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Tractors for agriculture and forestry — Safety — Part 1: Standard tractors

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This standard was reviewed for adoption by the ASABE Power and Machinery Agricultural Machinery – Agricultural Tractor Technical subcommittee, and has been formerly approved by the Power and Machinery Division. Adopted by ASABE June 2012, approved as an American National Standard June 2012.

Keywords: Clearance, Controls, Fuel, Guarding, Hazard, Ladders, Noise, Operator's manual, Operator's workplace, Safety, Seat, Steps, Tractors

0 Foreword

0.1 ANSI/ASABE AD26322-1:2008, Tractors for agriculture and forestry – Safety – Part 1: Standard tractors, is an adoption with deviations of the identically titled ISO standard ISO 26322-1:2008, Tractors for agriculture and forestry – Safety – Part 1: Standard tractors. Deviations noted in the following Foreword sections pertain to those provisions where harmonization could not be achieved between ASABE and the International Standard.

0.2 ANSI/ASABE AD26322-1:2008 specifies general safety requirements and their verification for the design and construction of standard tractors used in agriculture and forestry. These tractors have at least two axles for pneumatic-tyred wheels, with the smallest track gauge of the rear axle exceeding 1 150 mm, or tracks instead of wheels, with their unballasted tractor mass being greater than 600 kg.

NOTE Tractors having an unballasted mass not greater than 600 kg and a smallest adjustable track gauge of the axle bearing the larger tyres of $\leq 1\,150$ mm are dealt with in ISO 26322-2.

In addition, this part of ISO 26322 specifies the type of information on safe working practices (including residual risks) to be provided by the manufacturer, as well as technical means for improving the degree of personal safety of the operator and others involved in a tractor's normal operation, maintenance and use.

It is not applicable to vibration or braking.

0.3 Twenty Normative references are listed in ISO 26322-1:2008. The responsible ASABE committee has reviewed these references and approved the following deviations:

0.3.1 Replace ISO 500-1, Agricultural tractors — Rear-mounted power take-off types 1, 2 and 3 — Part 1: General specifications, safety requirements, dimensions for master shield and clearance zone with ANSI/ASABE AD500-1:2004 W/Cor. 1 (OCT2011), Agricultural tractors — Rear-mounted power take-off types 1, 2 and 3 — Part 1: General specifications, safety requirements, dimensions for master shield and clearance zone. Any reference to ISO 500-1 in the printed portion of ISO 26322-1 shall be replaced by ANSI/ASABE AD500-1:2001 W/Cor. 1 (OCT2011).

0.3.2 Replace ISO 3776-1, Tractors and machinery for agriculture — Seat belts — Part 1: Anchorage location requirements, with ASABE/ISO 3776-1:2006; Tractors and machinery for agriculture — Seat belts — Part 1: Anchorage location requirements. Any reference to ISO 3776-1 in the printed portion of ISO 26322-1 shall be replaced with ASABE/ISO 3776-1:2006.

0.3.3 Replace ISO 4252, Agricultural tractors — Operator's workplace, access and exit — Dimensions, with ASABE/ISO 4252:2007, Agricultural tractors — Operator's workplace, access and exit — Dimensions. Any reference to ISO 4252 in the printed portion of ISO 26322-1 shall be replaced with ASABE/ISO 4252:2007.

0.3.4 Replace ISO 8759-1, Agricultural wheeled tractors — Front-mounted equipment — Part 1: Power take-off and threepoint linkage, with ANSI/ASABE AD8759-1:1998, Agricultural wheeled tractors — Front-mounted equipment — Part 1: Power take-off and threepoint linkage. Any reference to ISO 8759-1 in the printed portion of ISO 26322-1 shall be replaced with ANSI/ASABE AD8759-1:1998.

0.3.5 Replace ISO 11684, Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety signs and hazard pictorials — General principles, with ANSI/ASABE AD 11684:1999; Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety signs and hazard pictorials — General principles. Any reference to ISO 11684 in the printed portion of ISO 26322-1 shall be replaced with ANSI/ASABE AD 11684:1999.

0.3.6 Replace ISO 15077, Tractors and self-propelled machinery for agriculture — Operator controls — Actuating forces, displacement, location and method of operation, with ASABE/ISO 15077:2008, Tractors and self-propelled machinery for agriculture — Operator controls — Actuating forces, displacement, location and method of operation. Any reference to ISO 15077 in the printed portion of ISO 26322-1 shall be replaced with ASABE/ISO 15077:2008.

0.3.7 Replace ISO 23205, Agricultural tractors — Instructional seat, with ANSI/ASABE AD 23205:2006, Agricultural tractors — Instructional seat. Any reference to ISO 23205 in the printed portion of ISO 26322-1 shall be replaced with ANSI/ASABE AD23205:2006.

0.4 This standard has been approved as an American National standard by ANSI (American National Standards institute).

0.5 This standard deviates from ISO 26322-1:2008 as follows:

0.5.1 See Section 0.3 for Normative reference deviations.

Text of ISO 26322-1:2008, Tractors for agricultural and forestry — Safety — Part 1: Standard tractors, follows.

1 Scope

This part of ISO 26322 specifies general safety requirements and their verification for the design and construction of standard tractors used in agriculture and forestry. These tractors have at least two axles for pneumatic-tyred wheels, with the smallest track gauge of the rear axle exceeding 1 150 mm, or tracks instead of wheels, with their unballasted tractor mass being greater than 600 kg.

NOTE Tractors having an unballasted mass not greater than 600 kg and a smallest adjustable track gauge of the axle bearing the larger tyres of $\leq 1\,150$ mm are dealt with in ISO 26322-2.

In addition, this part of ISO 26322 specifies the type of information on safe working practices (including residual risks) to be provided by the manufacturer, as well as technical means for improving the degree of personal safety of the operator and others involved in a tractor's normal operation, maintenance and use.

It is not applicable to vibration or braking.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 500-1, Agricultural tractors — Rear-mounted power take-off types 1, 2 and 3 — Part 1: General specifications, safety requirements, dimensions for master shield and clearance zone

ISO 3463, Tractors for agriculture and forestry — Roll-over protective structures (ROPS) — Dynamic test method and acceptance conditions

ISO 3600, Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Operator's manuals — Content and presentation

ISO 3776-1, Tractors and machinery for agriculture — Seat belts — Part 1: Anchorage location requirements

ISO 3776-2, Tractors and machinery for agriculture — Seat belts — Part 2: Anchorage strength requirements

ISO/OECD 3776-3, Tractors and machinery for agriculture — Seat belts — Part 3: Requirements for assemblies ¹⁾

ISO 3795, Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials

ISO 4252, Agricultural tractors — Operator's workplace, access and exit — Dimensions

ISO 4413:1998, Hydraulic fluid power — General rules relating to systems ²⁾

ISO 5131:1996, Acoustics — Tractors and machinery for agriculture and forestry — Measurement of noise at the operator's position — Survey method

ISO 5700, Tractors for agriculture and forestry — Roll-over protective structures (ROPS) — Static test method and acceptance conditions

ISO 7216, Acoustics — Agricultural and forestry wheeled tractors and self-propelled machines — Measurement of noise emitted when in motion

ISO 8759-1, Agricultural wheeled tractors — Front-mounted equipment — Part 1: Power take-off and threepoint linkage

ISO 10998, Agricultural tractors — Requirements for steering

ISO 11684, Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety signs and hazard pictorials — General principles

ISO 12100-1:2003, Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology

ISO 13854:1996, Safety of machinery — Minimum gaps to avoid crushing of parts of the human body

ISO 13857:2008, Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs

ISO 15077, Tractors and self-propelled machinery for agriculture — Operator controls — Actuating forces, displacement, location and method of operation

ISO 23205, Agricultural tractors — Instructional seat

¹⁾ To be published.

²⁾ Under revision.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

normal operation and service

use of the tractor for the purpose intended by the manufacturer by an operator familiar with the tractor characteristics and complying with the information for operation, service and safe practices, as specified by the manufacturer in the operator's manual and by signs on the tractor

3.2

three-point contact support

system which permits a person to simultaneously use two hands and a foot or two feet and one hand when boarding, or dismounting from, a tractor

3.3

guarded by location

guarding where a hazard is guarded by other parts or components of the tractor that are not themselves guards, or when the hazard cannot be reached by the upper and lower limbs

3.4

inadvertent contact

unplanned exposure of a person to a hazard resulting from the person's action during normal operation and service of the tractor

3.5

hazard

machinery parts which can cause injury upon direct contact or by entanglement of personal apparel

NOTE These parts include, but are not limited to, pinch points, nip points, and projections on rotating parts.

4 Safety requirements

4.1 Fundamental principles, design guidance

4.1.1 The tractor shall be designed according to the principles of risk reduction specified in ISO 12100-1:2003, Clause 5, for hazards relevant but not significant.

4.1.2 Unless specified otherwise in this part of ISO 26322, safety distances shall be in accordance with ISO 13857:2008, Tables 1, 3, 4 and 6, and ISO 13854:1996, Table 1, as appropriate.

4.1.3 Tractor engine cover(s) that can be opened without tools may be considered an acceptable guard for rotating components provided that the engine cover is removable from the tractor only by the use of tools.

4.2 Noise

4.2.1 Noise at the operator's position

Noise tests and measurements shall be made in accordance with ISO 5131.

NOTE ISO 5131:1996, Annex A, gives procedures specific to agricultural and forestry tractors.

4.2.2 Noise emitted when in motion