
Draft Zambian Standard

**USED PNEUMATIC TYRES FOR PASSENGER VEHICLES –
Specification**

Amendments issued since publication

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This Zambian Standard was prepared by the Automobiles Technical Committee (TC 7/1), upon which the following organisations were represented:

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Commuters Rights Association of Zambia
Consumer Competition and Protection Commission
Consumer Unity Trust Society International - Lusaka
Kwik-Fit Zambia
Maxt Solutions
Ministry of Transport and Communications
Public and Private Drivers Association of Zambia
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DRAFT STANDARD FOR PUBLIC COMMENT ONLY

FOREWORD

This National Standard has been prepared by the Automobiles Technical Committee (TC 7/1), in accordance with the procedures of ZABS. All users should ensure that they have the latest edition of this publication as standards are revised from time to time.

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The preparation of this Standard has been undertaken by the Automobiles Technical Committee (TC 7/1). The absence of Standards on used pneumatic tyres for passenger vehicles in Zambia necessitated the formulation of this standard.

ACKNOWLEDGEMENT

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ZAMBIA BUREAU OF STANDARDS

Zambian Standard

USED PNEUMATIC TYRES FOR PASSENGER VEHICLES – Specification

1. SCOPE

- 1.1 This Zambian Standard specifies laboratory and regulatory test requirements for the inspection of used tyres intended for resale without modification to the Zambian consumer.
- 1.2 This standard shall apply to used tyres with a maximum ply rating of 4 or a maximum load range of B and shall not apply to the following:
- a) Used tyres with a ply rating of 6 or higher or a load range of C or greater. Used tyres of 6 ply rating or higher or a load range of C or greater shall not be allowed entry into Zambia.
 - b) Carcasses intended for retreading by a certified retreader.

2. DEFINITIONS

For the purpose of this standard, the following definitions shall apply:

- 2.1 **Beads** - That part of a tyre made of steel wires, wrapped or reinforced by ply cords that is shaped to fit the rim.
- 2.2 **Bead separation** - A breakdown of the bond between components of the bead area.
- 2.3 **Bias ply tyre** - A pneumatic tyre in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90° to the center-line of the tread.
- 2.4 **Carcass** - The tyre structure, except tread and sidewall rubber.
- 2.5 **Chunking** - The breaking away of pieces of the tread or sidewall.
- 2.6 **Cord** - The strands forming the plies of the tyre.
- 2.7 **Cord separation** - Cords parting away from adjacent rubber compounds.
- 2.8 **Cracking** - Any parting within the tread, sidewall, or inner liner of the tyre extending to cord material.
- 2.9 **Groove** - The space between two adjacent tread ribs.
- 2.10 **Inner liner** - The layer(s) forming the inside surface of a tubeless tyre that contains the inflating medium within the tyre.
- 2.11 **Inner liner separation** - The parting of inner liner from cord material in the carcass.
- 2.12 **Load range** - A figure indicating the strength of a tyre and the tyre's ability to contain pressure.
- 2.13 **Load rating** - The maximum load a tyre is designed to carry for a given inflation pressure.
- 2.14 **Maximum permissible inflation pressure** - The maximum cold inflation pressure to which a tyre is designed to be safely inflated.

- 2.15 **Maximum load rating** - The load rating at the maximum permissible inflation for the tyre.
- 2.16 **Open splice** - Any parting at any junction of tread, sidewall, or inner liner that extends to cord material.
- 2.17 **Overall width** - The linear distance between the exteriors of the sidewalls of an inflated tyre, including elevations due to labeling, decorations, or protective bands or ribs.
- 2.18 **Passenger vehicle** - A passenger vehicle designed to accommodate tyres with a maximum ply rating of 4 or a maximum load range of B.
- 2.19 **Ply** - A layer of rubber-coated parallel cords.
- 2.20 **Ply rating** - The number of plies present in a tyre.
- 2.21 **Ply separation** - A parting of rubber compound between adjacent plies.
- 2.22 **Pneumatic tyre** - A mechanical device made of rubber, chemicals, fabric, and steel or other materials which when mounted on an automotive rim provides the traction and contains the fluid that sustains the load.
- 2.23 **Radial ply tyre** - A pneumatic tyre in which the ply cords which extend to the beads are laid at substantially 90° to the centerline of the tread.
- 2.24 **Rim** - A metal support for a tyre and tube assembly upon which the tyre beads are seated.
- 2.25 **Section width** - The linear distance between the exteriors of the sidewalls on an inflated tyre, excluding elevations due to labeling, decoration or protective bands.
- 2.26 **Sidewall** - That portion of a tyre between the tread and the bead.
- 2.27 **Sidewall separation** - The parting of the rubber compound from the cord material in the sidewall.
- 2.28 **Tread** - That portion of a tyre that is designed to normally come into contact with the road.
- 2.29 **Tread depth** - The linear distance measured in millimeters (mm) from the tread surface to the bottom of the groove of the tyre.
- 2.30 **Tread separation** - A parting of the tread from the carcass.
- 2.31 **Used tyre** - A pneumatic tyre which has already been fitted to a rim and has provided traction for another vehicle prior to the time of inspection, sale or transfer.
- 2.32 **Wheel** - The assembled union of tyre and rim intended to provide traction for vehicles

3. REQUIREMENTS

3.1 Presentation of used tyres for inspection

- 3.2.1 It shall be the responsibility of the vendor or importer to ensure that the following requirements are met before presenting used tyres for inspection:
- a) All wheels shall have the tyre removed from the rim for proper inspection;
 - b) All used tyres shall have a minimum tread depth of 4mm;
 - c) All used tyres shall have a maximum age of three years old from the date of inspection;

- d) No tyre older than six (6) years from the date of manufacture shall be presented for inspection or accepted into Zambia as a used tyre;
- e) No tyre labelled either “winter tyre” or have a snow flake symbol on the side wall shall be presented for inspection or allowed into Zambia as a used tyre.
- f) All used tyres shall be in a clean condition that is they are dry and free from dirt or any foreign material that may hinder the inspection process or prove hazardous to the health of the public.

3.2.2 Every consignment of used tyres shall be accompanied by documentation stating:

- a) Number of tyres; size of tyres; container number; brand name of tyres
- b) Port of origin
- c) Shipment details
- d) Consignor
- e) Consignee

3.2.3 Every consignment of used tyres shall be free of contamination to include but not limited to the following:

- a) Animals, insects or other invertebrates (in any living life stage including, eggs, egg casings or egg rafts), or any organic material of animal origin (including blood, bones, fibre, meat, secretions, excretions;
- b) Plant products (including fruit, seeds, leaves, twigs, roots, bark, sawdust;
- c) Soil;
- d) Water;
- e) Oil or any other liquid.

3.2.4 All used tyres shall be fumigated with methyl bromide on arrival at the port of entry by a Zambia Bureau of Standards approved operator.

3.2.5 Used tyres may only be landed at ports/airports that have suitable decontamination/cleaning facilities which have been approved as transitional facilities.

3.2.6 All used tyres that do not comply with the requirements of all applicable health standards shall be detained at the port of entry.

3.2 Labelling Requirements

Each tyre shall have permanently moulded into or unto both sidewalls in letters and numerals, in English, not less than 2 mm high, the following information:

- a) One size designation, except that equivalent inch and metric size designations may be used;
- b) Maximum permissible inflation pressure;
- c) Maximum load rating;
- d) The generic name of each cord material used in the plies (both sidewall and tread area) of the tyre;

- e) Actual number of plies in the sidewall, and the actual number of plies in the tread area if different;
- f) The words “tubeless” or “tube type” as applicable;
- g) The word “radial” or the letter “R” placed in front of the rim diameter marking of the size designation if the tyre is a radial ply tyre; and
- h) Country of origin.

3.2.1 Each tyre shall be labeled with a marking or markings stating the standard or standards to which the tyre complies which shall constitute a certification that the tyre conforms to the applicable standard or standards

3.2.2 Each tyre shall be labeled with the name of the manufacturer, or brand name and number assigned to the manufacturer by the United States Department of Transportation.

3.2.3 If the maximum inflation pressure of a tyre is 240,280,290,300,330,340,350, or 390kpa, then:

- a) Each marking of that inflation pressure pursuant to 3.3 (b) shall be followed in parenthesis by the equivalent inflation pressure in psi, rounded to the next higher whole number; and
- b) Each marking of the tyre’s maximum load rating pursuant to 3.3 (c) in kilograms shall be followed in parenthesis by the equivalent load rating in pounds, rounded to the whole number.

3.2.4 If the maximum inflation pressure of a tyre is 420 kPa (60 psi), the tyre shall have permanently moulded into or onto both side walls, in letters and numeral not less than 12.7mm (1/2 inch), the words “Inflate to 420 kPa (60 psi)”. On both sidewalls, the words shall be positioned in an area between the tyre shoulder and the bead of the tyre.

3.3 Inspection of used tyres

An Inspector appointed by the Zambia Bureau of Standards shall carry out the inspection of used tyres. Every used tyre shall be inspected on its internal and external surfaces in order to detect any evidence of damage or defects. The inspection shall include distorting the natural contour of the tyre sufficiently for visual inspection under adequate lighting.

3.3.1 A used tyre shall not be acceptable for motor vehicle use unless it has a minimum average tread depth of 4.0 mm. The minimum tread depth shall be determined in accordance with the method set out in Clause 4.

3.3.2 A used tyre containing any of the following weaknesses, defects or characteristics shall not be approved for motor vehicle use:

- a) Exposed cords due to tread wear or sidewall scuffing;
- b) Radial or groove cracks;
- c) Tread separation;
- d) Weather cracking;
- e) Broken, damaged, kinked or exposed bead wires;
- f) Any visual evidence of belt damage;
- g) Ply separation;
- h) Porous liners or defective or opened splices in liners extending to the cords;

- i) Loose cord on the inner ply;
- j) Damage to the inner or bead seating areas on tyres identified as tubeless;
- k) Evidence of having been used in an under-inflated or overloaded condition;
- l) Casing break-up (flex break);
- m) Generally weakened condition due to age, moisture, or exposure to oil or other chemical attack;
- n) Damage to the plies in the bead area;
- o) Sidewall separation;
- p) Regrooved, retreaded, and no repairs;
- q) Winter tyres;
- r) Non-adjustable and;
- s) Blemished.

3.3.3 Each used tyre shall incorporate a tread wear indicator that will provide a visual indication when the tyre has worn to a minimum acceptable tread depth as recommended by the manufacturer.

4. TEST PROCEDURES

4.1 Test method for the determination of the tread depth

4.1.1 Apparatus

The apparatus shall consist of a mechanical (or electromechanical) depth gauge fitted with a foot through which a spindle passes. The foot may have any of a variety of shapes, including but not limited to cylindrical, semi-cylindrical and rectangular. The reference surface of the gauge foot shall be ground planar and perpendicular to the gauge spindle. A diagram of a mechanical depth gauge is shown in Figure 1.

4.1.1.1 The smallest scale division on the gauge shall be no more than 1 mm.

4.1.1.2 The gauge spindle shall extend at least 25 mm beyond the reference surface of the foot. Spindles may have any variety of shapes and diameters suitable for the tread depth to be measured.

4.1.1.3 The spindle shall not touch the side of the hole in the foot.

4.1.2 Preparation

4.1.2.1 Depth gauge

The gauge shall be calibrated and traceable to a recognized Metrology body.

4.1.2.2 Tyre

The tyre shall be dry and free of any foreign material that would interfere with accurate measurements.

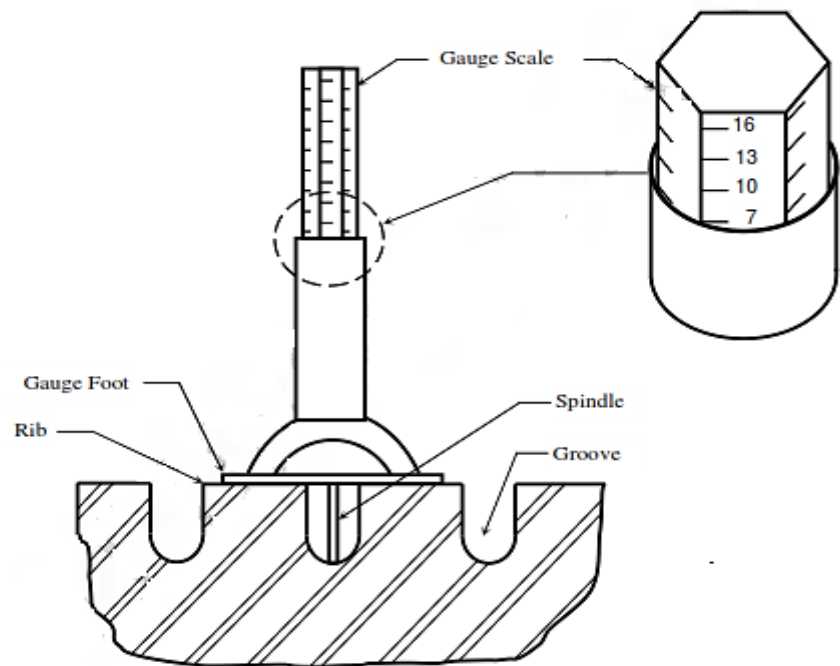


Figure 1 — Measurement of tread depth for uniform wear

4.1.3 Procedure

Place the foot of the gauge so that it bridges adjacent ribs over the area to be measured, avoiding tread wear indicators, so that the spindle makes perpendicular contact with the base of the groove as shown in Figure 1. This single measurement characterises the groove depth at this location.

4.1.3.1 Location of tyre measurements

Measurements shall be made along two outer circumferential grooves and along either the centre circumferential groove or, in the absence of a centre circumferential groove, along two circumferential grooves adjacent to the centerline of the tread.

4.1.3.2 Number of measurements

At least one measurement shall be taken in each quadrant of each of the circumferential grooves identified in 4.1.3.1.

4.2 Test method for the electronic non-destructive casing inspection of used tyres.

4.2.1 Apparatus

The apparatus shall consist of electronic casing inspection that uses ultrasonic, holographic, electro-magnetic or other means of imaging to determine the internal structural integrity of each used tyre.

4.2.2 Preparation

4.2.2.1 Depth gauge

The gauge shall read zero when the foot is placed against a non-deformable flat surface, such as a glass plate, before any set of measurements is taken.

4.2.2.2 Tyre

The tyre shall be dry and free of any foreign material that would interfere with accurate measurement.

4.2.3 Procedure

Place the foot of the gauge so that it bridges adjacent ribs over the area to be measured, avoiding tread wear indicators, so that the spindle makes perpendicular contact with the base of the groove as shown in Figure 1. This single measurement characterises the groove depth at this location.

5. MARKINGS

All used tyres that meet the inspection, fumigation and testing requirements of this standard shall bear the words "USED TYRE" and inspection date in upper case letters at least 4 mm high on both sides of the tyre. The words shall be applied immediately adjacent to the marking or markings stating the standard or standards to which the tyre complies. The wording shall be applied permanently and legibly otherwise than by hot- branding or cutting into the tyre.

6. NON-CONFORMING TYRES

No used tyre that is designed for use on passenger vehicles and aged six (6) years and below from date of manufacture, but does not conform to all the requirements of this standard, shall be sold, offered for sale, introduced or delivered for introduction into inter-country commerce, or imported into Zambia to be used on passenger vehicles.

7. DISPOSAL

Non-conforming tyres shall not be returned to the importer. All non-conforming tyres shall be isolated and disposed of by a method, including re-export at the importer's expense, approved by the Zambia Bureau of Standards and in the presence of an officer of the Bureau.

In the event that the tyres are to be disposed of on a Zambian landfill, it shall be the sole responsibility of the Zambia Bureau of Standards to transfer every non-conforming tyre directly to the Zambia Environmental Management Agency at the expense of the importer.

8. REPORTING

The Zambia Bureau of Standards representative witnessing the disposal of non-conforming tyres shall prepare a report containing the following information:

- a) Name and address of manufacturer, importer or owner of the non-conforming tyres;
- b) A list of the serial numbers of the tyres disposed of;
- c) The number of tyres disposed;
- d) The date of disposal.

A copy of the report shall be sent to the manufacturer or owner of the non-conforming tyres and the original kept by the Zambia Bureau of Standards.

9. STORAGE

- a) Tyres shall be stored in a ventilated, dry and warm area protected from direct sunlight and precipitation.
- b) Tyres shall be stored away from chemicals, solvents or hydrocarbons capable of altering the composition of the rubber.
- c) Tyres shall be stored away from any object capable of penetrating the rubber.
- d) Tyres shall not be stored in piles for long period unless the tyres are assembled and inflated.
- e) Tyres shall not be stored under large heavy objects.
- f) Tyres shall not be stored near any flame or ignition source, or any device capable of producing sparks or an electrical discharge (that is, battery chargers).

10. FUMIGATION

10.1 Each commercial consignment of used tyres is to be accompanied by documentation stating:

- a) Number of tyres: type of types: container number
- b) Port of origin
- c) Shipment details
- d) Consignor
- e) Consignee

10.2 Every consignment of used tyres must be free of contamination by any of the following:

- a) Animals, insects or other invertebrates (in any living life stage including, eggs, egg casing, or egg rafts), or any organic material of animal origin (including blood, bones, fibre, meat, secretions, excretions, others); or
- b) Plants or plants products (including fruit, seeds, leaves, twigs, roots, bark, sawdust, and others); or
- c) Soil; or
- d) Water

Note: Of particular concern are pests and insects of public health significance

10.3 All used tyres (not on rims) must be fumigated with methyl bromide on arrival by the relevant government institution.

11. CONTAINERIZED TYRES

11.1 The fumigation shall take place within 48 hours of arrival in Zambia, with the tyres still within the container. If this treatment cannot be carried out within 48 hours of discharge, the container shall be inspected for any damage which may permit insects to escape; any damage must be sealed while the container awaits fumigation. Fumigation shall be at the following rates: 16g/m³/24 hour, that is, 0.9kg per 40 feet container.

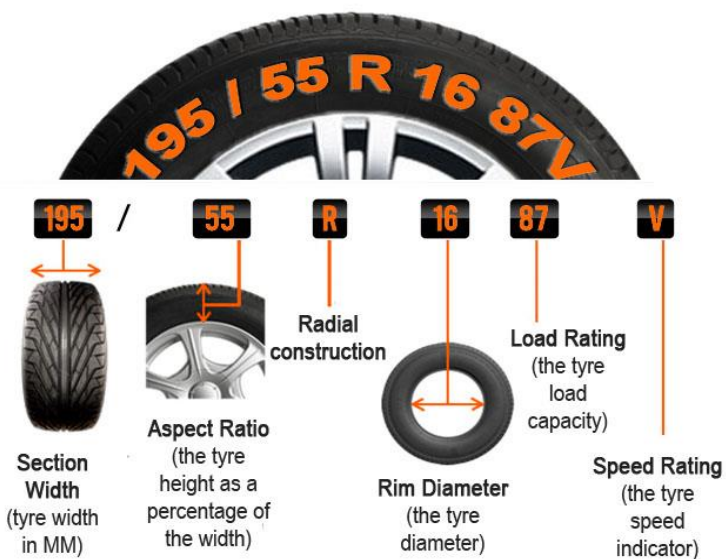
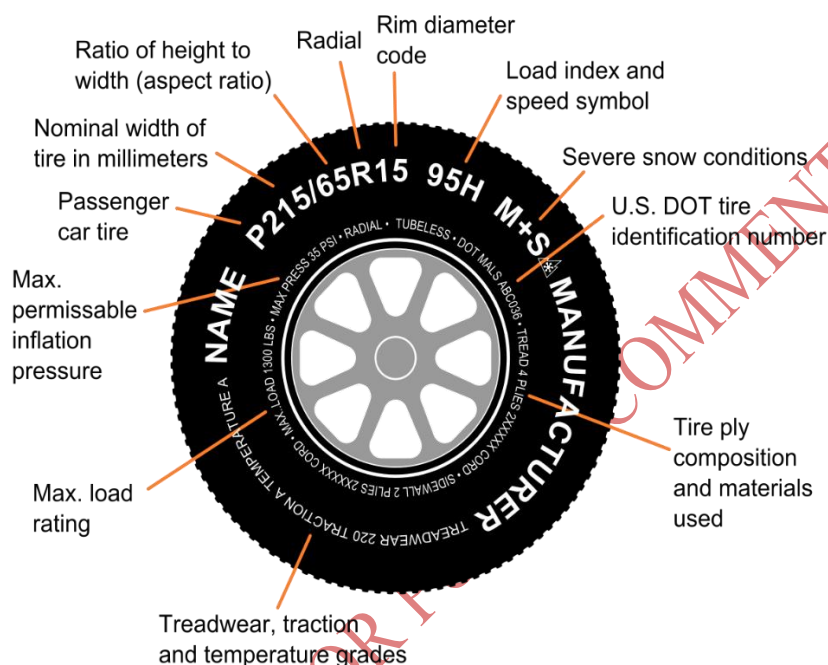
- 11.2 An approved knockdown insecticide shall be applied by the fumigator as soon as the container door is cracked open.
- 11.3 The container door shall be closed for a minimum saturation period of five minutes.
- 11.4 The container shall be closed and the doors made gas tight. The fumigation operator shall also check the container for any leaks and tape over all cracks, vents or other holes.
- 11.5 All seals (such as doors and vents) shall be checked for gas leakage using a halide lamp. All leaks must be sealed.
- 11.6 The container shall not be opened for at least 24 hours.
- 11.7 The container may, under the direction of an inspector, be taken to an approved transitional facility. If the container is directed to go to a transitional facility for treatment, it shall be inspected for holes (including vents) which shall be sealed (if this has not already been carried out to meet the 48 hour requirement), before being allowed to leave the wharf.

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ANNEX A (Informative)

Passenger Vehicle Tyre Identification

A.1 Some passenger vehicle tyre identification markings



A.2 Parts of a Tyre for Passenger Vehicles

