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Reciprocating internal combustion engines—Exhaust emission measurement—Part 9 : Test cycles and test procedures for test-bed measurement of exhaust gas smoke emissions from compression ignition engines operating under transient conditions

ICS 13.040.50; 27.020

Reference number : JIS B 8008-9 : 2004 (E)

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal of establishing a Japanese Industrial Standard from Japan Internal Combustion Engine Federation (JICEF)/Japanese Standards Association (JSA), with a draft of Industrial Standard based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

This Standard has been made based on **ISO 8178-9** : 2000 *Reciprocating internal combustion engines—Exhaust emission measurement—Part 9 : Test cycles and test procedures for test-bed measurement of exhaust gas smoke emissions from compression ignition engines operating under transient conditions* for the purposes of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

JIS B 8008 consists of the following 9 parts under the general title *Reciprocating internal combustion engines—Exhaust emission measurement*:

Part 1 : Test-bed measurement of gaseous and particulate exhaust emissions
Part 2 : Measurement of gaseous and particulate exhaust emissions at site
Part 3 : Definitions and methods of measurement of exhaust gas smoke under steady-state conditions
Part 4 : Test cycles for different engine applications
Part 5 : Test fuels
Part 6 : Test report
Part 7 : Engine family determination
Part 8 : Engine group determination
Part 9 : Test cycles and test procedures for test-bed measurement of exhaust gas smoke emissions from compression ignition engines operating under transient conditions.

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In the event of any doubts arising as to the contents, the original JIS is to be the final authority.

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Contents

Reciprocating internal combustion engines—Exhaust emission measurement—Part 9 : Test cycles and test procedures for test-bed measurement of exhaust gas smoke emissions from compression ignition engines operating under transient conditions

Introduction This Japanese Industrial Standard has been prepared based on **ISO 8178-9** *Reciprocating internal combustion engines—Exhaust emission measurement—Part 9 : Test cycles and test procedures for test-bed measurement of exhaust gas smoke emissions from compression ignition engines operating under transient conditions* published in 2000 as the first edition with some modifications of the technical contents.

Portions given sidelines or dotted underlines in this Standard are the matters in which the contents of the original International Standard have been modified. A list of modifications with the explanations is given in annex 1 (informative).

1 Scope This Standard specifies the test cycles and measurement procedures for the evaluation of smoke emissions from compression ignition engines on the test bed.

For transient smoke test cycles, smoke testing is conducted using smokemeters which operate on the light extinction principle. The purpose of this part of **JIS B 8008** is to define the smoke test cycles and the methods used to measure and analyse smoke. Specifications for measurement of smoke using the light extinction principle can be found in **ISO 11614**. The test procedures and measurement techniques described in clauses **1** to **11** of this part of **JIS B 8008** are applicable to reciprocating internal combustion engines in general. However, an engine application can only be evaluated using this part of **JIS B 8008** once the appropriate test cycle has been developed. Annexes A and B to this part of **JIS B 8008** each contain a test cycle that is relevant only for those specific applications listed in the scope of that annex. Where possible, smoke test cycle described in the annex utilizes the engine and machine categories developed in **JIS B 8008-4**. For certain categories of non-road engines "at site" rather than "test bed" smoke test procedures may prove to be necessary. For engines used in machinery covered by additional requirements (e.g. occupational health and safety regulations), additional test conditions and special evaluation methods may apply.

NOTE : The International Standard corresponding to this Standard is as follows.

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21**.

ISO 8178-9 : 2000 *Reciprocating internal combustion engines—Exhaust emission measurement—Part 9 : Test cycles and test procedures for test-bed measurement of exhaust gas smoke emission from compression ignition engines operating under transient conditions* (MOD)