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

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**Road vehicle -- Braking systems -- Structure, performance and
test methods**

(English Translation)

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1 Scope

This Standard specifies the technical requirements and testing methods for commercial vehicle and trailer braking systems.

This Standard applies to power-driven vehicles of categories M2, M3 and N AND trailers of category

O, as specified in GB/T 15089.

This Standard does not cover.

2 Normative References

The following referenced documents are indispensable for the application 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 3730.1 Motor vehicles and trailers-Types-Terms and definitions

GB/T 3730.2 Road vehicle-Masses-Vocabulary and codes

GB/T 5620 Road vehicles - Braking of automotive vehicles and their trailers - Vocabulary

GB/T 5922 Motor vehicles and towed vehicles - Pressure test connection for compressed-air pneumatic braking equipment

GB/T 13594-2003 Antilock braking performance and test procedure for motor vehicles and their trailers

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

GB/T 20716.1 Road vehicles - Connectors for the electrical connection of towing and towed vehicles - Part 1.Connectors for braking systems and running gears of vehicles with 24V nominal supply voltage

GB/T 20716.2 Road vehicles - Connectors for the electrical connection of towing and towed vehicles - Part 2.Connectors for braking systems and running gears of vehicles with 12V nominal supply voltage

3 Terms and Definitions

For the purpose of this document, the following terms and definitions and those given in GB/T

3730.1, GB/T 3730.2, GB/T 5620 and GB/T 15089 apply.

3.1.1.1 Motor vehicle

With regard to braking system, the vehicles which do not differ in such essential respects as.

3.1.1.2 Trailer

With regard to braking system, the vehicles which do not differ in such essential respects as.

3.1.2 "Braking system" means the combination of parts whose function is progressively to reduce the speed of a moving vehicle or bring it to a halt, or to keep it stationary if it is already halted. The system consists of the control, the transmission, and the brake proper;

3.1.3 "Actuation" means both application and release of the control.

3.1.4 "Transmission device" means the combination of components comprised between the control and the brake and linking them functionally. The transmission may be mechanical, hydraulic, pneumatic, electric or mixed. Where the braking power is derived from or assisted by a source of energy independent of the driver, the reserve of energy in the system is likewise part of the transmission.

3.1.5 "Brake" means the part in which the forces opposing the movement of the vehicle develop. It may be a friction brake (when the forces are generated by friction between two parts of the vehicle moving relatively to one another); an electrical brake (when the forces are generated by electro-magnetic action between two parts of the vehicle moving relatively to but not in contact with one another);

3.1.6 "Different types of braking systems" means systems which differ in such essential respects as.

3.1.7 "Component of a braking system" means one of the individual parts which, when

assembled, constitutes the braking system;

4.1.1 Braking system

4.1.1.1

The braking system shall be so designed, constructed and fitted as to enable the vehicle in normal use, despite the vibration to which it may be subjected, to comply with the provisions of this

Standard. The braking response time on vehicles equipped with compressed-air braking systems shall comply with the specifications in Annex B. The energy sources and energy storage devices of braking system shall comply with the specifications in Annex C. The spring braking system shall comply with the specifications in Annex D.

4.1.2.1 Service braking system

The service braking system shall make it possible to control the movement of the vehicle and to halt it safely, speedily and effectively, whatever its speed and load, on any up or down gradient. It shall be possible to graduate this braking action. The driver shall be able to achieve this braking action from his driving seat without removing his hands from the steering control.

4.1.2.2 Secondary braking system

The secondary braking system shall make it possible to halt the vehicle within a reasonable distance in the event of failure of the service braking system. It shall be possible to graduate this braking action. The driver shall be able to obtain this braking action from his driving seat while keeping at least one hand on the steering control. For the purposes of these provisions it is assumed that not more than one failure of the service braking system can occur at one time.

4.1.3 Connections, for compressed-air braking systems, between power-driven vehicles and

trailers

4.1.4 Provisions for the periodic technical inspection of braking systems

4.1.4.1

It shall be possible to assess the wear condition of the components of the service brake that are subject to wear e.g. friction linings and drums/discs (in the case of drums or discs, wear assessment may not necessarily be carried out at the time of periodic technical inspection). The method by which this may be realized is defined in paragraphs 4.2.1.11b) and 4.2.2.8b) of this

Standard. Other friction linings meeting the requirements of Annex G may be optional.

4.1.5 Complex electronic control system

The requirements of Annex H shall be applied to the safety aspects of all complex electronic vehicle control systems which provide or form part of the control transmission of the braking function included those which utilize the braking system(s) for automatically commanded braking or selective braking. However, systems or functions, which use the braking system as the means of achieving a higher level objective, are subject to Annex H only as far as they have a direct effect on the braking system. If such systems are provided, they shall not be deactivated during testing of the braking system.

4.2.1 Vehicles of categories M and N

4.2.1.1

The set of braking systems with which a vehicle is equipped shall satisfy the requirements laid down for service, secondary and parking braking systems.

4.2.2 Vehicles of category O

4.2.2.1

Trailers of category O1 need not be equipped with a service braking system; however, if a trailer of this category is equipped with a service braking system, it shall satisfy the same requirements as a trailer of category O2.

5.1.1 General Requirements

5.1.1.1

The performance prescribed for braking systems is based on the stopping distance and/or the mean fully developed deceleration. The performance of a braking system shall be determined by measuring the stopping distance in relation to the initial speed of the vehicle and/or by measuring the mean fully developed deceleration during the test.

5.1.1.2

The brake shall be subjected to run-in in compliance with the running-in procedures stipulated by the manufacturer or the following requirements.

5.1.1.3

The stopping distance shall be the distance covered by the vehicle from the moment when the driver begins to actuate the control of the braking system until the moment when the vehicle stops; the initial speed shall be the speed at the moment when the driver begins to actuate the control of the braking system; the initial speed shall not be less than 98 percent of the prescribed speed for the test in question.