



SURFACE VEHICLE STANDARD

J1503™**SEP2021**

Issued 1998-07
Revised 2004-09
Reaffirmed 2021-09

Superseding J1503 SEP2004

Performance Test for Air-Conditioned, Heated, and
Ventilated Off-Road, Self-Propelled Work Machines

RATIONALE

SAE J1503 has been reaffirmed to comply with the SAE Five-Year Review policy.

Foreword

This SAE Standard outlines a test procedure for off-road, self-propelled work machines providing a uniform measurement of the operator environmental temperature provided by a complete air-handling system operating in a specified ambient environment; and establishes minimum performance levels for the operator enclosure's heating, ventilating, and air-conditioning system

1. Scope

This SAE Standard applies to off-road, self-propelled work machines used in earth moving, agriculture, and forestry as defined in SAE J1116, and establishes the following minimum performance levels in the operator's environment for the seated position:

- 1.1 Minimum operator enclosure pressurization and ventilating levels in the operator's environment for the seated position.
- 1.2 Maximum operator environment temperature under air conditioning operation.
- 1.3 Minimum operator environment temperature under heating operation.

2. References

2.1 Applicable Publications

The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

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Full document details: SAE J1503_202109

For more information on this standard, visit
https://www.sae.org/standards/content/J1503_202109

Documents

Document Sharing Hub

2.1.1 SAE PUBLICATIONS

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

SAE J1012—Operator Station Pressurization System Test Procedure
SAE J1091—Earthmoving Machinery—Operators Field of View
SAE J1116—Categories of Off-Road Self-Propelled Work Machines
SAE J1163—Determining Seat Index Point
SAE J1349—Engine Power Test Code
SAE J1533—Operator Enclosure Air Filter Element Test Procedure
SAE J1559—Measurement of Solar Heating Effect

2.1.2 ISO PUBLICATIONS

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002.

ISO 5006-1—Earth-moving machinery—Operator's field of view
ISO 5353—Earth-moving machinery, and tractors and machinery for agriculture and forestry—Seat index point
ISO 5721—Tractors for agriculture—Operator's field of vision
ISO 9249—Earth-moving machinery—Engine test code—Net power

2.2 Related Publications

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

2.2.1 ASHRAE PUBLICATIONS

Available from 17191 Tullie Circle NE, Atlanta, GA 30329-2305.

ASHRAE Temperature Measurement 4166
ASHRAE Handbook of Fundamentals, 1981

2.2.2 ASME PUBLICATIONS

Available from ASME, 345 East 47th Street, New York, NY 10017-2330.

ASME Power Test Code, Pressure Measurement, PTC 19.21972
ASME Power Test Code, Electrical Measurement, PTC 19.61955

2.2.3 ISO PUBLICATIONS

Available from ISO, 25 West 43rd Street, New York, NY 10036-8002.

ISO 10263-4—Earth moving machinery—Operator enclosure environment—Part 4: Operator enclosure ventilating, heating and/or air-conditioning test method
ISO 14269-2—Tractors and self propelled machines for agriculture and forestry—Operator enclosure environment.

3. Definitions

3.1 Air-Handling System

Any system that moves air within the operator enclosure. The air source and system components may be within and/or outside the operator enclosure and may contain the air in some manner as part of their function.

3.2 Operator Environment

The space surrounding the operator as defined by the temperature measurement locations described in Figure 1.

3.3 Air-Conditioning System

Any system which lowers the effective temperature of the air within the operator environment.

3.4 Heating System

Any system which raises the effective temperature of the air within the operator's environment.

3.5 Ventilating System

Any system which provides outside air to, and maintains air circulation within, the operator's environment.

3.6 Operator Enclosure

The part of the machine which forms a boundary between the space surrounding the operator and the outside environment. This boundary shall comprise of components such as the glass, roof, and floor which completely surround the operator. This boundary effectively eliminates free passage of air, dust, or other substances into the area around the operator.

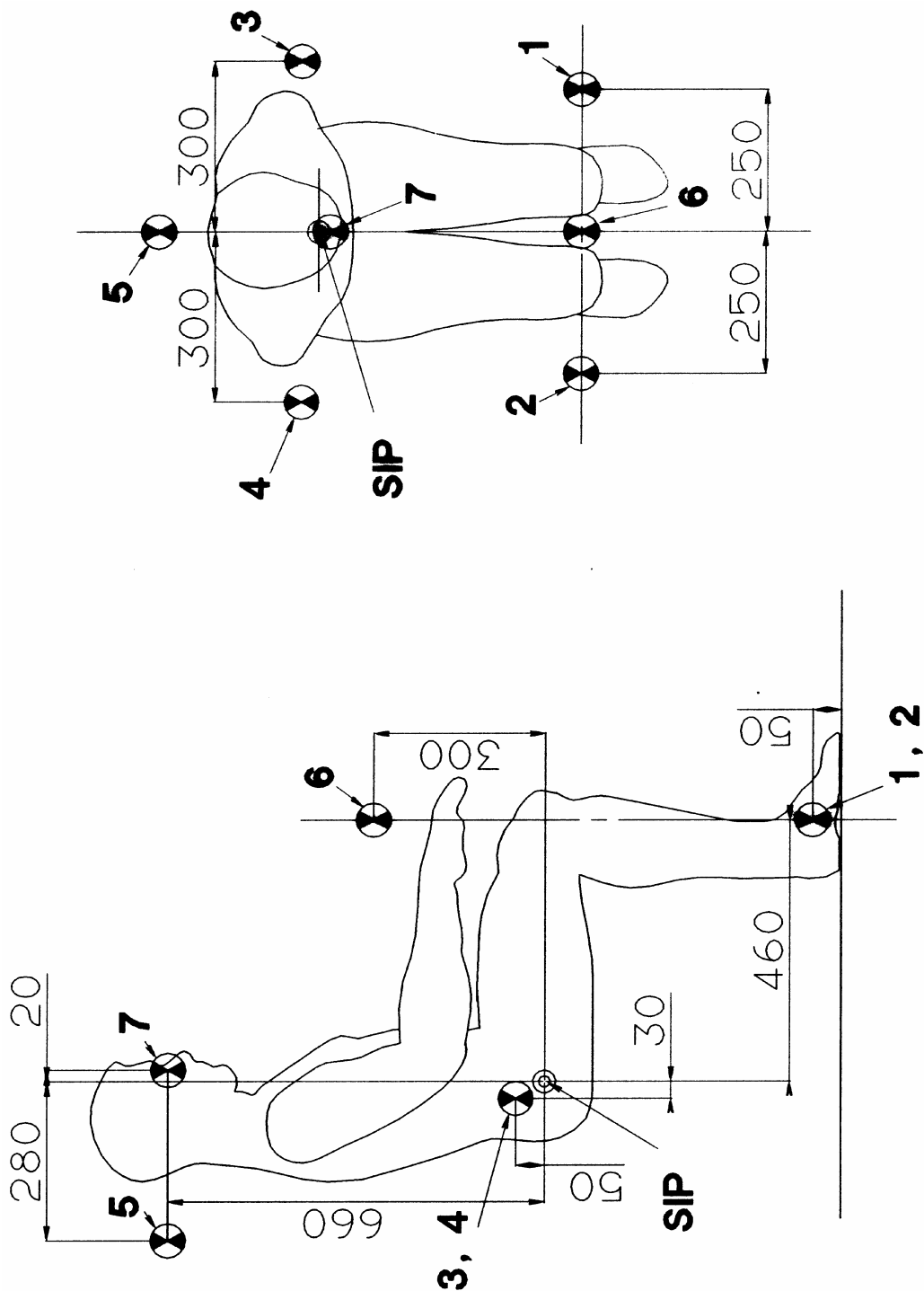


FIGURE 1—TEMPERATURE AND VELOCITY LOCATIONS (DIMENSIONS IN mm)