



SURFACE VEHICLE STANDARD

J918™

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Passenger Car Tire Performance Requirements and Test Procedures

RATIONALE

SAE J918 was originally written as the technical equivalent of FMVSS109 and has not been updated since then. In that time, FMVSS109 has been changed, and FMVSS139 has also been written to supersede a number of the requirements that were originally part of FMVSS109. SAE J918 is no longer representative of the specification it was originally equivalent to and is no longer needed.

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Foreword—This Document has also changed to comply with the new SAE Technical Standards Board Format.

1. **Scope**—This SAE Standard provides minimum performance requirements and accompanying uniform laboratory test procedures for evaluating certain essential characteristics of new tires and newly retreaded tires intended for use on passenger cars.

(The requirements published in this SAE Standard pertain to tire sizes currently used on American passenger cars and popular sizes used on imported passenger cars. For related information on tire sizes not listed, contact Society of Automotive Engineers, Inc., Detroit Branch Office, 18121 East Eight Mile Road, East Detroit, Michigan 48021.)

2. References

- 2.1 **Applicable Publication**—The following publication forms a part of the specification to the extent specified herein.

2.1.1 TRA PUBLICATION—Available from 175 Montrose West Avenue, Suite 150, Copley, OH 44321.

TRA Yearbook

3. Definitions

- 3.1 **Bead**—That part of the tire which is shaped to fit the rim. Made of high tensile steel wires, wrapped and reinforced by the plies.
- 3.2 **Bead Separation**—Breakdown of the bond between components in the bead area.
- 3.3 **Bias Ply Tire**—Pneumatic tire in which the ply cords extending to the beads are laid at alternate angles substantially less than 90 deg to the centerline of the thread.
- 3.4 **Carcass**—Tire structure, excepting tread and sidewall rubber.
- 3.5 **Chunking**—Separation of the tread from the carcass in particles which may range from a very small size to several square inches in area.

- 3.6 Cord**—Textile, steel wire strands, and the like, forming the plies in the tire.
- 3.7 Cord Separation**—Parting of cords from adjacent rubber compounds.
- 3.8 Groove**—Space between two adjacent tread ribs or lugs.
- 3.9 Load Range**—The term “Load Range” with a letter (A, B, C, etc.) in tire identification is used to identify a given size tire with its load and inflation limits when used in a specific type of service, as defined in heading of TRA tables.
- 3.10 Measuring Rim**—Rim of specific width and profile as specified by the Tire & Rim Association, Inc. (TRA) on which basic tire measurements are determined.
- 3.11 Ply**—Layer of rubber-coated parallel cords forming tire body.
- 3.12 Ply Rating**—Index of tire strength; does not necessarily represent the actual number of plies in the tire. It is used to relate a given size tire with its load and inflation limits as does load range. Ply rating has been replaced by “load range.” See paragraph 3.9.
- 3.13 Ply Separation**—Parting of rubber compound between adjacent plies.
- 3.14 Radial Ply Tire**—Pneumatic tire in which the ply cords which extend to the beads are laid substantially 90 deg to the centerline of the tread.
- 3.15 Retreaded Tire**—A used tire to which a new tread has been affixed to extend the useful life of the tire.
- 3.16 Rib**—Tread section element circumferentially around tire.
- 3.17 Rim**—Metal support for tire or tire and tube assembly on the wheel.
- 3.18 Section Width**—The linear distance between the exteriors of the sidewalls of an inflated tire at its widest point, excluding elevations due to labeling, decorations or protective bands.
- 3.19 Sidewall**—Portion of tire between tread and bead.
- 3.20 Size Factor**—The sum of the tire section width (on the measuring rim) and the outer diameter.
- 3.21 Tread**—Portion of tire which comes in contact with road.
- 3.22 Tread Separation**—Tread pulling away from tire carcass.

4. Requirements

- 4.1 Strength**—When tested in accordance with the procedures described in paragraph 5.1, the average energy absorbed by the tire at break (or bottoming) shall meet or exceed the requirements established in Tables 1A through 1C. In the event that the plunger bottoms against the rim before the tire breaks at all five points tested, the tire shall be deemed to have passed the test regardless of the energy values. Breaking energy value for a tire size not listed in these tables shall not be less than that shown for the nearest smaller size tire of the same ply rating, ply cord material and construction.

Static breaking energy values for nylon and polyester cord tires are established substantially higher than those for rayon cord tires. These differentials are necessary in static test requirements in order to insure comparable impact resistance under dynamic conditions.