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

GB/T 19055-2024

Replacing GB/T 19055-2003

Reliability test methods for motor vehicle engines

汽车发动机可靠性试验方法

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Foreword

This document was issued on 28 May 2024 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 December 2024.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies.

The document runs to 15 pages in translation. The identification, the dates, the table of contents and the clauses reproduced on this page are taken from the standard itself.

GB/T 19055-2024 Reliability test methods for motor vehicle engines

It replaces GB/T 19055-2003, which is superseded.

1 Scope

GB/T 19055-2024 specifies the reliability test methods for motor vehicle engines: the endurance runs on a test bed by which an engine is shown to survive its intended life before it is put into production. It is one of the more expensive standards to comply with, since a single test occupies a dynamometer cell for weeks. The document sets the test

types and their purpose, the preparation and running-in of the engine, the fuel, oil and coolant specifications, the test cycles and their duration, covering the full load endurance, the alternating speed and load cycle, the thermal shock cycle and the cold start cycle, the measurements taken during the test and their frequency, the criteria by which a failure is classified and counted, the inspection and measurement of the engine on strip-down and the wear limits applied, and the evaluation and the test report. The 2024 edition replaces GB/T 19055-2003. For an engine maker, a vehicle manufacturer or a testing house in China, this is the protocol a durability claim rests on.

This document specifies the general reliability test methods and reliability assessment methods for the bench test of motor vehicle engines.

This document is applicable to Categories M and N motor vehicle engines, which are reciprocating or rotor engines other than free-piston engines.

2 Normative references

The following documents contain requirements which, through reference in this text, constitute provisions 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 1883.1 Reciprocating internal combustion engines? Vocabulary - Part 1: Terms for engine design and operation

GB/T 15089 Classification of power-driven vehicles and trailers

GB/T 17754 Tribology terminology

GB/T 18297 Performance test code for road vehicle engines

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 15089, GB/T 1883.1, GB/T 17754 and GB/T 18297 as well as the following apply.

3.1

rated speed

speed of the engine at rated power

Note: The rated power is specified by the manufacturer, and the rated speed is generally lower than the speed of maximum power under full load.

3.2

speed of maximum net torque

nM

speed of the engine when the maximum effective torque is output and the engine is equipped with a full set of vehicle accessories according to GB/T 18297

3.3

rated net power

corrected brake power output at rated speed under full load when the engine is equipped with a full set of vehicle accessories according to GB/T 18297

4 Test engines

The three test engines (numbered as A, B, and C), shall meet the product technical standards of the engine manufacturer.

5 General requirements for tests

The precision of the test instruments, the measuring part, and the calculation of the test data shall comply with the requirements of GB/T 18297.

6 Control of general test conditions

6.1 Inlet state

The inlet temperature should be at $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$.

6.2 Fuel

Fuel grades shall be as specified by the engine manufacturer. The gasoline temperature shall be at $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$, the diesel temperature shall be at $40^{\circ}\text{C} \pm 5^{\circ}\text{C}$, and the temperature of other fuels shall be as specified by the engine manufacturer.

The fuel pressure shall be as specified by the engine manufacturer.

6.3 Engine oil

The engine oil grade shall be as specified by the engine manufacturer. The engine oil temperature shall not exceed the allowable temperature specified by the engine manufacturer; otherwise, the forced cooling device shall be adopted.

6.4 Coolant

The coolant used shall be as specified by the engine manufacturer. The outlet coolant temperature shall be at $95^{\circ}\text{C} \pm 3^{\circ}\text{C}$ or the temperature specified by the engine manufacturer; during the thermal shock test, the coolant temperature shall meet those specified in Table 5.