

# INTERNATIONAL STANDARD

**ISO**  
**5131**

Second edition  
1996-08-01

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## **Acoustics — Tractors and machinery for agriculture and forestry — Measurement of noise at the operator's position — Survey method**

*Acoustique — Tracteurs et matériels agricoles et forestiers — Mesurage  
du bruit au poste de conduite de l'opérateur — Méthode de contrôle*



Reference number  
ISO 5131:1996(E)

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 5131 was prepared jointly by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*, and ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 3, *Safety and comfort of the operator*.

This second edition cancels and replaces the first edition (ISO 5131:1982), which has been technically revised (see Introduction).

Annexes A to D form an integral part of this International Standard. Annex E is for information only.

## Introduction

**0.1** In this revision of ISO 5131, the "Seat Index Position" (SIP) has been adopted in place of the "Seat Reference Point" (SRP). The mean seat position now used in this test is in accordance with ISO 5353. The test seat is therefore moved to the mean horizontal position instead of the rearmost position used in the previous edition. The adjustment figure used is half the minimum horizontal adjustment as stated in ISO 4253:1993, *Agricultural tractors — Operator's seating accommodation — Dimensions*.

To adopt the seat index point (SIP) in place of the seat reference point (SRP), the relationship of SIP 90 mm above and 140 mm in front of the SRP has been used. This relationship should be used when converting from SRP to SIP or vice versa.

ISO 3462:1980, *Tractors and machinery for agriculture and forestry — Seat reference point — Method of determination*, used a relationship of SIP 97 mm above and 130 mm in front of the seat reference point. In a practical comparison, however, it has been found that the 90 mm vertical and 140 mm horizontal relationship gives the most accurate conversion.

Variations from ISO 3462 arise from the following:

- a) seat cushions are not horizontal in practice;
- b) the angle of the seat cushion to the backrest is not 90°;
- c) the curvature on the backrest places the SIP device slightly forward of the SRP device.

**0.2** When the first edition of ISO 5131 was initially reviewed, the objective was to produce a consistent, meaningful and simple low-cost test. Cab designs from the major manufacturers were such that A-weighted sound pressure levels were all well below the critical 90 dB level and this was a reason for dropping the drawbar-load in favour of a simple no-load test.

More recent requirements, however, propose that operators should be made aware of the levels of noise to which they may be exposed during normal work so that the operators or their employers may take necessary action. To achieve this, it has been necessary to reinstate the drawbar-load test and further to include an optional "doors and windows open" test.

# Acoustics — Tractors and machinery for agriculture and forestry — Measurement of noise at the operator's position — Survey method

## 1 Scope

This International Standard specifies a method for the measurement of the noise at the position of the operator(s) of a tractor or machine used in agriculture and forestry. The measured noise relates only to the basic machine and applies to self-propelled tractors and machines with either machine-carried or pedestrian operators. The results will provide information which will enable operators to avoid exposing themselves to noise levels which could put their hearing at risk.

The test procedures specified in this International Standard are survey methods as defined in ISO 2204.

This International Standard also specifies the general conditions for measuring and reporting the noise at an operator's position on agricultural and forestry tractors and field machines.

Additional conditions for measurements in connection with particular types of machines are specified in annexes as follows:

Annex A — Agricultural and forestry tractors

Annex B — Self-propelled agricultural machines

Annex C — Pedestrian-controlled agricultural machines

Annex D — Forestry forwarders and skidders

The conditions specified for the operation of the machines during the measurements are designed to provide a realistic and repeatable assessment of the maximum noise to which an operator should be subjected when operating a machine.

NOTE 1 Further annexes specifying, for example, additional conditions for other types of agricultural and forestry machinery may be included in future revisions of this International Standard.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2204:1979, *Acoustics — Guide to International Standards on the measurement of airborne acoustical noise and evaluation of its effects on human beings*.

ISO 5353:1995, *Earth-moving machinery, and tractors and machinery for agriculture and forestry — Seat index point*.

IEC 651:1979, *Sound level meters*.

IEC 942:1988, *Sound calibrators*.

IEC 1260:1995, *Electroacoustics — Octave-band and fractional-octave-band filters*.

## 3 Measurement requirements

**3.1** All readings of the sound level meter shall be taken with the time weighting S.

**3.2** The values measured shall be A-weighted sound pressure levels for the overall sound levels, expressed in decibels.