NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 13881-2019

Road vehicles - Pneumatic braking connections between towing vehicles and trailers

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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 13881-1992 Braking Connections between Motor Vehicles and Towed Vehicles. In comparison with GB/T 13881-1992, except from editorial modifications, the main technical changes are as follows:

---Normative references are added (see Chapter 2);

---Performance requirements are added (see Chapter 4);

---Test methods are added (see Chapter 5);

---The requirements for installation location and jumper hose length are modified; the specific requirements are modified into reference to GB/T 32861 (see 6.1;

3.1 ~ 3.6 in Version 1992);

---The requirements for the numerical value of A and B in connector interchangeability dimension table are modified (see Table 1 in 3.5; 2.6 in Version 1992);

---The requirements for connector colors are modified; the requirements for jumper hose colors are deleted (see 6.3; 3.7 in Version 1992);

The formulation of this Standard adopts the re-drafting law and takes ISO 1728:2006 Road Vehicles - Pneumatic Braking Connections between Motor Vehicles and Towed Vehicles - Interchangeability as a reference. The degree of consistency with ISO

1728:2006 is non-equivalent.

This Standard was proposed by Ministry of Industry and Information Technology of People's Republic of China.

This Standard shall be under the jurisdiction of National Technical Committee 114 on Road Vehicles of Standardization Administration of China (SAC/TC 114).

The drafting organizations of this Standard: Research Institute of Highway Ministry of Transport; Beijing Foton Daimler Automotive Co., Ltd.; RUILI Group RUIAN Automotive Parts Co., Ltd.; WABCO Vehicle Control Systems Co., Ltd.; Beijing HUATE Auto Parts Co., Ltd.

1 Scope

This Standard stipulates the type, interchangeability dimensions, performance requirements, test methods, installation, usage and marking of pneumatic braking connections between towing vehicles and trailers.

This Standard is applicable to pneumatic braking connectors adopted in double-pipeline pneumatic braking system equipped in automobiles and trains. Specifically speaking, one of the pipelines is power supply pipeline, and the other is control pipeline.

2 Normative References

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

GB/T 10125 Corrosion Tests in Artificial Atmospheres - Salt Spray Tests;

GB/T 32861 Road Vehicles - Location of Electrical and Pneumatic Connections between Towing Vehicles and Trailers

3.1 Pneumatic braking connector is connected by fixed joint and movable joint (see

Figure 1).

After air-tightness test, connector's pressure drop shall not be more than 10 kPa.

4.3 Corrosion Resistance

After corrosion resistance test, respectively test the torque of connection and disconnection, and air-tightness in accordance with 5.1 and 5.2. A normally functioning connector shall satisfy the requirements of the torque of connection and disconnection in 4.1 and the requirements of air-tightness in 4.2.

4.4 Durability

After durability test, in accordance with 5.1 and 5.2, respectively test the torque of connection and disconnection, and air-tightness. A normally functioning connector shall satisfy the requirements of the torque of connection and disconnection in 4.1 and the requirements of air-tightness in 4.2.

4.5 Pull-off Resistance

When connector is pulled off, the tensile force shall be 220 N ~ 1,334 N.

After pull-off test, in accordance with 5.1 and 5.2, respectively test the torque of connection and disconnection, and air-tightness. A normally functioning connector shall satisfy the requirements of the torque of connection and disconnection in 4.1 and the requirements of air-tightness in 4.2.

4.6 Dropping Resistance

After drop test, in accordance with 5.1 and 5.2, respectively test the torque of connection and disconnection, and air-tightness. A normally functioning connector shall satisfy the requirements of the torque of connection and disconnection in 4.1 and the requirements of air-tightness in 4.2.

4.7 High Temperature

After high temperature test, under the stipulated temperature conditions, in accordance with 5.1 and 5.2, respectively test the torque of connection and disconnection, and air-tightness. A normally functioning connector shall satisfy the requirements of the torque of connection and disconnection in 4.1 and the requirements of air-tightness in 4.2.

4.8 Low Temperature

After low temperature test, under the stipulated temperature conditions, in accordance with 5.1 and 5.2, respectively test the torque of connection and disconnection, and air-tightness. A normally functioning and disconnected connector shall satisfy the requirements of the torque of connection and disconnection in 4.1 and the requirements of air-tightness in 4.2; a normally functioning and connected connector shall satisfy the requirements of air-tightness in 4.2.

2---movable joint;

M---pressure meter;

C---1 L air cylinder;

A---control valve;

FR---pressure regulating valve.

Figure 4 -- Principle of Air-tightness Test of Pneumatic Braking Connector

5.3 Corrosion Resistance Test

In accordance with GB/T 10125, conduct 240 h corrosion resistance test on two pairs of new connectors (one pair is correctly connected, with the threaded port blocked; the other pair is disconnected). After the test, in accordance with 5.1 and 5.2, respectively test the torque of connection and disconnection, and air-tightness.

5.4 Durability Test

In accordance with the requirements, conduct the operation of connection and disconnection on one pair of new connectors. At the rate of 15 ~ 25 cycles in each minute, complete 2,500 cycles. A complete cyclic process shall include one connection and one disconnection. After the test, in accordance with 5.1 and 5.2, respectively test the torque of connection and disconnection, and air-tightness.

5.5 Pull-off Resistance Test

In accordance with the requirements, connect one pair of new connectors. Meanwhile, connect the air supply pipeline and raise pressure to 850 kPa +/- 30 kPa. Then, apply