

Methods for

Determination of operator's field of vision for agricultural tractors

[ISO title: Agricultural tractors — Operator's field of vision]

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Committees responsible for this British Standard

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- County Surveyors' Society
- Department of Industry (Mechanical Engineering)
- Forestry Commission
- Health and Safety Executive
- Home Timber Merchants' Association of Scotland
- Ministry of Agriculture, Fisheries and Food
- National Farmers' Union
- National Institute of Agricultural Engineering
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National foreword

This British Standard has been prepared under the direction of the Agricultural Machinery and Implements Standards Committee and is identical with ISO 5721:1981 “*Agricultural tractors — Operator’s field of vision*”, published by the International Organization for Standardization (ISO).

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

Wherever the words “International Standard” appear, referring to this standard, they should be read as “British Standard”.

Cross-reference. The Technical Committee has reviewed the provisions of ISO 3462, to which reference is made in the text, and has decided that it is acceptable for use in conjunction with this standard.

NOTE *Typographical error.* In Figure 3 for “Semi-circle of the rear” read “Semi-circle to the rear”.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope and field of application

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 agricultural tractors.

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

2 Reference

ISO 3462, *Agricultural tractors and machinery — Seat reference point*.

3 Definition

3.1 field of vision

the area which can be viewed from the seated operator's eye position

3.2 eye position

the specified notional location of the operator's eye (see clause 5)

3.3 semi-circle of vision to the front

a 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 longitudinal median plane of the tractor (see Figure 2)

3.4 semi-circle of vision to the rear

a 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 longitudinal median plane of the tractor (see Figure 3)

3.5 angle of vision upwards:

the 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

the 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 Accuracy of measurements

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 760 mm above and 150 mm in front of the seat reference point when determined, in accordance with ISO 3462, with the seat located as near as possible to the mid-positions of any vertical and horizontal adjustments and with the suspension deflected to its mid-position (see Figure 1).

6 Practical method

NOTE An alternative mathematical method for the determination of masking effects 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 prescribed for the particular test. Preferably, it should be large enough to accommodate both semi-circles with a common centre point.

6.1.3 The surface of the test area shall be flat and smooth, with a maximum slope of 1 %. The deviation from flatness caused by surface irregularities shall be limited to ± 25 mm in any 1 m length on any radial line from the centre point of the semi-circle of vision. The surface shall also be firm enough to prevent measurable penetration of the ground surface by the machine.

6.1.4 Preferably, the surface should be permanently marked out in 1 m squares.

6.1.5 Preferably, where the walls of the test area constitute the vertical cylindrical surfaces [described in 6.2.1 a)], they should be marked out in 1 m squares.