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

GB 21670-2025

Replacing GB 21670-2008

**Technical requirements and testing methods for
passenger car braking systems**

乘用车制动系统技术要求及试验方法

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Table of Contents

1	SCOPE.....	8
2	NORMATIVE REFERENCES	8
3	TERMS AND DEFINITIONS	8
4	SYMBOLS AND ABBREVIATIONS.....	16
5	STRUCTURAL AND FUNCTIONAL REQUIREMENTS	19
6	TEST AND PERFORMANCE REQUIREMENTS	38
7	TEST METHOD.....	60
8	DETERMINATION OF SAME TYPE	93
9	IMPLEMENTATION OF STANDARD.....	96
	APPENDIX A	97
	APPENDIX B.....	113
	APPENDIX C.....	117
	APPENDIX D.....	119
	APPENDIX E.....	120
	APPENDIX F	122

Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document replaces GB 21670-2008 "Technical requirements and testing methods for passenger car braking systems". In addition to structural adjustments and editorial changes, the major technical changes compared to GB 21670-2008 are as follows:

- a) DELETE the terms "Vehicle type", "Opening pressure", "Closing pressure", "Safety concept", "Composite electronic vehicle control system", "Upper-level control", "Control range", "Different types of braking systems", "Unloaded", "Fully loaded", as well as their definitions (see Chapter 3 of the 2008 edition);
- b) CHANGE the terms and definitions for braking equipment, control device, transmission device, brake, component of braking system, graduated/modulatable braking, wheel/axle load, hydraulic braking system with stored energy, traction battery, state-of-charge, automatically commanded braking, selective braking, nominal value, full cycling, electronic control system, unit, transmission links (see Chapter 3; Chapter 3 of the 2008 edition);
- c) ADD the terms "Braking system", "Braking signal", "Emergency braking signal", "Energy source", "Electrical storage device", "Electrical supply", "State of an electrical storage device", "Performance of an electrical storage device", "Electrical transmission braking system", "Brake demand value", "Effect of aging", "Energy management system", as well as their definitions (see Chapter 3);
- d) CHANGE the symbols and abbreviations (see Chapter 4; Appendix A of the 2008 edition);
- e) CHANGE the requirements related to electromagnetic compatibility (see 5.1.1.4 and 6.5.1.5; 4.1.1.4, 4.2.18.4, 5.6.2.5 of the 2008 edition);
- f) CHANGE the functional safety requirements for electronic brake control systems (see 5.1.3, Appendix A; 4.1.3, Appendix D of the 2008 edition);
- g) RCHANGE the requirements for energy sources other than driver force (see 5.2.4; 4.2.4 of the 2008 edition), adding the requirements for ETBS transmission failure [see 5.2.4 d)];
- h) CHANGE the requirements for the difference in braking demand values [see 5.2.8 a); 4.2.8.1.1 of the 2008 edition];
- i) CHANGE the requirements for releasing the parking brake [see 5.2.10, 5.2.19 d); 4.2.10, 4.2.19.4 of the 2008 edition];

- j) CHANGE the inspection requirements for wear of service brake friction components (see 5.2.11; 4.2.11.2 of the 2008 edition);
- k) CHANGE the implementation document for brake fluid level marking and graphic marking for hydraulic transmission braking systems, using GB/T 5345 to replace GB/T 14168 (see 5.2.13; 4.2.13 of the 2008 edition);
- l) CHANGE the requirements for alarm devices [see 5.2.14 a); 4.2.14.1 of the 2008 edition], adding the requirements for alarm devices for vehicles equipped with ETBS [see 5.2.14 c) and e)];
- m) CHANGE the requirements for energy supply to auxiliary equipment (see 5.2.16; 4.2.16 of the 2008 edition);
- n) ADD the requirements for braking action achieved by releasing the accelerator pedal for vehicles with Type A and both Type A and Category B electric regenerative braking systems [see 5.2.18 f)];
- o) CHANGE the requirements for an electrical failure in a parking braking system with electronic transmission [see 5.2.19 b); 4.2.19.2 of the 2008 edition]; CHANGE the requirements for energy supplied to the electronic transmission device of the parking braking system [see 5.2.19 c); 4.2.19.3 of the 2008 edition];
- p) CHANGE the requirements for service braking systems equipped with electronic transmission devices [see 5.2.20; 4.2.20 of the 2008 edition];
- q) DELETE the requirements for acoustic signals when certain failures (or malfunctions) occur in the braking system of a passenger car (4.2.21.1.3 of the 2008 edition);
- r) ADD the requirement that the ETBS warning signal still illuminates as required even when the battery is affected by environmental conditions (e.g., temperature) and aging effects [see 5.2.21 c) 3)];
- s) CHANGE the requirement for brake light illumination (see 5.2.22; 4.2.21.6 of the 2008 edition);
- t) ADD the requirement for emergency braking signaling (see 5.2.23);
- u) ADD the special requirements for ETBS (see 5.2.24);
- v) ADD braking and runout test requirements for vehicles equipped with a temporary spare wheel/tire (see 5.2.25, Appendix E);
- w) ADD the requirement for Category M₁ vehicles to be equipped with an anti-lock braking system (see 5.2.26);
- x) CHANGE the requirement for the permissible deviation between the initial

- vehicle speed and the specified vehicle speed (see 6.1.1.2; 5.1.1.2 of the 2008 edition);
- y) CHANGE the test vehicle speed requirement (see 6.1.2.9; 5.1.2.9 of the 2008 edition);
 - z) CHANGE the requirements for the traction battery supplying the electric service brake (see 6.1.2.11; 5.1.2.11 of the 2008 edition);
 - aa) CHANGE the charge state requirement for the type O test of the category B electric regenerative braking system [see 6.1.4.1.2 d); 5.1.4.1.2.3 of the 2008 edition];
 - ab) CHANGE the power release type O test requirement (see 6.1.4.2; 5.1.4.2 of the 2008 edition);
 - ac) CHANGE the transmission gear requirement for the type O test (see 6.1.5.1.4; 5.1.5.1.4 of the 2008 edition);
 - ad) CHANGE the start time and conditions for the hot performance test (see 6.1.5.2; 5.1.5.2.1 of the 2008 edition);
 - ae) CHANGE the requirements for hot performance testing of vehicles equipped with a category B electric regenerative braking system [see 6.1.5.2 c), 5.1.5.2.4 of the 2008 edition];
 - af) CHANGE the requirements for the recovery process test of vehicles equipped with a category B electric regenerative braking system (see 6.1.5.3.2; 5.1.5.3 of the 2008 edition);
 - ag) DELETE the requirements for braking force distribution between axles (see 5.5 of the 2008 edition);
 - ah) DELETE the types of anti-lock braking systems equipped (see 5.6.1 of the 2008 edition);
 - ai) ADD the requirements for the response time of vehicles equipped with ETBS during emergency braking [see 6.3 c)];
 - aj) CHANGE the requirements for actuating the service brake control device when the vehicle is stationary (see 6.5.2.1.2.4; 5.6.3.1.1.4 of the 2008 edition);
 - ak) CHANGE the method for determining the maximum braking strength of a vehicle (see 6.5.3.1.3; 5.6.4.1.1.3 of the 2008 edition);
 - al) ADD the calculation method for k_{peak} (the maximum value of the "adhesion coefficient-slip ratio" curve) and k_{lock} (the adhesion coefficient value when the slip ratio is 100%) (see 6.5.5.1 ~ 6.5.5.3);