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GB/T 5334-2005

Replacing GB/T 5334-1995

Performance requirements and test methods of passenger car wheels

乘用车车轮性能要求和试验方法

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Standardization Administration of the People's Republic of China.

Table of Contents

Foreword

This Standard replaces GB/T 5334-1995 “Performance requirements and test methods of passenger car steel wheels” and QC/T 221-1997 “Performance requirements and test methods for automotive light alloy wheels”.

The main differences between this Standard and GB/T 5334-1995 are as follows:

- The fixing wheel clamping method is unified for two wheels: steel wheels and aluminum wheels. The fixing position and method are exactly the same. That is, fix the long shoulder rim of the wheel; through the test connecting plate, connect to the bottom of the wheel spoke and the bolt hole; then through the loading arm, apply a bending moment to the wheel (4.2.1 of Edition 1995, 4.3.2.1 of this Edition);

- In the dynamic bending fatigue test, added basis for failure judgment. It is different from ISO and JIS standards. The main consideration is to use low-strength materials for the wheels to make their rigidity weaker, leading to early failure of the wheels. The addition of this judgment basis can effectively prevent wheel failure due to this reason [see 4.3.3.1c) of this Edition];

- The performance requirements for the dynamic radial fatigue test have been slightly changed. Steel wheels retain the original two strengthening test coefficients K. Light alloy canceled the classification of the nominal diameter code of the rim. The minimum cycle times of steel and aluminum wheels have been improved and unified (5.3 and Table A2 of Annex A of Edition 1995, 3.2 of this Edition).

This Standard was proposed by National Development and Reform Commission.

This Standard shall be under the jurisdiction of National Technical Committee on Automobiles of Standardization Administration of China.

Main drafting organizations of this Standard: Changchun FAW Sihuan Automobile Co., Ltd. Wheel Branch.

Main drafters of this Standard: Zhang Shijiang, Shao Yunkai.

Versions of standard substituted by this Standard are:

- GB 5334-1985, GB/T 5334-1995.

Performance requirements and test methods of passenger car wheels

1 Scope

This Standard specifies performance requirements and test methods for fatigue test of passenger car wheels.

This Standard is applicable to steel spoke wheels of passenger car and all or part light alloy automobile wheels.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 2933, *Wheels/rims for pneumatic tyres - Nomenclature, designation and marking*

3 Requirements

3.1 Performance requirements for dynamic bending fatigue test (see Table 1)

NOTE: See Table 1 for μ value and S value.

4.3.3 Basis for failure judgment

4.3.3.1 Judgment basis for steel wheel failure

a) Wheels cannot continue to bear the load;

b) The original crack develops or has stress to cause visible cracks invading the wheel section;

c) If, before reaching the required number of cycles, the offset of the loading point has exceeded the initial full loading offset by 10%, the wheel test shall be considered to have failed.

4.3.3.2 Judgment basis for light alloy wheel failure

a) Wheels cannot continue to bear the load;

b) New visible cracks appear in any part of the wheel (use dye penetration method or other acceptable methods such as fluorescent flaw detection to check);

c) If, before reaching the required number of cycles, the offset of the loading point has exceeded the initial full loading offset by 20%, the wheel test shall be considered to have failed.

4.4 Dynamic radial fatigue test

4.4.1 Test equipment

The test bench shall have the ability to transmit a constant radial load to the wheel as it rotates. The device has a rotating drum. The drum has a smooth surface wider than the cross-section of the load-bearing tire. The loading direction is perpendicular to the surface of the drum and is consistent with the center line of the wheel and the drum in the radial direction. The drum axis and the wheel axis shall be parallel. The recommended drum diameter is 1700mm.

The mounting surface of the test connector and the wheel mounting surface shall be smooth and flat.

4.4.2 Test procedures

4.4.2.1 Preparation

The tires selected for the test wheels shall meet the rated load of the wheel or shall be the tires with the maximum load capacity specified by the wheel factory or automobile manufacturer.

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