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AUTOMOBILE INDUSTRY STANDARD
OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 43.040

T 24

QC/T 316-2017

Replacing QC/T 316-1999

**Automobile service brake fatigue
strength bench test methods**

汽车行车制动器疲劳强度

台架试验方法

Issued on: January 9, 2017

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People's Republic of China.**

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Announcement
of Ministry of Industry and Information Technology of the
People's Republic of China
No.2, 2017

The Ministry of Industry and Information Technology approved 426 industry standards (see the annex for standard references, names, main content and dates of implementation) such as “Superconducting magnetic separator” including 249 mechanical industry standards, 42 automotive industry standards, 10 pharmaceutical industry standards, 106 light industry standards, 4 metallurgical industry standards, 2 chemical industry standards, 7 electronic industry standards, and 6 communications industry standards.

The above mechanical industry standards were published by the Machinery Industry Press. Automotive industry standards were published by Science and Technology Literature Publishing House. Pharmaceutical equipment industry standards were published by China Planning Press. Light industry standards were published by China Light Industry Press. Metallurgical industry standards were published by Metallurgical Industry Press. Chemical industry standards were published by Chemical Press. Electronic industry standards were published by the Institute of Electronic Industry Standardization, Ministry of Industry and Information Technology. Communication industry standards were published by the People's Posts and Telecommunications Press.

Annex: References, names and dates of implementation of 42 automotive industry standards.

Ministry of Industry and Information Technology of the People's Republic of
China

January 9, 2017

Annex:

References, names and dates of implementation of 42 automotive industry standards

No.	Standard reference	Standard name	Standard reference being substituted	Date of implementation
250	QC/T 776-2017	Motor caravan	QC/T 776-2007	2017-07-01
251	QC/T 1051-2017	Coach car		2017-07-01
252	QC/T 1052-2017	Communication vehicle		2017-07-01
253	QC/T 1053-2017	Concrete spraying vehicle		2017-07-01
254	QC/T 1054-2017	Tunnel cleaning vehicle		2017-07-01
255	QC/T 1055-2017	Drainage and rescue vehicle		2017-07-01
256	QC/T 218-2017	Technical specifications for steering column upper combined switch of automobile	QC/T 218-1996	2017-07-01
257	QC/T 1056-2017	Technical requirements and test methods for automotive dual clutch automatic transmission assembly		2017-07-01
258	QC/T 245-2017	Technical specifications for isolated plant of compressed-natural-gas (CNG) automobile	QC/T 245-2002	2017-07-01
259	QC/T 247-2017	Technical specifications for isolated plant of liquefied petroleum gas	QC/T 247-2002	2017-07-01
260	QC/T 1057-2017	Car snow chains		2017-07-01
261	QC/T 1058-2017	Car fingerprint identification device		2017-07-01

Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009 “Directives for standardization - Part 1: Structure and drafting of standards”.

This Standard replaces QC/T 316-1999 “Bench Test Methods of Fatigue Strength for Automobile Service Brake”. Compared with QC/T 316-1999, the main changes in this Standard are as follows:

- modified the standard layout format so as to comply with GB/T 1.1 layout requirements;
- listed the symbols involved in the standard separately (see Clause 2 of this Edition);
- combined test equipment and test conditions into test related requirements (see Clause 3 of this Edition, Clause 2 and Clause 3 of Edition 1999);
- added requirements for brake pressure increase and decrease rates (see 3.1.2 of this Edition);
- added brake torque calculation method for blue-axis plated passenger car (see 3.2.2 of this Edition);
- added brake duration (see Figure 1 of this Edition, 3.5 of Edition 1999);
- added test cycle (see 4.2 of this Edition);
- added brake torque stabilization time (see Figure 1 of this Edition);
- deleted the chapter on test equipment and operation methods, and combined related content into the test methods (see Clause 4 of this Edition);
- deleted Annex A and Annex B.

This Standard was proposed by and shall be under the jurisdiction of National Technical Committee on Automobile of Standardization Administration of China (SAC/TC 114).

Main drafting organizations of this Standard: China First Automobile Co., Ltd. Technology Center, Asia Pacific Mechanical and Electrical Group Co., Ltd., Longzhong Holding Group Co., Ltd.

Main drafters of this Standard: Lin Dahai, Hu Shuibing, Xiao Shuibo, Shi Ruikang, Wang Shanghua.

Versions of standard substituted by this Standard are:

Automobile service brake fatigue strength bench test methods

1 Scope

This Standard specifies test related requirements and test methods of automobile service brake fatigue strength bench test.

This Standard is applicable to automobile service brake assembly.

2 Symbols

The following symbols apply to this Standard.

G_a : vehicle full load mass, in kilograms (kg).

G_f : front axle (shaft) full load mass, in kilograms (kg).

G_r : rear axle (shaft) full load mass, in kilograms (kg).

H : vehicle full load center of mass, in meters (m).

J_c : brake deceleration required by the test, in meters per square second (m/s^2).

L - vehicle wheelbase, in meters (m).

M_f : brake torque calculation for a front brake in cattle/meter ($N \cdot m$).

M_m : brake torque calculation for a middle axle brake, in cattle/meter ($N \cdot m$).

M_r : brake torque calculation for a rear axle brake, in cattle/meter ($N \cdot m$).

r : tire dynamic rolling radius, in meters (m).

β : front and rear brake force distribution ratio design value.

β_1 : design value of brake force distribution ratio between front axle and middle axle of triaxial dumping passenger car.

β_2 : design value of brake force distribution ratio between front axle and rear axle of triaxial dumping passenger car.

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