



SURFACE VEHICLE INFORMATION REPORT

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Off-Road Tire Replacement Guidelines

RATIONALE

Minor revisions have been made to clarify the hazards of running a tire to destruction and to specify inspection of tires that have been run severely underinflated. Minor wording changes have been made for clarification.

FOREWORD

This informational report defines typical tire damage, establishes guidelines for identifying personnel responsible for evaluating the damage, and assists tire users in considering the damage along with site specific conditions to determine the need for replacement, removal, or repair of off-road tires.

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1. SCOPE

This SAE information report covers the basic guidelines concerning off-road tire conditions that warrant replacement, removal, or repair. This material can assist the tire user in establishing specific written procedures for each job site.

1.1 Purpose

The purpose of this SAE document is to provide guidelines for construction, mining (surface and underground), and industrial operations in the development of site specific plans to identify conditions that warrant replacement, removal, or repair of off-road tires. These guidelines can also assist tire users in extending the useable life of tires.

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 issue 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 Ton Kilometer Per Hour Application

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

SAE J1315 Off-Road Tire and Rim Selection and Application

SAE J1337 Off-Road Rim Maintenance Procedures and Service Precautions

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 TRA Publication

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

Yearbook

2.2.2 ETRTO Publication

Available from European Tyre and Rim Technical Organisation, Av. Brugmann, 32 - 1060 Brussels, Belgium, Tel: +32-2-344-40-59, info@etrto.org.

Standards Manual

2.2.3 RMA Publication

Available from Rubber Manufacturers Association, 1400 K Street, NW, Suite 900, Washington, DC 20005, Tel: 202-682-4800, www.rma.org.

Care and Service of Off-The-Highway Tires

2.2.4 MSHA Publication

Available from Mine Safety and Health Administration, 201 12th Street South, Suite 401, Arlington, VA 22202-5450, Tel: (202) 693-9400, www.msha.gov.

MSHA IG 60 Tire and Rim Safety Awareness Program, Instruction Guide Series

3. DEFINITIONS

3.1 BULGE

An area of separation between or within tire components that is visible as a localized raised area on the sidewall or tread of the tire due to air or other inert gas, e.g. nitrogen, that is trapped between tire components. This is not the expected outward deflection in the sidewall when the tire is under load, nor does it include the sidewall undulations (bulge-like appearances) adjacent to an indentation from a sidewall splice or molding undulations due to large abrupt changes in tread gauge between the lug and void.

3.2 BLISTER

A localized bubble on the surface of a tire.

3.3 CHIPPING

Flaking or tearing away small bits of tread rubber.

3.4 CHUNKING

Tearing or breaking away pieces of tread rubber.

3.5 CRACKS

Splits or narrow breaks in rubber compounds. Such splits need not be initiated by a foreign object. Also known as a split.

3.6 CUT

Damage made by sharp or jagged objects (e.g., rocks, rock fragments). Also known as a snag.

3.7 EXPOSED CORD

Belt or breaker, ply (usually nylon or steel) or other reinforcement and steel chafer or bead area reinforcement that can be seen. Excludes fabric (usually nylon) chafer. See Appendices A and B.

3.8 PUNCTURE

Any penetration of a tire's air chamber by a foreign object resulting in loss of air.

3.9 SEPARATION

The parting or delamination of any adjacent parts of the tire (ply to ply, ply to rubber, etc.).

NOTE: See Appendices A and B diagrams for tire construction components.

4. TIRE REMOVAL, REPLACEMENT AND REPAIR RESPONSIBILITY

Due to the uniqueness of off-road operations, a written procedure (see Appendices C through F), specifically developed and implemented for each job site, should include:

- 4.1 Individuals (or job title) responsible for establishment of procedures. These typically include the Safety Department, Tire Shop Foreman, Maintenance Superintendent, appropriate job site management, servicing tire dealer, and tire manufacturer as required.
- 4.2 Management should identify one or more individuals or job titles responsible for deciding when a tire should be removed, repaired, or replaced.