

FIGURES FOR FMVSS No. 109—Continued

Wheel size	Dimension "A" for tires with maximum inflation pressure			
	Other than 60 psi (in)	Other than 420 kPa	60 psi (in)	420 kPa
320	8.50	216
340	9.00	229
345	9.25	235
365	9.75	248
370	10.00	254
390	11.00	279
415	11.50	292

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§571.110 Standard No. 110; Tire selection and rims for motor vehicles with a GVWR of 4,536 kilograms (10,000 pounds) or less.

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

S2. *Application.* This standard applies to motor vehicles with a gross vehicle weight rating (GVWR) of 10,000 pounds or less, except for motorcycles, and to non-pneumatic spare tire assemblies for use on those vehicles.

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.* (a) Passenger cars shall be equipped with tires that meet the requirements of §571.109, New Pneumatic Tires, except that passenger cars may be equipped with a non-pneumatic spare tire assembly that complies with

§571.110

49 CFR Ch. V (10-1-06 Edition)

§571.129, New Non-Pneumatic Tires for Passenger Cars and S6 and S8 of this standard.

(b) Passenger cars and non-pneumatic spare tires assemblies for use on passenger cars shall comply with S4 through S8 of this standard.

(c) Motor vehicles with a gross vehicle weight rating (GVWR) or 10,000 pounds or less, except for passenger cars, and the non-pneumatic spare tire assemblies for use on those vehicles shall comply with S4.3, S4.3.1, S4.3.2, S4.3.3, S4.3.4, and S7.2(a) 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.* Each vehicle, except for a trailer or incomplete vehicle, shall show the information specified in S4.3 (a) through (g), and may show, at the manufacturer's option, the information specified in S4.3 (h) and (i), on a placard permanently affixed to the driver's side B-pillar. In each vehicle without a driver's side B-pillar and with two doors on the driver's side of the vehicle opening in opposite directions, the placard shall be affixed on the forward edge of the rear side door. If the above locations do not permit the affixing of a placard that is legible, visible and prominent, the placard shall be permanently affixed to the rear edge of the driver's side door. If this location does not permit the affixing of a placard that is legible, visible and prominent, the placard shall be affixed to the inward facing surface of the vehicle next to the driver's seating position. This information shall be in the English language and conform in color and format, not including the border surrounding the entire placard, as shown in the example set forth in Figure 1 in this standard. At the manufacturer's option, the information specified in S4.3 (c), (d), and, as appropriate, (h) and (i) may be shown, alternatively to being shown on the placard, on a tire inflation pressure

label which must conform in color and format, not including the border surrounding the entire label, as shown in the example set forth in Figure 2 in this standard. The label shall be permanently affixed and proximate to the placard required by this paragraph. The information specified in S4.3 (e) shall be shown on both the vehicle placard and on the tire inflation pressure label (if such a label is affixed to provide the information specified in S4.3 (c), (d), and, as appropriate, (h) and (i)) may be shown in the format and color scheme set forth in Figures 1 and 2.

(a) Vehicle capacity weight expressed as "The combined weight of occupants and cargo should never exceed XXX kilograms or XXX pounds";

(b) Designated seated capacity (expressed in terms of total number of occupants and number of occupants for each front and rear seat location);

(c) Vehicle manufacturer's recommended cold tire inflation pressure for front, rear and spare tires, subject to the limitations of S4.3.4. For full size spare tires, the statement "see above" may, at the manufacturer's option replace manufacturer's recommended cold tire inflation pressure. If no spare tire is provided, the word "none" must replace the manufacturer's recommended cold tire inflation pressure.

(d) Tire size designation, indicated by the headings "size" or "original tire size" or "original size," and "spare tire" or "spare," for the tires installed at the time of the first purchase for purposes other than resale. For full size spare tires, the statement "see above" may, at the manufacturer's option replace the tire size designation. If no spare tire is provided, the word "none" must replace the tire size designation;

(e) On the vehicle placard, "Tire and Loading Information and, on the tire inflation pressure label, "Tire Information";

(f) "See Owner's Manual for Additional Information";

(g) For a vehicle equipped with a non-pneumatic spare tire assembly, the 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;

(h) At the manufacturer's option, identifying information provided in any alphanumeric and or barcode form, located vertically, along the right edge or the left edge of the placard or the label, or horizontally, along the bottom edge of the placard or the label; and

(i) At the manufacturer's option, the load range identification symbol, load index, and speed rating, located immediately to the right of the tire size designation listed in accordance with S4.3(d) above.

S4.3.1 *Requirements for vehicles manufactured in two or more stages.* A placard or placard and label shall be affixed to the completed vehicle by the final-stage manufacturer in accordance with S4.3 and with the vehicle capacity weight and seating designations as finally manufactured.

S4.3.2 *Requirements for altered vehicles.* A new placard or placard and label shall be affixed, so as to obscure the original placard, to an altered vehicle that has previously been certified in accordance with §567.4 or §567.5, other than by the addition, substitution, or removal of readily attachable components such as mirrors or tire and rim assemblies, or minor finishing operations such as painting, or who alters the vehicle in such a manner that its stated weight ratings are not longer valid, before the first purchase of the vehicle in good faith for purposes other than resale, containing accurate information for the altered vehicle, in accordance with S4.3.

S4.3.3 *Additional labeling information for vehicles other than passenger cars.* Each vehicle shall show the size designation and, if applicable, the type designation of rims (not necessarily those on the vehicle) appropriate for the tire appropriate for use on that vehicle, including the tire installed as original equipment on the vehicle by the vehicle manufacturer, after each GAWR listed on the certification label required by §567.4 or §567.5 of this chapter. This information shall be in the English language, lettered in block capitals and numerals not less than 2.4 millimeters high and in the following format:

Truck Example—Suitable Tire-Rim Choice

GVWR: 2,441 kilograms (5381 pounds).

GAWR: Front—1,299 kilograms (2,864 pounds) with P265/70R16 tires, 16 × 8.0 rims at 248 kPa (36 psi) cold single.

GAWR: Rear—1,299 kilograms (2,864 pounds) with P265/70R16 tires, 16 × 8.0 rims, at 248 kPa (36 psi) cold single.

S4.3.4 No inflation pressure other than the maximum permissible inflation pressure may be shown on the placard and, if any, tire inflation pressure label unless—

(a) It is less than the maximum permissible inflation pressure;

(b) It is appropriate for the load limits as calculated in accordance with S4.2; and

(c) The tire load rating specified in a submission by an individual manufacturer, pursuant to S4.1.1(a) of §571.139 or contained in one of the publications described in S4.1.1(b) of §571.139, for the tire size at that inflation pressure is not less than the vehicle maximum load and the vehicle normal load on the tire for those vehicle loading conditions.

S4.3.5 *Requirements for trailers.* Each trailer, except for an incomplete vehicle, must show the information specified in S4.3 (c) through (g), and may show the information specified in S4.3 (h) and (i), on a placard permanently affixed proximate to the certification label specified in 49 CFR part 567. Additionally, each trailer must on its placard contain a cargo capacity statement expressed as “The weight of cargo should never exceed XXX kilograms or XXX pounds” in the same location on the placard specified for the “vehicle capacity weight” statement required by this standard. At the manufacturer's option, the information specified in S4.3 (c), (d), (h) and (i) may be shown, alternatively, on a tire inflation pressure label, and conform in color and format, not including the border surrounding the entire label, as specified in the example set forth in Figure 2 in this standard. The label shall be permanently affixed and proximate to the placard required by this paragraph. The information specified in S4.3 (e) shall be shown on both the

vehicle placard and on the tire inflation pressure label (if such a label is affixed to provide the information specified in S4.3 (c), (d), (h) and (i)) in the format and color scheme set forth in Figures 1 and 2.

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(g) or a statement that the information set forth in S4.3(g) 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.

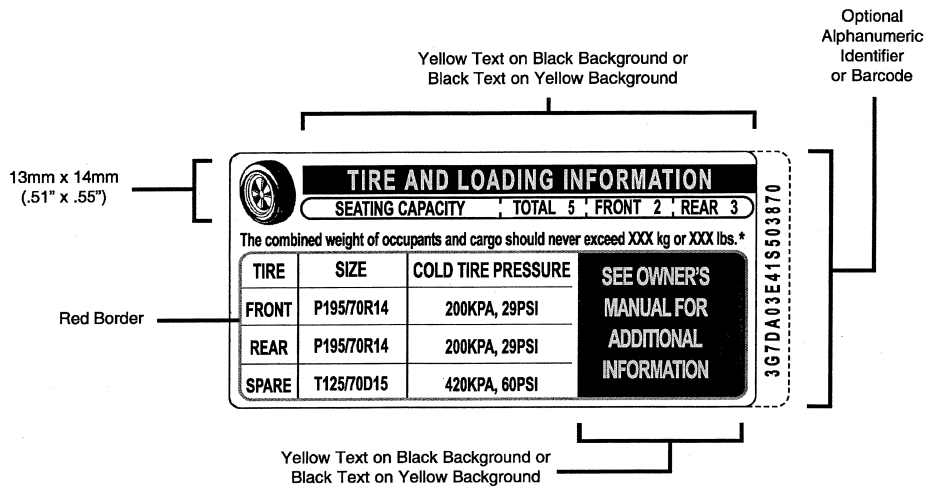
S8. *Non-Pneumatic Rims and Wheel Center Members*

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.

Vehicle Placard



* For trailers, this statement should read:
The weight of cargo should not exceed XXX kg or XXX lbs.

Figure 1

Tire Inflation Pressure Label

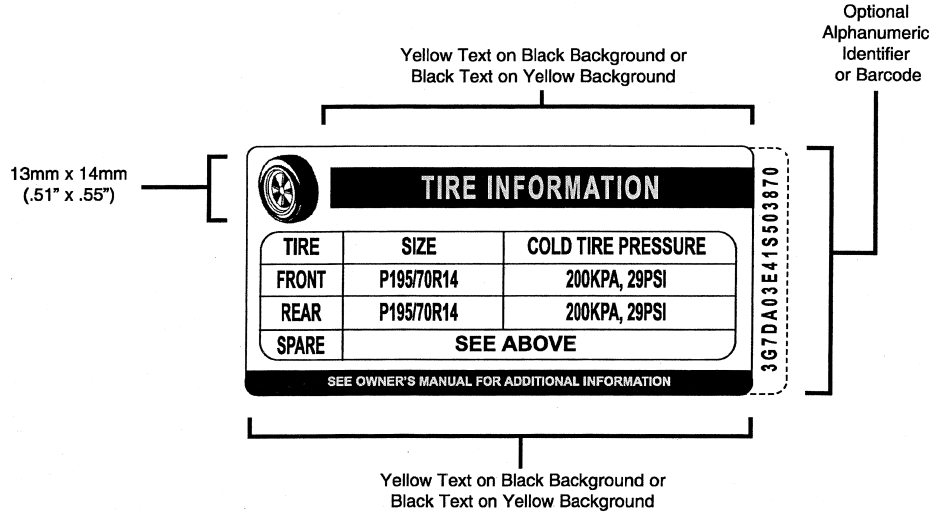


Figure 2

[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; 67 FR 69623, Nov. 18, 2002; 68 FR 37982, June 26, 2003; 69 FR 31317, June 3, 2004; 70 FR 14424, Mar. 22, 2005]

EFFECTIVE DATE NOTES: 1. At 68 FR 38147, June 26, 2003, § 571.110 was amended by revising S2, S4.1, S4.2.1, S4.2.2, S4.4.1(a), and table 1 following S4.4.1(b), by adding S4.2.1.1, S4.2.1.2, S4.2.2.1, S4.2.2.2, S4.2.2.3, and S4.4.2 and by adding to S3 in alphabetical order, definitions for “Rim diameter,” “Rim size designation,” “Rim type designation,” “Rim width,” and “Weather side,” effective June 1, 2007. At 71 FR 877, Jan. 6, 2006, the effective date was delayed until Sept. 1, 2007. For the convenience of the user, the revised and added text is set forth as follows:

§ 571.110 Standard No. 110; Tire selection and rims for motor vehicles with a GVWR of 4,536 kilograms (10,000 pounds) or less.

* * * * *

S2. Application. This standard applies to motor vehicles with a gross vehicle weight

rating (GVWR or 4,536 kilograms (10,000 pounds) or less, except for motorcycles, and to non-pneumatic spare tire assemblies for those vehicles.

S3. Definitions

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Rim diameter means nominal diameter of the bead seat.

Rim size designation means rim diameter and width.

Rim type designation means the industry of manufacturer’s designation for a rim by style or code.

Rim width means nominal distance between rim flanges.

* * * * *

Weather side means the surface area of the rim not covered by the inflated tire.

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S4.1. General. Vehicles shall be equipped with tires that meet the requirements of § 571.139, New pneumatic tires for light vehicles, 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), and S5, and S7 of this standard.

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S4.2.1 Tire load limits for passenger cars.

S4.2.1.1 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.

S4.2.1.2 The vehicle normal load on the tire shall not be greater than 94 percent of the load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire.

S4.2.2 Tire load limits for multipurpose passenger vehicles, trucks, buses, and trailers.

S4.2.2.1 Except as provided in S4.2.2.2, the sum of the maximum load ratings of the tires fitted to an axle shall not be less than the GAWR of the axle system as specified on the vehicle's certification label required by 49 CFR part 567. If the certification label shows more than one GAWR for the axle sys-

tem, the sum shall be not less than the GAWR corresponding to the size designation of the tires fitted to the axle.

S4.2.2.2 When passenger car (P-metric) tires are installed on an MPV, truck, bus, or trailer, each tire's load rating is reduced by dividing it by 1.10 before determining, under S4.2.2.1, the sum of the maximum load ratings of the tires fitted to an axle.

S4.2.2.3 (a) For vehicles equipped with P-metric tires, the vehicle normal load on the tire shall be no greater than the value of 94 percent of the derated load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire.

(b) For vehicles equipped with LT tires, the vehicle normal load on the tire shall be no greater than 94 percent of the load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire.

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*S4.4.1 * * **

(a) Be constructed to the dimensions of a rim that is listed by the manufacturer of the tires as suitable for use with those tires, in accordance with S4 of § 571.139.

(b) * * *

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.
11 through 15	5	2 in front, 1 in second seat, 1 in third seat, 1 in fourth seat.
16 through 22	7	2 in front, 2 in second seat, 2 in third seat, 1 in fourth seat.

S4.4.2. Rim markings for vehicles other than passenger cars. Each rim or, at the option of the manufacturer in the case of a single-piece wheel, each wheel disc shall be marked with the information listed in paragraphs (a) through (e) of this S4.4.2, in lettering not less than 3 millimeters in height, impressed to a depth or, at the option of the manufacturer, embossed to a height of not less than 0.125 millimeters. The information listed in paragraphs (a) through (c) of this S4.2.2 shall appear on the outward side. In the case of rims of multi piece construction, the information listed in paragraphs (a) through (e) of this S4.2.2 shall appear on the rim base and the information listed in paragraphs (b) and (d) of this S4.2.2 shall also appear on each other part of the rim.

(a) A designation that indicates the source of the rim's published nominal dimensions, as follows:

(1) "T" indicates The Tire and Rim Association.

(2) "E" indicates The European Tyre and Rim Technical Organization.

(3) "J" indicates Japan Automobile Tire Manufacturers' Association, Inc.

(4) "L" indicates ABPA (Brazil), a.k.a. Associacao Latino Americana De Pneus E Aros.

(5) "F" indicates Tire and Rim Engineering Data Committee of South Africa (Tredco).

(6) "S" indicates Scandinavian Tire and Rim Organization (STRO).

(7) "A" indicates The Tyre and Rim Association of Australia.

(8) "I" indicates Indian Tyre Technical Advisory Committee (ITTAC).

(9) "R" indicates Argentine Institute of Rationalization of Materials, a.k.a. Instituto Argentino de Racionalización de Materiales, (ARAM).

(10) "N" indicates an independent listing pursuant to S4.1 of § 571.139 or S5.1(a) of § 571.119.

§571.111

(b) The rim size designation, and in case of multipiece rims, the rim type designation. For example: 20x5.50, or 20x5.5.

(c) The symbol DOT, constituting a certification by the manufacturer of the rim that the rim complies with all applicable Federal motor vehicle safety standards.

(d) A designation that identifies the manufacturer of the rim by name, trademark, or symbol.

(e) The month, day and year or the month and year of manufacture, expressed either numerically or by use of a symbol, at the option of the manufacturer. For example: "September 4, 2001" may be expressed numerically as: "90401", "904, 01" or "01, 904"; "September 2001" may be expressed as: "901", "9, 01" or "01, 9".

(1) Any manufacturer that elects to express the date of manufacture by means of a symbol shall notify NHTSA in writing of the full names and addresses of all manufacturers and brand name owners utilizing that symbol and the name and address of the trademark owner of that symbol, if any. The notification shall describe in narrative form and in detail how the month, day, and year or the month and year are depicted by the symbol. Such description shall include an actual size graphic depiction of the symbol, showing and/or explaining the interrelationship of the component parts of the symbol as they will appear on the rim or single piece wheel disc, including dimensional specifications, and where the symbol will be located on the rim or single piece wheel disc. The notification shall be received by NHTSA not less than 60 calendar days before the first use of the symbol. The notification shall be mailed to the Office of Vehicle Safety Compliance (NVS-222), National Highway Traffic Safety Administration, 400 Seventh Street SW., Washington, DC 20590. All information provided to NHTSA under this paragraph will be placed in the public docket.

(2) Each manufacturer of wheels shall provide an explanation of its date of manufacture symbol to any person upon request.

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2. At 70 FR 14424, Mar. 22, 2005, §571.110 was amended by revising S4.4.2 introductory text, effective June 1, 2007. For the convenience of the user, the revised text is set forth as follows:

§571.110 Standard No. 110; Tire selection and rims for motor vehicles with a GVWR of 4,536 kilograms (10,000 pounds) or less.

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S4.4.2. Rim markings for vehicles other than passenger cars. Each rim or, at the option of the manufacturer in the case of a single-

49 CFR Ch. V (10-1-06 Edition)

piece wheel, each wheel disc shall be marked with the information listed in S4.4.2 (a) through (e), in lettering not less than 3 millimeters in height, impressed to a depth or, at the option of the manufacturer, embossed to a height of not less than 0.125 millimeters. The information listed in S4.4.2 (a) through (c) shall appear on the outward side. In the case of rims of multi piece construction, the information listed in S4.4.2 (a) through (e) shall appear on the rim base and the information listed in S4.4.2 (b) and (d) shall also appear on each other part of the rim.

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3. At 71 FR 885, Jan. 6, 2006, §571.110 was amended by revising S4.2.2.2 and S4.2.2.3(a), effective June 1, 2007. For the convenience of the user, the revised text is set forth as follows:

§571.110 Standard No. 110—Tire selection and rims for motor vehicles with a GVWR of 4,536 kilograms (10,000 pounds) or less.

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S4.2.2.2 When passenger car tires are installed on an MPV, truck, bus, or trailer, each tire's load rating is reduced by dividing it by 1.10 before determining, under S4.2.2.1, the sum of the maximum load ratings of the tires fitted to an axle.

S4.2.2.3(a) For vehicles equipped with passenger car tires, the vehicle normal load on the tire shall be no greater than the value of 94 percent of the derated load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire.

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§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.