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Tractors and self-propelled machines for agriculture and forestry — Test method for performance of air-conditioning system

Tracteurs et machines automotrices agricoles et forestiers — Méthode d'essai des performances des systèmes de conditionnement d'air

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ISO/TR 8953 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*.

The reasons which led to the decision to publish this document in the form of a technical report type 1 are explained in the Introduction.

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0 Introduction

0.1 This document is issued as a Technical Report because it possesses the following limitations to being regarded as an International Standard; agreement could not therefore be reached for its publication as a Standard.

- a) Reproducible results can be anticipated only when the ambient environment is controlled. This is possible with tractors which may be fully enclosed in environmental chambers during testing, but may not be possible for machines, such as combine harvesters, which are too large for most environmental chambers. There is therefore a need to conduct the tests in uncontrolled environments (such as under a canopy for large machines).
- b) The method specifies engine loading. Although this is necessary for tractors where engine and transmission heating will affect cab heat load, it may not be necessary for combine harvesters.
- c) Although a loaded engine test compensates for solar heat load in a tractor test, no such compensation is possible in tests on a combine harvester.

There was general agreement that more information and experience is needed before an International Standard can be established. It was also agreed however that publication as a Technical Report would be useful in outlining an accepted preferred test method for air-conditioning systems.

0.2 The purpose of this Technical Report is to establish, for tractors and self-propelled machines for agriculture and forestry, a uniform test method to measure the contribution to operator environmental temperature and humidity provided by an air-conditioning system operating in a specified ambient environment. The method does not determine the complete climatic environment of the operator since this is also affected by heat radiation from sources other than those on the machine, for example solar radiation.

1 Scope and field of application

This Technical Report specifies a test method to evaluate the performance of air-conditioning systems on tractors and self-propelled machines for agriculture and forestry.

NOTE — The term "vehicle" in this Report refers to tractors and self-propelled machines for agriculture and forestry and is used for editorial clarity and conciseness.

The term "air-conditioning system" refers to any electro-mechanical refrigeration system intended to reduce air temperatures in the operator's enclosure.

This recommended procedure can be used to evaluate any air-conditioning system; it does not apply to ventilating systems using ambient temperature air.

2 References

ISO 3737, *Agricultural tractors and self-propelled machines — Test method for enclosure pressurization systems*.

ISO 5353, *Earth-moving machinery, and tractors and machinery for agriculture and forestry — Seat index point*.

3 General requirements

The air-conditioning system shall be powered only by standard equipment on the test vehicle. Components, filters and blowers shall be standard production parts or the equivalent, adjusted within the vehicle manufacturer's specification limits.

4 Apparatus

The apparatus shall comprise the following.

4.1 Eight thermometers or other temperature-measuring devices, having an accuracy of $\pm 0,5$ °C, of which seven thermometers or devices are for use within the cab of the vehicle, and the eighth for measuring ambient dry bulb temperatures.

4.2 Devices for measuring ambient and cab wet bulb temperatures, having an accuracy of $\pm 0,5$ °C.

NOTE — A motor driven psychrometer is recommended.