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Tractors for agriculture — Operator's field of vision

Tracteurs agricoles — Champ de visibilité du conducteur .



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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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5721 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*.

This second edition cancels and replaces the first edition (ISO 5721 : 1981), of which it constitutes a revision (see the Introduction).

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Introduction

In the revision of this International Standard to adopt "Seat Index Point" (SIP) in place of "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.

The 1980 edition of ISO 3462, *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 was found that the 90 mm vertical and the 140 mm horizontal relationship gave the most accurate conversion.

Variation from the 1980 edition of ISO 3462 is due to

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

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Tractors for agriculture — Operator's field of vision

1 Scope

This International Standard specifies practical and mathematical methods of determining the masking effects of obstructions on the angles of vision forward, to the rear and upwards of seated operators of tractors for agriculture.

It does not take account of detachable implements and mounted elements, for example front loaders, pallets, etc.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was 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 edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5353 : 1978, *Earth-moving machinery, and tractors and machinery for agriculture and forestry — Seat index point.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 field of vision : Area which can be viewed from the seated operator's eye position.

3.2 eye position : Specified notional location of the operator's eye. (See clause 5.)

3.3 semi-circle of vision to the front : Semi-circle described about a point situated in the horizontal plane of the surface below the tractor and vertically below the eye position, such that, when facing the usual direction of motion, it is situated in front of the tractor and its limiting diameter is at right angles to the tractor longitudinal median plane. (See figure 2.)

3.4 semi-circle of vision to the rear : Semi-circle described about a point situated in the horizontal plane of the surface below the tractor and vertically below the eye position, such that, when facing the usual direction of motion, it is situated behind the tractor and its limiting diameter is at right angles to the tractor longitudinal median plane. (See figure 3.)

3.5 angle of vision upwards : Angle of vision limited downwards by a horizontal plane passing through the eye position and upwards by planes containing the rays of vision from the eye position to points of obscuration caused by vehicle components other than those which cause masking effects as defined in 3.6.

3.6 masking effects : Chords of the sectors of a semi-circle of vision which cannot be seen from the eye position due to structural components, for example roof pillars, exhaust pipes, etc.

4 Measurement accuracy

The equipment and techniques used to make the physical measurements shall be accurate to within $\pm 2\%$.

5 Eye position

The eye position shall be located 670 mm above and 10 mm in front of the seat index point when determined in accordance with ISO 5353 (see figure 1).

6 Practical method

NOTE — An alternative mathematical method for the determination of masking effects (see 6.4.1) is given in clause 7.

6.1 Test area

6.1.1 The test area shall be capable of being darkened sufficiently to enable the light sources [see 6.2.1 b)] to cast distinct shadows or of being illuminated sufficiently to enable photographs to be taken or a sighting instrument to be used.

6.1.2 The area shall be large enough to accommodate the semi-circles of vision set for the particular test. It should preferably be large enough to accommodate both semi-circles with a common centre point.