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

GB/T 8190.7-2018

**Reciprocating internal combustion engines -- Exhaust emission
measurement -- Part 7: Engine family determination**

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Foreword

GB/T 8190 "Emission Measurement of Reciprocating Internal Combustion Engines" is divided into the following sections.

- Part 1. Test bench measurements for gas and particulate emissions;
- Part 2. On-site measurement of gas and particulate emissions;
- Part 3. Definition and measurement methods for exhaust smoke at steady state conditions;
- Part 4. Steady-state test cycles for different engine applications;
- Part 5. Test fuel;
- Part 6. Measurement results and test reports;
- Part 7. Determination of Engine Family;
- Part 8. Determination of engine group;
- Part 9. Test cycles and test procedures for measurement of exhaust smoke test rigs for compression ignition engine transient conditions;
- Part 10. Test cycles and test procedures for on-site measurement of exhaust smoke during transient conditions of compression ignition engines;
- Part 11 . Test bench measurements of gas and particulate emissions under transient conditions on engines for non - road mobile machines .

This part is Part 7 of GB/T 8190.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This Part replaces GB/T 8190.7-2003 "Emission Measurement of Reciprocating Internal Combustion Engines Part 7. Determination of Engine Family", and

Compared with GB/T 8190.7-2003, the main technical changes except editorial modification are as follows.

- Revised the description of the family selection criteria (see 3.1,.2003 edition, Chapter 3);
- Added explanation of special circumstances in family selection (see 3.2);
- Modify the provisions of the single cylinder displacement deviation when determining the parameters of the engine family [see Chapter 4 c),.2003 Edition, Chapter 4 c)];
- Added provisions for electronic control strategies when determining engine family parameters [see Chapter 4 l)];
- revised the provisions of the post-discharge treatment system in determining the parameters of the engine family [see Chapter 4 m),.2003 version 4 j)];
- Modified source selection criteria (see Chapter 5,.2003 Edition, Chapter 5).

This section uses the translation method equivalent to the use of ISO 8178-7.2015 "Reciprocating internal combustion engine emissions measurement Part 7. Engine family Ok."

This part is proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Standardization Technical Committee for Internal Combustion Engines (SAC/TC177).

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Introduction

Unlike road engines, the power output range of off-road engines is extremely wide, in many forms, and it can be used in many ways.

Same occasion.

The purpose of GB/T 8190 is to rationalize the test methods for off-road engines in order to control the engine's gas and particulate matter.

Emissions can simply, cost-effectively draft regulations, develop engines of various specifications, and certify engines.

To achieve these goals, GB/T 8190 contains 4 concepts.

- a) Classification according to engine application to reduce the number of test cycles, see GB/T 8190.4;
- b) The specific emission is based on the measured effective power defined in GB/T 8190.4;
- c) The concept of "engine family" is used so that engines with similar emission characteristics and structure can use one of the family

Come to represent

- d) Use the concept of "engine set" to illustrate the modification and adjustment of the engine (see GB/T 8190.8).

This part of the GB/T 8190 describes the concept of the engine family.

The concept of adopting an engine family may reduce the number of engines submitted for type-approval testing and may also assure parties concerned that

In this family, all engines meet the certification requirements.

Reciprocating internal combustion engine emission measurement

Part 7. Determination of Engine Family

1 Scope

This part of GB/T 8190 specifies the parameters used to determine the engine family specifications and source selection.

This section applies to land use, railway traction and marine reciprocating internal combustion engines, but does not include motor vehicles that are mainly used as road vehicles.

This section can also be used for power output and/or driving such as agricultural equipment, road and earthmoving machinery, industrial trucks, generators, etc.

motivation.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1

Engine Family Enginefamily

Through its design, the manufacturer is expected to have a similar type of engine with emission characteristics. In this family, all engines must meet the requirements.

Emission limits used.

2.2

Source machine

Engines selected from the engine family that have characteristics that adversely affect the emission levels of the exhaust components.

Note. It can be expected that this is a higher emission engine.

3.1 General

Engine family selection should be based on the following principles.

The engine family is characterized by design parameters common to the engines in the family. Engine manufacturers only need to consider meeting Chapter 4

The listed family engine determination criteria can determine which engines belong to the same engine family. The engine family should be related to each

The party agrees. The manufacturer should provide appropriate information relating to the emission levels of the family's engines.

The manufacturer shall provide the list and specifications of engines that it considers to belong to the same family, and based on experimental and technical considerations,

It was agreed which (or several) high-emission engines should be selected for testing.

See Chapter 5 for the selection procedure of the source machine.

The parties concerned should be able to choose a different engine for the finalization or production consistency test to make sure that the entire engine family is

Can meet the requirements.

3.2 Special circumstances

In some cases, the parameters interact. The impact of this should be considered to ensure that only equipment included in the same engine family

Engines with similar emissions characteristics. For example, for some engines, the number of cylinders may be different due to the way of inhalation or the fuel system used.