

— control of the test room humidity;

— the exhaust gas analysis system for low level emissions;

— consideration of the evaporated fuel from the test motorcycle.

In addition to the above issues, the chassis dynamometer with electrically simulated inertia is at the stage of practical application. Standardization of the verification method and the allowance of simulated inertia would be necessary for this recent development.

Motorcycles — Measurement method for gaseous exhaust emissions and fuel consumption —

Part 1:
General test requirements

1 Scope

This part of ISO 6460 specifies the general test requirements for measurement for the gaseous exhaust emissions from motorcycles, and for determining the fuel consumption of motorcycles as defined in ISO 3833. It is applicable to motorcycles equipped with a spark ignition engine (four-stroke engine, two-stroke engine or rotary piston engine) or a compression ignition engine.

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.

ISO 3833, *Road vehicles — Types — Terms and definitions*

ISO 6460-2:2007, *Motorcycles — Measurement method for gaseous exhaust emissions and fuel consumption — Part 2: Test cycles and specific test conditions*

ISO 6460-3:2007, *Motorcycles — Measurement method for gaseous exhaust emissions and fuel consumption — Part 3: Fuel consumption measurement at a constant speed*

ISO 11486, *Motorcycles — Methods for setting running resistance on a chassis dynamometer*

3 Terms and definitions

For the purposes of this document, the terms defined in ISO 3833 and the following apply.

3.1
motorcycle kerb mass
total unladen mass of the motorcycle, which is filled with fuel in such a way that the normal container for fuel is filled to at least 90 % of the capacity specified by the manufacturer, and which is fitted with a tool kit and a spare wheel (if obligatory)

3.2
reference mass of the motorcycle
kerb mass of the motorcycle increased by a uniform figure of 75 kg, which represents the mass of a rider

3.3
equivalent inertia
total inertia of the rotating masses of the test bench, determined with respect to the reference mass of the motorcycle