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## TECHNICAL STANDARDS DOCUMENT No. 139, Revision 1

# New Radial Ply Tires for Motor Vehicles With a GVWR of 4 536 kg or Less

The text of this document is based on Federal Motor Vehicle Safety Standard No. 139, *New pneumatic radial tires for light vehicles*, as published in the U.S. *Code of Federal Regulations*, Title 49, Part 571, revised as of October 1, 2009.

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\*\*The changes since the last version are highlighted in yellow, see the Change Log at the end of the document for more information\*\*

*(Ce document est aussi disponible en français)*

## Introduction

As defined by section 12 of the Motor Vehicle Safety Act, a Technical Standards Document (TSD) is a document that reproduces an enactment of a foreign government (e.g. a Federal Motor Vehicle Safety Standard issued by the U.S. National Highway Traffic Safety Administration). According to the Act, the Motor Vehicle Safety Regulations may alter or override some provisions contained in a TSD or specify additional requirements; consequently, it is advisable to read a TSD in conjunction with the Act and its counterpart Regulation. As a guide, where the corresponding Regulation contains additional requirements, footnotes indicate the amending subsection number.

TSDs are revised from time to time in order to incorporate amendments made to the reference document, at which time a Notice of Revision is published in the Canada Gazette Part I. All TSDs are assigned a revision number, with “Revision 0” designating the original version.

## Identification of Changes

Adaptations may be made that include amendments to the content of the originating enactment or material. Such adaptations are marked as follows:

- Underlined text (example) indicates text that is not part of the originating enactment or material and which therefore represents additional text in comparison to the originating text.
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## Effective Date and Mandatory Compliance Date

The publication date is the date the TSD appears on the Transport Canada website.

The effective date of an initial TSD (revision 0) is the date of coming into force of the provision of the MVSR that incorporates it by reference (the incorporating provision).

Similarly, the effective date of a revised TSD (e.g. revision 1) that is accompanied by an amendment to the incorporating provision of the MVSR is the date of coming into force of the amended incorporating provision.

The effective date of a revised TSD (e.g. revision 2) that is not accompanied by an amendment to the incorporating provision of the MVSR is the date of publication of the TSD.

The mandatory compliance date is the date upon which compliance with the requirements of the TSD is required by law. If the effective date and mandatory compliance date are

different, a manufacturer may follow the requirements that were applicable before the effective date, or those of the TSD, until the mandatory compliance date.

## **Official Version of Technical Standards Documents**

The PDF version is a replica of the TSD as published by the Department and is to be used for the purposes of legal interpretation and application.

(Original signed by) Director, Standards Research and Development  
for the Minister of Transport,  
Ottawa, Ontario

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## S1. Scope and purpose

This Technical Standards Document (TSD) ~~standard~~ specifies tire dimensions, test requirements, labeling requirements, and defines tire load ratings.

## S2. Application and incorporation by reference

[CONTENT DELETED] For applicability, please see subsection 5(1) of the [Motor Vehicle Tire Safety Regulations](#).

## S3. Definitions

<sup>1</sup> **Bead** ~~means the part of the tire that is made of steel wires, wrapped or reinforced by ply cords and that is shaped to fit the rim.~~ *(Talon)*

**Bead separation** means a breakdown of the bond between components in the bead.  
*(Séparation du talon)*

<sup>1</sup> **Bias ply tire** ~~means a pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.~~ *(Pneu à carcasse diagonale)*

**Carcass** means the tire structure, except tread and sidewall rubber which, when inflated, bears the load. *(Carcasse)*

**Chunking** means the breaking away of pieces of the tread or sidewall **exposing reinforcing materials**. *(Arrachement)*

**Cord** means the strands forming the plies in the tire. *(Câblé)*

**Cord separation** means the parting of cords from adjacent rubber compounds. *(Séparation de câblés)*

**Cracking** means any parting within the tread, sidewall, or innerliner of the tire extending to cord material. *(Fissuration)*

**Extra load tire** means a tire designed to operate at higher loads and higher inflation pressure than the corresponding standard tire. *(Pneu à charge supplémentaire)*

**Groove** means the space between two adjacent tread ribs. *(Sillon)*

**Innerliner** means the layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire. *(Calandrage intérieur)*

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<sup>1</sup> Please see subsection 1(1) of the [Motor Vehicle Tire Safety Regulations](#) (MVTSR) for the applicable definition.

**Innerliner separation** means the parting of the innerliner from cord material in the carcass. (*Séparation du calandrage intérieur*)

<sup>2</sup> **Light-truck tire or LT tire** ~~Light truck (LT) tire~~ means a tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles. (*Pneu pour camion léger*)

<sup>3</sup> **Load rating** means the maximum load that a tire is rated to carry for a given inflation pressure. (*Charge nominale*)

<sup>3</sup> **Maximum load rating** means the load rating for a tire at the maximum permissible inflation pressure for that tire. (*Limite de charge nominale*)

<sup>3</sup> **Maximum permissible inflation pressure** means the maximum cold inflation pressure to which a tire may be inflated. (*Pression maximale permise de gonflage*)

**Measuring rim** means the rim on which a tire is fitted for physical dimension requirements. (*Jante de mesure*)

**Open splice** means any parting at any junction of tread, sidewall, or innerliner that extends to cord material. (*Séparation de soudure*)

**Outer diameter** means the overall diameter of an inflated new tire. (*Diamètre extérieur*)

**Overall width** means the linear distance between the exteriors of the sidewalls of an inflated tire, including elevations due to labeling, decoration, or protective bands or ribs. (*Largeur hors tout*)

**Parasitic tread block chunking (PTBC)** means the breaking away of pieces of the tread or sidewall without exposing reinforcing materials. (*arrachement parasite de blocs de la bande de roulement*)

<sup>2</sup> **Passenger car tire** means a tire intended for use on passenger cars, multi-purpose passenger vehicles, and trucks that have a gross vehicle weight rating (GVWR) of 4 536 kg (10 000 lb.) or less. (*Pneu pour voiture de tourisme*)

<sup>4</sup> **Ply** means a layer of rubber-coated parallel cords. (*Pli*)

**Ply separation** means a parting of rubber compound between adjacent plies. (*Décollement entre nappes*)

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<sup>2</sup> Please see subsection 2(1) of the [Motor Vehicle Safety Regulations](#) (MVSR) for the applicable definition.

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<sup>3</sup> Please see subsection 1(1) of the [MVTSR](#) for the applicable definition.

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<sup>4</sup> Please see subsection 1(1) of the [MVTSR](#) for the applicable definition.

**Tire** ~~Pneumatic tire~~ means a mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel, provides the traction and contains the gas or fluid that sustains the load. (*Pneu*)

<sup>4</sup> **Radial ply tire** ~~means a pneumatic tire in which the ply cords that extend to the beads are laid at substantially 90 degrees to the centerline of the tread.~~ (*Pneu à carcasse radiale*)

**Reinforced tire** means a tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire. (*Pneu renforcé*)

<sup>4</sup> **Rim** ~~means a metal support for a tire or a tire and tube assembly upon which the tire beads are seated.~~ (*Jante*)

**Section width** means the linear distance between the exteriors of the sidewalls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands. (*Grosueur du boudin*)

<sup>4</sup> **Sidewall** ~~means that portion of a tire between the tread and bead.~~ (*Flanc*)

**Sidewall separation** means the parting of the rubber compound from the cord material in the sidewall. (*Séparation des flancs*)

<sup>5</sup> **Winter tire** ~~Snow tire~~ means a tire that attains a traction index equal to or greater than 110, compared to the ASTM E 1136 Standard Reference Test Tire when using the snow traction test as described in ASTM F 1805-00, *Standard Test Method for Single Wheel Driving Traction in a Straight Line on Snow and Ice Covered Surfaces*, and which is marked with an Alpine Symbol specified in S5.5(i) on at least one sidewall. (*Pneu d'hiver*)

**Test rim** means the rim on which a tire is fitted for testing, which may be any rim listed as appropriate for use with that tire. (*Jante d'essai*)

<sup>4</sup> **Tread** ~~means that portion of a tire that comes into contact with the road.~~ (*Bande de roulement*)

**Tread rib** means a tread section running circumferentially around a tire. (*Nervure de la bande de roulement*)

**Tread separation** means pulling away of the tread from the tire carcass. (*Séparation de la bande de roulement*)

**Treadwear indicators** (TWI) means the projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread. (*Indicateurs d'usure*)

**Wheel-holding fixture** means the fixture used to hold the wheel and tire assembly securely during testing. (*Appareil de soutien de la roue*)

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<sup>5</sup> Please see subsection 5(4) of the [MVTSR](#) for the applicable definition.

## S4. Tire and rim matching information

[CONTENT DELETED] Please see section 8 of the [Motor Vehicle Tire Safety Regulations \(MVTSR\)](#) for the applicable requirements.

## S5. General requirements

### S5.1 Size and construction

Each tire shall fit each rim specified for its size designation in accordance with sub-section 8(1) of the MVTSR S4.1.

### S5.2 Performance requirements

Each tire shall conform to each of the following:

- (a) It shall meet the requirements specified in S6 for its tire size designation, type, and maximum permissible inflation pressure.
- (b) It shall meet each of the applicable requirements set forth in paragraphs (c) and (d) of this S5.2 when mounted on a model rim assembly corresponding to any rim designated by the tire manufacturer for use with the tire in accordance with subsection 8(1) of the MVTSR S4.
- (c) Its maximum permissible inflation pressure shall be 240, 280, 300, 340, or 350 kPa.
- (d) Its load rating shall be that specified either in a submission made by an individual manufacturer, pursuant to subsection 8(1) of the MVTSR S4, or in one of the publications described in subsection 8(2) of the MVTSR S4 for its size designation, type, and each appropriate inflation pressure. If the maximum load rating for a particular tire size is shown in more than one of the publications described in subsection 8(2) of the MVTSR S4, each tire of that size designation shall have a maximum load rating that is not less than the published maximum load rating, or if there are differing maximum load ratings for the same tire size designation, not less than the lowest published maximum load rating.

### S5.3 Test sample

For the tests specified in S6, use:

- (a) One tire for high speed;
- (b) Another tire for endurance and low inflation pressure performance; and
- (c) A third tire for physical dimensions, resistance to bead unseating, and strength, in sequence.

## S5.4 Treadwear indicators

Except in the case of tires with a 305 mm (12-inch) or smaller rim diameter, each tire shall have not less than six treadwear indicators spaced approximately equally around the circumference of the tire that enable a person inspecting the tire to determine visually whether the tire has worn to a tread depth of 1.6 mm (one-sixteenth of an inch). Tires with a 305 mm (12-inch) or smaller rim diameter shall have not less than three such treadwear indicators.

## S5.5 Tire markings

Except as specified in paragraphs (a) through (i) of S5.5, each tire must be marked on each sidewall with the information specified in S5.5(a) through (d) and on one sidewall with the information specified in S5.5(e) through (i) ~~according to the phase in schedule specified in S7 of this standard~~. The markings must be placed between the maximum section width and the bead on at least one sidewall, unless the maximum section width of the tire is located in an area that is not more than one-fourth of the distance from the bead to the shoulder of the tire. If the maximum section width falls within that area, those markings must appear between the bead and a point one-half the distance from the bead to the shoulder of the tire, on at least one sidewall. The markings must be in letters and numerals not less than 2 mm (0.078 inches) high and raised above or sunk below the tire surface not less than 0.4 mm (0.015 inch).

- (a) ~~The symbol DOT, which constitutes a certification that the tire conforms to applicable Federal motor vehicle safety standards;~~<sup>6</sup>
- (b) The tire size designation as listed in the documents and publications specified in section 8 of the [MVTSR](#) S4.1.1 of this standard;
- (c) The maximum permissible inflation pressure, subject to the limitations of S5.5.4 through S5.5.6 of this [TSD standard](#);<sup>7</sup>
- (d) The maximum load rating<sup>8</sup> and for LT tires, the letter designating the tire load range;
- (e) The generic name of each cord material used in the plies (both sidewall and tread area) of the tire;
- (f) The actual number of plies in the sidewall and the actual number of plies in the tread area, if different;
- (g) The term “tubeless” or “tube type,” as applicable;

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<sup>6</sup> Please see section 7 of the [MVTSR](#) for the applicable requirements.

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<sup>7</sup> Please see subsection 5(2) of the [MVTSR](#) for additional requirements.

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<sup>8</sup> Please see subsection 5(3) of the [MVTSR](#) for additional requirements.

- (h) The word “radial,” if the tire is a radial ply tire; and
- (i) Alpine Symbol. A tire meeting the definition of a ~~winter tire snow tire~~, as defined in paragraph S3 may, at the option of the manufacturer, show the pictograph of a mountain with a snowflake as shown below. If the manufacturer chooses to mark the ~~winter tire snow tire~~ with the alpine symbol, the mountain profile must have a minimum base of 15 mm and a minimum height of 15 mm, and must contain three peaks with the middle peak being the tallest. Inside the mountain, there must be a six-sided snowflake having a minimum height of one-half the tallest peak.



#### S5.5.1 Tire identification number

- (a) ~~Tires manufactured before September 1, 2009.~~ Each tire must be labeled with the tire identification number required by 49 CFR part 574 on a sidewall of the tire. ~~Except for retreaded tires, either the tire identification number or a partial tire identification number, containing all characters in the tire identification number, except for the date code and, at the discretion of the manufacturer, any optional code, must be labeled on the other sidewall of the tire.~~
- (b) ~~Tires manufactured on or after September 1, 2009.~~ Each tire must be labeled with the tire identification number required by section 6 of the MVTSR ~~49 CFR part 574~~ on the intended outboard sidewall of the tire. ~~Except for retreaded tires, either~~ Either the tire identification number or a partial tire identification number, containing all characters in the tire identification number, except for the date code and, at the discretion of the manufacturer, any optional code, must be labeled on the other sidewall of the tire. ~~Except for retreaded tires, if~~ If a tire does not have an intended outboard sidewall, the tire must be labeled with the tire identification number required by section 6 of the MVTSR ~~49 CFR part 574~~ on one sidewall and with either the tire identification number or a partial tire identification number, containing all characters in the tire identification number, except for the date code and, at the discretion of the manufacturer, any optional code, on the other sidewall.

#### S5.5.2 [Reserved]

**S5.5.3** Each tire must be labeled with the name of the manufacturer, or brand name and number assigned to the manufacturer in the manner specified in section 6 of the MVTSR ~~49 CFR part 574~~.

**S5.5.4** ~~For passenger car tires, if the maximum inflation pressure of a tire is 240, 280, 300, 340, or 350, then:~~

- ~~(a) Each marking of that inflation pressure pursuant to S5.5(c) must be followed in parenthesis by the equivalent psi, rounded to the next higher whole number; and~~
- ~~(b) Each marking of the tire's maximum load rating pursuant to S5.5(d) in kilograms must be followed in parenthesis by the equivalent load rating in pounds, rounded to the nearest whole number.~~

**S5.5.5** If the maximum inflation pressure of a tire is 420 kPa (60 psi), the tire must have permanently moulded into or onto both sidewalls, in letters and numerals not less than 12.7 mm (½ inch) high, the words “Inflate to 60 psi” or “Inflate to 420 kPa (60 psi)”. On both sidewalls, the words must be positioned in an area between the tire shoulder and the bead of the tire. However, the words must be also positioned on the tire so that they are not obstructed by the flange of any rim designated for use with that tire in this TSD or in TSD 110 standard or in Standard No. 110 (Sec. 571.110 of this part).

**S5.5.6** For LT tires, the maximum permissible inflation pressure shown must be the inflation pressure that corresponds to the maximum load of the tire for the tire size as specified in one of the publications described in subsection 8(2) of the MVTSR S4.1.1.(b) of Sec. 571.139. At the manufacturer's option, the shown inflation pressure may be as much as 69 kPa (10 psi) greater than the inflation pressure corresponding to the specified maximum load.

## **S6. Test procedures, conditions and performance requirements**

Each tire shall meet all of the applicable requirements of this section when tested according to the conditions and procedures set forth in S5 and S6.1 through S6.6.

### **S6.1 Tire dimensions**

#### **S6.1.1 Test conditions and procedures**

##### **S6.1.1.1 Tire preparation**

**S6.1.1.1.1** Mount the tire on the measuring rim specified by the tire manufacturer or in one of the publications listed in section 8 of the MVTSR S4.1.1.

**S6.1.1.1.2** For passenger car tires, inflate to the pressure specified in the following table:

<b>Inflation pressure (kPa)</b>	
<b>Standard</b>	<b>Reinforced</b>
180	220

**S6.1.1.1.3** In the case of a LT tire, inflate it to the pressure at maximum load as labeled on the sidewall.

**S6.1.1.1.4** Condition the assembly at an ambient room temperature of 20°C to 30°C for not less than 24 hours.

**S6.1.1.1.5** Readjust the tire pressure to that specified in S6.1.1.1.2 or in S6.1.1.1.3, as applicable.

### **S6.1.1.2 Test procedure**

**S6.1.1.2.1** Measure the section width and overall width by caliper at six points approximately equally spaced around the circumference of the tire, avoiding measurement of the additional thickness of the special protective ribs or bands. The averages of the measurements so obtained are taken as the section width and overall width, respectively.

**S6.1.1.2.2** Determine the outer diameter by measuring the maximum circumference of the tire and dividing the figure so obtained by Pi (3.14).

### **S6.1.2 Performance requirements**

The actual section width and overall width for each tire, measured in accordance with S6.1.1.2, shall not exceed the section width and overall width specified in a submission made by an individual manufacturer, pursuant to subsection 8(1) of the MVTSR S4.1.1(a), or in one of the publications described in subsection 8(2) of the MVTSR S4.1.1(b), for its size designation and type by more than:

- (a) (For tires with a maximum permissible inflation pressure of 220, 250, or 275 kPa (32, 36, or 40 psi) 7 percent, or
- (b) (For tires with a maximum permissible inflation pressure of 240, 280, 300, 340, or 350 kPa) 7 percent or 10 mm (0.4 inches), whichever is larger.

## S6.2 High speed performance

### S6.2.1 Test conditions and procedures

#### S6.2.1.1 Preparation of tire

S6.2.1.1.1 Mount the tire on a test rim and inflate it to the pressure specified for the tire in the following table:

Tire application	Test pressure (kPa)
<b>Passenger car tires</b>	
Standard load	220
Extra load	260
Load Range C	320
Load Range D	410
Load Range E	500
<b>Light-truck tires <del>Light truck tires with</del> a nominal cross section &gt; 295 mm (11.5 inches)</b>	
Load Range C	230
Load Range D	320
Load Range E	410

S6.2.1.1.2 Condition the assembly at 32°C to 38°C for not less than 3 hours.

S6.2.1.1.3 Before or after mounting the assembly on a test axle, readjust the tire pressure to that specified in S6.2.1.1.1.

#### S6.2.1.2 Test procedure

S6.2.1.2.1 Press the assembly against the outer face of a test drum with a diameter of 1.70 m ± 1%.

S6.2.1.2.2 Apply to the test axle a load equal to 85% of the tire's maximum load carrying capacity.

S6.2.1.2.3 Break in the tire by running it for 2 hours at 80 km/h.

S6.2.1.2.4 Allow tire to cool to 38°C and readjust inflation pressure to applicable pressure in 6.2.1.1.1 immediately before the test.

**S6.2.1.2.5** Throughout the test, the inflation pressure is not corrected and the test load is maintained at the value applied in S6.2.1.2.2.

**S6.2.1.2.6** During the test, the ambient temperature, measured at a distance of not less than 150 mm and not more than 1 m from the tire, is maintained at not less than 32°C or more than 38°C.

**S6.2.1.2.7** The test is conducted, continuously and uninterrupted, for ninety minutes through three thirty-minute consecutive test stages at the following speeds: 140, 150, and 160 km/h.

**S6.2.1.2.8** Allow the tire to cool for between 15 minutes and 25 minutes. Measure its inflation pressure. Then, deflate the tire, remove it from the test rim, and inspect it for the conditions specified in S6.2.2(a).

## **S6.2.2 Performance requirements**

When the tire is tested in accordance with S6.2.1:

- (a) There shall be no visual evidence of tread, sidewall, ply, cord, innerliner, belt or bead separation, chunking, open splices, cracking, or broken cords.
- (b) The tire pressure, when measured at any time between 15 minutes and 25 minutes after the end of the test, shall not be less than 95% of the initial pressure specified in S6.2.1.1.1.

## **S6.3 Tire endurance**

### **S6.3.1 Test conditions and procedures**

#### **S6.3.1.1 Preparation of tire**

**S6.3.1.1.1** Mount the tire on a test rim and inflate it to the pressure specified for the tire in the following table:

Tire application	Test pressure (kPa)
<b>Passenger car tires</b>	
Standard load	180
Extra load	220
Load Range C	260
Load Range D	340
Load Range E	410
<b><u>Light-truck tires</u> <del>Light truck tires with</del> a nominal cross section &gt; 295 mm (11.5 inches)</b>	
Load Range C	190
Load Range D	260
Load Range E	340

**S6.3.1.1.2** Condition the assembly at 32°C to 38°C for not less than 3 hours.

**S6.3.1.1.3** Readjust the pressure to the value specified in S6.3.1.1.1 immediately before testing.

**S6.3.1.2 Test procedure**

**S6.3.1.2.1** Mount the assembly on a test axle and press it against the outer face of a smooth wheel having a diameter of 1.70 m ± 1%.

**S6.3.1.2.2** During the test, the ambient temperature, measured at a distance of not less than 150 mm and not more than 1 m from the tire, is maintained at not less than 32°C or more than 38°C.

**S6.3.1.2.3** Conduct the test, without interruption, at the test speed of not less than 120 km/h with loads and test periods not less than those shown in the following table. For winter tires snow tires, conduct the test at not less than 110 km/h.

Test period	Duration (hours)	Load as a percentage of tire maximum load rating
1	4	85
2	6	90
3	24	100

**S6.3.1.2.4** Throughout the test, the inflation pressure is not corrected and the test loads are maintained at the value corresponding to each test period, as shown in the table in S6.3.1.2.3.

**S6.3.1.2.5** Allow the tire to cool for between 15 minutes and 25 minutes after running the tire for the time specified in the table in S6.3.1.2.3. Measure its inflation pressure. Inspect the tire externally on the test rim for the conditions specified in S6.3.2(a).

### **S6.3.2 Performance requirements**

When the tire is tested in accordance with S6.3.1:

- (a) There shall be no visual evidence of tread, sidewall, ply, cord, belt or bead separation, chunking, open splices, cracking, or broken cords. However, in the case of a winter tire, evidence of PTBC is not considered to be visual evidence of tread, sidewall, ply, cord, belt or bead separation, chunking, open splices, cracking, or broken cords.
- (b) The tire pressure, when measured at any time between 15 minutes and 25 minutes after the end of the test, shall not be less than 95% of the initial pressure specified in S6.3.1.1.1.

## **S6.4 Low inflation pressure performance**

### **S6.4.1 Test conditions and procedures**

#### **S6.4.1.1 Preparation of tire**

**S6.4.1.1.1** This test is conducted following completion of the tire endurance test using the same tire and rim assembly tested in accordance with S6.3 with the tire deflated to the following appropriate pressure:

<b>Tire application</b>	<b>Test pressure (kPa)</b>
<b>Passenger car tires</b>	
Standard load	140
Extra load	160
Load Range C	200
Load Range D	260
Load Range E	320
<b><u>Light-Truck Tires</u> <del>Light Truck Tires</del> with a nominal cross section &gt; 295 mm (11.5 inches)</b>	
Load Range C	150
Load Range D	200
Load Range E	260

**S6.4.1.1.2** After the tire is deflated to the appropriate test pressure in S6.4.1.1.1 at the completion of the endurance test, condition the assembly at 32°C to 38°C for not less than 2 hours.

**S6.4.1.1.3** Before or after mounting the assembly on a test axle, readjust the tire pressure to that specified in S6.4.1.1.1.

### S6.4.1.2 Test procedure

**S6.4.1.2.1** The test is conducted for ninety minutes at the end of the test specified in S6.3, continuously and uninterrupted, at a speed of 120 km/h (75 mph). ~~For winter tires snow tires, conduct the test at not less than 110 km/h.~~

**S6.4.1.2.2** Press the assembly against the outer face of a test drum with a diameter of 1.70 m  $\pm$  1%.

**S6.4.1.2.3** Apply to the test axle a load equal to 100% of the tire's maximum load carrying capacity.

**S6.4.1.2.4** Throughout the test, the inflation pressure is not corrected and the test load is maintained at the initial level.

**S6.4.1.2.5** During the test, the ambient temperature, measured at a distance of not less than 150 mm and not more than 1 m from the tire, is maintained at not less than 32°C or more than 38°C.

**S6.4.1.2.6** Allow the tire to cool for between 15 minutes and 25 minutes. Measure its inflation pressure. Then, deflate the tire, remove it from the test rim, and inspect it for the conditions specified in S6.4.2(a).

### S6.4.2 Performance requirements

When the tire is tested in accordance with S6.4.1:

- (a) There shall be no visual evidence of tread, sidewall, ply, cord, innerliner, belt or bead separation, chunking, open splices, cracking, or broken cords, ~~and.~~ However, in the case of a winter tire, evidence of PTBC is not considered to be visual evidence of tread, sidewall, ply, cord, belt or bead separation, chunking, open splices, cracking, or broken cords.
- (b) The tire pressure, when measured at any time between 15 minutes and 25 minutes after the end of the test, shall not be less than 95% of the initial pressure specified in S6.4.1.1.1.

## S6.5 Tire strength

**S6.5.1 Tire strength for passenger car tires.** Each tire shall comply with the requirements of S5.3 of TSD 109 ~~Sec. 571.109~~.

**S6.5.2 Tire strength for LT tires.** Each tire shall comply with the requirements of S7.3 of TSD 119 ~~Sec. 571.119~~.

## S6.6 Tubeless tire bead unseating resistance

Each tire shall comply with the requirements of S5.2 of TSD 109 ~~Sec. 571.109~~. For light-truck tires ~~light truck tires~~, the maximum permissible inflation pressure to be used for the bead unseating test is as follows:

Load Range C	260 kPa
Load Range D	340 kPa
Load Range E	410 kPa

For light-truck tires ~~light truck tires~~ with a nominal cross-section greater than 295 mm (11.5 inches), the maximum permissible inflation pressure to be used for the bead unseating test is as follows:

Load Range C	190 kPa
Load Range D	260 kPa
Load Range E	340 kPa

## S7. Phase-in schedule for tire markings

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## Change Log

TSD version	Reason	Relevant links
Version 1	Introduction of PTBC definition	<a href="#">Update to TSD 139 on Parasitic Tread Block Chunking (PTBC)</a>