

ICS 45.060.01
CCS S 33

TB

**RAILWAY INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

TB/T 1013-2011

Carbon cast steel wheel

碳素钢铸钢车轮

(English Translation)

Issued on: September 30, 2016

Implemented on: April 1, 2017

Issued by: National Railway Administration

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative references...	5
3 Working environment...	5
4 Requirements before assembly...	6
5 Assembly requirements...	13
6 Withdrawal requirements...	18
7 Marks, records and storage...	18
Annex A (informative) Dimensions of axial device parts...	20

1 Scope

This Standard specifies the working environment, requirements before assembly, assembly requirements, withdrawal requirements, marks, records and storage for newly-manufactured axial device assembly for railway passenger car.

This Standard is applicable to the assembly of newly-manufactured axial device for railway passenger car.

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.

TB/T 2235, Rolling bearing in the railway passenger car and wagon

TB/T 2427, Technical Condition of Journal Box Used in Rolling Bearing of
Railway Passenger Cars

TB/T 2548, Railway Vehicle Rolling Bearing Lubricating Grease

3.1 The sites for thermally assembled bearing inspection, assembly and

storage rooms (storage space before bearing assembly) shall be closed and meet the following environmental conditions:

a) the temperature range of inspection room, assembly room and storage room is 16°C~30°C;

- b) the relative humidity of inspection room, assembly room is less than or equal to 60%; the relative humidity of storage room is less than or equal to 40%;
- c) the amount of dust falling in 24h of inspection room is less than or equal to 60mg/m²; the amount of dust falling in 24h of storage room, assembly room is less than or equal to 80mg/m².

3.2 The sites for cold-pressed bearing inspection, assembly, storage rooms

shall be closed and meet the following environmental conditions:

- a) the temperature range is 16°C~30°C;
- b) the relative humidity of inspection room, assembly room, storage room is less than or equal to 60%;
- c) the amount of dust falling of inspection room in 24h is less than or equal to 80mg/m²; the amount of dust falling of storage room, assembly room in 24h is less than or equal to 120 mg/m².

4.1 Axle

4.1.1

The dimensions of the axle journal and the dustproof plate seat shall meet the requirements of the product drawing and comply with the provisions of Table

1. See Annex A for the dimensions of the axle journal and the dustproof plate.

4.1.2 The axle journal diameter, cylindricity and the diameter of dustproof plate

seat shall be measured according to the positions shown in Figure 1:

- a) The axle journal diameter shall measure three sections: I, II, III. Measure two points for each section. The measuring position shall be different by

90°. The arithmetic mean of 2 points is the axle journal diameter of each section. The diameter difference at 2 points divided by 2 is the roundness of the axle journal of each section. The arithmetic mean of the two cross-sectional diameters, II and III, is the axle journal diameter. The difference between the arithmetic mean of the two cross-section diameters, II and III, divided by 2 is the cylindricity of the axle journal. The I, II, III cross-sectional diameter shall not gradually increase towards the end of the journal over the entire length.

- b) The diameter of the dustproof plate seat shall measure the IV section. The measuring position shall be different by 90°. The arithmetic mean of 2 points is the diameter of the dustproof plate seat.

4.1.3 The axle journal and the surface of the dustproof plate seat shall be free of burrs, sharp edges, scratches and rusts.

4.5.1 See Annex A for the inner diameter of dustproof plate. Measurements

shall be made at 2 points perpendicular to the middle of the matching surface.

The arithmetic average of the two sizes is the inner diameter of the dustproof plate.

4.5.2 Each matching surface of the dustproof plate shall be free of burrs, sharp edges, bruises, scratches and rusts.

4.6 Front cover and rear cover of axial device

4.6.1

Axial device covers shall comply with TB/T 2427 or product drawing.

4.6.2

The front and rear covers of the axial device shall be free of cracks, sharp edges and burrs. There shall be no rusts on the inside and all assembling sides.

4.6.3 The O-shaped rubber ring installation grooves of the front cover and rear

cover of the axial device shall meet the requirements of the product drawings.

4.7 Shaft end bolt, anti-loosening piece, pressure plate and grounding

device

4.7.1 The shaft end bolts, anti-loosening pieces, pressure plate and grounding

device shall comply with the relevant standards or product drawings, respectively.

4.7.2 Grounding device parts shall be assembled according to the manufacturer's matching. Parts from different manufacturers shall not be mixed.

4.8.1 Wheelsets, bearings, axial device, standard parts (sample rings), bearing

parts, corresponding testing equipment, bearing testers shall be at the same temperature for more than 8h before measuring. If it cannot be stored in the same room, the difference between the two room temperatures shall not exceed

5°C.

4.8.2 Wheelsets, bearings, axial device and other parts shall be qualified products or have product certificate before loading.

4.8.3 Before press-assembling the bearing, remove iron filings and dirt from the

center hole of the shaft end and the bolt hole. Check the journal and dustproof plate seat. And scrub the journal and dustproof plate seat clean. The grounding device (including grounding body, axial device cover, friction disc, bearing pressure plate, sealing ring and related anti-loose parts, fasteners) shall be free of grease and pollution. The cleanliness of other parts to be assembled shall meet the requirements of Table 5.

Table 6 -- Requirements for assembly and selecting-matching of rolling bearing axial device

5.1.1.4 After scrubbing the journal and dustproof plate seat clean, transformer

oil shall be painted on the surface of the journal and dustproof plate. Bearing inner ring and dustproof plate shall be thermally assembled. The heating temperature shall not exceed 150°C.

5.1.1.5 After the dustproof plate and bearing inner ring are assembled, the dustproof plate shall be close to the shaft shoulder. There shall be no warping and deformation. The contact surface between the end face and the inner circle as well as between the inner ring and the inner ring shall be close to each other.

Partial clearance is allowed to be no greater than 0.1mm. However, the length of a single gap in the circumferential direction shall not be greater than 30mm.

The cumulative length shall not be greater than 50mm. After assembling the bearing inner ring and the journal, it shall be cooled to room temperature before assembling the axial device assembly.

5.1.1.6 When the outer ring assembly of the bearing is assembled with the axial device, the outer diameter of the outer ring and the inner diameter of the axial device shall be coated with transformer oil. When the outer ring assembly of the bearing is put into the hole of the axial device, the end face of the outer ring shall be tapped with a nylon hammer (it shall not use a hammer to beat). The device body (except the cover ears) is: 0.5mm~1.0mm for new rubber seal,

0.5mm~1.5mm for new metal labyrinth.

5.1.3.2 When installing the bolts on the front cover of the axial device, apply a small amount of lubricant (grease) to the threaded parts of the bolts. Put spring washers to evenly diagonally fasten. The tightening torque of ordinary nuts and bolts is $176 \text{ N} \cdot \text{m} \sim 186 \text{ N} \cdot \text{m}$. The front cover bolts of the axial device of the passenger car of which the maximum running speed is not less than 120km/h shall use anti-loosening and anti-return nuts. The torque is $200 \text{ N} \cdot \text{m} \sim 220$

$\text{N} \cdot \text{m}$.

5.1.3.3 Sealing shall be applied to the bolt on the upper right corner of the front cover of the