

TB

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

TB/T 2626-1995

**Technical specification for rubber subplate under railway
concrete track
(English Translation)**

Issued on: October 24, 2000

Implemented on: May 1, 2001

Issued by: Ministry of Railways of the People's Republic of China

Table of Contents

Foreword...	3
ISO Foreword...	4
1 Scope...	5
2 Normative references...	5
3 Qualifications of the personnel...	5
4 Equipment, probes and couplants...	5
5 Test block...	6

Foreword

This Standard's detection methods of internal defects in material of wheels and wheel tires equal to the ones stipulated in ISO 5948-1994 "Railway rolling stock material - Ultrasonic acceptance testing".

Since the date of implementation of this Standard, TB 2046-89 "Locomotive New Wheel Tires Ultrasonic Flaw Testing" and TB/T 2882-98 "Wheel Ultrasonic Testing Technical Conditions" shall be abolished.

Appendix A, Appendix B, Appendix C, Appendix D, Appendix E, Appendix F and Appendix G of this Standard are normative.

This Standard was proposed by and shall be under the jurisdiction of Qishuyan Locomotive & Rolling Stock Technology Research Institute Co., Ltd.

Drafting organizations of this Standard. Qishuyan Locomotive & Rolling Stock Technology Research Institute Co., Ltd., and Metals and Chemistry Research Institute of China Academy of Railway Sciences.

Main drafters of this Standard. Huang Yongwei, Li Lianxiu, Lu Xuanguo, Yao Rongwen and Zheng Lili.

ISO Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standard bodies (ISO member bodies). The work of

preparing International Standard is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

International Standard ISO 5948 was prepared by Technical Committee ISO/TC 17, Steel, Subcommittee SC 13, Railway rolling stock material.

This second edition cancels and replaces the first edition (ISO 5948:1981), of which it constitutes a technical revision.

Railway Wheels and Wheel Tires Ultrasonic Testing

1 Scope

This Standard specifies the ultrasonic testing methods and the acceptance standard for new railway wheels and wheel tires.

This Standard is applicable to ultrasonic testing for internal defects of new railway wheels and wheel tires

2 Normative references

The following standards contain the provisions which, through reference in this Standard, constitute the provisions of this Standard. At the time of publication, all editions indicated were valid. All standards are subject to revision, and parties who enter into agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

JB/T 10061-99 General technical requirements for A-type pulse reflection
ultrasonic flaw detector

JB/T 10062-99 Ultrasonic flaw detection probe performance test method

3.1 The inspector of railway wheels and wheel tires ultrasonic testing must

master the corresponding basic knowledge and be familiar with provisions of
this Standard.

4.1 Ultrasonic flaw detector

Ultrasonic flaw detector shall meet requirements in JB/T 10061-99.

4.3.1 The sensitivity of ultrasonic flaw detector and straight-probe system shall

at least have 30dB allowance when it is probing the $\Phi 2$ flat bottom hole of the
maximum sound-path.

5.1 Overall test block for wheel tire and wheel flaw detection is shown in

Appendix A.

5.4 Calibration test block for wheel tire concave radial detection is shown in

Appendix D.

6 Drawing of distance-amplitude curve and DAC

curve of wheel tire's inner surface's radial detection

6.1.1 Distance-amplitude curve schematic diagram shall be made by inspector

according to the detection system used. Verify distance-amplitude curve before
use it.

6.2.1 Drawing of internal combustion engine wheel tire (rim). PLACE dual-

crystal probe on LG-6 test block's probing surface for scanning; FIND the
reflected wave of $\Phi 2$ flat-bottomed hole of which the burial depth is 60 mm;

6.2.2 Drawing of electric locomotive wheel tire (rim). PLACE dual-crystal probe

on LG-9 test block's probing surface for scanning; FIND reflected wave of $\Phi 2$

flat-bottomed hole of which the burial depth is 75 mm;

7.1 Test surface roughness

Flaw detection is usually conducted in delivery status. It must maintain the coupling effect between workpiece test surface and probe.

7.2 Test surface and flaw detection area

The inner side and tread of wheel tire and wheel rim are test surface. The inner area of wheel tire and wheel rim, to where the incident ultrasonic can reach from the test surface, shall be ultrasonic flaw detection area.

7.3 The scanning speed in manual flaw detection shall not be greater than 150

mm/s. The coverage rate shall not be less than 10%.

7.4.2.1 Axial flaw detection sensitivity

Use longitudinal-wave straight-probe to adjust $\Phi 10$ flat-bottomed hole's reflection echo of wheel rim No. 2 reference block to 50% height of screen's full scale, take it as the reference. Then obtain the decibel difference BETWEEN the gain AND $\Phi 10$ equivalent flat-bottomed hole at the maximum detection sound-path. On this basis, compensate the coupling difference between test block and real-object (usually it is 4dB and above), and take it as the flaw detection sensitivity.

7.4.3.1 Wheel tire's acoustically-transparent flaw detection sensitivity

Use $\Phi 20$ longitudinal-wave straight-probe to adjust 120° cone-bottomed hole's reflection echo of wheel rim No. 4 reference block to 50% height of screen's full scale, take it as the reference. Then compensate the coupling difference between test block and real-object (usually it is 4dB and above), and take it as the flaw detection sensitivity.