NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 7825-2017

Road vehicles -- Spark-plugs -- Test methods and requirements

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Foreword

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

This Standard serves as a replacement of GB/T 7825-1987 Spark Plugs. In comparison with GB/T 7825-1987, there are several main changes as follows.

---The title of the Standard is modified;

---Terms are deleted (please refer to Chapter 1 in Version 1987);

---Models and Dimensions are deleted (please refer to Chapter 2 in Version 1987);

---Normative References are added (please refer to Chapter 2);

---Certain test items are added. bending strength, thermal-shock resistance, voltage-withstanding test, room-temperature insulation resistance (please refer to 3.4.3, 3.6, 3.7.2 and 3.7.3);

---Test method for the durability of resistive spark plug is added (please refer to 3.8);

---Flashover performance test is deleted (please refer to 3.5 in Version 1987);

---Test method and requirement of vibration are modified (please refer to 3.4.4; 3.6 in Version 1987);

---Over-torque test is deleted (please refer to 3.8 in Version 1987);

---Side-electrode bending strength test is deleted (please refer to 3.9 in Version 1987);

---Appendix A "Calibration Method of Calorific Value of Spark Plugs" is deleted (please refer to Appendix A in Version 1987);

---Inspection rules are modified (please refer to Appendix A; Chapter 5 in Version 1987);

---"Marking and Packaging" is deleted (please refer to Chapter 6 in Version 1987).

This Standard was modified through the Law of Redrafting in accordance with ISO

11565 2006 Road Vehicles - Spark-plugs - Test Methods and Requirements.

In comparison with ISO 11565. 2006, there are several main technical changes as follows.

---"This Standard is applicable to spark plugs for spark-ignition engine" is added to the Scope;

Road Vehicles - Spark-plugs -

Test Methods and Requirements

1 Scope

This Standard specifies the test methods and requirements of the mechanical property and electrical performance of spark plugs for spark-ignition engine.

This Standard is applicable to spark plugs of spark-ignition engine.

2 Normative References

The following documents are indispensable to the application of this Standard. In terms of references with a specified date, only versions with a specified date are applicable to this Standard. The latest version (including all the modifications) of references without a specified date is applicable to this Standard.

GB/T 6791 Road Vehicles - Spark-plugs and Their Cylinder Head Housing - Basic Characteristics and Dimensions (GB/T 6791-2012, ISO 28741. 2009, MOD)

3.1 General Principles

The test of spark plugs shall comply with the following stipulations.

---If there are no specific stipulations, all tests of spark plugs shall be conducted under normal temperature (23 +/- 5) °C and normal humidity (65 +/- 20) %.

---Type inspection items and samples of spark plugs shall comply with the test sequence and requirements stipulated in Table 1.

---Exit-factory inspection items and samples of spark plugs shall comply with the test sequence and requirements stipulated in Table 2; or the customers' requirements.

---Each test in Table 1 and Table 2 shall start from new products that have not been used; tests shall be conducted from the top to the bottom in accordance with the mark "?".

---Please refer to Appendix A for the inspection rules.

Table 2 -- Spark Plug Exit-factory Inspection Sequence Table

3.2.1 Test method

Conduct the method of visual inspection to inspect the characteristics indicated in 3.2.2. The method of visual inspection refers to the inspection with naked eyes (normal vision and color discrimination ability) at the most comfortable visual inspection distance under suitable lighting conditions.

3.2.2.1 External sealing washer shall manifest no notches or obvious damages; corresponding dimensions shall comply with the requirements stipulated by the manufacturers or the customers.

3.2.2.4 No visible corrosion is allowed on the shell. Thread shall manifest no burrs or damages (which can be determined by whether threaded ring can freely pass through). The fixation with insulator shall be reliable and manifest no abnormalities.

3.2.2.5 Insulator shall be smooth and consistent; there shall be no abnormalities like fracture, crack or impact scar.

3.2.2.6 The marking shall be distinct and consistent; it shall also comply with the requirements stipulated by the manufacturers or the customers.

Test Items Clause Test Quantity (PCS)

Sample No.

General

Characteristics

Dimension

Resistance Value

Thermal Sealing

Performance

Bending Strength

Wiring Screw Tensile

Load

Adopt an exclusive tensile test device; along the axial direction, gradually increase tensile force at the rate of less than 500 N/s to pull the wiring screw of the spark plug.

3.4.2.2 Requirements

After bearing 980 N of tensile load (low-seat spark plug bears 400 N of tensile load), the wiring screw shall manifest no abnormalities in all parts.

3.4.3.1 Test method

Adopt the maximum installation torque stipulated in GB/T 6791 to install the spark plug on a suitable test bench. Within the range of 5 mm from the ends of the insulator, impose vertical force, which acts on the axial direction of the insulator; the speed of the force shall be less than 10 mm/min.

3.4.3.2 Requirements

Spark plug shall be able to bear 15 N?m of bending moment at the minimum and shall not be damaged.

3.4.4.1 Test method

In accordance with the torque stipulated in relevant national standards, install spark plug on a standard vibration test bench. Parameters of the vibration test shall satisfy.