

§ 571.110

49 CFR Ch. V (10–1–02 Edition)

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-lbs) .....	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-lbs) .....	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-lbs) .....	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-lbs) .....	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

Size designation	Maximum permissible inflation											
	Tires other than CT tires									CT tires		
	psi			kPa						kPa		
	32	36	40	240	280	300	340	350	290	330	350	390
Below 160 mm:												
(in-lbs) .....	1,950	2,925	3,900	1,950	3,900	1,950	3,900	1,950	1,950	3,900	1,950	3,900
(joules) .....	220	330	441	220	441	220	441	220	220	441	220	441
160 mm or above:												
(in-lbs) .....	2,600	3,900	5,200	2,600	5,200	2,600	5,200	2,600	2,600	5,200	2,600	5,200
(joules) .....	294	441	588	294	588	294	588	294	294	588	294	588

TABLE I–D.—FOR TIRES WITH 420 kPa (60 PSI) MAXIMUM PERMISSIBLE INFLATION PRESSURE AND MAXIMUM LOAD RATING 399 KG (880 LB) AND ABOVE

Cord material	Inch-pounds joules (J)
Rayon .....	1,650 inch pounds 186 joules (J).
Nylon or Polyester .....	2,600 inch pounds 294 joules (J).

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 (J)
Rayon .....	1,000 inch pounds 113 joules (J).
Nylon or Polyester .....	1,950 inch pounds 220 joules (J).

§ 571.110 Standard No. 110; Tire selection and rims.

S1. *Purpose and scope.* This standard specifies requirements for tire selection to prevent tire overloading.

S2. *Application.* This standard applies to passenger cars and to non-pneumatic spare tire assemblies for use on passenger cars.

S3. *Definitions.*

*Accessory weight* means the combined weight (in excess of those standard items which may be replaced) of automatic transmission, power steering, power brakes, power windows, power seats, radio, and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

*Curb weight* means the weight of a motor vehicle with standard equipment

including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

*Maximum loaded vehicle weight* means the sum of—

- (a) Curb weight;
- (b) Accessory weight;
- (c) Vehicle capacity weight; and
- (d) Production options weight.

*Non-pneumatic rim* is used as defined in §571.129.

*Non-pneumatic spare tire assembly* means a non-pneumatic tire assembly intended for temporary use in place of one of the pneumatic tires and rims that are fitted to a passenger car in compliance with the requirements of this standard.

*Non-pneumatic tire* and *non-pneumatic tire assembly* are used as defined in §571.129.

*Normal occupant weight* means 68 kilograms times the number of occupants specified in the second column of Table I.

*Occupant distribution* means distribution of occupants in a vehicle as specified in the third column of Table I.

*Production options weight* means the combined weight of those installed regular production options weighing over 2.3 kilograms in excess of those standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

*Rim* is used as defined in §571.109.

*Vehicle capacity weight* means the rated cargo and luggage load plus 68 kilograms times the vehicle's designated seating capacity.

*Vehicle maximum load on the tire* means that load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

*Vehicle normal load on the tire* means that load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight (distributed in accordance with Table I) and dividing by 2.

*Wheel center member* is used as defined in §571.129.

#### S4. Requirements.

S4.1 *General*. Passenger cars shall be equipped with tires that meet the requirements of §571.109, *New Pneumatic Tires—Passenger Cars*, except that passenger cars may be equipped with a non-pneumatic spare tire assembly that meets the requirements of §571.129, *New Non-Pneumatic Tires for Passenger Cars* and S6 and S8 of this standard. Passenger cars equipped with such an assembly shall meet the requirements of S4.3(e), S5, and S7 of this standard.

#### S4.2 Tire load limits.

S4.2.1 The vehicle maximum load on the tire shall not be greater than the applicable maximum load rating as marked on the sidewall of the tire.

S4.2.2 The vehicle normal load on the tire shall not be greater than the test load used in the high speed performance test specified in S5.5 of §571.109 for that tire.

S4.3 *Placard*. A placard, permanently affixed to the glove compartment door or an equally accessible location, shall display the—

- (a) Vehicle capacity weight;
- (b) Designated seating capacity (expressed in terms of total number of occupants and in terms of occupants for each seat location);
- (c) Vehicle manufacturer's recommended cold tire inflation pressure for maximum loaded vehicle weight and, subject to the limitations of S4.3.1, for any other manufacturer-specified vehicle loading condition;
- (d) Vehicle manufacturer's recommended tire size designation; and
- (e) For a vehicle equipped with a non-pneumatic spare tire assembly, the non-pneumatic tire identification code with which that assembly is labeled pursuant to the requirements of S4.3(a) of §571.129, *New Non-Pneumatic Tires for Passenger Cars*.

S4.3.1 No inflation pressure other than the maximum permissible inflation pressure may be specified unless—

- (a) It is less than the maximum permissible inflation pressure;
- (b) The vehicle loading condition for that pressure is specified; and
- (c) The tire load rating specified in a submission by an individual manufacturer, pursuant to S4.4.1(a) of Motor Vehicle Safety Standard No. 109, or contained in one of the publications

described in S4.4.1(b) of Motor Vehicle Safety Standard No. 109 for the tire size at that inflation pressure is not less than the vehicle load on the tire for that vehicle loading condition.

S4.4 *Rims.*

S4.4.1 *Requirements.* Each rim shall:

(a) Be constructed to the dimensions of a rim that is listed pursuant to the definition of *test rim* in paragraph S3. of §571.109 (Standard No. 109) for use with the tire size designation with which the vehicle is equipped.

(b) In the event of rapid loss of inflation pressure with the vehicle traveling in a straight line at a speed of 97 kilometers per hour, retain the deflated tire until the vehicle can be stopped with a controlled braking application.

TABLE I—OCCUPANT LOADING AND DISTRIBUTION FOR VEHICLE NORMAL LOAD FOR VARIOUS DESIGNATED SEATING CAPACITIES

Designated seating capacity, number of occupants	Vehicle normal load, number of occupants	Occupant distribution in a normally loaded vehicle
2 through 4	2	2 in front.
5 through 10	3	2 in front, 1 in second seat.

S5. *Load Limits for Non-Pneumatic Spare Tires.* The highest vehicle maximum load on the tire for the vehicle shall not be greater than the load rating for the non-pneumatic spare tire.

S6 *Labeling Requirements for Non-Pneumatic Spare Tires or Tire Assemblies.* Each non-pneumatic tire or, in the case of a non-pneumatic tire assembly in which the non-pneumatic tire is an integral part of the assembly, each non-pneumatic tire assembly shall include, in letters or numerals not less than 4 millimeters high, the information specified in paragraphs S6 (a) and (b). The information shall be permanently molded, stamped, or otherwise permanently marked into or onto the non-pneumatic tire or non-pneumatic tire assembly, or shall appear on a label that is permanently attached to the tire or tire assembly. If a label is used, it shall be subsurface printed, made of material that is resistant to fade, heat, moisture and abrasion, and attached in such a manner that it cannot be removed without destroying or defacing the label on the non-pneumatic tire or

tire assembly. The information specified in paragraphs S6 (a) and (b) shall appear on both sides of the non-pneumatic tire or tire assembly, except, in the case of a non-pneumatic tire assembly which has a particular side that must always face outward when mounted on a vehicle, in which case the information specified in paragraphs S6 (a) and (b) shall only be required on the outward facing side. The information shall be positioned on the tire or tire assembly such that it is not placed on the tread or the outermost edge of the tire and is not obstructed by any portion of any non-pneumatic rim or wheel center member designated for use with that tire in this standard or in Standard No. 129.

(a) FOR TEMPORARY USE ONLY; and

(b) MAXIMUM 80 KM/H (50 M.P.H.).

S7. *Requirements for Passenger Cars Equipped with Non-Pneumatic Spare Tire Assemblies*

S7.1 *Vehicle Placarding Requirements.* A placard, permanently affixed to the inside of the vehicle trunk or an equally accessible location adjacent to the non-pneumatic spare tire assembly, shall display the information set forth in S6 in block capitals and numerals not less than 6 millimeters high preceded by the words “IMPORTANT—USE OF SPARE TIRE” in letters not less than 9 millimeters high.

S7.2 *Supplementary Information.* The owner’s manual of the passenger car shall contain, in writing in the English language and in not less than 10 point type, the following information under the heading “IMPORTANT—USE OF SPARE TIRE”:

(a) A statement indicating the information related to appropriate use for the non-pneumatic spare tire including at a minimum the information set forth in S6 (a) and (b) and either the information set forth in S4.3(e) or a statement that the information set forth in S4.3(e) is located on the vehicle placard and on the non-pneumatic tire;

(b) An instruction to drive carefully when the non-pneumatic spare tire is in use, and to install the proper pneumatic tire and rim at the first reasonable opportunity; and

(c) A statement that operation of the passenger car is not recommended with

more than one non-pneumatic spare tire in use at the same time.

**S8. *Non-Pneumatic Rims and Wheel Center Members***

**S8.1 *Non-Pneumatic Rim Requirements.*** Each non-pneumatic rim that is part of a separable non-pneumatic spare tire assembly shall be constructed to the dimensions of a non-pneumatic rim that is listed pursuant to S4.4 of §571.129 for use with the non-pneumatic tire, designated by its non-pneumatic tire identification code, with which the vehicle is equipped.

**S8.2 *Wheel Center Member Requirements.*** Each wheel center member that is part of a separable non-pneumatic spare tire assembly shall be constructed to the dimensions of a wheel center member that is listed pursuant to S4.4 of §571.129 for use with the non-pneumatic tire, designated by its non-pneumatic tire identification code, with which the vehicle is equipped.

[36 FR 22902, Dec. 2, 1971, as amended at 37 FR 23727, Nov. 8, 1972; 40 FR 5530, Feb. 6, 1975; 47 FR 36183, Aug. 19, 1982; 49 FR 38612, Oct. 1, 1984; 55 FR 29589, July 20, 1990; 56 FR 19311, Apr. 26, 1991; 60 FR 13643, Mar. 14, 1995]

**§571.111 Standard No. 111; Rearview mirrors.**

**S1. *Scope.*** This standard specifies requirements for the performance and location of rearview mirrors.

**S2. *Purpose.*** The purpose of this standard is to reduce the number of deaths and injuries that occur when the driver of a motor vehicle does not have a clear and reasonably unobstructed view to the rear.

**S3. *Application.*** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, buses, schoolbuses and motorcycles.

**S4. *Definitions.***

***Convex mirror*** means a mirror having a curved reflective surface whose shape is the same as that of the exterior surface of a section of a sphere.

***Effective mirror surface*** means the portions of a mirror that reflect images, excluding the mirror rim or mounting brackets.

***Unit magnification mirror*** means a plane or flat mirror with a reflective surface through which the angular height and width of the image of an object is equal to the angular height and

width of the object when viewed directly at the same distance except for flaws that do not exceed normal manufacturing tolerances. For the purposes of this regulation a prismatic day-night adjustment rearview mirror one of whose positions provides unit magnification is considered a unit magnification mirror.

**S5. *Requirements for passenger cars.***

**S5.1 *Inside rearview mirror.*** Each passenger car shall have an inside rearview mirror of unit magnification.

**S5.1.1 *Field of view.*** Except as provided in S5.3, the mirror shall provide a field of view with an included horizontal angle measured from the projected eye point of at least 20 degrees, and a sufficient vertical angle to provide a view of a level road surface extending to the horizon beginning at a point not greater than 61 m to the rear of the vehicle when the vehicle is occupied by the driver and four passengers or the designated occupant capacity, if less, based on an average occupant weight of 68 kg. The line of sight may be partially obscured by seated occupants or by head restraints. The location of the driver's eye reference points shall be those established in Motor Vehicle Safety Standard No. 104 (§571.104) or a nominal location appropriate for any 95th percentile male driver.

**S5.1.2 *Mounting.*** The mirror mounting shall provide a stable support for the mirror, and shall provide for mirror adjustment by tilting in both the horizontal and vertical directions. If the mirror is in the head impact area, the mounting shall deflect, collapse or break away without leaving sharp edges when the reflective surface of the mirror is subjected to a force of 400 N in any forward direction that is not more than 45° from the forward longitudinal direction.

**S5.2 *Outside rearview mirror—driver's side.***

**S5.2.1 *Field of view.*** Each passenger car shall have an outside mirror of unit magnification. The mirror shall provide the driver a view of a level road surface extending to the horizon from a line, perpendicular to a longitudinal plane tangent to the driver's side of the vehicle at the widest point, extending 2.4 m out from the tangent plane 10.7 m behind the driver's eyes, with the seat