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

GB/T 12818-2021

Replacing GB/T 12818-2004

**Rules for the inspection and testing of railway passenger cars
after completion of construction**

铁路客车组装后的检查与试验规则

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1 Scope

China's national rules for the inspection and testing of a railway passenger car once it has been assembled - the acceptance programme that stands between a finished vehicle in the works and a vehicle allowed to carry people. It specifies the inspection and test rules for newly built railway passenger cars after assembly, the items to be inspected and tested in each type of test, and the methods by which each is carried out. The document exists because a passenger car is assembled from systems that were each accepted separately and that have never worked together until now: the bogies and the running gear, the brakes, the couplers and gangways, the body and its insulation, the doors, the air conditioning and heating, the water and sanitary systems, the electrical supply and the lighting, the control and communication equipment, and the interior. Every one of them was tested at its supplier; none of them was tested in the vehicle. What the standard sets out is which of the resulting checks belong to which category of test - the first-article or type test carried out on a new design, the routine test carried out on every vehicle, and the tests repeated after a modification - and that classification is the commercially significant part, because it decides what has to be done once for a design and what has to be done to every car coming off the line. The items themselves run from the dimensional and weight checks and the wheelset and bogie measurements, through the brake system tests including the leakage and the braking performance, the electrical insulation and function tests, the water and air tightness of the body, the door operation and the emergency releases, to the running trial. Issued on 9 March 2021 and in force since 1 October 2021, it replaces GB/T 12818-2004.

This standard specifies the inspection and test rules for newly-built railway passenger cars

after assembly, and specifies the inspection and test items, and inspections included in each type of test Check and test methods. This standard is applicable to new general-purpose railway passenger cars with standard gauges with a maximum operating speed of not more than 200km/h. Special vehicles, maintenance Cars, test cars, international passenger cars, etc. can be used as reference.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 311.1 Insulation coordination Part

3 Terms and definitions

The terms and definitions defined in GB/T 4549 (all parts) apply to this document.

4 Visual inspection

4.1 Check whether the model specifications, structural forms, installation positions, piping, wiring, painting, markings, etc. of the following components comply with GB/T 12817, Regulations related to standards and technical documents.

- b) Car doors and windows;
- c) In-vehicle equipment;
- d) Coupler buffer device and external equipment of the car body;
- f) Braking device;
- g) Water supply and sanitation equipment;
- h) Ventilation, heating and air conditioning equipment;
- i) Vehicle electrical equipment;
- j) Fire safety equipment.

4.2 Check whether the connection status of the connecting bolts, rivets, and pins of each component meets the requirements of the relevant technical documents.

5 Structural inspection and testing

5.1 Inspection and test environment If there are no special regulations, inspections and tests should be carried out in an empty state.

5.2 Dimensional inspection of car body and bogie The vehicle should perform the following inspections on a straight road, with brakes relieved, and air springs filled with air.

- a) The car body is tilted;
- b) The height of the centerline of the coupler, and calculate the height difference of the centerline of the coupler of the same vehicle;
- c) The sum of the side bearing clearance on each side and the side bearing clearance on both sides of the same end (except for the side bearing car body);
- d) The vertical distance between the components installed on the underframe and the upper part of the bogie;
- e) The relevant size and clearance of the bogie. Check whether the result meets the requirements of GB/T 12817 and related technical documents.

5.3 Limit check The inspection of passenger car limits shall be carried out in accordance with the methods specified in GB/T 16904.1. For the inspected vehicle for type test, the upper boundary inspection should be carried out in the empty state; the lower boundary inspection should be carried out in the heavy vehicle state. Should be included in the maximum allowable wear value of the component in the vertical direction. For the vehicle under inspection for routine tests, the upper boundary inspection should be carried out in the empty state; the lower boundary inspection can be simplified, that is, when the vehicle is empty The lower limit inspection is carried out in the state, but the spring compression value of the vehicle in the heavy state, the deformation value of the vehicle body due to the load, and the zero part shall be taken into account The maximum allowable wear value of the piece in the vertical direction.

5.4 Weighing test Weigh in accordance with TB/T 1740 and check whether the test results meet the requirements of relevant technical documents.

5.5 Curve passing test The test of passing the minimum radius curve shall be carried out in accordance with the provisions of TB/T 2218, and the passenger car shall pass the minimum radius specified in GB/T 12817 Curve, check the connection devices (couplers, electrical connectors, connecting cables, brake hoses, windshields, ferry plates, etc.) at the end of the car, the connection between the car body and the bogie Whether the connecting device is collided or damaged, and whether the track is subjected to undue compression and permanent deformation.

5.6 Vehicle water tightness test The water tightness test of the car body, windows, doors, ventilators, etc. should be carried out in accordance with the provisions of TB/T 1802 to check whether there is any leakage.

6 Performance check and test

6.1 Inspection and test environment If there are no special regulations, the inspection and test should be carried out in the empty state. Except for the inspection or test of the bicycle, it can be carried out in the form of grouping.

6.2 Inspection of door and window devices Various car doors and movable windows should be inspected in accordance with relevant technical documents to check whether they can be opened flexibly, closed tightly, and whether the lock function reliable.

6.3 In-car equipment inspection The equipment in the car should be inspected according to the relevant technical documents to confirm whether the performance is good.

6.4 Inspection of Coupler Buffer Device

6.4.1 The automatic coupler should check whether the three-state function (unlock, lock, fully open) is good, and whether the left and right swings are flexible and free from jamming.

6.4.2 The close-coupled coupler buffer device shall be inspected in accordance with the provisions of TB/T 3143, and check whether the locked and unlocked states are normal.

6.4.3 The power connector of the end coupler and the transition coupler shall be inspected according to relevant standards or technical documents to check whether the connection is normal.

6.5 Inspection of water supply device The water supply device shall carry out the water injection test and the water supply test in accordance with the provisions of TB/T 1720.

6.6 Checking the feces collection device The feces collection device should be tested in accordance with the regulations of TB/T 3338 for routine flushing cycle testing, electric heating device operation testing, and control and Display function check.

6.7 Air spring device inspection The air spring should undergo an air charging test, and its height difference under its own weight should meet the specified size. Check the automatic height adjustment valve and differential pressure valve. Whether the action is good.

6.8 Fire safety equipment inspection Fire extinguishers, safety hammers, escape windows and other safety equipment, as well as various warning signs, and fire alarm systems should be inspected in accordance with the requirements of technical documents.

6.9 Braking device test

6.9.1 Static braking test After the vehicle is completed, each vehicle shall undergo a static braking test in accordance with the provisions of TB/T 1492. The self-diagnostic test of the anti-skid device shall be in accordance with The provisions of TB/T 3009 are carried out.

6.9.2 Hand brake test Separately apply the hand brake operation and check whether the basic brake device operates well and whether it has the anti-reverse function. For the tested