



AEROSPACE RECOMMENDED PRACTICE

ARP5507™

REV. A

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Superseding ARP5507

Aircraft Tire-to-Wheel Performance Characteristics

RATIONALE

This recommended practice has been amended to remove references to obsolete ISO standards, to update references to relevant U.S. government publications, to amend the recommended test procedure, and to provide for a revised set of in-service performance assessments.

FOREWORD

The performance of an aircraft tire/wheel assembly in service is dependent on the geometrical fit, load distribution, and performance at the tire/wheel interface while rolling. This document focuses on the tire-to-wheel circumferential movement for a new tubeless tire.

1. SCOPE

This SAE Aerospace Recommended Practice (ARP) defines the performance criteria and validation for tire circumferential movement on the rim, in the laboratory, by a static test, as well as a performance assessment in service. This document is applicable to braked wheel positions using both bias ply and radial aircraft tires.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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.

ARP5265 Minimum Operational and Maintenance Responsibilities for Aircraft Tire Usage

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<https://www.sae.org/standards/content/ARP5507A>

Documents
Document Sharing Hub

2.1.2 FAA Publications

Available from Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591, Tel: 866-835-5322, www.faa.gov.

TSO-C62 Technical Standard Order, Aircraft Tires

2.1.3 Tire and Rim Association Publications

Available from Tire and Rim Association, Inc., 4000 Embassy Parkway, Suite 390, Akron, OH 44333, www.us-tra.org.

TRA Aircraft Year Book

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 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.

AS4833 Aircraft New Tire Standard - Bias and Radial

2.2.2 EASA Publications

Available from European Union Aviation Safety Agency, Konrad-Adenauer-Ufer 3, D-50668 Cologne, Germany, Tel: +49 221 8999 000, www.easa.europa.eu.

ETSO-C62 European Technical Standard Order, Aircraft Tyres

2.2.3 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-DTL-5041 Detail Specification, Tires, Ribbed Tread, Pneumatic, Aircraft

3. TECHNICAL BACKGROUND

3.1 General

Aircraft tire/wheel assemblies should develop friction and load-bearing capabilities at the tire-to-wheel interface. The design and dimensional control of the wheel seating surface and the tire bead contact area should support the following functions:

- Ease of mounting and dismounting, without damage to tire or wheel;
- Sealing of the tire/wheel interface against inflation pressure loss;
- Transmitting torque during braking;
- Sustaining the bending forces of standard deflection and over-deflection; and
- Sustaining side load forces without loss of inflation pressure.