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Motor Vehicle Safety

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Sécurité des véhicules automobiles

TECHNICAL STANDARDS DOCUMENT
No. 109, Revision 0R

New Tires and Certain Specialty Tires

The text of this document is based on Federal Motor Vehicle Safety Standard No. 109, *New pneumatic and certain specialty tires*, as published in the U.S. *Code of Federal Regulations*, Title 49, Part 571, revised as of October 1, 2009; and the Final Rule published in the *Federal Register* on January 17, 2013 (Vol. 78, No. 12, p. 3843).

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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 Tire 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 the *Motor Vehicle Tire Safety Regulations*. 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

In order to facilitate the incorporation of a TSD, certain non-technical changes may be made to the foreign enactment. These may include the deletion of words, phrases, figures, or sections that do not apply under the Act or Regulations, the conversion of imperial to metric units, the deletion of superseded dates, and minor changes of an editorial nature. Additions are underlined, and provisions that do not apply are ~~stroked through~~. Where an entire section has been deleted, it is replaced by: "[CONTENT DELETED]". Changes are also made where there is a reporting requirement or reference in the foreign enactment that does not apply in Canada. For example, the name and address of the United States Department of Transportation are replaced by those of the Department of Transport.

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The effective date of a TSD is the date of publication of its incorporating regulation or of the notice of revision in the *Canada Gazette*, and the date as of which voluntary compliance is permitted. The mandatory compliance date is the date upon which compliance with the requirements of the TSD is obligatory. If the effective date and mandatory compliance date are different, manufacturers may follow the requirements that were in force before the effective date, or those of the TSD, until the mandatory compliance date.

In the case of an initial TSD, or when a TSD is revised and incorporated by reference by an amendment to the Regulations, the mandatory compliance date is as specified in the Regulations, and it may be the same as the effective date. When a TSD is revised with no corresponding changes to the incorporating Regulations, the mandatory compliance date is six months after the effective 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.

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S1. Scope

This Technical Standards Document (TSD) ~~standard~~ specifies tire dimensions and laboratory test requirements for bead unseating resistance, strength, endurance, and high speed performance; defines tire load ratings; and specifies labeling requirements for passenger car tires.

S2. Application

[CONTENT DELETED] For applicability, see subsection 3(1) of the *Motor Vehicle Tire Safety Regulations* (MVTSR).

S3. Definitions

[1] **Bead** ~~means that part of the tire 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 area. *(Séparation du talon)*

[1] **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° to the centerline of the tread.~~ *(Pneu à carcasse diagonale)*

Carcass means the tire structure, except tread and sidewall rubber. *(Carcasse)*

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

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

Cord separation means the parting of cords ~~parting away~~ 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)*

~~**CT Tire** means a pneumatic tire with an inverted flange tire and rim system in which the rim is designed with rim flanges pointed radially inward and the tire is designed to fit on~~ the ~~underside of the rim in a manner that encloses the rim flanges inside the air cavity of the tire. *(pneu anti-affaissement)*~~

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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[1] 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 the cord material in the carcass. *(Séparation du calandrage intérieur)*

[2] **Load rating** ~~means the maximum load a tire is rated to carry for a given inflation pressure.~~ *(Charge nominale)*

[2] **Maximum load rating** ~~means the load rating at the maximum permissible inflation pressure for that tire.~~ *(Limite de charge nominale)*

[2] **Maximum permissible inflation pressure** ~~means the maximum cold inflation pressure to which a tire may be inflated.~~ *(Pression maximale permise de gonflage)*

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

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

[2] **Ply** ~~means a layer of rubber-coated parallel cords.~~ *(Pli)*

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

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

[3] **Radial ply tire** ~~means a pneumatic tire in which the ply cords which extend to the beads are laid at substantially 90° to the centerline of the tread.~~ *(Pneu à carcasse radiale)*

[3] **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, decorations, or protective bands. *(Grosseur du boudin)*

[3] **Sidewall** ~~means that portion of a tire between the tread and the bead.~~ *(Flanc)*

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

Test rim means, with reference to a tire to be tested, any rim that is listed as appropriate for use with that tire in accordance with section 8 of the MVTSR ~~S4.4.~~ For the purposes of this

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[2] Please see subsection 1(1) of the MVTSR for the applicable definition.

[3] Please see subsection 1(1) of the MVTSR for the applicable definition.

TSD ~~section and section 571.110~~, each rim listing shall include dimensional specifications and a diagram of the rim. *(Jante d'essai)*

[3] **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)*

S4. Requirements

S4.1 Size and construction

Each tire shall be designed to fit each rim specified for its size designation in each reference cited in the definition of *test rim* in S3.

S4.2 Performance requirements

S4.2.1 General

Each tire shall conform to each of the following:

(a) It shall meet the requirements specified in S4.2.2 for its tire size designation, type, and maximum permissible inflation pressure.

(b) Its maximum permissible inflation pressure shall be either 32, 36, 40, or 60 psi, or 240, 280, 300, 340, or 350 kPa. ~~For a CT tire, the maximum permissible inflation pressure shall be either 290, 330, 350, or 390 kPa.~~

(c) Its load rating shall be that specified in a submission made by an individual manufacturer, pursuant to subsection 8(1) of the MVTSR ~~S4.4.1(a)~~, or in one of the publications described in subsection 8(2) of the MVTSR ~~S4.4.1(b)~~ 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 ~~S4.4.1(b)~~, 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.

(d) It shall incorporate a treadwear indicator that will provide a visual indication that the tire has worn to a tread depth of 1.6 mm (1/16 inch).

[3] Please see subsection 1(1) of the MVTSR for the applicable definition.

(e) It shall, before being subjected to either the endurance test procedure specified in S5.4 or the high speed performance procedure specified in S5.5, exhibit no visual evidence of tread, sidewall, ply, cord, innerliner, or bead separation, chunking, broken cords, cracking, or open splices.

(f) It shall meet the requirements of S4.2.2.5 and S4.2.2.6 when tested on a test wheel described in S5.4.2.1 either alone or simultaneously with up to 5 other tires.

S4.2.2 Test requirements

S4.2.2.1 Test sample

For each test sample use:

(a) One tire for physical dimensions, resistance to bead unseating, and strength, in sequence;

(b) Another tire for tire endurance; and

(c) A third tire for high speed performance.

S4.2.2.2 Physical dimensions. The actual section width and overall width for each tire, measured in accordance with S5.1, 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 ~~S4.4.1(a)~~ or in one of the publications described in subsection 8(2) of the MVTSR ~~S4.4.1(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, or 60 psi) 7 percent or 10 mm (0.4 inches), whichever is larger.

S4.2.2.3 Tubeless tire resistance to bead unseating

S4.2.2.3.1 When a tubeless tire that has a maximum inflation pressure other than 420 kPa (60 psi) is tested in accordance with S5.2, the applied force required to unseat the tire bead at the point of contact shall be not less than:

(a) 6 670 N (1 500 pounds) for tires with a designated section width of less than 160 mm (6 inches);

(b) 8 890 N (2 000 pounds) for tires with a designated section width of 160 mm (6 inches) or more but less than 205 mm (8 inches);

(c) 11 120 N (2 500 pounds) for tires with a designated section width of 205 mm (8 inches) or more, using the section width specified in a submission made by an individual manufacturer, pursuant to subsection 8(1) of the MVTSR ~~S4.4.1(a)~~, or in one of the publications described in subsection 8(2) of the MVTSR ~~S4.4.1(b)~~ for the applicable tire size designation and type.

S4.2.2.3.2 When a tire that has a maximum inflation pressure of 420 kPa (60 psi) is tested in accordance with S5.2, the applied force required to unseat the bead at the point of contact shall be not less than:

(a) 6 670 N (1 500 pounds) for tires with a maximum load rating of less than 399 kg (880 pounds);

(b) 8 890 N (2 000 pounds) for tires with a maximum load rating of 399 kg (880 pounds) or more but less than 635 kg (1 400 pounds);

(c) 11 120 N (2 500 pounds) for tires with a maximum load rating of 635 kg (1 400 pounds) or more, using the maximum load rating marked on the sidewall of the tire.

S4.2.2.4 Tire strength. Each tire shall meet the requirements for minimum breaking energy specified in Table I when tested in accordance with S5.3.

S4.2.2.5 Tire endurance. When the tire has been subjected to the laboratory endurance test specified in S5.4, using a test rim that undergoes no permanent deformation and allows no loss of air through the portion that it comprises of the tire-rim pressure chamber:

(a) There shall be no visual evidence of tread, sidewall, ply, cord, innerliner, or bead separation, chunking, broken cords, cracking, or open splices.

(b) The tire pressure at the end of the test shall be not less than the initial pressure specified in S5.4.1.1.

S4.2.2.6 High speed performance. When the tire has been subjected to the laboratory high speed performance test specified in S5.5, using a test rim that undergoes no permanent deformation and allows no loss of air through the portion that it comprises of the tire-rim pressure chamber, the tire shall meet the requirements set forth in S4.2.2.5 (a) and (b).

S4.3 Labeling requirements

Except as provided in S4.3.1 and S4.3.2 of this TSD ~~standard~~, each tire, except for those certified to comply with S5.5 of TSD 139 ~~section 571.139~~, shall have permanently molded into or onto both sidewalls, in letters and numerals not less than 2 mm (0.078 inches) high, the information shown in paragraphs S4.3(a) through (g) of this TSD ~~standard~~. On at least one sidewall, the information shall be positioned in an area between the maximum section width and bead of the tire, unless the maximum section width of the tire falls between the bead and one-fourth of the distance from the bead to the shoulder of the tire. For tires where the maximum section width falls in that area, locate all required labeling between the bead and a point one-half the distance from the bead to the shoulder of the tire. However, in no case shall the information be positioned on the tire so that it is obstructed by the flange of any rim designated for use with that tire in TSD 109 and TSD 110 ~~Standards Nos. 109 and 110 (section 571.109 and section 571.110 of this part)~~.

(a) One size designation, except that equivalent inch and metric size designations may be used;

(b) Maximum permissible inflation pressure;[4]

(c) Maximum load rating;[5]

(d) The generic name of each cord material used in the plies (both sidewall and tread area) of the tire;

(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; and

(g) The word “radial” if the tire is a radial ply tire.

S4.3.1 Each tire shall be labeled in accordance with the requirements of sections 6 and 7 of the *Motor Vehicle Tire Safety Regulations* (MVTSR) ~~with the symbol DOT in the manner specified in part 574 of this chapter, which shall constitute a certification that the tire conforms to applicable Federal motor vehicle safety standards~~.

S4.3.2 Each tire shall be labeled with the name of the manufacturer, or brand name and number assigned to the manufacturer in the manner specified in section 6 to the MVTSR ~~part 574~~.

S4.3.3 [Reserved]

[4] Please see subsection 3(2) of the MVTSR for additional requirements.

[5] Please see subsection 3(3) of the MVTSR for additional requirements.

S4.3.4 ~~If the maximum inflation pressure of a tire is 240, 280, 290, 300, 330, 340, 350, or 390 kPa, then:~~

~~(a) Each marking of that inflation pressure pursuant to S4.3(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 tire's maximum load rating pursuant to S4.3(c) in kilograms shall be followed in parenthesis by the equivalent load rating in pounds, rounded to the nearest whole number.~~

S4.3.5 If the maximum inflation pressure of a tire is 420 kPa (60 psi), the tire shall have permanently molded into or onto both sidewalls, in letters and numerals not less than 12.7 mm (½ inch) high, the words "Inflate to 420 kPa (60 psi)". On both sidewalls, the words shall be positioned in an area between the tire shoulder and the bead of the tire. However, in no case shall the words be positioned on the tire so that they are 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)~~.

S4.4 Tire and rim matching information

[CONTENT DELETED] Please see section 8 of the MVTSR for the applicable requirements.

S5. Test procedures

S5.1 Physical dimensions

Determine tire physical dimensions under uniform ambient conditions as follows:

(a) Mount the tire on a test rim having the test rim width specified in a submission made by an individual manufacturer, pursuant to subsection 8(1) of the MVTSR ~~S4.4.1(a)~~, or in one of the publications described in subsection 8(2) of the MVTSR ~~S4.4.1(b)~~ for that tire size designation and inflate it to the applicable pressure specified in Table II.

(b) Condition it at ambient room temperature for at least 24 hours.

(c) Readjust pressure to that specified in (a).

(d) Caliper the section width and overall width at six points approximately equally spaced around the tire circumference.

(e) Record the average of these measurements as the section width and overall width, respectively.

(f) Determine tire outer diameter by measuring the maximum circumference of the tire and dividing this dimension by pi (3.14).

S5.2 Tubeless tire bead unseating resistance

S5.2.1 Preparation of tire-wheel assembly

S5.2.1.1 Wash the tire, dry it at the beads, and mount it without lubrication or adhesives on a clean, painted test rim.

S5.2.1.2 Inflate it to the applicable pressure specified in Table II at ambient room temperature.

S5.2.1.3 Mount the wheel and tire in a fixture shown in Figure 1, and force the bead unseating block shown in Figure 2 or Figure 2A against the tire sidewall as required by the geometry of the fixture. However, in testing a tire that has an inflation pressure of 420 kPa (60 psi), only use the bead unseating block described in Figure 2A.

S5.2.2 Test procedure

S5.2.2.1 Apply a load through the block to the tire's outer sidewall at the distance specified in Figure 1 for the applicable wheel size at a rate of 50 mm (2 inches) per minute, with the load arm substantially parallel to the tire and rim assembly at the time of engagement.

S5.2.2.2 Increase the load until the bead unseats or the applicable value specified in S4.2.2.3 is reached.

S5.2.2.3 Repeat the test at least four places equally spaced around the tire circumference.

S5.3 Tire strength

S5.3.1 Preparation of tire

S5.3.1.1 Mount the tire on a test rim and inflate it to the applicable pressure specified in Table II.

S5.3.1.2 Condition it at room temperature for at least 3 hours; and

S5.3.1.3 Readjust its pressure to that specified in S5.3.1.1.

S5.3.2 Test procedure

S5.3.2.1 Force a 19 mm (¾ inch) diameter cylindrical steel plunger with a hemispherical end perpendicularly into the tread rib as near to the centerline as possible, avoiding penetration into the tread groove, at the rate of 50 mm (2 inches) per minute.

S5.3.2.2 Record the force and penetration at five test points equally spaced around the circumference of the tire. If the tire fails to break before the plunger is stopped by reaching the rim, record the force and penetration as the rim is reached and use these values in S5.3.2.3.

S5.3.2.3 Compute the breaking energy for each test point by means of one of the two following formulas:

$$W = \frac{F \times P}{2} \times 10^{-3}$$

Where:
W = Energy, joules;
F = Force, newtons; and
P = Penetration, mm; or

$$W = \frac{F \times P}{2}$$

Where:
W = Energy, inch-pounds;
F = Force, pounds; and
P = Penetration, inches.

S5.3.2.4 Determine the breaking energy value for the tire by computing the average of the five values obtained in accordance with S5.3.2.3.

S5.4 Tire endurance

S5.4.1 Preparation of tire

S5.4.1.1 Mount a new tire on a test rim and inflate it to the applicable pressure specified in Table II.

S5.4.1.2 Condition the tire assembly to 38°C ± 3°C (100°F ± 5°F) for at least three hours.

S5.4.1.3 Readjust tire pressure to that specified in S5.4.1.1 immediately before testing.

S5.4.2 Test procedure

S5.4.2.1 Mount the tire and wheel assembly on a test axle and press it against a flat-faced steel test wheel 1 708 mm (67.23 inches) in diameter and at least as wide as the section width of the tire to be tested or an approved equivalent test wheel, with the applicable test load specified in the table in S5.4.2.3 for the tire's size designation, type, and maximum permissible inflation pressure.

S5.4.2.2 During the test, the air surrounding the test area shall be 38°C ± 3°C (100°F ± 5°F).

S5.4.2.3 Conduct the test at 80 km/h (50 mph) in accordance with the following schedule without pressure adjustment or other interruptions:

The loads for the following periods are the specified percentage of the maximum load rating marked on the tire sidewall:

	Percent
4 hours	85
6 hours	90
24 hours	100

S5.4.2.4 Immediately after running the tire the required time, measure its inflation pressure. Allow the tire to cool for one hour. Then deflate the tire, remove it from the test rim, and inspect it for the conditions specified in S4.2.2.5 (a).

S5.5 High speed performance

S5.5.1 After preparing the tire in accordance with S5.4.1, mount the tire and wheel assembly in accordance with S5.4.2.1, and press it against the test wheel with a load of 88 percent of the tire's maximum load rating as marked on the tire sidewall.

S5.5.2 Break in the tire by running it for 2 hours at 80 km/h (50 mph).

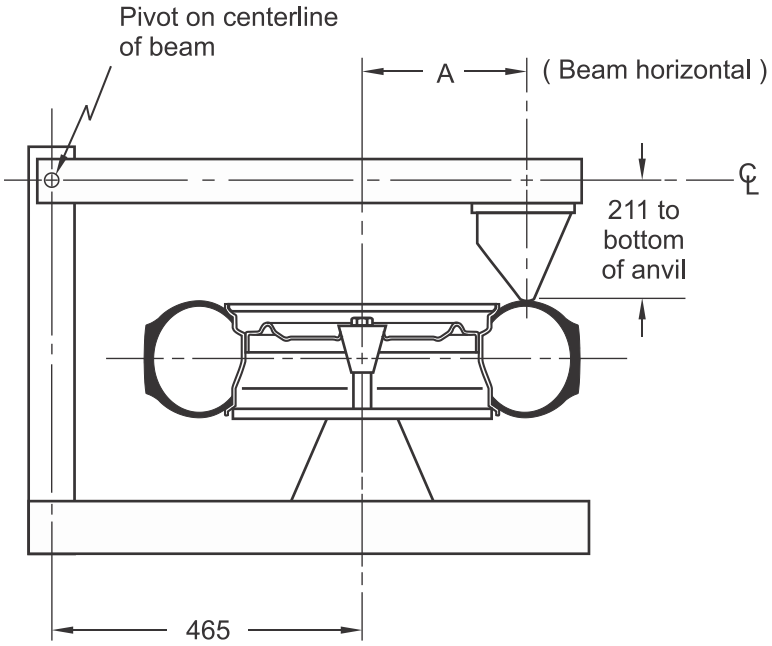
S5.5.3 Allow to cool to 38°C ± 3°C (100°F ± 5°F) and readjust the inflation pressure to the applicable pressure specified in Table II.

S5.5.4 Without readjusting inflation pressure, test at 121 km/h (75 mph) for 30 minutes, 129 km/h (80 mph) for 30 minutes, and 137 km/h (85 mph) for 30 minutes.

S5.5.5 Immediately after running the tire the required time, measure its inflation pressure. Allow the tire to cool for one hour. Then deflate the tire, remove it from the test rim, and inspect it for the conditions specified in S4.2.2.5 (a).

S6. Nonconforming tires

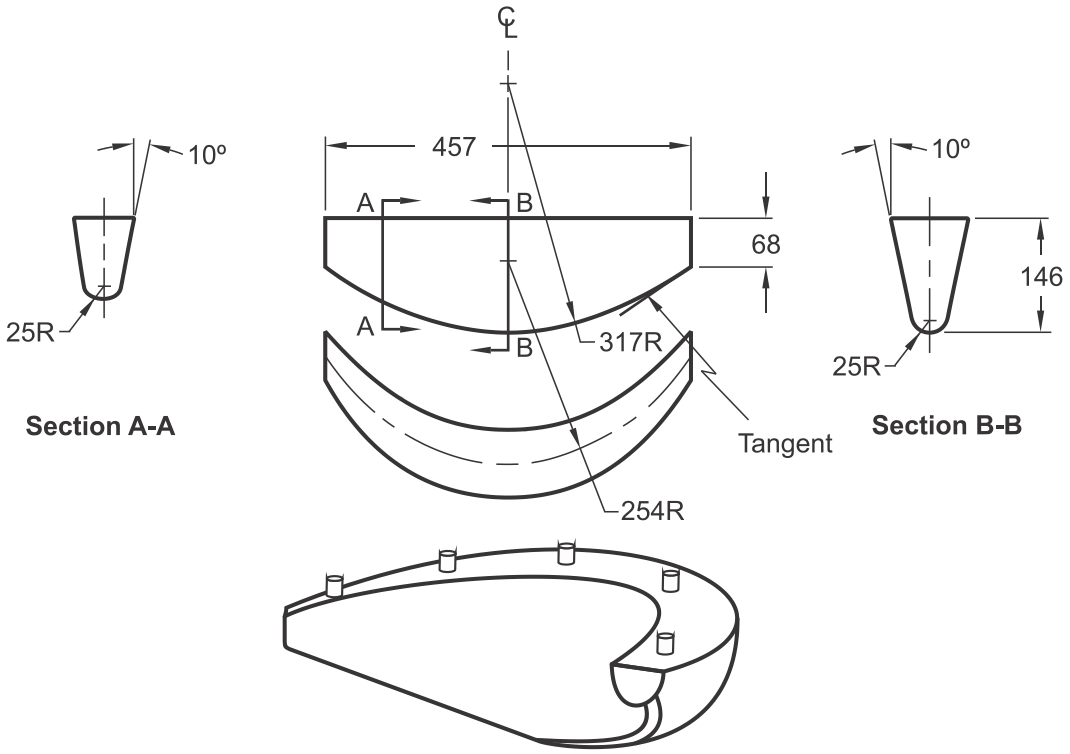
~~No tire that is designed for use on passenger cars and manufactured on or after October 1, 1972, but does not conform to all the requirements of this standard, shall be sold, offered for sale, introduced or delivered for introduction into interstate commerce, or imported into the United States, for any purpose.~~



Notes:
1. Dimensions in mm
2. Not to scale

Figure 1 — Bead Unseating Fixture

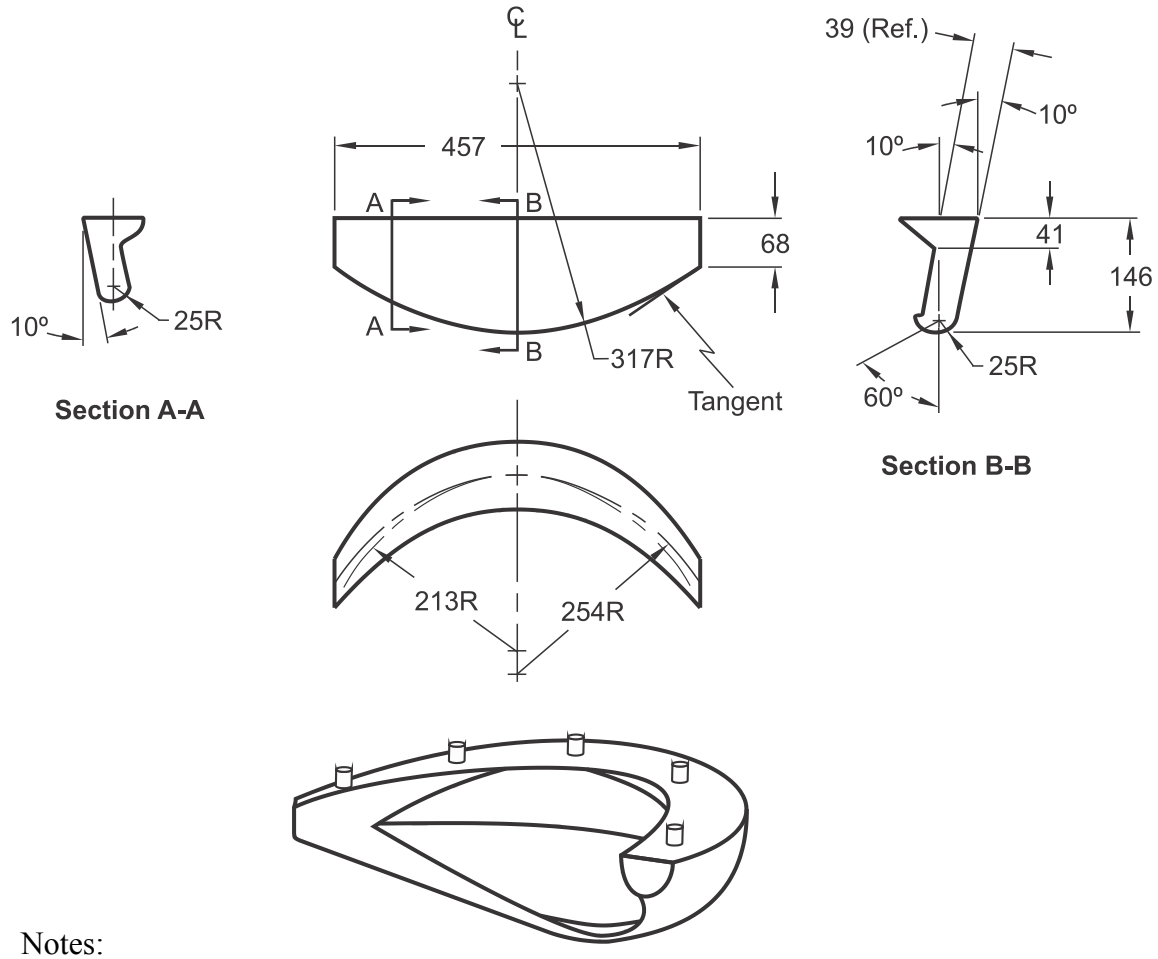
Wheel size	Dimension "A" for tires with maximum inflation pressure			
	Other than 60 psi (in)	Other than 420 kPa (mm)	60 psi (in)	420 kPa (mm)
20 in	13.50	345	--	--
19 in	13.00	330	12.00	305
18 in	12.50	318	11.40	290
17 in	12.00	305	10.60	269
16 in	11.50	292	9.90	251
15 in	11.00	279	9.40	239
14 in	10.50	267	8.90	226
13 in	10.00	254	8.40	213
12 in	9.50	241		
11 in	9.00	229		
10 in	8.50	216		
320 mm	8.50	216		
340 mm	9.00	229		
345 mm	9.25	235		
365 mm	9.75	248		
370 mm	10.00	254		
390 mm	11.00	279		
415 mm	11.50	292		



Notes:
1. Dimensions in mm
2. Not to scale
3. Material:
Cast aluminum no. 355
T-6 condition
Finish 1.3 micrometers (μm)

Figure 2 — Diagram of Bead Unseating Block

For tires with a maximum permissible inflation pressure other than 420 kPa (60 psi)



Notes:

1. Dimensions in mm
2. Not to scale
3. Material:
Cast aluminum no. 355
T-6 condition
Finish 1.3 micrometers (µm)

Figure 2A — Diagram of Bead Unseating Block

For tires with a maximum permissible inflation pressure of 420 kPa (60 psi)

Appendix A — Technical Standards Document No. 109

~~Federal Motor Vehicle Safety Standard No. 109~~

The following tables list tire sizes and tire constructions with proper load and inflation values. The tables group tires of related constructions and load/inflation values. [SEVEN SENTENCES DELETED]

Table I-A — For Bias Ply Tires with Designated Section Width of 152 mm (6 inches) and Above

Cord material	32 psi	36 psi	40 psi	240 kPa	280 kPa	300 kPa	340 kPa
Rayon:							
(in-lb)	1 650	2 574	3 300	1 650	3 300	1 650	3 300
(joules)	186	291	373	186	373	186	373
Nylon or polyester:							
(in-lb)	2 600	3 900	5 200	2 600	5 200	2 600	5 200
(joules)	294	441	588	294	588	294	588

Table I-B — For Bias Ply Tires with Designated Section Width Below 152 mm (6 inches)

Cord material	32 psi	36 psi	40 psi	240 kPa	280 kPa	300 kPa	340 kPa
Rayon:							
(in-lb)	1 000	1 875	2 500	1 000	2 500	1 000	2 500
(joules)	113	212	282	113	282	113	282
Nylon or polyester:							
(in-lb)	1 950	2 925	3 900	1 950	3 900	1 950	3 900
(joules)	220	330	441	220	441	220	441

Table I-C — For Radial Ply Tires ~~Other Than CT Tires~~

Size designation	Maximum permissible inflation							
	32 psi	**36 psi**	**40 psi**	**240 kPa**	**280 kPa**	**300 kPa**	**340 kPa**	**350 kPa**
Below 160 mm:								
(in-lb)	1 950	2 925	3 900	1 950	3 900	1 950	3 900	1 950
(joules)	220	330	441	220	441	220	441	220
160 mm or above:								
(in-lb)	2 600	3 900	5 200	2 600	5 200	2 600	5 200	2 600
(joules)	294	441	588	294	588	294	588	294

~~**Table I-C (Continued) — For Radial Ply CT Tires**~~

~~**Size designation**~~	~~**Maximum permissible inflation**~~			
	~~**290 kPa**~~	~~**330 kPa**~~	~~**350 kPa**~~	~~**390 kPa**~~
~~**Below 160 mm:**~~				
~~(in-lb)~~	~~1 950~~	~~3 900~~	~~1 950~~	~~3 900~~
~~(joules)~~	~~220~~	~~441~~	~~220~~	~~441~~
~~**160 mm or above:**~~				
(in-lb)	~~2 600~~	~~5 200~~	~~2 600~~	~~5 200~~
(joules)	~~294~~	~~588~~	~~294~~	~~588~~

Table I-D — For Tires with 420 kPa (60 psi) Maximum Permissible Inflation Pressure and Maximum Load Rating of 399 kg (880 lb) and Above

Cord material	Inch-pounds	Joules
Rayon	1 650	186
Nylon or polyester	2 600	294

Table I-E — For Tires with 420 kPa (60 psi) Maximum Permissible Inflation Pressure and Maximum Load Rating Below 399 kg (880 lb)

Cord material	Inch-pounds	Joules
Rayon	1 000	113
Nylon or polyester	1 950	220

Table II — Test Inflation Pressures

(Maximum permissible inflation pressure to be used for the following tests)

Test type	~~Tires other than CT tires (psi)~~			
	32	**36**	**40**	**60**
Physical dimensions	24	28	32	60
Bead unseating, tire strength, and tire endurance	24	28	32	52
High speed performance	30	34	38	58

Test type	~~Tires other than CT tires (kPa)~~				
	240	**280**	**300**	**340**	**350**
Physical dimensions, bead unseating, tire strength, and tire endurance	180	220	180	220	180
High speed performance	220	260	220	260	220

Test type	**CT tires (kPa)**			
	290	**300**	**350**	**390**
Physical dimensions, bead unseating, tire strength, and tire endurance	230	270	230	270
High speed performance	270	310	270	310