International Standard 6682

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Earth-moving machinery — Zones of comfort and reach for controls

Engins de terrassement — Zones de confort et d'accessibilité des commandes

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Foreword

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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 6682 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*.

This second edition cancels and replaces the first edition (ISO 6682-1981), of which it constitutes a minor revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Earth-moving machinery — Zones of comfort and reach for controls

1 Scope

This International Standard defines zones of comfort and reach for controls derived from the overlapping reach capability of large and small operators in the seated position.

2 Field of application

This document is intended as a guide for the design of the operator compartment controls for earth-moving machinery.

3 References

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

ISO 5353, *Earth-moving machinery — Seat index point (SIP).*

ISO 6746/1, *Earth-moving machinery — Definitions of dimensions and symbols — Part 1: Base machine.*

4 Definitions

4.1 SIP: Seat Index Point as defined by ISO 5353 (fixed at nominal seat adjustments).

4.2 control displacement: Travel or movement of a control through its operational range.

4.3 control location: Positions of a control, including the corresponding control displacement, defined from the SIP.

4.4 primary controls: Controls that are used frequently or continuously by the operator, such as:

a) Machine controls: transmission, brakes, steering, engine speed, etc.

b) Working tool controls: blade controls, bucket controls, ripper controls, etc.

4.5 secondary controls: Controls that are infrequently used by the operator, such as lights, windscreen wipers, starter, heater, air conditioner, etc.

4.6 zones of comfort: Preferred control location zones for primary hand and foot controls. Both large and small operators should be able to reach controls comfortably in these zones.

4.7 zones of reach: Control location zones for secondary hand and foot controls. Both large and small operators should be able to reach controls in these zones from the seated position, but the operator may be required to rotate or lean forward and to each side.

4.8 *XYZ* **coordinate system**: Coordinate system used to define the control zone locations:

a) Origin at the SIP.

b) *X*-axis; fore-aft, positive to front of the SIP.

c) *Y*-axis; lateral, positive to right of the SIP.

d) *Z*-axis; vertical, positive upward from the SIP.

See ISO 6746/1.

4.9 flexion: Movement that changes the angle between body parts.

4.10 adduction: Movement in a plane normal to the plane of flexion and directed towards or past the mid-axis (*XZ* plane) of the body.

4.11 abduction: Movement in a plane normal to the plane of flexion and directed away from the mid-axis (*XZ* plane) of the body.

4.12 circumduction: Movement about an axis that circumscribes a cone.