

TABLE III—ENDURANCE TEST SCHEDULE

Description	Load range	Test wheel speed		Test load: Percent of maximum load rating			Total test revolutions (thousands)
		km/h	r/m	I–7 hours	II–16 hours	III–24 hours	
Speed restricted service:							
90 km/h (55 mph)	F, G, H, J, L, M, N.	40	125	66	84	101	352.0
80 km/h (50 mph)	F, G, H, J, L ..	32	100	66	84	101	282.5
56 km/h (35 mph)	All	24	75	66	84	101	211.0
Motorcycle	All	80	250	¹ 100	² 108	117	510.0
All other	F	64	200	66	84	101	564.0
	G	56	175	66	84	101	493.5
	H, J, L, N	48	150	66	84	101	423.5

(Secs. 113, 201, 80 Stat. 718 (15 U.S.C. 1402, 1421); secs. 103, 112, 119, 201, 203, Pub. L. 89–563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1421, 1423); delegation of authority at 49 CFR 1.50)

[38 FR 31301, Nov. 13, 1973]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 571.119 see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

§ 571.120 Tire selection and rims and motor home/recreation vehicle trailer load carrying capacity information for motor vehicles with a GVWR of more than 4,536 kilograms (10,000 pounds).

S1. Scope. This standard specifies tire and rim selection requirements, rim marking requirements and motor home/recreation vehicle trailer load carrying capacity information.

S2. Purpose. The purpose of this standard is to provide safe operational performance by ensuring that vehicles to which it applies are equipped with tires of adequate size and load rating and with rims of appropriate size and type designation, and by ensuring that consumers are informed of motor home/recreation vehicle trailer load carrying capacity.

S3. Application. This standard applies to motor vehicles with a gross vehicle weight rating (GVWR) of more than 4,536 kilograms (10,000 pounds) and motorcycles, to rims for use on those vehicles, and to non-pneumatic spare tire assemblies for use on those vehicles.

S4. Definitions. All terms defined in the Act and the rules and standards issued under its authority are used as defined therein.

Rim base means the portion of a rim remaining after removal of all split or continuous rim flanges, side rings, and locking rings that can be detached from the rim.

Rim size designation means rim diameter and width.

Rim diameter means nominal diameter of the bead seat.

Rim width means nominal distance between rim flanges.

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

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

S5. Requirements.

S5.1 Tire and rim selection.

S5.1.1 Except as specified in S5.1.3, each vehicle equipped with pneumatic tires for highway service shall be equipped with tires that meet the requirements of § 571.109, § 571.119 or § 571.139, and rims that are listed by the manufacturer of the tires as suitable for use with those tires, in accordance with S4.4 of § 571.109 or S5.1 of § 571.119, as applicable, except that vehicles 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 S8 of this standard. Vehicles equipped with such an assembly shall meet the requirements of S5.3.3, S7, and S9 of this standard.

S5.1.2 Except in the case of a vehicle which has a speed attainable in 3.2 kilometers of 80 kilometers per hour or less, the sum of the maximum load ratings of the tires fitted to an axle shall

be not less than the gross axle weight rating (GAWR) of the axle system as specified on the vehicle's certification label required by 49 CFR part 567. Except in the case of a vehicle which has a speed attainable in 2 miles of 50 mph or less, the sum of the maximum load ratings of the tires fitted to an axle shall be not less than the gross axle weight rating (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 system, the sum shall be not less than the GAWR corresponding to the size designation of the tires fitted to the axle. If the size designation of the tires fitted to the axle does not appear on the certification label, the sum shall be not less than the lowest GAWR appearing on the label. When a passenger car tire is installed on a multipurpose passenger vehicle, truck, bus, or trailer, the tire's load rating shall be reduced by dividing by 1.10 before calculating the sum (i.e., the sum of the load ratings of the tires on each axle, when the tires' load carrying capacity at the recommended tire cold inflation pressure is reduced by dividing by 1.10, must be appropriate for the GAWR).

S5.1.3 In place of tires that meet the requirements of Standard No. 119, a truck, bus, or trailer may at the request of a purchaser be equipped at the place of manufacture of the vehicle with retreaded or used tires owned or leased by the purchaser, if the sum of the maximum load ratings meets the requirements of S5.1.2. Used tires employed under this provision must have been originally manufactured to comply with Standard No. 119, as evidenced by the DOT symbol.

S5.2 *Rim marking.* Each rim or, at the option of the manufacturer in the case of a single-piece wheel, wheel disc shall be marked with the information listed in paragraphs (a) through (e) of this paragraph, in lettering not less than 3 millimeters high, 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 paragraph shall appear on the weather side. In the case of rims of multi piece construction, the informa-

tion listed in paragraphs (a) through (e) of this paragraph shall appear on the rim base and the information listed in paragraphs (b) and (d) of this paragraph shall also appear on each other part of the rim.

(a) A designation which 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 Organisation

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

(4) "D" indicates Deutsche Industrie Norm.

(5) "B" indicates British Standards Institution.

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

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

(8) "N" indicates an independent listing pursuant to S4.4.1(a) of Standard No. 109 or S5.1(a) of Standard No. 119.

(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 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, 1976" may be expressed numerically as:

90476, 904, or 76
76 904

"September 1976" may be expressed as:

976, 9, or 76
76 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 at least 60 calendar days prior to first use of the symbol. The notification shall be mailed to the Office of Vehicle Safety Compliance, 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.

S5.3 Each vehicle shall show the information specified in S5.3.1 and S5.3.2 and, in the case of a vehicle equipped with a non-pneumatic spare tire, the information specified in S5.3.3, in the English language, lettered in block capitals and numerals not less than 2.4 millimeters high and in the format set forth following this paragraph. This information shall appear either—

(a) After each GAWR listed on the certification label required by §567.4 or §567.5 of this chapter; or at the option of the manufacturer,

(b) On the tire information label affixed to the vehicle in the manner, location, and form described in §567.4 (b) through (f) of this chapter as appropriate of each GVWR–GAWR combination listed on the certification label.

S5.3.1 *Tires*. The size designation (not necessarily for the tires on the vehicle) and the recommended cold inflation pressure for those tires such that the sum of the load ratings of the tires on each axle (when the tires' load carrying capacity at the specified pressure is reduced by dividing by 1.10, in the case of a tire subject to FMVSS No. 109) is appropriate for the GAWR as calculated in accordance with S5.1.2.

S5.3.2. *Rims*. The size designation and, if applicable, the type designation of Rims (not necessarily those on the vehicle) appropriate for those tires.

TRUCK EXAMPLE—SUITABLE TIRE-RIM CHOICE

GVWR: 7,840 KG (17,289 LB)
 GAWR: FRONT—2,850 KG (6,280 LB) WITH
 7.50–20(D) TIRES, 20×6.00 RIMS AT 520 KPA
 (75 PSI) COLD SINGLE
 GAWR: REAR—4,990 KG (11,000 LB) WITH
 7.50–20(D) TIRES, 20×6.00 RIMS, AT 450
 KPA (65 PSI) COLD DUAL
 GVWR: 13,280 KG (29,279 LB)
 GAWR: FRONT—4,826 KG (10,640 LB) WITH
 10.00–20(F) TIRES, 20×7.50 RIMS, AT 620
 KPA (90 PSI) COLD SINGLE
 GAWR: REAR—8,454 KG (18,639 LB) WITH
 10.00–20(F) TIRES, 20×2.70 RIMS, AT 550
 KPA (80 PSI) COLD DUAL

S5.3.3 The non-pneumatic tire identification code, with which that assembly is labeled pursuant to S4.3(a) of §571.129.

S6. *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.

S7 *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 S7 (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 S7 (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 S7 (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.).

S8. Requirements for Vehicles Equipped with Non-Pneumatic Spare Tire Assemblies

S8.1 Vehicle Placarding Requirements. A placard, permanently affixed to the inside of the spare tire stowage area or equally accessible location adjacent to the non-pneumatic spare tire assembly, shall display the information set forth in S7 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.

S8.2 Supplementary Information. The owner's manual of the vehicle 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 S8 (a) and (b) and either the information set forth in S5.3.6 or a statement that the information set forth in S5.3.6 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 vehicle is not recommended with more than one non-pneumatic spare tire in use at the same time.

S9 Non-Pneumatic Rims and Wheel Center Members

S9.1 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.

S9.2 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.

S10. Each motor home and recreation vehicle (RV) trailer must meet the applicable requirements in S10.

S10.1 On motor homes, the sum of the gross axle weight ratings (GAWR) of all axles on the vehicle must not be less than the gross vehicle weight rating (GVWR).

S10.2 On RV trailers, the sum of the GAWRs of all axles on the vehicle plus the vehicle manufacturer's recommended tongue weight must not be less than the GVWR. If tongue weight is specified as a range, the minimum value must be used.

S10.3 The tires on each motor home and RV trailer at first retail sale must be the same size as the tire size on the labeling required by S5.3.

S10.4 Each motor home and RV trailer single stage or final stage manufacturer must affix either a motor home occupant and cargo carrying capacity (OCCC) label (Figure 1) or a RV trailer cargo carrying capacity (CCC) label (Figure 2) to its vehicles that meets the following criteria:

S10.4.1 The RV load carrying capacity labels (Figures 1 and 2) must be legible, visible, moisture resistant, presented in the English language, have a minimum print size of 2.4 millimeters ($\frac{3}{32}$ inches) high and be printed in black print on a yellow background.

S10.4.2 The weight value for load carrying capacity on the RV load carrying capacity labels (Figures 1 and 2) must be displayed to the nearest kilogram with conversion to the nearest pound and must be such that the vehicle's weight does not exceed its GVWR

when loaded with the stated load carrying capacity. The UVW and the GVWR used to determine the RV's load carrying capacity must reflect the weights and design of the motor home or RV trailer as configured for delivery to the dealer/service facility. If applicable, the weight of full propane tanks must be included in the RV's UVW and the weight of on-board potable water must be treated as cargo.

S10.4.3 The RV load carrying capacity labels (Figures 1 and 2) must be:

(a) Permanently affixed and must be visibly located on the interior of the forward-most exterior passenger door on the right side of the vehicle; or

(b) If a permanent RV load carrying capacity label (Figure 1 or 2) is affixed in the location specified at S5.3(b), a temporary version of the RV load carrying capacity label (Figure 1 or 2) may be visibly located on the interior of the forward-most exterior passenger door on the right side of the vehicle.

S10.4.4 Permanent and temporary motor home OCCC labels must contain the following information in accordance with Figure 1:

(a) The statement: "MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY" in block letters.

(b) The Vehicle Identification Number (VIN).

(c) The statement "THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED: XXX kg or XXX lbs" in block letters with appropriate values included.

(d) The statement "Safety belt equipped seating capacity: XXX" with the appropriate value included. This is the total number of safety belt equipped seating positions.

(e) The statement: "CAUTION: A full load of water equals XXX kg or XXX lbs of cargo @ 1 kg/L (8.3 lb/gal) and the tongue weight of a towed trailer counts as cargo" with appropriate values included.

S10.4.5 Permanent and temporary RV trailer CCC labels must contain the following information in accordance with Figure 2:

(a) The statement: "RECREATION VEHICLE TRAILER CARGO CARRYING CAPACITY" in block letters.

(b) The Vehicle Identification Number (VIN).

(c) The statement: "THE WEIGHT OF CARGO SHOULD NEVER EXCEED: XXX kg or XXX lbs" in block letters with appropriate values included.

(d) The statement: "CAUTION: A full load of water equals XXX kg or XXX lbs of cargo @ 1 kg/L (8.3 lb/gal)" with appropriate values included.

S10.5 *Weight added to motor homes and RV trailers between final vehicle certification and first retail sale of the vehicle.*

S10.5.1 If weight exceeding 45.4 kg (100 pounds) is added to a motor home or RV trailer between final vehicle certification and first retail sale of the vehicle, the load carrying capacity values on the RV load carrying capacity labels (Figures 1 and 2) required by S10.4 must be corrected using one or a combination of the following methods:

(a) Permanently affix the load carrying capacity modification label (Figure 3) which displays the amount the load carrying capacity is reduced to the nearest kilogram with conversion to the nearest pound, within 25 millimeters of the original, permanent RV load carrying capacity label (Figure 1 or 2). The load carrying capacity modification label must be legible, visible, permanent, moisture resistant, presented in the English language, have a minimum print size of 2.4 millimeters (3/32 inches) high and be printed in black print on a yellow background. If the manufacturer selects S10.4.3(b), apply a temporary version of the load carrying capacity modification label (Figure 3) within 25 millimeters of the original, temporary RV load carrying capacity label (Figure 1 or 2) on the interior of the forward-most exterior passenger door on the right side of the vehicle. Both temporary and permanent versions of the load carrying capacity modification label (Figure 3) may be printed without values and values may be legibly applied to the label with a black, fine point, indelible marker. The label must contain the statements "CAUTION—LOAD CARRYING CAPACITY REDUCED" in block letters and "Modifications to this vehicle have reduced the original load carrying capacity by XXX kg or XXX lbs" in accordance with Figure 3 with appropriate values in place of XXX. If two

load carrying capacity modification labels are required (one permanent and one temporary), the weight values on each must agree, or

(b) Modify the original permanent RV load carrying capacity label (Figure 1 or 2) with correct load carrying capacity weight values. If the manufacturer selects S10.4.3(b), the temporary RV load carrying capacity label (Figure 1 or 2) must also be modified with correct load carrying capacity weight values. Modification of labels requires a machine printed overlay with printed corrected values or blanks for corrected values that may be entered with a black, fine-point, indelible marker. Crossing out old values and entering corrected values on the original label is not permissible, or

(c) Replace the original, permanent RV load carrying capacity label (Figure 1 or 2) with the same label containing correct load carrying capacity weight values. If the manufacturer selects S10.4.3(b), the temporary RV load carrying capacity label (Figure 1 or 2) must also be replaced with the same label containing correct load carrying capacity weight values.

S10.5.2 Corrected load carrying capacity weight values or the weight amount the load carrying capacity is reduced, must reflect the total weight added between final vehicle certification and first retail sale and must be accurate within one percent of the actual added weight. No re-labeling is required if the weight of the vehicle is reduced between final vehicle certification and the first retail sale.

<p align="center">MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY VIN: ##### THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED: <u>XXX</u> kg or <u>XXX</u> lbs Safety belt equipped seating capacity: <u>XXX</u> CAUTION: A full load of water equals <u>XXX</u> kg or <u>XXX</u> lbs of cargo @ 1 kg/L (8.3 lb/gal) and the tongue weight of a towed trailer counts as cargo</p>
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Figure 1 - Motor Home Occupant and Cargo Carrying Capacity Label

<p align="center">RECREATION VEHICLE TRAILER CARGO CARRYING CAPACITY VIN: ##### THE WEIGHT OF CARGO SHOULD NEVER EXCEED: <u>XXX</u> kg or <u>XXX</u> lbs CAUTION: A full load of water equals <u>XXX</u> kg or <u>XXX</u> lbs of cargo @ 1 kg/L (8.3 lb/gal)</p>
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Figure 2 - RV Trailer Cargo Carrying Capacity Label

<p align="center">CAUTION: LOAD CARRYING CAPACITY REDUCED Modifications to this vehicle have reduced the original load carrying capacity by _____ kg or _____ lbs</p>

Figure 3 - Load Carrying Capacity Modification Label

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(Authority: Secs. 102, 119, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, and 1422); delegation of authority at 49 CFR 1.50)

[42 FR 7144, Feb. 7, 1977]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §571.120 see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

§571.121 Standard No. 121; Air brake systems.

S1. *Scope.* This standard establishes performance and equipment requirements for braking systems on vehicles equipped with air brake systems.

S2. *Purpose.* The purpose of this standard is to insure safe braking performance under normal and emergency conditions.

S3. *Application.* This standard applies to trucks, buses, and trailers equipped with air brake systems. However, it does not apply to:

(a) Any trailer that has a width of more than 102.36 inches with extendable equipment in the fully retracted position and is equipped with two short track axles in a line across the width of the trailer.

(b) Any vehicle equipped with an axle that has a gross axle weight rating (GAWR) of 29,000 pounds or more;

(c) Any truck or bus that has a speed attainable in 2 miles of not more than 33 mph;

(d) Any truck that has a speed attainable in 2 miles of not more than 45 mph, an unloaded vehicle weight that is not less than 95 percent of its gross vehicle weight rating (GVWR), and no capacity to carry occupants other than the driver and operating crew;

(e) Any trailer that has a GVWR of more than 120,000 pounds and whose body conforms to that described in the definition of heavy hauler trailer set forth in S4;

(f) Any trailer that has an unloaded vehicle weight which is not less than 95 percent of its GVWR; and

(g) Any load divider dolly.

S4. *Definitions.*

Agricultural commodity trailer means a trailer that is designed to transport bulk agricultural commodities in off-road harvesting sites and to a processing plant or storage location, as evidenced by skeletal construction that

49 CFR Ch. V (10-1-11 Edition)

accommodates harvest containers, a maximum length of 28 feet, and an arrangement of air control lines and reservoirs that minimizes damage in field operations.

Air brake system means a system that uses air as a medium for transmitting pressure or force from the driver control to the service brake, including an air-over-hydraulic brake subsystem, but does not include a system that uses compressed air or vacuum only to assist the driver in applying muscular force to hydraulic or mechanical components.

Air-over-hydraulic brake subsystem means a subsystem of the air brake system that uses compressed air to transmit a force from the driver control to a hydraulic brake system to actuate the service brakes.

Antilock brake system or *ABS* means a portion of a service brake system that automatically controls the degree of rotational wheel slip during braking by:

(1) Sensing the rate of angular rotation of the wheels;

(2) Transmitting signals regarding the rate of wheel angular rotation to one or more controlling devices which interpret those signals and generate responsive controlling output signals; and

(3) Transmitting those controlling signals to one or more modulators which adjust brake actuating forces in response to those signals.

Auto transporter means a truck and a trailer designed for use in combination to transport motor vehicles, in that the towing vehicle is designed to carry cargo at a location other than the fifth wheel and to load this cargo only by means of the towed vehicle.

Common diaphragm means a single brake chamber diaphragm which is a component of the parking, emergency, and service brake systems.

Container chassis trailer means a semitrailer of skeleton construction limited to a bottom frame, one or more axles, specially built and fitted with locking devices for the transport of intermodal shipping containers, so that when the chassis and container are assembled, the units serve the same function as an over the road trailer.