



SURFACE VEHICLE RECOMMENDED PRACTICE

J2437™

AUG2023

Issued 1998-12
Stabilized 2023-08

Superseding J2437 DEC1998

Air Starter Motor Test Procedure

RATIONALE

This SAE Recommended Practice is being stabilized because it covers mature technology, expertise no longer resides in the owning committee, and the technical committee cannot find users for this document. This document has not been updated or downloaded in many years.

STABILIZED NOTICE

This document has been declared "STABILIZED" by SAE Vehicle EE System Diagnostics Steering Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

SAENORM.COM : Click to view the full PDF of J2437_202308

SAE Executive Standards Committee 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 © 2023 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:

For more information on this standard, visit
https://www.sae.org/standards/content/J2437_202308/

1. Scope—This SAE Recommended Practice provides a standard procedure for testing the output performance and plotting the performance curve of air starting motors.

2. References

2.1 Related Publications—The following publications are provided for information purposes only and are not a required part of this document.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J543—Starting Motor Pinions and Ring Gears

SAE J544—Electric Starting Motor Test Procedure

2.1.2 ISO PUBLICATION—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO 7650—Commercial vehicles and buses—Mounting dimensions for starter motors of type 1, 2, 3, and 4

3. Description

3.1 Testing Procedure—The starter shall be mounted in a test stand as shown schematically in Figure 1. Performance curves are established by running the starting motor in one of two methods. Method A involves plotting a curve from discrete points while Method B is achieved by operating the motor in a continuous mode while the output is automatically recorded and/or plotted. Deviation from either of these two methods shall be noted on the performance curve. Air pressure shall be measured at the starter inlet port and adjusted as required to maintain a constant value during the entire test. The air pressure should not exceed the recommendation of the manufacturer. All torque measurements should be reflected to the starter output shaft. Ambient air temperature should be recorded. The supply air moisture and lubricant content should be noted. All data shall be reduced to the standard conditions of 1 Bar (14.7 psig) and 21 °C (70 °F).

3.1.1 TEST METHOD A—Run the starting motor at various discrete torque loads and record the air inlet and exhaust pressure, air temperature, torque, air flow, and speed. Sufficient points should be recorded and a linear regression method should be used to generate smooth torque, power, and flow curves from the respective data points. A typical performance curve is shown in Figure 2.

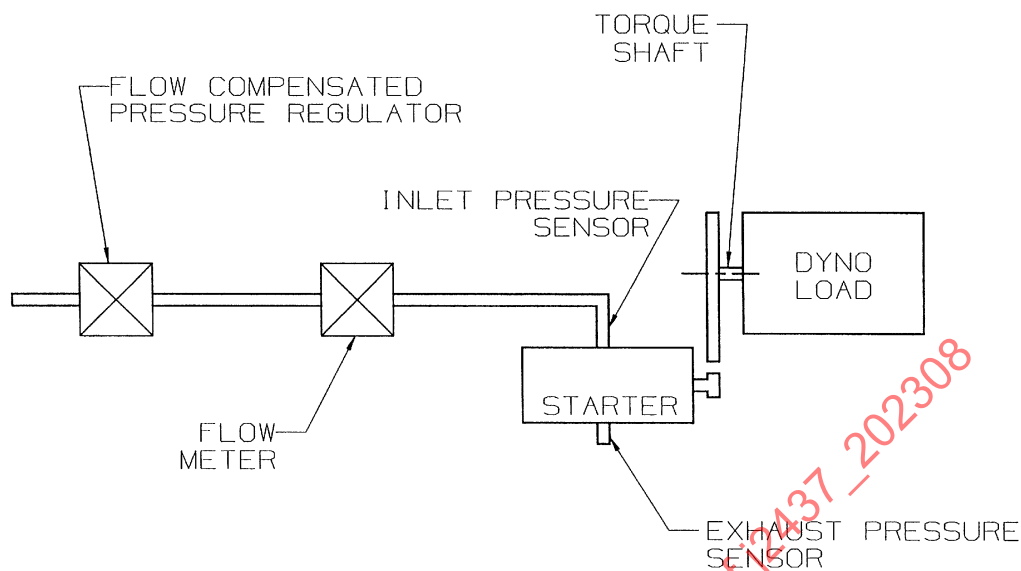


FIGURE 1—STARTER MOTOR PERFORMANCE TEST ARRANGEMENT

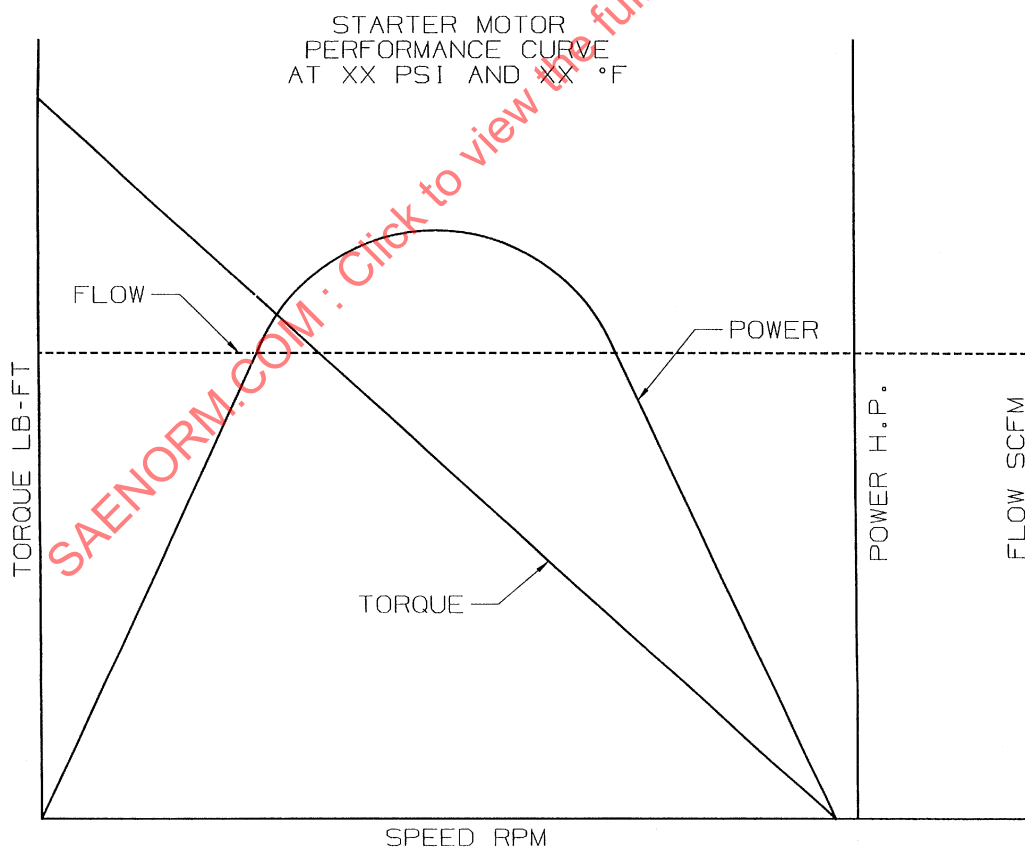


FIGURE 2—STARTER MOTOR PERFORMANCE CURVES AT SPECIFIC PRESSURE AND AMBIENT TEMPERATURE