

§571.117

49 CFR Ch. V (10-1-02 Edition)

(b) *Centrifuge.* A centrifuge capable of whirling two or more filled centrifuge tubes at a speed which can be controlled to give a relative centrifugal force (r.c.f.) between 600 and 700 at the tip of the tubes. The revolving head, trunnion rings, and trunnion cups, including the rubber cushion, shall withstand the maximum centrifugal force capable of being delivered by the power source. The trunnion cups and cushions shall firmly support the tubes when the centrifuge is in motion. Calculate the speed of the rotating head using this equation:

$$\text{r.p.m.} = 265[\sqrt{25.4 \times \text{r.c.f.}/d}]$$

Where:

r.c.f. = Relative centrifugal force, and  
 d = Diameter of swing, in millimeters, measured between tips of opposing tubes when in rotating position.

Table VI shows the relationship between diameter, swing, relative centrifugal force (r.c.f.), and revolutions per minute.

TABLE VI.—ROTATION SPEEDS FOR CENTRIFUGES OF VARIOUS DIAMETERS

Diameter of swing in millimeters <sup>a</sup>	r.p.m. at 600 r.c.f.	r.p.m. at 700 r.c.f.
483 .....	1490	1610
508 .....	1450	1570
533 .....	1420	1530
559 .....	1390	1500

<sup>a</sup> Measured in millimeters between tips of opposite tubes when in rotating position.

S7.5.2 *Procedure.* Balance the corked centrifuge tubes with their respective trunnion cups in pairs by weight on a scale, according to the centrifuge manufacturer's instructions, and place them on opposite sides of the centrifuge head. Use a dummy assembly when one sample is tested. Then whirl them for 10 minutes, at a rate sufficient to produce a r.c.f. between 600 and 700 at the tips of the whirling tubes. Repeat until the volume of sediment in each tube remains constant for three consecutive readings.

S7.5.3 *Calculation.* Read the volume of the solid sediment at the bottom of the centrifuge tube and report the percent sediment by volume. Where replicate determinations are specified, report the average value.

S7.6 *Standard styrene-butadiene rubber (SBR) brake cups.* SBR brake cups

for testing motor vehicle brake fluids shall be manufactured using the following formulation:

FORMULATION OF RUBBER COMPOUND

Ingredient	Parts by weight
SBR type 1503 <sup>a</sup> .....	100
Oil furnace black (NBS 378) .....	40
Zinc oxide (NBS 370) .....	5
Sulfur (NBS 371) .....	0.25
Stearic Acid (NBS 372) .....	1
n-tertiary butyl-2-benzothiazole sulfenamide (NBS 384) .....	1
Symmetrical dibetanaphthyl-p-phenylenediamine	1.5
Dicumyl peroxide (40 percent on precipitated CaCO <sub>3</sub> ) <sup>b</sup> .....	4.5
Total .....	153.25

<sup>a</sup> Philprene 1503 has been found suitable.

<sup>b</sup> Use only within 90 days of manufacture and store at temperature below 27 °C. (80 °F.).

NOTE: The ingredients labeled (NBS) must have properties identical with those supplied by the National Bureau of Standards.

Compounding, vulcanization, physical properties, size of the finished cups, and other details shall be as specified in appendix B of SAE J1703b. The cups shall be used in testing brake fluids either within 6 months from date of manufacture when stored at room temperature below 30 °C. (86 °F.) or within 36 months from date of manufacture when stored at temperatures below minus 15 °C. (+5 °F.). After removal of cups from refrigeration they shall be conditioned base down on a flat surface for at least 12 hours at room temperature in order to allow cups to reach their true configuration before measurement.

S7.7 *Isopropanol.* ACS or reagent grade.

[36 FR 22902, Dec. 2, 1971]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §571.116, see the List of Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

§571.117 Standard No. 117; Retreaded pneumatic tires.

S1. *Scope.* This standard specifies performance, labeling, and certification requirements for retreaded pneumatic passenger car tires.

S2. *Purpose.* The purpose of this standard is to require retreaded pneumatic passenger car tires to meet safety criteria similar to those for new pneumatic passenger car tires.

S3. *Application.* This standard applies to retreaded pneumatic tires for use on passenger cars manufactured after 1948.

S4. *Definitions.*

S4.1 *Casing* means a used tire to which additional tread may be attached for the purpose of retreading.

*Retreaded* means manufactured by a process in which a tread is attached to a casing.

S4.2 All terms defined in §§571.109 and 571.110 are used as defined therein.

S5. *Requirements.*

S5.1 *Retreaded tires.*

S5.1.1 Except as specified in S5.1.3, each retreaded tire, when mounted on a test rim of the width specified for the tire's size designation in appendix A of §571.109 shall comply with the following requirements of §571.109:

(a) S4.1 (Size and construction).

(b) S4.2.1 (General).

(c) S4.2.2.3 (Tubeless tire resistance to bead unseating).

(d) S4.2.2.4 (Tire strength).

S5.1.2 Except as specified in S5.1.3, each retreaded tire, when mounted on a test rim of the width specified for the tire's size designation in appendix A of §571.109, shall comply with the requirements of S4.2.2.2 of §571.109, except that the tire's section width shall not be more than 110 percent of the section width specified, and the tire's size factor shall be at least 97 percent of the size factor specified, in appendix A of §571.109 for the tire's size designation.

S5.1.3 Each retreaded tire shall be capable of meeting the requirements of S5.1.1 and S5.1.2 when mounted on any rim in accordance with those sections.

S5.1.4 No retreaded tire shall have a size designation, recommended maximum load rating, or maximum permissible inflation pressure that is greater than that originally specified on the casing pursuant to S4.3 of §571.109, or specified for the casing in Table I.

S5.2 *Casings.*

S5.2.1 No retreaded tire shall be manufactured with a casing—

(a) On which bead wire or cord fabric is exposed before processing.

(b) On which any cord fabric is exposed during processing, except that cord fabric that is located at a splice, i.e., where two or more segments of the same ply overlap, or cord fabric that is

part of the belt material, may be exposed but shall not be penetrated or removed to any extent whatsoever.

S5.2.2 No retreaded tire shall be manufactured with a casing—

(a) From which a belt or ply, or part thereof, is removed during processing; or

(b) On which a belt or ply, or part thereof, is added or replaced during processing.

S5.2.3 Each retreaded tire shall be manufactured with a casing that bears, permanently molded at the time of its original manufacture into or onto the tire sidewall, each of the following:

(a) The symbol DOT;

(b) The size of the tire; and

(c) The actual number of plies or ply rating.

S5.2.4 [Reserved]

S6. *Certification and labeling.*

S6.1 Each manufacturer of a retreaded tire shall certify that its product complies with this standard pursuant to Section 30115 of Title 49, United States Code, by labeling the tire with the symbol DOT in the location specified in section 574.5 of this chapter.

S6.2 [Reserved]

S6.3 *Labeling.* Each retreaded tire shall bear permanent labeling through molding, branding, or other method that will produce a permanent label, or through the retention of the original casing labeling, in at least one location on the tire sidewall, in letters and numbers not less than 0.078 inch high, consisting of the following information:

(a) The tire's size designation;

(b) The tire's maximum permissible inflation pressure, either as it appears on the casing or as set forth in Table 1;

(c) The tire's maximum load, either as it appears on the casing or as set forth in Table 1;

(d) The actual number of plies in or the ply rating of the tire sidewall and, if different, the actual number of plies in or the ply rating of the tread area;

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

(f) The word "tubeless" if the tire is a tubeless tire, or the words "tube-type" if the tire is a tube-type tire;

§571.117

49 CFR Ch. V (10-1-02 Edition)

(g) If the tire is of bias/belted construction, the words "bias/belted;"

(h) If the tire is of radial construction, the word "radial."

The information shall either be retained from the casing used in the manufacture of the tire, or may be labeled onto the tire during the retreading process.

TABLE I—PLIES

Tire size	2 ply-4 ply (4 ply rating)		4 ply (6 ply rating)		4 ply (8 ply rating)	
	Maximum load	Maximum inflation pressure	Maximum load	Maximum inflation pressure	Maximum load	Maximum inflation pressure
6.00-13	1010	32	1080	36	1140	40
6.50-13	1150	32	1230	36	1300	40
7.00-13	1270	32	1360	36	1440	40
6.45-14	1120	32	1200	36	1270	40
6.95-14	1230	32	1310	36	1390	40
7.35-14	1360	32	1450	36	1540	40
7.75-14	1500	32	1600	36	1690	40
8.25-14	1620	32	1730	36	1830	40
8.55-14	1770	32	1890	36	2000	40
8.85-14	1860	32	1990	36	2100	40
5.60-15	970	32	1040	36	1105	40
5.90-15	1050	32	1130	36	1200	40
6.85-15	1230	32	1320	36	1390	40
7.35-15	1390	32	1480	36	1570	40
7.75-15	1490	32	1590	36	1690	40
8.15-15	1610	32	1720	36	1820	40
8.25-15	1620	32	1730	36	1830	40
8.45-15	1740	32	1860	36	1970	40
8.55-15	1770	32	1890	36	2000	40
8.85-15	1860	32	1980	36	2100	40
9.00-15	1900	32	2030	36	2150	40
9.15-15	1970	32	2100	36	2230	40
8.90-15	2210	32	2360	36	2500	40
A70-13	1060	32	1130	36	1200	40
D70-13	1320	32	1410	36	1490	40
D70-14	1320	32	1410	36	1490	40
E70-14	1400	32	1490	36	1580	40
F70-14	1500	32	1610	36	1700	40
G70-14	1620	32	1730	36	1830	40
H70-14	1770	32	1890	36	2010	40
J70-14	1860	32	1980	36	2100	40
L70-14	1970	32	2100	36	2230	40
C70-15	1230	32	1320	36	1390	40
D70-15	1320	32	1410	36	1490	40
E70-15	1400	32	1490	36	1580	40
F70-15	1500	32	1610	36	1700	40
G70-15	1620	32	1730	36	1830	40
H70-15	1770	32	1890	36	2010	40
J70-15	1860	32	1980	36	2100	40
K70-15	1900	32	2030	36	2150	40
L70-15	1970	32	2100	36	2230	40
165-13	1050	32	1130	36	1200	40
175-13	1150	32	1240	36	1350	40
185-13	1270	32	1390	36	1510	40
155R13	950	32	1015	36	1075	40
155R14	1010	32	1080	36	1140	40
155R15	1015	32	1085	36	1150	40
165R13	1010	32	1080	36	1140	40
165R14	1120	32	1200	36	1270	40
165R15	1130	32	1200	36	1270	40
175R14	1230	32	1310	36	1390	40
185R14	1360	32	1450	36	1540	40
185/70R13	1090	32	1140	36	1190	40
145-14 <sup>1</sup>	865	32	905	36	935	40
145-15	895	32	940	36	975	40
195-15	1550	32	1680	36	1820	40
205-15	1700	32	1840	36	2000	40

<sup>1</sup> Dash Radial—Not an "R" Radial.

[37 FR 5952, Mar. 23, 1972, as amended at 37 FR 11775, June 14, 1972; 38 FR 2982, Jan. 31, 1973; 38 FR 6999, Mar. 15, 1973; 38 FR 9688, Apr. 19, 1973; 39 FR 1443, Jan. 9, 1974; 39 FR 3553, Jan. 28, 1974; 39 FR 36016, Oct. 7, 1974; 39 FR 39884, Nov. 12, 1974; 61 FR 29494, June 11, 1996]

**Nat'l Highway Traffic Safety Admin., DOT**

**§571.117**

EDITORIAL NOTE: For an interpretation of §571.117, see 38 FR 10940, May 3, 1973.

EFFECTIVE DATE NOTE: At 63 FR 28920, May 27, 1998, §571.117 was amended by revising S6.3, and Table 1, effective May 27, 2003. The revised text is set forth as follows:

**§571.117 Standard No. 117, Retreaded pneumatic tires.**

S6.3 Each retreaded tire shall bear permanent labeling through molding, branding, or other method that will produce a permanent label, or through the retention of the original casing labeling, in at least one location on the tire sidewall, in letters and numbers not less than 2 mm (0.078 inch) high, consisting of the following information:

\* \* \* \* \*

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TABLE I.—PLIES

Tire Size	2ply-4ply (4 ply rating)				4 ply (6 ply rating)				4 ply (8 ply rating)			
	Maximum load		Maximum Inflation Pressure		Maximum load		Maximum Inflation Pressure		Maximum load		Maximum Inflation Pressure	
	lb	kg	psi	kPa	lb	kg	psi	kPa	lb	kg	psi	kPa
6.00-13	1010	458	32	220	1080	499	36	250	1140	517	40	275
6.50-13	1150	552	32	220	1230	558	36	250	1300	590	40	275
7.00-13	1270	576	32	220	1360	617	36	250	1440	653	40	275
6.45-14	1120	508	32	220	1200	544	36	250	1270	576	40	275
6.95-14	1230	558	32	220	1310	594	36	250	1390	630	40	275
7.35-14	1360	617	32	220	1450	658	36	250	1540	698	40	275
7.75-14	1500	680	32	220	1600	726	36	250	1690	767	40	275
8.25-14	1620	735	32	220	1730	785	36	250	1830	830	40	275
8.55-14	1770	803	32	220	1890	857	36	250	2000	907	40	275
8.85-14	1860	844	32	220	1990	903	36	250	2100	953	40	275
5.60-15	0970	440	32	220	1040	472	36	250	1105	501	40	275
5.90-15	1050	476	32	220	1130	513	36	250	1200	544	40	275
6.85-15	1230	558	32	220	1320	599	36	250	1390	630	40	275
7.35-15	1390	630	32	220	1480	671	36	250	1570	712	40	275
7.75-15	1490	676	32	220	1590	721	36	250	1690	767	40	275
8.15-15	1610	730	32	220	1720	780	36	250	1820	826	40	275
8.25-15	1620	735	32	220	1730	785	36	250	1830	830	40	275
8.45-15	1740	789	32	220	1860	844	36	250	1970	894	40	275
8.55-15	1770	803	32	220	1890	857	36	250	2000	907	40	275
8.85-15	1860	844	32	220	1980	898	36	250	2100	953	40	275
9.00-15	1900	862	32	220	2030	921	36	250	2150	975	40	275
9.15-15	1970	894	32	220	2100	953	36	250	2230	1012	40	275
8.90-15	2210	1002	32	220	2360	1070	36	250	2500	1134	40	275
A70-13	1060	481	32	220	1130	513	36	250	1200	544	40	275
D70-13	1320	599	32	220	1410	640	36	250	1490	676	40	275
D70-14	1320	599	32	220	1410	640	36	250	1490	676	40	275
E70-14	1400	635	32	220	1490	676	36	250	1580	717	40	275
F70-14	1500	680	32	220	1610	730	36	250	1700	771	40	275
G70-14	1620	735	32	220	1730	785	36	250	1830	830	40	275
H70-14	177	803	32	220	1890	857	36	250	2010	912	40	275
J70-14	1860	844	32	220	1980	898	36	250	2100	953	40	275
L70-14	1970	894	32	220	2180	989	36	250	2230	1012	40	275
C70-15	1230	558	32	220	1320	599	36	250	1390	630	40	275
D70-15	1320	599	32	220	1410	640	36	250	1490	676	40	275
E70-15	1400	635	32	220	1490	676	36	250	1580	717	40	275
F70-15	1500	680	32	220	1610	730	36	250	1700	771	40	275
G70-15	1620	735	32	220	1730	785	36	250	1830	830	40	275
H70-15	1770	803	32	220	1890	857	36	250	2010	912	40	275
J70-15	1860	844	32	220	1980	898	36	250	2100	953	40	275
K70-15	1900	862	32	220	2030	921	36	250	2150	975	40	275
L70-15	1970	894	32	220	2100	953	36	250	2230	1012	40	275
165-13	1050	476	32	220	1130	513	36	250	1200	544	40	275

175-13 .....	1150	552	32	220	1240	562	36	250	1350	612	40	275
185-13 .....	1270	576	32	220	1390	630	36	250	1510	685	40	275
155R13 .....	950	431	32	220	1015	460	36	250	1075	488	40	275
155R14 .....	1010	458	32	220	1080	499	36	250	1140	517	40	275
155R14 .....	1015	460	32	220	1085	492	36	250	1150	552	40	275
165R13 .....	1010	458	32	220	1080	499	36	250	1140	517	40	275
165R14 .....	1120	508	32	220	1200	544	36	250	1370	621	40	275
165R15 .....	1130	513	32	220	1200	544	36	250	1270	576	40	275
175R14 .....	1230	558	32	220	1310	594	36	250	1390	630	40	275
185R14 .....	1360	617	32	220	1450	658	36	250	1540	698	40	275
185/70R13 .....	1090	494	32	220	1140	517	36	250	1190	540	40	275
145-14 <sup>1</sup> .....	865	392	32	220	905	411	36	250	935	424	40	275
145-15 .....	895	406	32	220	940	426	36	250	975	442	40	275
195-15 .....	1550	703	32	220	1680	762	36	250	1820	826	40	275
205-15 .....	1770	803	32	220	1840	835	36	250	2000	907	40	275

<sup>1</sup> Dash Radial—Not an "R" Radial.