



AEROSPACE RECOMMENDED PRACTICE

ARP5483™/1

REV. A

Issued 2005-09
Revised 2012-12
Reaffirmed 2018-08

Superseding ARP5483/1

Rolling Element Bearing No-Load Torque Test

RATIONALE

ARP5483/1A is a five-year review with only minor editorial changes.

1. SCOPE

This test method outlines the recommended procedure for performing the no-load rotational starting torque test on airframe rolling bearings. Bearings covered by this test method shall be antifriction ball bearings and spherical roller bearings.

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 ISO Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ISO 10012 Measurement management systems - Requirements for measurement processes and measuring equipment

ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2018 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
<http://www.sae.org>

SAE WEB ADDRESS:

Full document details: SAE ARP5483_1A

SAE values your input. To provide feedback on this Technical Report, please visit <http://standards.sae.org/ARP5483/1A>

2.2 Definitions

Starting torque is defined as the rotational force required to initiate rotation of one bearings raceway relative to the other raceway.

3. GENERAL REQUIREMENTS

3.1 Test Apparatus

3.1.1 Torque Tester

The testing device shall be capable of measuring the starting rotational torque within the bearing, without applying external radial or axial loads. The torque shall be applied either using electronically driven torque measuring device that starts from a static state and slowly increases torque until rotation occurs or applied manually using a torque watch. The gage should be accurate to within 10% of the measured value. A simple manual testing device is shown in Figure 1.

3.1.2 (Alternative Method) In the event that the torque apparatus described in 3.1.1 is unavailable, it is permissible to use a force gage and a string (see 4.2). Torque values properly obtained from any of these methods are acceptable.

3.1.3 Calibration

Calibration of the torque tester shall be in accordance with ISO/IEC 17025 or ISO 10012, and the manufacturer's specifications. Calibration of the torque tester shall be within limits at the time of the test.

3.1.4 Bearing Adapter

The bearing holding adapter shall hold the inner ring of the bearing tightly enough to turn it without causing distortion. The inner bearing ring may be held by the wedging action of a relatively soft material, or clamping of its faces. The bearings adapter shall be directly attached to the torque tester. A simple adapter, which may be used for multiple bore sizes, is shown in Figure 1.

3.1.5 Equipment Variation

Variations in the apparatus to test and hold the bearing are permissible providing the procuring activity is provided with sufficient calibration data to verify the accuracy of the test conditions and results.

3.2 Test Specimen

3.2.1 Disposition of Specimen

Bearings having acceptable torque levels and that remain otherwise undamaged after completion of this test are suitable for delivery into service as this test is considered to be nondestructive. If any other test should be required, then the suitability for delivery of specimen will be based on those other tests.