

INTERNATIONAL STANDARD

**ISO
8935**

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Tractors for agriculture and forestry — Mountings and apertures for external equipment controls

*Tracteurs agricoles et forestiers — Montages et ouvertures pour les commandes des
matériels extérieurs*



Reference number
ISO 8935 : 1990 (E)

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 8935 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*.

Tractors for agriculture and forestry — Mountings and apertures for external equipment controls

1 Scope

This International Standard specifies requirements to allow mounting of additional controls and instrumentation used for remote operation of supplementary machinery and equipment on tractors for agriculture and forestry, and provision of an electrical power-point adjacent to the mounting; it also lays down requirements for an aperture through which the control cable or hose enters the tractor cab.

The means of remote control interconnection include mechanical cable, electrical conductor and low-pressure pneumatic or hydraulic¹⁾ hose.

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 261 : 1973, *ISO general purpose metric screw threads — General plan*.

ISO 3463 : 1989, *Agricultural and forestry wheeled tractors — Protective structures — Dynamic test method and acceptance conditions*.

ISO 5700 : 1989, *Agricultural and forestry wheeled tractors — Protective structures — Static test method and acceptance conditions*.

3 Mounting points

Mounting holes as specified in 3.1 and 3.2 shall be provided as the minimum requirement. If a bracket to assist interchangeability is part of the manufacturer's specification for the tractor cab or implement, then the bracket shall be mounted using the

holes specified in 3.1 and 3.2. Examples of the method of mounting are shown in figures 1, 2 and 3. To meet these requirements, only mounting points specified by the manufacturer shall be used. The cab/tractor manufacturer shall establish the mounting point specification and location when testing the structure in accordance with ISO 3463 or ISO 5700.

3.1 Size and layout

At least one pair of holes, 120 mm $\pm$ 0,5 mm apart, shall be provided depending on cab structure and layout.

The holes shall be on an approximately vertical surface, and approximately aligned either vertically or horizontally.

The existing practice of using holes 150 mm apart and horizontal shall be allowed for on the mounting bracket by providing a third hole (see figure 1); this 150 mm dimension shall not be used for new cab designs.

If the mounting points go into box sections, they shall be either threaded to size M10 in accordance with ISO 261, or allow M10 thread inserts to be used.

3.2 Location

Primarily the mounting points shall be on the right side of the driver's seat in the main driving direction, but duplication should be considered to the driver's left, for left-handed drivers or tractors being used in reverse.

The holes shall be so placed that the remote controls are within normal reach of the operator. This International Standard does not preclude additional holes at positions approved by the cab/tractor manufacturer to facilitate use of controls operated with the body partly turned (controls positioned behind the driver position) or controls and instrumentation mounted ahead of the driver.

Any mounting holes when unused shall be plugged to maintain the intended cab noise insulation and environment.

The electric power-point shall be adjacent to these mounting points.

1) Attention is drawn to restrictions on use of hydraulic hoses within the cab by individual national legislation.

4 Control clearance

Consideration shall be given, when locating the mounting holes, to ensuring that the supplementary controls can be mounted in a practicable manner without interference from the existing tractor/cab layout.

5 Apertures

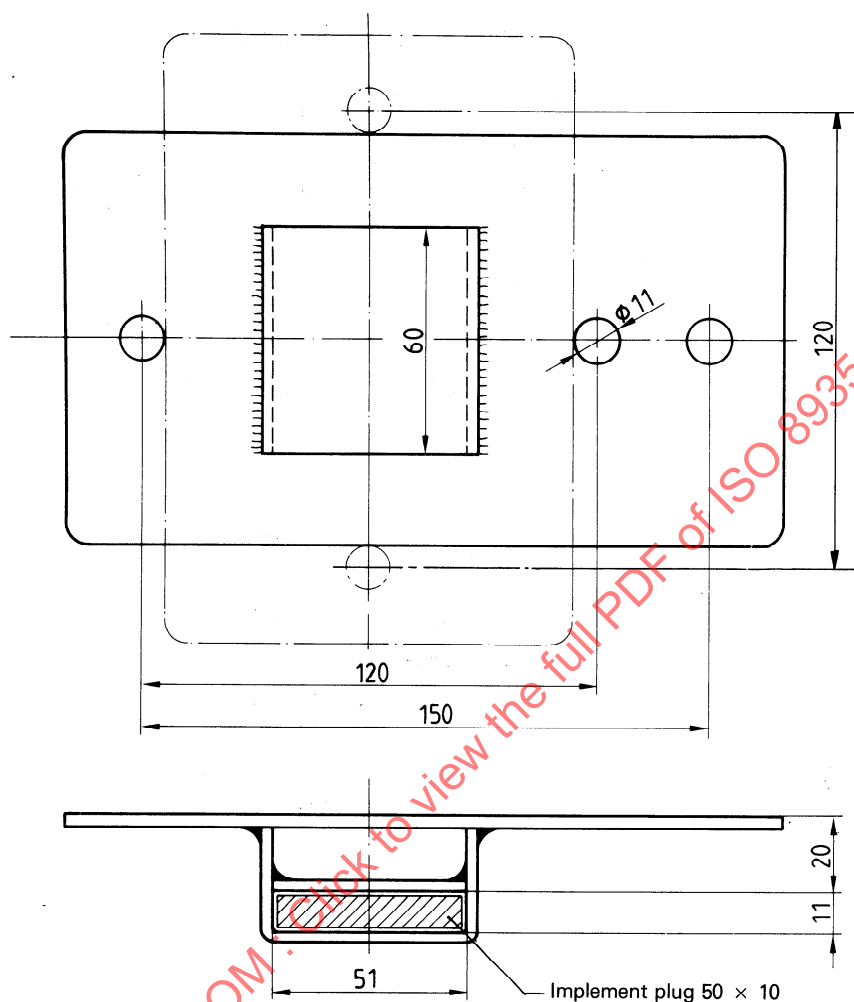
At least one aperture shall be provided on the cab rear surface. The size, shape and location of the aperture shall comply with either figure 4 or 5.

Steps shall be taken to seal the aperture when it has cables or hoses passing through it, to reduce dust and/or chemicals¹⁾ and noise¹⁾ getting in, and to maintain cabin pressurization when appropriate. Cables and hoses shall be guided outside the cab if the aperture is positioned significantly off the tractor longitudinal centreline to avoid ruptures when turning left or right with trailed equipment.

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1) Reference should be made to national legislation concerning these aspects.

Dimensions in millimetres

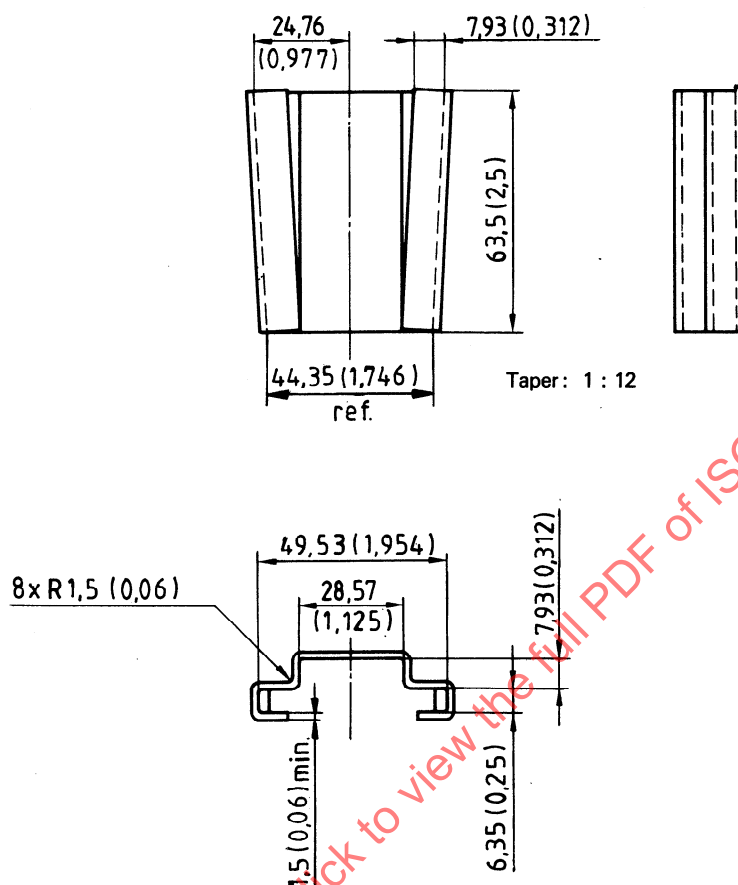


NOTES

- 1 Drawings are given to illustrate dimensions only, and do not specify a definitive shape.
- 2 Tolerances shall be as follows :
 - plug dimensions : $\pm 0,2$
 - slot dimensions : $\begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$
 - other : ± 1
- 3 A method of clamping is required to secure the plug in the slot.
- 4 The alternative vertical configuration is shown by the dashed line.

Figure 1 — Mounting holes and fixture

Dimensions in millimetres
(Inch dimensions in parentheses)



NOTES

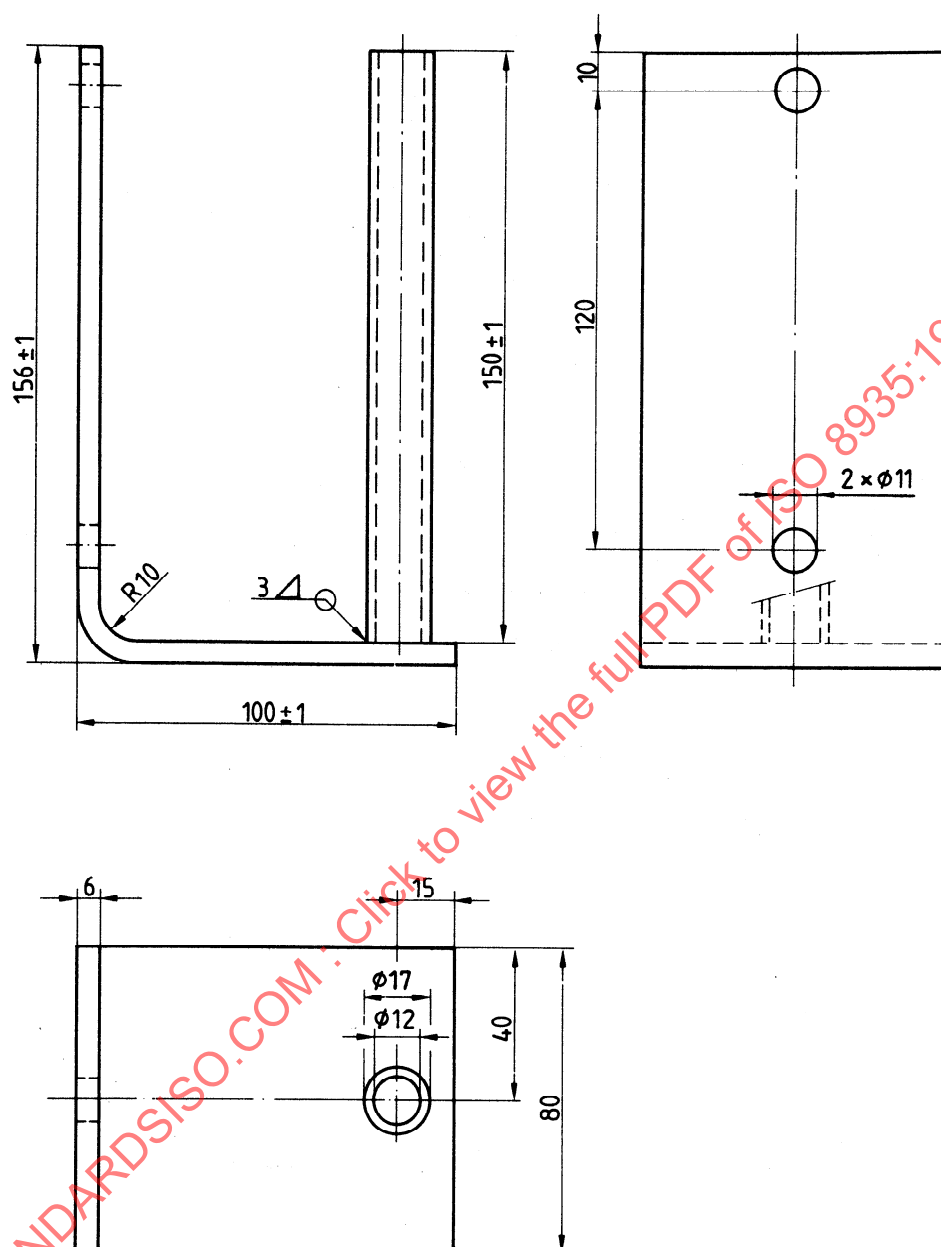
- 1 Drawings are given to illustrate dimensions only, and do not specify a definitive shape.
- 2 Tolerances shall be as follows:

	mm	in
Imperial dimensions to 1 decimal place:	± 1,52 (0,06)	
Imperial dimensions to 2 decimal places:	± 0,76 (0,03)	
Imperial dimensions to 3 decimal places:	± 0,25 (0,01)	

- 3 This bracket requires an adaptor mounting strip to retain hole centres 120 mm ± 0,5 mm apart, either horizontally or vertically. The method of attaching the bracket to the adaptor strip is optional. (See 3.1.)

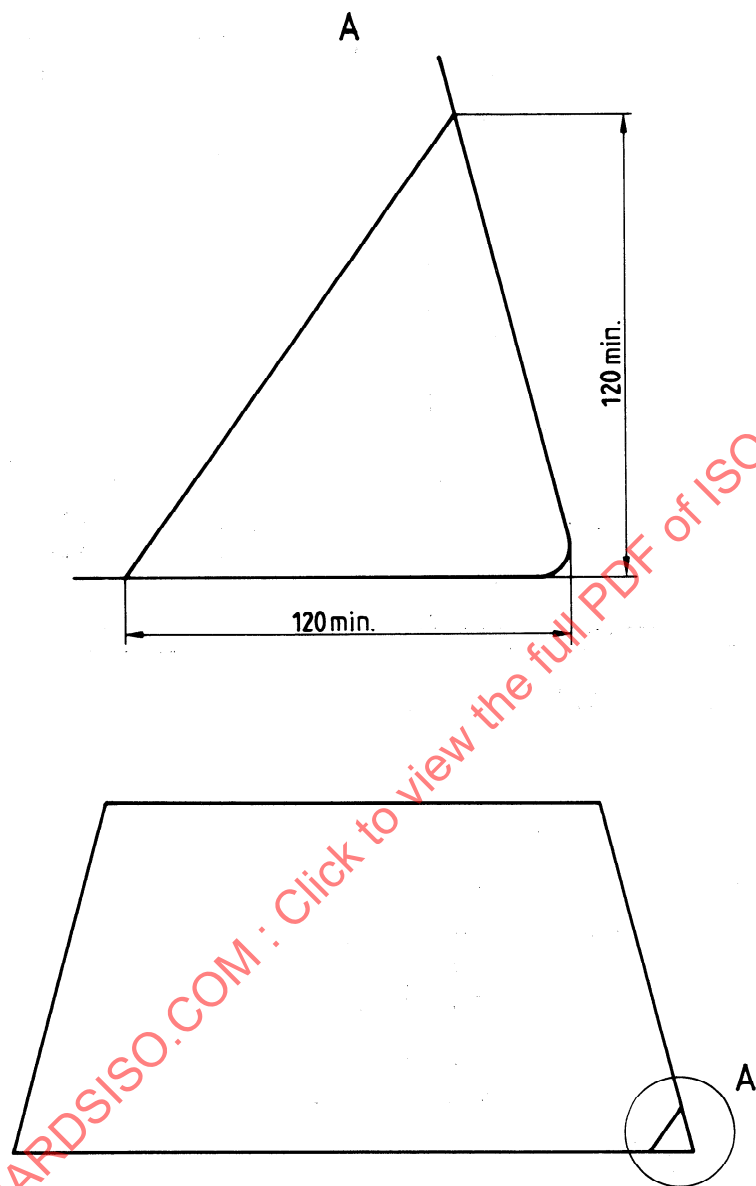
Figure 2 — Bracket: alternative fixture

Dimensions in millimetres



NOTE — Drawings are given to illustrate dimensions only, and do not specify a definitive shape.

Figure 3 — Adaptor strip: alternative fixture

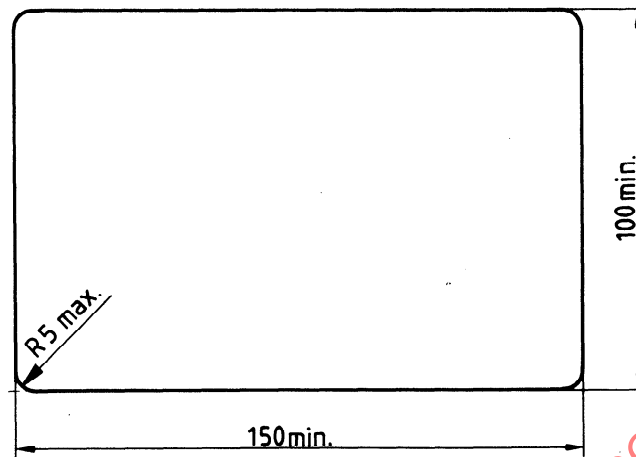


NOTES

- 1 Drawings are given to illustrate dimensions only, and do not specify a definitive shape.
- 2 Aperture may be duplicated in lower left corner of window.

Figure 4 — Location and dimensions of triangular aperture for rear opening window viewed from cab exterior

Dimensions in millimetres



NOTE — Drawings are given to illustrate dimensions only, and do not specify a definitive shape.

Figure 5 — Rectangular aperture for use in non-glass surfaces