INTERNATIONAL STANDARD

ISO 8812

First edition
1999-12-01

Earth-moving machinery — Backhoe loaders — Definitions and commercial specifications

Engins de terrassement — Chargeuses-pelleteuses — Définitions et spécifications commerciales

Reference number
ISO 8812:1999(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8812 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 4, *Commercial nomenclature, classification and rating*.

Annex A forms an integral part of this International Standard.

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Printed in Switzerland

Earth-moving machinery — Backhoe loaders — Definitions and commercial specifications

1 Scope

This International Standard establishes terminology and the content of commercial literature specifications for self-propelled crawler or wheeled backhoe loaders and their equipment.

This International Standard is applicable to backhoe loaders as defined in 3.1. It is not applicable to loaders equipped with a backhoe attachment in accordance with ISO 7131:1997, 3.3.1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3450:1996, *Earth-moving machinery — Braking systems of rubber-tyred machines — Systems and performance requirements and test procedures.*

ISO 4250-1:1996, *Earth-mover tyres and rims — Part 1: Tyre designation and dimensions.*

ISO 4250-2:1995, *Earth-mover tyres and rims — Part 2: Loads and inflation pressures.*

ISO 4250-3:1997, *Earth-mover tyres and rims — Part 3: Rims.*

ISO 5010: 1992, *Earth-moving machinery — Rubber-tyred machines — Steering requirements.*

ISO 6014:1986, *Earth-moving machinery — Determination of ground speed.*

ISO 6015:1989, *Earth-moving machinery — Hydraulic excavators — Methods of measuring tool forces.*

ISO 6016:1998, *Earth-moving machinery — Methods of measuring the masses of whole machines, their attachments and components.*

ISO 6165:1997, *Earth-moving machinery — Basic types — Vocabulary.*

ISO 6746-1:1987, *Earth-moving machinery — Definitions of dimensions and symbols — Part 1: Base machine.*

ISO 6746-2:1987, *Earth-moving machinery — Definitions of dimensions and symbols — Part 2: Equipment.*

ISO 7131:1997, *Earth-moving machinery — Loaders — Terminology and commercial specifications.*

ISO 7135:—[1], *Earth-moving machinery — Hydraulic excavators — Terminology and commercial specifications.*

ISO 7451:1997, *Earth-moving machinery — Volumetric ratings for hydraulic excavator buckets and backhoe loader buckets.*

ISO 7457:1997, *Earth-moving machinery — Determination of turning dimensions of wheeled machines.*

ISO 7546:1983, *Earth-moving machinery — Loader and front loading excavator buckets — Volumetric ratings.*

ISO 9249:1997, *Earth-moving machinery — Engine test code — Net power.*

ISO 14397-1:—[2], *Earth-moving machinery — Loaders and backhoe loaders — Part 1: Calculation and verification methods for operating loads.*

3 General definitions

See also ISO 6165.

3.1
backhoe loader
self propelled crawler or wheeled machine, having a main frame designed to carry both front-mounted equipment and rear-mounted backhoe equipment (normally with outriggers); when used in the backhoe mode, the machine is stationary and normally digs below ground level; when used in the loader mode (bucket use), the machine loads through forward motion

NOTE 1 A backhoe work cycle normally comprises excavating, elevating, swinging, and discharging material. A loader work cycle normally comprises filling, elevating, transporting, and discharging material.

NOTE 2 Backhoe loader directional references: the terms right, left, front or rear are determined from the operator's position when seated in the travelling direction stated by the manufacturer.

3.2
base machine
machine with, if required, cab, canopy and operator-protective structures, without equipment or attachments, but including the mountings necessary to connect equipment or attachments

NOTE For the purposes of this International Standard, the base machine of a backhoe loader includes equipment and attachments.

3.3
equipment
set of components mounted onto the base machine which allow an attachment to perform its primary design function

3.4
optional equipment
optional items of equipment mounted onto the base machine to increase, for example, capacity, flexibility, comfort and safety

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[1] To be published. (Revision of ISO 7135:1993)

[2] To be published.

3.5
attachment (tool)
assembly of components that can be mounted onto the base machine or equipment for specific use

3.6
component
part, or an assembly of parts, of a base machine, equipment or attachment

4 Base machine

4.1 Types of backhoe loaders

4.1.1 Side-shift backhoe

See Figure 1.

4.1.2 Centre pivot backhoe

See Figure 2.

4.1.3 Drive and steering system

4.1.3.1 Rigid frame, front wheel steer, rear wheel drive

See Figure 3.

4.1.3.2 Rigid frame, front/all wheel steer, all wheel drive

See Figure 4.

4.1.3.3 Articulated steering, rear wheel drive

See Figure 5.

4.1.3.4 Articulated steering, all wheel drive

See Figure 6.

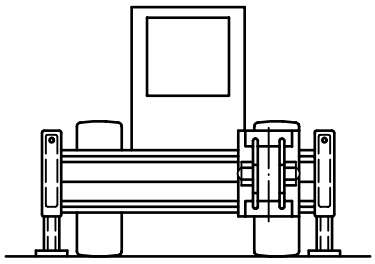


Figure 1 — Side-shift backhoe

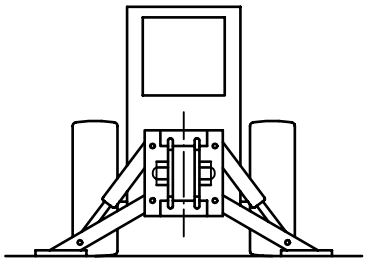


Figure 2 — Centre pivot backhoe

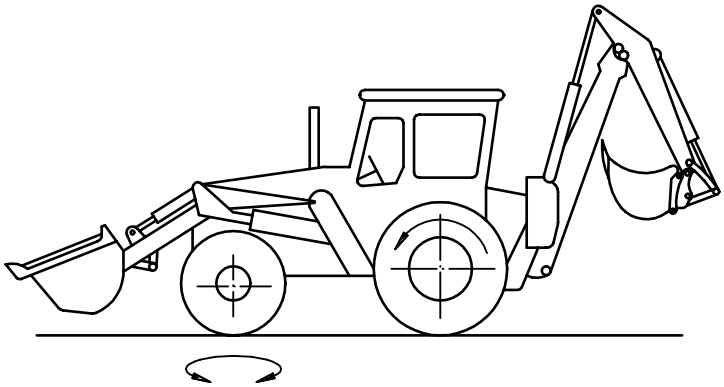


Figure 3 — Rigid frame, front wheel steer, rear wheel drive

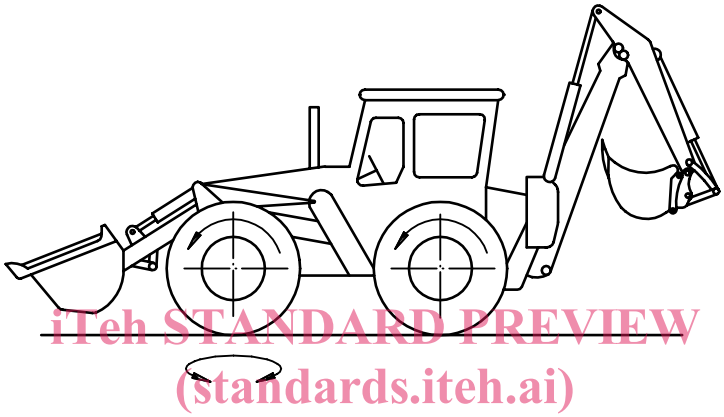


Figure 4 — Rigid frame, front/all wheel steer, all wheel drive

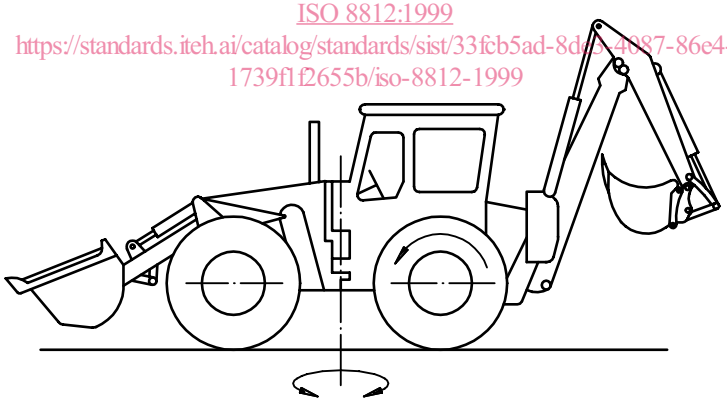


Figure 5 — Articulated steering, rear wheel drive

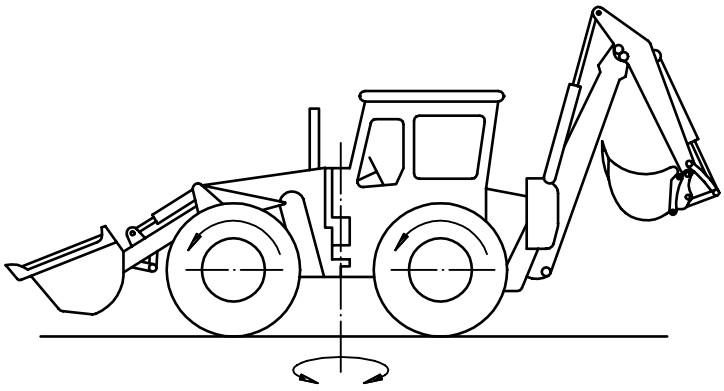


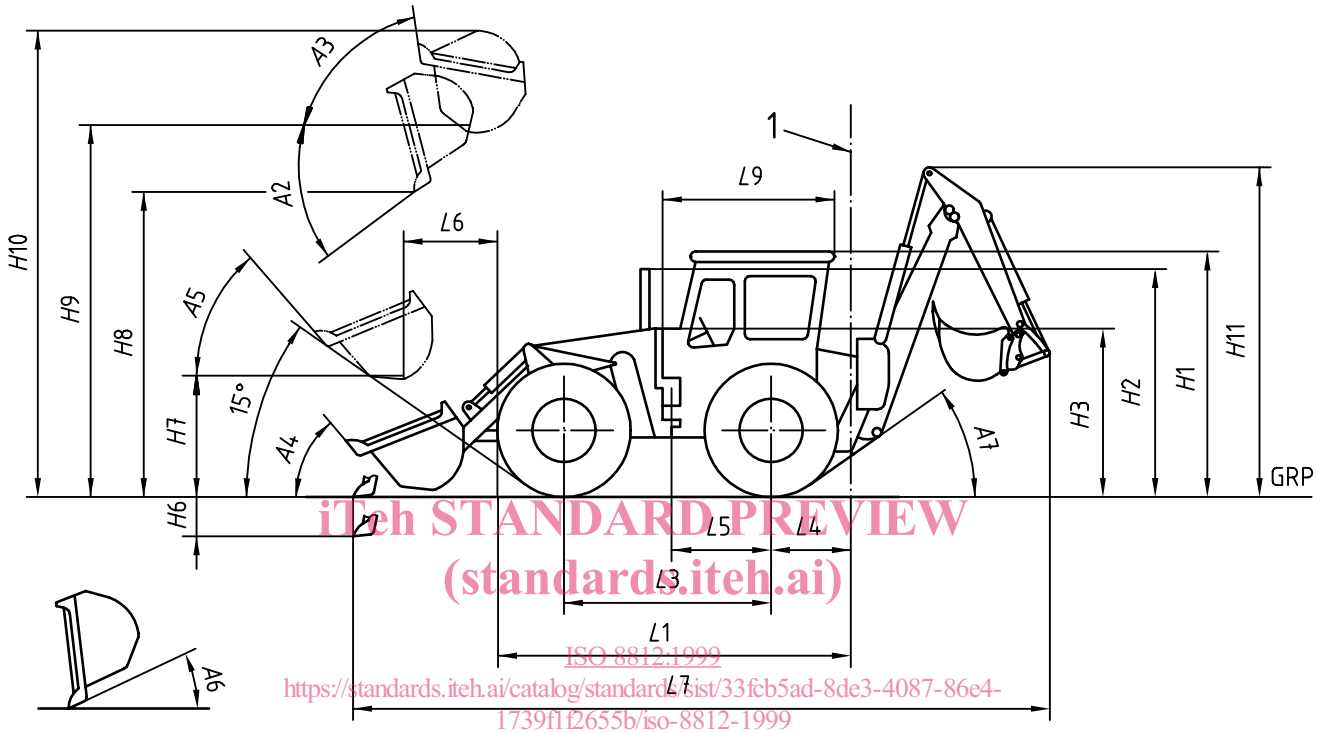
Figure 6 — Articulated steering, all wheel drive

4.2 Dimensions

See Figures 7 and 8.

For definitions of dimensions, see ISO 6746-1.

For definition of dimensions strictly related to backhoe loaders, see annex A.



Key

1 Swing pivot

Figure 7 a) — Dimensions of backhoe loader

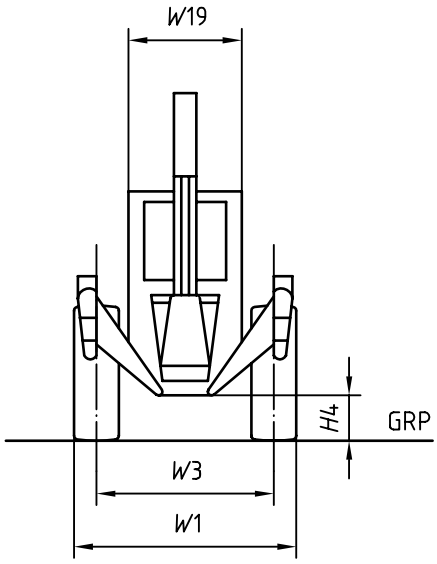
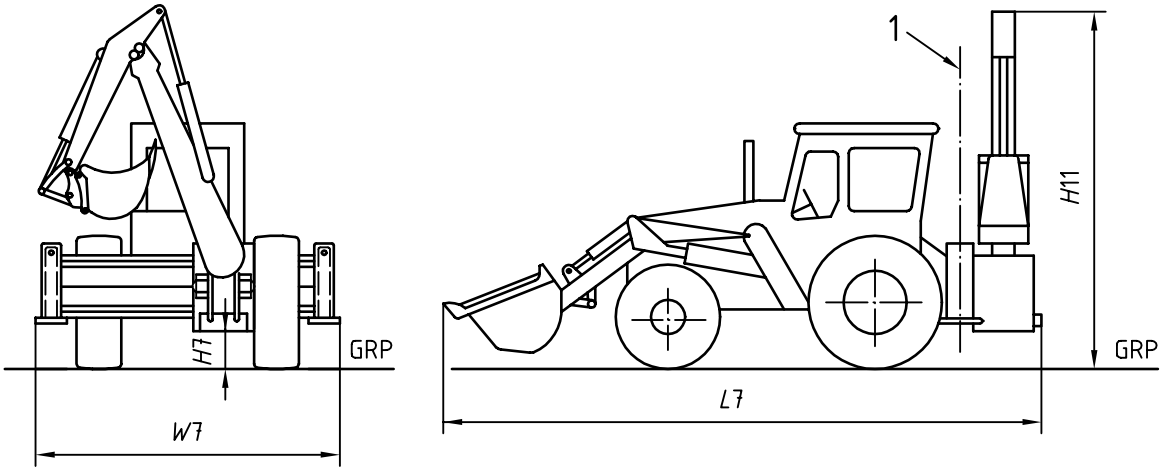


Figure 7 b) — Centre pivot backhoe



Key

1 Swing pivot

Figure 7 c) — Side-shift backhoe

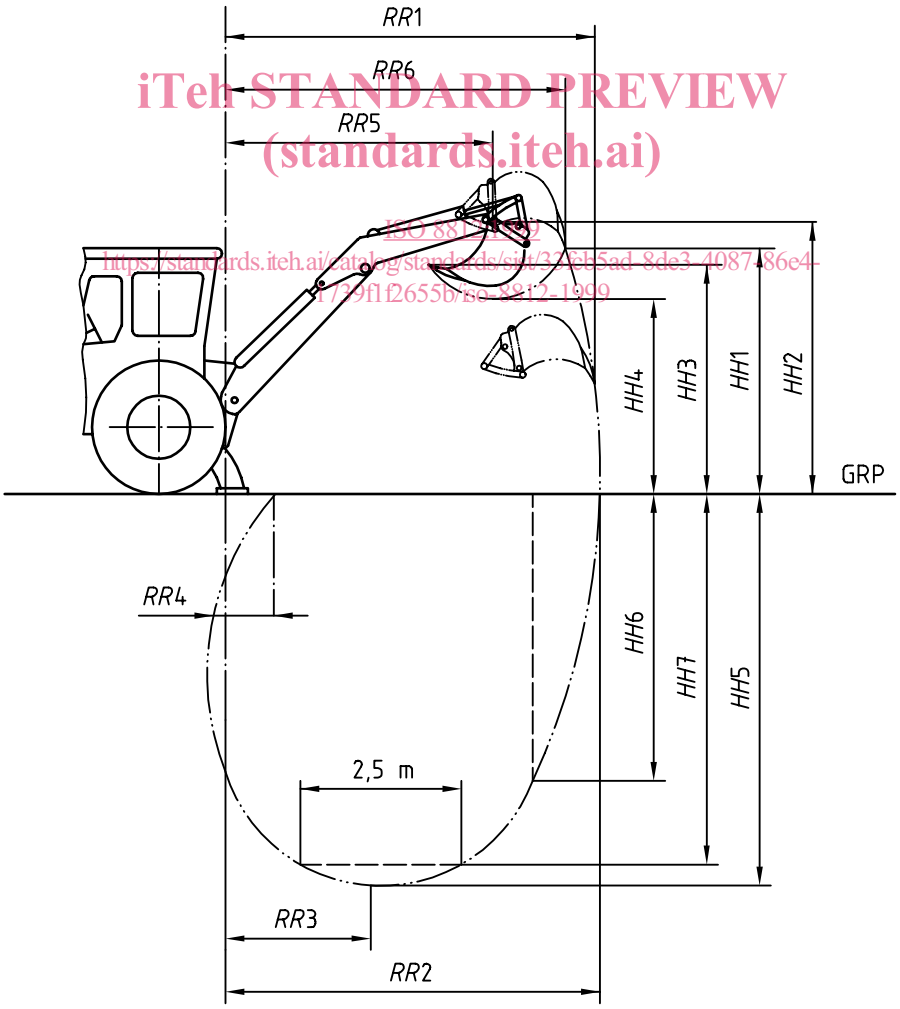


Figure 8 — Digging dimensions

4.2.1 Operational positions of backhoe

The dimensions indicated in Figures 9, 10 and 11 shall be obtained with the main bearing surfaces of the stabilisers on the ground and with all tyres tangent to ground and at their recommended air pressure.

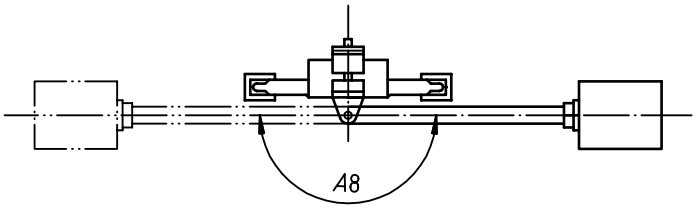


Figure 9 — Backhoe swing pivot axis

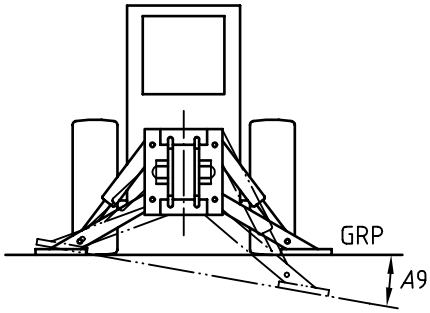


Figure 10 — Levelling angle

4.2.2 Operational position of stabilisers

4.2.2.1 Overall width

Stabilisers down and shown in operating positions, see Figures 11 and 12.

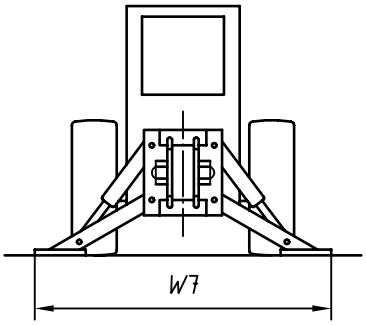


Figure 11 — Centre pivot backhoe

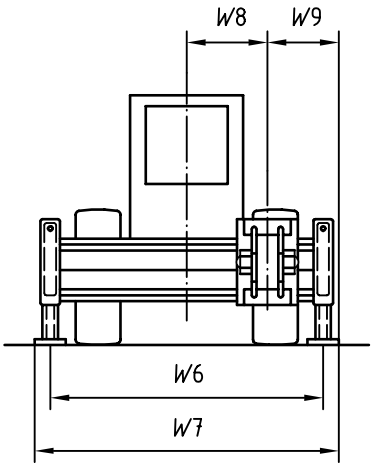


Figure 12 — Side shift backhoe

4.2.3 Manoeuvring dimensions

See Figures 13 and 14.

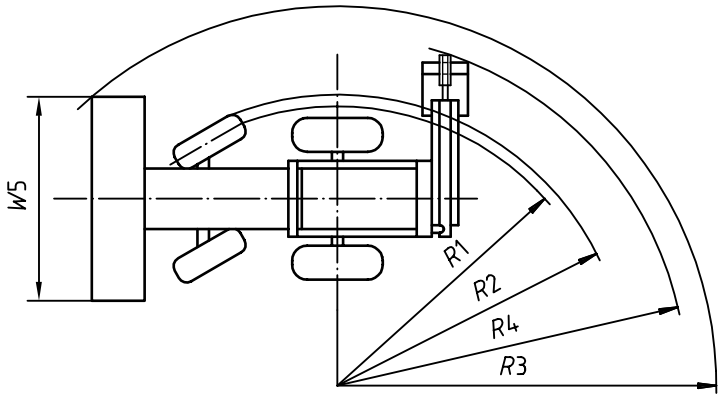


Figure 13 — Manoeuvring dimensions (rigid frame)

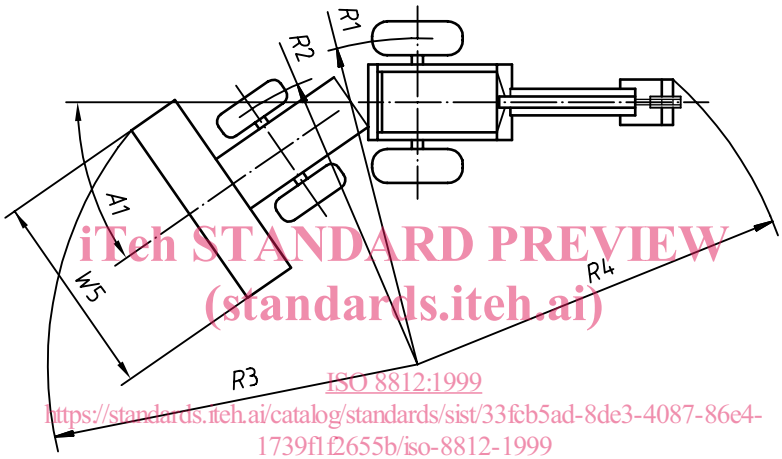


Figure 14 — Manoeuvring dimensions (articulated frame)

NOTE Bucket in carry position and backhoe in transport position

4.3 Masses

4.3.1
operating mass
mass of the base machine with equipment and empty attachments as specified by the manufacturer, operator (75 kg), full fuel tank and all fluid systems at the levels specified by the manufacturer

4.3.2
shipping mass
mass of the base machine without operator, fuel level at 10 % of tank capacity, all fluid systems at their levels specified by the manufacturer and with or without equipment, attachments, cab, canopy, ROPS[3] and/or FOPS[4] , wheels and counterweights as stated by the manufacturer

NOTE If the machine has to be disassembled for shipping purposes, the masses of these dismounted components should be stated by the manufacturer.

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3) ROPS: Roll-over protective structure.

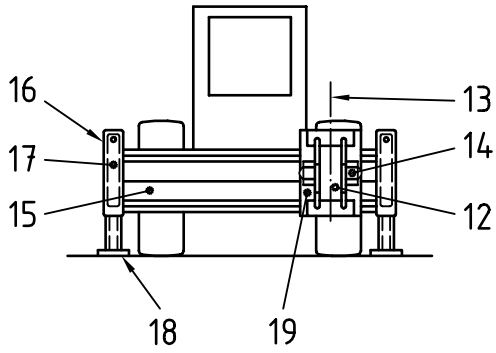
4) FOPS: Falling object protective structure.

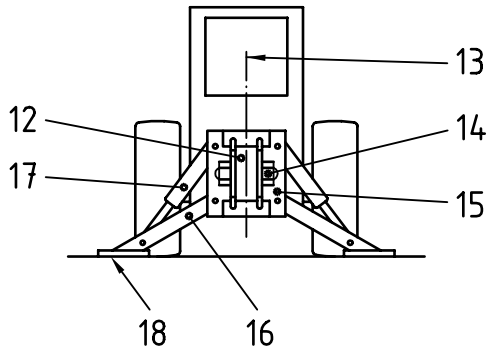
4.3.3
cab, canopy, ROPS and/or FOPS mass
mass of a cab, canopy, ROPS or FOPS with all their components, and mountings required to secure these to the base machine

4.4 Nomenclature (see diagram numbers)

4.4.1 For nomenclature strictly related to loader portion, see ISO 7131.

4.4.2 For backhoe equipment, see Figures 15, 16 and 17 and ISO 7135.





Key

12	Swing frame	16	Stabiliser (right or left)
13	Swing pivot centre line	17	Stabiliser cylinder (right or left)
14	Swing actuator/cylinder	18	Stabiliser pad (right or left)
15	Main frame	19	Side shift frame (sliding frame)

Figure 15 — Side shift backhoe

Figure 16 — Centre pivot backhoe