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

GB/T 21561.2-2018

Replacing GB/T 21561.2-2008

**Railway applications -- Rolling stock pantographs
characteristics and tests -- Part 2: Pantographs for metros and
light rail vehicles**

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Introduction

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Foreword

GB/T 21561 "Characteristics and test of the pantograph of rail transit rolling stock" is divided into four parts.

- Part 1. The pantograph of the mainline locomotive;
- Part 2. Pantographs for metro and light rail vehicles;
- Part 3. Interface between pantograph and mainline locomotives;
- Part 4. The interface between the pantograph and the subway and light rail vehicles.

This part is the second part of GB/T 21561.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 21561.2-2008 "Traffic locomotive vehicle pantograph characteristics and test part 2. subway and light

Rail vehicle pantograph, the main technical changes compared with GB/T 21561.2-2008 are as follows.

- Revised the normative reference document (see Chapter 2, Chapter 2 of the.2008 edition);
- Revised the definition of the pantograph, and included the figure A.1 in Appendix A of the.2008 edition standard into the text, and changed the "bow width" to "the bow head." "large width", added "automatic bow reduction device" "average static contact force" (see Chapter 3, Chapter 3 of the.2008 edition);
- Added symbols and abbreviations (see Chapter 4);
- Revised the contact force requirements (see 5.4, 4.4 of the.2008 edition);
- Modified the technical requirements of the bow head (see 5.6, 4.6 of the.2008 edition);

---Modified the technical requirements of the skateboard (see 5.6.4, 4.6.2 of the.2008 edition);

--- Increased the environmental requirements of the motor, modified the automatic bow lowering device (ADD) requirements, the force of the pantograph to the roof and the identification

Seeking (see 5.7.2, 5.8, 5.9, 5.11, 4.7, 4.8, 4.9, Chapter 5 of the.2008 edition);

--- Increased use environment (see Chapter 6);

--- Modified the inspection classification (see 7.1, 6.1 of the.2008 edition);

--- Revised inspection requirements for visual inspection, size and marking (see 7.2.1, 7.2.3, 7.2.4, 2008 editions 6.2.1, 6.2.3, 6.2.4);

--- Modified the factory inspection requirements for ADD function detection, and increased the type inspection of ADD function detection (see 7.2.5, 7.2.6);

--- Revised the performance test, the static contact force measurement at normal temperature will be included in the text "Figure B.1" in Appendix B, Figure 2

There are changes, increasing the requirement for the static contact force of the pantograph, and modifying the "checking of the lifting system" to increase the drop time requirement.

The bow-climbing climate test changed the "supplemental type test" to "type test" and increased the "normal temperature average static contact force measurement" (see 7.3, 6.3) of the.2008 edition;

--- Revised the climatic test of the lifting bow, changed the "supplement type test" to "type inspection", and changed the test temperature "40 °C" to

"70°C" (see 7.3.3, 7.7.3, 6.3.3, 6.7.2 of the.2008 edition);

--- Modified the "lifting operation" test, based on the lifting operation test between the bow position and the highest working height, added "work

"Uplift operation within the range" test (see 7.4.1, 6.4.1 of the.2008 edition);

--- Increased bow suspension test (see 7.4.2);

---Modified the vibration test content, added the content of "impact and vibration test" and specified as type inspection, increasing the acceptance criteria

(See 7.4.3.1, 6.4.2 of the.2008 edition);

--- Increased the acceptance criteria for the "lateral vibration test" (see 7.4.3.3);

--- Revised the impact test, changed from "Supplemental Type Test" to "Type Test" (see 7.5,

6.5 of.2008 edition);

--- Modified the climate test of the lift bow airtight performance, the test temperature was changed from "40 °C" to "70 °C" (see 7.7,.2008 edition)

6.7);

--- Modified the flow test (see 7.10.2, 6.9 of the.2008 edition);

---Modified the test content of the "current temperature rise test", "the rated and maximum current when the subway and light rail vehicles are at rest" test increased

"Requirements for contact lines and skateboards", unified test conditions, increased

"Motorcycle Operation Simulation" test, and "Supplemental Type Test"

Change to "type inspection" (see 7.9, 6.10.1 of the.2008 edition);

---Modified "reliability" as "reliability and fault type", and separately wrote reliability and fault types (see Chapter 9,.2008 edition)

Chapter 8);

---Modified "maintenance" as "design life and maintenance" (see Chapter 10, Chapter 9 of the.2008 edition);

--- Removed electromagnetic compatibility (EMC) content (see Chapter 10 of the.2008 edition).

This section uses the redrafting method to modify the IEC 60494-2.2013 "railway locomotive vehicle pantograph characteristics and test

Part 2. Pantographs for subways and light rail vehicles.

This section has more structural adjustments than IEC 60494-2.2013. Appendix A lists this section and IEC 60494-2.

2013 chapter number change comparison checklist.

There are technical differences between this part and IEC 60494-2.2013, and the terms involved in these differences have been passed on the outside margins.

The vertical single line (|) of the position is marked. The specific technical differences and their causes are as follows.

---About the normative reference documents, this part has made technical adjustments to adapt to China's technical conditions, adjustments

The situation is reflected in Chapter 2, "Regulatory Citations", and the specific adjustments are as follows.

* Added GB/T 19001, TB/T 1842.1, TB/T 1842.2, TB/T 1842.3, GB/T 21562.2,

GB/T 32592, deleted EN50317 (see 5.6.4, 7.10.2, Chapter 8, 9.1, 9.3);

* Replace IEC 62486 with TB/T 3271-2011 modified to international standards (see 5.1, 5.4, 5.6.1, 5.6.3, 7.3.1)

7.10.2);

* Replace IEC 60850 with GB/T 1402 modified with international standards (see 5.3);

* Replace IEC 60529:1989 with GB/T 4208-2017 equivalent to the international standard (see 5.7.2);

* Replace IEC 62498-1 with GB/T 32347.1 modified with international standards (see 5.7.2, 6.2);

* Replace IEC 60077-1 with GB/T 21413.1 modified with international standards (see 5.7.2, 7.4.1.1);

* Replace IEC 60077-2 with GB/T 21413.2 equivalent to the international standard (see 5.7.2, 7.4.1.1);

* Replace IEC 61373 with GB/T 21563 modified with international standards (see 7.4.3.1);

* Replace IEC 62278 with GB/T 21562 modified with international standards (see 9.1, 9.3);

* Replace IEC 62278-3 with GB/T 21562.3 modified with international standards (see 9.1, 9.3);

--- Removed the static contact force of 3.3.8 target, because China does not apply;

--- Revised the content of the bow head, the technical requirements are more specific and clear (see 5.6.1, 5.6.2, 5.6.3);

---Modified the technical requirements of the skateboard to further clarify that when the carbon skateboard is damaged, the automatic bow lowering sensing device should be able to start normally, further

To clarify the improvement of the structure, material or process of the carbon skateboard, the performance of the pantograph should not be reduced, and the carbon skateboard bracket cannot be in contact with

Wire contact, otherwise the contact line will be damaged. The normal work can only be the contact of the carbon slide carbon strip with the contact line (see 5.6.4);

---Modified the automatic bow lowering device (ADD), the force of the pantograph on the roof to make the content clearer (see 5.8, 5.9);

--- Increased the "use environment" to make the content clearer (see Chapter 6);

--- Revised the inspection classification to meet the current situation in China, and increase the "continuous production of stereotyped products every 5 years" in the "type inspection"