



SURFACE VEHICLE RECOMMENDED PRACTICE

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Access Systems for Off-Road Machines

RATIONALE

This technical report is being revised to remove agricultural, forestry, construction, and the reference to shovels, draglines, and drills from the scope. These sectors are using other International standards for access systems for off-road machines. Earthmoving machinery which includes construction as well as shovels, draglines, and drills use ISO 2867. Agricultural tractors use ISO 26322-1. Forestry machines use ISO 2867 as modified by ISO 11850. References were also updated.

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FOREWORD

ISO Equivalence - This SAE Recommended Practice conforms in all significant detail with ISO 2867-1980. This recommended practice provides more criteria than provided in ISO 2867:1980 primarily addressing the needs of larger machines. The ISO standard has been revised several times and is currently ISO 2867: 2011. The user could apply the latest version of ISO 2867 in place of this recommended practice.

1. SCOPE

- 1.1 Minimum criteria are provided for steps, stairways, ladders, walkways, platforms, handrails, handholds, guardrails, and entrance openings which permit ingress to and egress from operator, inspection, maintenance or service platforms on off-road work machines parked in accordance with the manufacturer's instructions.
- 1.2 This SAE Recommended Practice pertains to off-road self-propelled work machines used in specialized mining machinery categories as defined in SAE J1116.
- 1.3 The minimum criteria are based on one unladen person using the access system at any one time.
- 1.4 Purpose

This document establishes criteria for access systems primarily to aid in minimizing accidents and injury to personnel getting on, off, or moving about while servicing or preparing to operate off-road machines.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified below. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J1116 Categories of Off-Road Self-Propelled Work Machines

2.1.2 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ANSI/ASSE A10.4-2007 Safety Requirements for Personnel Hoists & Employee Elevators on Construction & Demolition Sites

ANSI/ASME A17.1-2007 Safety Code for Elevators and Escalators (Bi-national standard with CSA B44-07) (includes addenda a and b)

2.1.3 ISO Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org

ISO 3411:2007 Earth-moving machinery -- Physical dimensions of operators and minimum operator space envelope

3. DEFINITIONS

3.1 ACCESS SYSTEM

System provided on a machine for ingress to and egress from an operator, inspection, maintenance or service platform from and to the ground.

3.1.1 Primary Access System

Access system normally used.

3.1.2 Alternate Egress System

Egress system for use during anticipatable emergency situations when the primary access system is not usable.

3.2 BOOM WALKWAY

An inclined walkway used mainly on long booms such as on draglines for inclined angles up to 50 degrees from the horizontal.

3.3 CONTROLLED DESCENT DEVICE

A device which can automatically lower a person without power at a fixed rate of speed as part of an alternate egress system.

3.4 ENCLOSURE OPENING

Opening in an enclosure for an access system.

3.4.1 Primary Opening

Opening normally used for access.

3.4.2 Alternate Opening

Opening for use during emergencies when the primary opening is not usable.

3.4.3 Service Opening

Opening for use during maintenance, service or inspection.

3.5 FOOT BARRIER

A device to prevent a person's foot from slipping off the edge of a platform or walkway.

3.6 GUARDRAIL

A device around the open sides of walkways or platforms to protect a person from falling.

3.7 HANDRAIL AND HANDHOLD

Devices that may be grasped by the hand for body support.

3.7.1 Handrail

A device which permits hand movement to a different location without removing the hand from the device.

3.7.2 Handhold

A device for single hand placement.

3.8 LADDER

An access system or part of an access system whose inclined angle from the horizontal is greater than 50 degrees but not more than 90 degrees consisting of a series of equally spaced steps that accommodate one or both feet.

3.8.1 Vertical Ladder

A ladder whose inclined angle from the horizontal is greater than 75 degrees.

3.8.2 Inclined Ladder

A ladder whose inclined angle from the horizontal is greater than 50 degrees but not more than 75 degrees.

3.9 LADDER FALL LIMITING DEVICE

Any device which minimizes or limits the length of fall from a ladder system.

3.10 OPERATOR'S PLATFORM

Area from which an operator controls the machine's travel and work functions.

3.11 PASSAGEWAY

Walkway with confining barriers on both sides that extend more than 1200 mm vertically above the walking surface for erect walking or 300 mm for crawling.

3.12 PLATFORM

A horizontal surface from which machine operation, servicing, inspection, or maintenance is performed.

3.13 RAMP

An inclined plane of 20 degrees or less from horizontal without steps but may have cleats or other surface treatments for the purpose of traction.

3.14 REST PLATFORM

Platform used in conjunction with a ladder system for person to rest while standing without requiring use of hands.

3.15 RISER HEIGHT

Height between two consecutive steps or rungs measured from the tread surface of one to tread surface of the next step or rung.

3.16 RUNG

Device for foot placement that may be used only on vertical ladders.

3.17 STAIRWAY

An access system or part of an access system whose inclined angle from the horizontal is greater than 20 degrees but not more than 50 degrees and consisting of four or more steps.

3.18 STEP

Device for foot placement on a ladder, stairway, or as individual placements.

3.19 STRIDE DISTANCE

Horizontal distance from the leading edge of one step to the leading edge of the next step.

3.20 THREE POINT SUPPORT

Features of an access system which permit a person to use simultaneously two hands and one foot or two feet and one hand while ascending, descending, or moving about on the machine.

3.21 TREAD DEPTH

Distance from the leading edge to back of step.

3.22 WALKWAY

Part of an access system that permits walking or crawling between locations on a machine.