



SURFACE VEHICLE STANDARD

J1315™

NOV2019

Issued 1981-05
Revised 2019-11

Superseding J1315 JAN1991

(R) Off-Road Tire and Rim Selection and Application

RATIONALE

This document is being revised to reflect current vehicles and industry practices.

1. SCOPE

This SAE Standard provides general guidelines for the proper selection and application of off-road tires and rims, as defined in SAE J751 and applied to earthmoving machines described in SAE J1116 and ISO 6165.

- 1.1 Off-road tires having Industry Codes E, L, G, C, and LS; together, with their appropriate rims, are included in this document (refer to SAE J751).
- 1.2 Consideration of tire characteristics such as flotation, cut and bruise resistance, ride quality, wear, and tractive ability are not covered herein.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest version of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J751 Off-Road Tire and Rim Classification - Construction Machines

SAE J1098 Tonne Kilometer Per Hour Application

SAE J1116 Categories of Off-Road Self-Propelled Work Machines

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Documents
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2.1.2 Tire and Rim Association Publications

Available from The Tire and Rim Association, Inc., 175 Montrose West Avenue, Suite 150, Copley, OH 44321, Tel: 330-666-8121, www.us-tra.org.

The Tire and Rim Association, Inc. Yearbook

2.1.3 ISO Publications

Copies of these documents are available online at <http://webstore.ansi.org/>.

ISO 6165 Earth-Moving Machinery - Basic Types - Identification and Terms and Definitions

3. GENERAL

Tires discussed in this document are included under a general designation entitled off-road. As such, they are, by condition of their service, subject to a greater diversity of operating forces than those utilized for on-highway service. The type and magnitude of these forces are a function not only of tire construction, but also of machine performance and operating conditions.

The interaction of tire, machine, and operating conditions is critical and can be favorable or unfavorable to tire performance and life. The effect of such phenomena is not within the scope of general load tables alone (see 4.1.1).

4. TIRE SELECTION AND APPLICATION

4.1 Selection of tire size and carcass strength on each axle shall be based on the highest individual wheel load and the speed range capability of the machine on which the tires will be applied (see Section 6).

4.1.1 Maximum load per tire shall not be greater than that specified in the applicable tables of The Tire and Rim Association, Inc. (TRA) Yearbook, or that approved by the manufacturer of the specific tires to be placed in service.

4.1.2 When performance capability of the machine is such that the possibility of excessive heat generation in the tire exists, consideration should also be given to the average tire load and speed in the machine work cycle. Adjustments can be made in maximum load and speed so that the tire operating temperature is limited to an acceptable level by the following methods.

4.1.2.1 For transport machines (for example, end dumps, ADTs, and self-propelled scrapers), reference should be made to SAE J1098 or to other specialized data available from individual tire manufacturers.

4.1.2.2 For work machines (for example, wheel loaders, wheel dozers, and industrial equipment such as gantry cranes and lift trucks), the tire manufacturer's recommendations should be sought.

5. RIM SELECTION

5.1 Selection of rim size, contour, and type (or style) designation shall be based on the tire design, the highest individual wheel load, the required tire inflation pressure, the speed range capability of the machine, and the method by which the rim is attached to the hub of the machine.

5.1.1 Rim size and contour shall be in accordance with specific recommendations given by either:

5.1.1.1 The Tire and Rim Association, Inc. (TRA) Yearbook for those tires included in that standard.

5.1.1.2 The manufacturers of the specific tires and rims to be mounted and placed in service. Rim type or style designation shall conform to the specific recommendations given by the manufacturer of the rims. It must be assured the tire bead area contour and rim fitment are compatible.