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International Standard 4557

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Earth-moving machinery — Excavators — Operator's controls

Engins de terrassement — Pelles mécaniques — Commandes du conducteur

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

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.

International Standard ISO 4557 was developed by Technical Committee ISO/TC 127, *Earth moving machinery*.

This third edition was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the second edition (i.e. ISO 4557-1980), which had been approved by the member bodies of the following countries :

Australia	Germany, F. R.	Sweden
Austria	Italy	United Kingdom
Belgium	Japan	USA
Egypt, Arab Rep. of	Romania	USSR
Finland	South Africa, Rep. of	
France	Spain	

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

Czechoslovakia
Poland

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1 Scope

This International Standard specifies the requirements, movement directions and actuating forces for the operator's controls on excavators as they relate to the operator and his position on the machine.

2 Field of application

This International Standard applies to excavators as defined in ISO 6165 and is intended as a guide when designing operator controls on these machines. Cable operated excavators are excluded.

The range of sizes of operators considered in this International Standard is that established in ISO 3411.

3 References

ISO 3411, *Earth-moving machinery — Human physical dimensions of operators and minimum operator space envelope.*

ISO 6165, *Earth-moving machinery — Basic types — Vocabulary.*

ISO 6682, *Earth-moving machinery — Zones of comfort and reach for controls.*

4 Controls

4.1 General requirements

The minimum normal operating space envelope around the operator for operator enclosures (cabs) and the clearance between the operator enclosure and controls are defined in ISO 3411.

4.2 The operator's controls shall be located as specified in 5.1, which takes seat adjustment into account.

5 Location of controls

5.1 The controls for machine operation and travel listed in table 1 shall be located with their neutral position and, if possible, all other positions in the zones of comfort. All other positions that they may occupy shall be at least within the zone of reach. (See ISO 6682.)

Table 1 — Controls

Machine operation	Machine travel
Rotation or slew (swing)	Steering
Slewing brake	Accelerator (speed)
Boom — lift and lower	Clutch
Arm movement	Service brake
Bucket movement	Turn signal (indicator)
Operation sound alarm (horn)	Transmission
	Travel sound alarm (horn)

All controls frequently used and not specified above shall be located so that all positions they may occupy are within the zone of reach. The combining of controls is permissible.

5.2 The controls should be of reliable design and construction and arranged so that they can be operated with ease from the operator's seat within the force limits of table 2.

5.3 Controls, control linkages, hoses, tubes and connections shall be arranged in such a manner that they are unlikely to be damaged by foreseeable external forces (i.e. used as a step, maximum hand or foot force exerted) and are easily accessible for inspection.

5.4 The distance between control levers, adjacent foot pedals, handles, knobs, the operator's body and other machine parts shall be sufficient to allow operation without unintentional actuation of adjacent controls.