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GB 14646 - XXXX

Replaces GB 14646 -1993

Retreaded tyres for passenger cars

(Draft for approval)

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Issued by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

Foreword

Chapters 4 and 6 of this standard are mandatory while the rest are voluntary.

This standard will replace the *Retreading and repair of tyres (radial tyres) GB 14646-1993*.

The main differences between GB14646-1993 and this standard are as follows:

- Adjusted the name of the standard;
- Adjusted the scope of application of the standard. This standard is only applicable to passenger car tyres and the pneumatic tyres of towed vehicles (Chapter 1 of both Version 1993 and this edition);
- Cancelled the tyre classification (Chapter 4 of Version 1993);
- Adjusted the technical requirements for tyre selection (Chapter 5 of Version 1993, 4.1 of this edition);
- Adjusted the requirements for appearance quality of retreaded tyres (6.1 of Version 1993, 4.4 of this edition);
- Adjusted the requirements for peripheral dimensions of treaded tyres (6.2 of Version 1993, 4.5 of this edition);
- Deleted the requirements for use and road life insurance of treaded tyres (6.6 of Version 1993);
- Adjusted the test method for treaded tyres (Chapter 7 of Version 1993, Chapter 5 of this edition);
- Deleted the inspection rules for treaded tyres (Chapter 8 of Version 1993);
- Cancelled the requirements for classification of ready-made treaded tyres and classification marking (6.5 and 9.5 of Version 1993);
- Added the requirements for production number, load index or level, speed symbol, pneumatic pressure (Chapter 6 of this edition);
- Added requirements for strength performance and the testing (4.61 and 5.1 of this edition);
- Deleted the part of tyre repair (Section 2 of Version 1993).

This standard was proposed by the China Petroleum and Chemical Industry Association.

This standard is under the jurisdiction of the National Technical Committee for Standardisation of Tyres and Rims.

This standard has entrusted the National Technical Committee for Standardisation of Tyres and Trims for interpretation.

The main organisations involved in drafting this standard include the China Tyre Retreading and Utilisation Association, the Dongguan Municipal Tyre Retreading Plant, the Zhongkeng Hongyun Tyre Factory of Shipai Town, Dongguan City, the Chongqing Chaoke Industrial Co., Ltd. and the Shanghai Municipal Red-Flag Tyre Retreading Factory.

The main people responsible for drafting of this standard include Wang Yanlin, Huang Pinqin, Chen Jianmin, Huang Yirong and Zhang Shaolin.

The issuing conditions of all previous versions of the standards replaced by this standard:

- GB 14646-1993

Retreaded tyres for passenger cars

1. Scope

This standard specifies the terms and definitions, requirements, test methods and marking of retreaded passenger car tyres.

This standard is applicable to pneumatic passenger car tyre retreading.

2. Normative reference

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. For dated references, subsequent amendments (corrigenda excluded) to, or revisions of, any of these publications do not apply. However, parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. For undated references, the latest edition of the normative document referred to applies.

GB/T521 Method of measuring tyre peripheral dimensions

GB/T2978 Specification, size, pneumatic pressure and load of passenger car tyres

GB/T4502 Endurance test for passenger car tyres (Drum method) (GB/T4502-1998, eqv. ISO 10191:1993)

GB/T4503 Strength test method for passenger car tyres (GB/T4503- ISO 10191: 1995 Passenger car tyres - Verifying tyre capabilities - Laboratory test methods, MOD)

GB/T4504 Bead unseating resistance test for tubeless passenger car tyres (GB/T4504-1998, eqv. ISO 10191: 1993)

GB/T6326 Tyres- Terms and definitions (GB/T 6326-XXXX, ISO 4223-1:2002 NEQ)

GB/T7034 High speed test for passenger car tyres (Drum method) (GB/T7034-XXXX, ISO 10191: 1995 Passenger car tyres - Verifying tyre capabilities - Laboratory test methods, MOD)

HG/T2177 Appearance quality of tyres

TCTRSC the CSBS yearbook of tyres, rims and bleed valves

3. Terms and definitions

The terms and definitions, specified in GB/T6326, shall be applicable to this standard.

4. Requirements

4.1 Tyre case selection

4.1.1 Previously retreaded tyres shall not be retreaded again.

4.1.2 For tyre cases to be retreaded, the markings on the sides shall cover the items below:

- Speed symbol (or maximum running speed)
- Load index (or maximum load capacity or level)

4.1.3 Where tyre cases are found to be problematic as below, they shall be unsuitable for retreading:

- Speed symbol at tyre side $\leq L$ (120km/h) or $\geq H$ (210km/h)
- Apparent damage resulted from overload or lack of air

- Breaking or abnormal deformation of tyre cases
- Tyre beads ruptured or damaged
- Apparent oil, chemical or water erosion
- Tyre treads ground with cords exposed
- Tyre side worn with cords exposed
- Delaminating of any part
- Structural damage to areas at tyre side
- Inside liners aged or damaged, unable to be repaired
- Inner liner of tubeless tyre aged or damaged, unable to be repaired
- Edge fragmented or slackness of tread bracing layer
- Tread twisting or stitch skipping of tyre cases
- Though tyre tread has some pattern left, it is partially abraded, non-uniform with buffer layer or tread bracing layer damaged
- Tyre side and shoulder with cord fabric damaged, having slight aging splits and incisions

4.1.4 The cases of the tyres to be retreaded may have puncture damage with the quantity of allowed maximum puncture damages, dimensions and positions in compliance with Table 1.

Table 1 Quantity of puncture damage, dimensions and positions (the positions of the framework measured upon treatment to be found damaged to the most extent) of passenger car tyre

Tyre type	Maximum size of damaged part of tyre case /mm			Maximum repairs	Minimum distance from the damaged part to the bead toe overturn-forbidden area /mm
	Position at tyre side	Position at tyre shoulder	Tread bracing layer of tread cap		
Speed symbol as “T”, or maximum speed capability as 190km/h and below	Nail holes	6	10	2	40
Speed symbol as “T”, or maximum speed capability as 190km/h and above	-	-	3	1	40

4.2 Prior to retreading

4.2.1 Tyre case shall be cleaned and dried before retreading.

4.2.2 Pneumatic inspection shall be conducted for each tyre case one by one with the pressure as 150kPa. (In case of any damage, it is appropriate for pneumatic inspection to be applied to the tyre case after it is patched.)

4.2.3 Mechanical or non-destructive inspection equipment shall be kept to inspect internal injuries of the tyre case concerned in addition to that the tyre case can be inspected manually.

4.2.4 Grinding size and radian of tyre cases shall comply with requirements of dies and moulds.

4.2.5 Various raw materials, fittings (such as precured tread, retread envelope and vulcanised tube) and patching materials shall have quality assurance, instructions to use and storage conditions, etc in place.

4.3 After retreading

4.3.1 After tyres are retreaded, each tyre shall be inspected on a tyre inspection machine manually with 150kPa air pressure charged. If tyre cases are sound, pressures marked at tyre side shall be charged again for further testing to inspect whether retreaded tyres are defective or not.

4.3.2 Speeds and load capabilities of retreaded tyres shall be rated according to quality and inspection & testing conditions of original tyre cases and the retreaded tyres themselves. In case retreaded tyres fail to achieve performance requirements of original tyre cases, they shall be remarked with speed symbols and load capabilities.

In no case should their speed levels and load capabilities exceed the original ones.

4.3.3 Retreaded tyres shall not be installed on directive wheels of motors.

4.3.4 When tyres are worn to the point manufacturers imprint disappears, they shall not be used further.

4.4 Appearance quality

Appearance check shall be conducted on retreaded tyres one by one.

Unevenness: $\pm 1.0\text{mm}$, mismatch of dies: $\pm 0.5\text{mm}$, repair liner without any edge flag; for others, regulations of HG/T2177 shall be observed to inspect whether each retreaded tyre has apparent defects or not.

4.5 Peripheral dimensions

The maximum sectional width and maximum external diameter of a ready-made retreaded tyre shall not exceed the maximum use size of equivalent tyres as regulated in GB/T2978 or TCTRSC; The sectional height and sectional width of adhesion tyres can be beyond ordinary (tyre) patterns but shall not exceed by 1%.

4.6 Safety performance

4.6.1 Passenger car retreaded tyres shall be subject to strength tests with its minimum destructive performance in compliance with requirements of GB/T4503.

4.6.2 Passenger car treaded tyres shall be subject to a durability test. After the durability test, air pressure of the tyre shall not be lower than the pressure specified initially. The tyre shall be exempted from the defects including delaminating (tyre tread, tyre side, cord fabric, inner liner, tread bracing layer or buffer layer, tyre bead), cord fabric fissuring, cord stripping, cord breaking, tread block tear out, joint splitting, chapping, edge fragment of repair liner, etc.

4.6.3 Passenger car treaded tyres shall be subject to a high speed performance test prior to tyre retreading. After the high speed performance test, the air pressure of the tyre shall be exempted from the defects including delaminating (tyre tread, tyre side, cord fabric, inner liner, tread bracing layer or buffer layer, tyre bead), cord fabric fissuring, cord stripping, cord breaking, tread block tearout, joint splitting, chapping, edge fragment of repair liner, etc.

4.6.4 Passenger car retreading tubeless tyres shall be subject to bead unseating resistance test for tubeless tyres, and shall comply with requirements of GB/T4504.

5. Test methods

5.1 Strength tests of passenger car retreaded tyres shall be conducted in accordance with GB/T4503.

5.2 Durability tests of passenger car retreaded tyres shall be conducted in accordance with GB/T4502.

5.3 High speed performance tests of passenger car retreaded tyres shall be conducted in accordance with GB/T7034.

5.4 Tubeless tyre unseating resistance tests of passenger car retreaded tyres shall be conducted in accordance with GB/T4504.

5.5 Dimensional measuring of passenger car retreaded tyres shall be conducted in accordance with GB/T521.

5.6 Appearance quality of passenger car retreaded tyres shall be conducted in accordance with HG/T2177.

6. Marking

6.1 Each treaded tyre shall have at least four clear signs of wear no less than 1.6mm high on its tread with equal distance radiating from the hub. The shoulders at both sides of the tyre concerned shall be cast with marks indicating positions of signs of wear.

6.2 Each tyre shall be marked with the following permanent symbols, among which items from a) to d) are casting symbols, item e) is a permanent symbol and item f) is an indelible symbol

a) Tyre specification;

b) Trademark, factory name or place name of a tyre retreading factory;

- c) Retreaded tyre marked with “RETREADED” or “翻新” (Chinese);
 - d) Load index or level, maximum load capacity, speed symbol and pneumatic pressure;
 - e) Lot No. or number of retreaded tyre;
 - f) Marking of delivery inspection;
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