



SURFACE VEHICLE STANDARD

J1535™

AUG2021

Issued 1996-08
Revised 2014-10
Cancelled 2021-08

Superseded by J3078/5

Performance Test for Windshield Defrosting Systems
for Off-Road, Self-Propelled Work Machines

RATIONALE

SAE J1535 is being cancelled and superseded by SAE J3078/5.

CANCELLATION NOTICE

This Technical Report has been declared "CANCELLED" as of August 2021 and has been superseded by SAE J3078/5. By this action, this document will remain listed in the respective index, if applicable. Cancelled Technical Reports are available from SAE.

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 © 2021 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 J1535_202108

For more information on this standard, visit
https://www.sae.org/standards/content/J1535_202108

Documents

Document Sharing Hub

FOREWORD

This document is the basis for ISO 10263 Part 5 and ISO 14269 Part 6. SAE J1535 covers additional work machines not covered by ISO documents

1. SCOPE

This SAE Standard establishes uniform test procedures for the defrosting systems of off-road, self-propelled work machines used in construction, general purpose industrial, agricultural, and forestry machinery as referenced in table one of this document. It includes tests that can be conducted with uniform test equipment in commercially available laboratory facilities, as well as in an appropriate outdoor environment.

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 724-776-4970 (outside USA), www.sae.org.

SAE J381	Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, and Multipurpose Vehicles
SAE J899	Operator's Seat Dimensions for Off-Road Self-Propelled Work Machines
SAE J1116	Categories of Off-Road Self-Propelled Work Machines
SAE J1163	Determining Seat Index Point

2.1.2 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 5353	Earth-moving machinery - Seat index point
ISO 10263-5	Earth-Moving Machinery - Operator Enclosure Environment - Part 5: Windscreen Defrosting System Test Method

2.2 Related Publication

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

2.2.1 ISO Publication

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

ISO 10263-5	Earth-Moving Machinery - Operator Enclosure Environment - Part 5: Windscreen Defrosting System Test Method
-------------	--

3. DEFINITIONS

3.1 DEFROST

To free from ice on the outside surfaces of the glazing with the defroster system.

3.2 WINDSHIELD DEFROSTER SYSTEM

Means intended to defrost the windscreen and any adjacent glazing surfaces that are determined to be within the zones identified in Table 1..

3.3 DAYLIGHT OPENING (DLO)

The maximum unobstructed opening through any glazed aperture, with trim moldings and mounting seals adjoining the glazing surface installed normal to the glass surface.

NOTE: Fretting is considered an obstruction and is not included as part of the DLO.

3.4 DEFROSTED AREA

That area of the windshield consisting of dry cleared surface and melted or partially melted (wet) test coating, and excluding that area of the windscreen covered with dry test coating of ice. For further explanation on defrosted areas see Figure 1.

3.5 HEAT TRANSFER MEDIUM (HTM)

The means through which defroster system heating is achieved.

3.6 SEAT INDEX POINT (SIP)

The point in the central, vertical, and longitudinal plane of the SIP Measuring Device per SAE J1163 , Figure 1, when installed in the operator seat as designated in 5.2 of SAE J1163.

4. DEFROSTING TEST

4.1 Test Equipment

- 4.1.1 Environmental chamber sufficiently large to contain the base machine or machine operator enclosure with provision for circulating air.
- 4.1.2 In lieu of a cold chamber, the test may be conducted outdoors under test conditions similar to those in a cold chamber. (See 4.2.1.)
- 4.1.3 Means for recording the boundaries of the windshield areas defrosted. (A wax pencil can be used to outline defrosted areas.)
- 4.1.4 Device to measure the rotational frequency (RPM) with a measuring accuracy of 2% of observed value.
- 4.1.5 Stopwatch or other timing device.
- 4.1.6 Thermometers or other temperature measuring devices with an accuracy of $\pm 0.5^{\circ}\text{C}$.
- 4.1.7 Throttle control device (if desired).
- 4.1.8 A spray device for applying mist to the windshield with the following characteristics:
 - a. Fluid - Water (distilled)
 - b. Liquid nozzle size diameter - 1.7 mm
 - c. Operating gun gage pressure - 345 kPa $\pm$ 20 kPa
 - d. Pattern at 200 mm from surface - 300 mm $\pm$ 50 mm wide
- 4.1.9 Device for measuring quantity of water provided for spray device $\pm$ 2.5%.
- 4.1.10 Auxiliary power supply for heater blower motor when bench testing operator enclosure only.
- 4.1.11 Anemometer to measure wind speed With a measuring accuracy within 0.5 m/s.

