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AMENDMENT 1
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Garden equipment — Safety requirements for combustion-engine-powered lawnmowers —

Part 3: Ride-on lawnmowers with seated operator

AMENDMENT 1: OPC, Parking brake, ROPS, pressurized hoses, cutting means, grass catcher and test probe

Matériel de jardinage — Exigences de sécurité pour les tondeuses à gazon à moteur à combustion interne —

Partie 3: Tondeuses à gazon à conducteur assis

AMENDEMENT 1: OPC, frein de stationnement, ROPS, tuyaux sous pression, organes de coupe, bac de ramassage et gabarit d'essai

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This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 13 *Powered lawn and garden equipment*.

This corrected version of ISO 5395-3:2013/Amd 1:2017 incorporates the following correction:

— The introductory sentence for the instruction regarding 4.4.3.1 has been corrected.

Garden equipment — Safety requirements for combustion-engine-powered lawnmowers —

Part 3: Ride-on lawnmowers with seated operator

AMENDMENT 1: OPC, Parking brake, ROPS, pressurized hoses, cutting means, grass catcher and test probe

Page 1, Clause 2

Delete the following reference:

ISO 13849-1:2006, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

Page 6, 4.3

Replace 4.3 with the following text:

4.3 Operator Presence Control (OPC)

4.3.1 General

The lawnmower shall be fitted with an operator presence control device which

— conforms to well-tried principles and applies well-tried components; and

— requires activation by the operator before the lawnmower's traction and cutting-means drive systems can be started; and

— requires continuous activation by the operator to allow rotation of the cutting means and the activation of the traction drive; and

— automatically activates the stopping of the cutting-means rotation and traction drive when the operator leaves the operating position used when cutting grass.

A "well-tried component" for a safety-related application is a component which has been either

a) widely used in the past with successful results in similar applications, or

b) made and verified using principles which demonstrate its suitability and reliability for safety-related applications.

Newly developed components and safety principles may be considered as equivalent to "well-tried" if they fulfil the conditions of b).

NOTE 1 For further information, see ISO 13849-1 [9].

NOTE 2 The hazards from failure and possibility to bypass the OPC are under review.

From a complete stop position, restarting of cutting-means rotation shall require two separate and distinct actions. Activation of the OPC shall be one of the actions. If these actions are to be carried out using the same hand, then the actions shall be separate and dissimilar to prevent accidental restarting of the cutting means.

If the OPC is reactivated without the operator leaving the operator's position and before the cutting means and/or traction drive have stopped, the cutting-means and/or traction drive can resume operation if there is sufficient kinetic energy to restart the engine.

Automatic or single-action stopping and starting of the cutting means is permissible during continuous operation of the OPC.

Compliance shall be checked by functional test and inspection.

Page 8, 4.4.3.1

Replace the sentence after the note by:

Release of the parking brake shall require either of the following:

— a minimum force of 100 N;

— at least the actuating force;

— two dissimilar actions.

Page 12, 4.7

Replace 4.7 with the following text:

4.7 Rollover protective structure (ROPS)

All lawnmowers with a mass of ≥400 kg shall be fitted with a ROPS.

NOTE The use of a slope indicator is under study.

A ROPS is not required on lawnmowers with a mass of <400 kg.

The mass is defined as the mass of the lawnmower in working order, with all fluid levels full, without grass catcher or with an empty grass catcher if the grass catcher is a standard equipment with the lawnmower, and with the heaviest cutting-means assembly but excluding the mass of the operator, optional ballast weights, additional wheel equipment, other special equipment and loads.

For lawnmowers with an operator who sits astride a seat with unobstructed egress to the rear, a ROPS is not required.

If fitted, the ROPS shall comply with ISO 21299 or with alternative ROPS standards judged according to ISO 21299:2009, Annex B to provide operator protection comparable with ISO 21299.

Compliance shall be checked by inspection.

Page 15, 4.14

Replace 4.14 with the following:

4.14 Pressurized hoses of hydraulic systems

Hoses that operate at a maximum working pressure greater than 5 000 kPa and located less than 1 000 mm from the operator control zone shall be located or shielded so that, in the event of a rupture, the fluid cannot be discharged directly onto the operator when in the normal operating position.

The same requirements apply to pressurized hoses with a working pressure of 500 kPa to 5 000 kPa and within 1 000 mm of the operator control zone and where the temperature of the pressurized fluid exceeds 50 °C when operated at an ambient temperature of 20 °C ± 5 °C.

Compliance shall be checked by inspection and measurement.

Page 19, 5.2

Replace 5.2 with the following:

5.2 Impact of the cutting means

The lawnmower shall withstand a sudden impact to the cutting means in accordance with ISO 5395-1:2013, Annex B and any of the following outcomes of the tests shall be regarded as a failure to meet this requirement:

— target penetration by any part of the lawnmower;

— breakage of the cutting means;

— detachment from the lawnmower of the cutting means or cutting-means arm or disc on which it is mounted.

Breakage of a drive shearing device or chipping of the cutting-means cutting edge shall not be considered as test failures.

It is not required that the machine be suitable for use after the test.

Compliance shall be checked by inspection and tested in accordance with ISO 5395-1:2013, Annex B.

Page 33, A.2.7

Replace A.2.7 with the following:

A.2.7 Grass catcher

The catcher shall be tested filled to its maximum volumetric capacity with a material of 150 kg/m^3 ± 10 kg/m^3 density in the most unfavourable position.

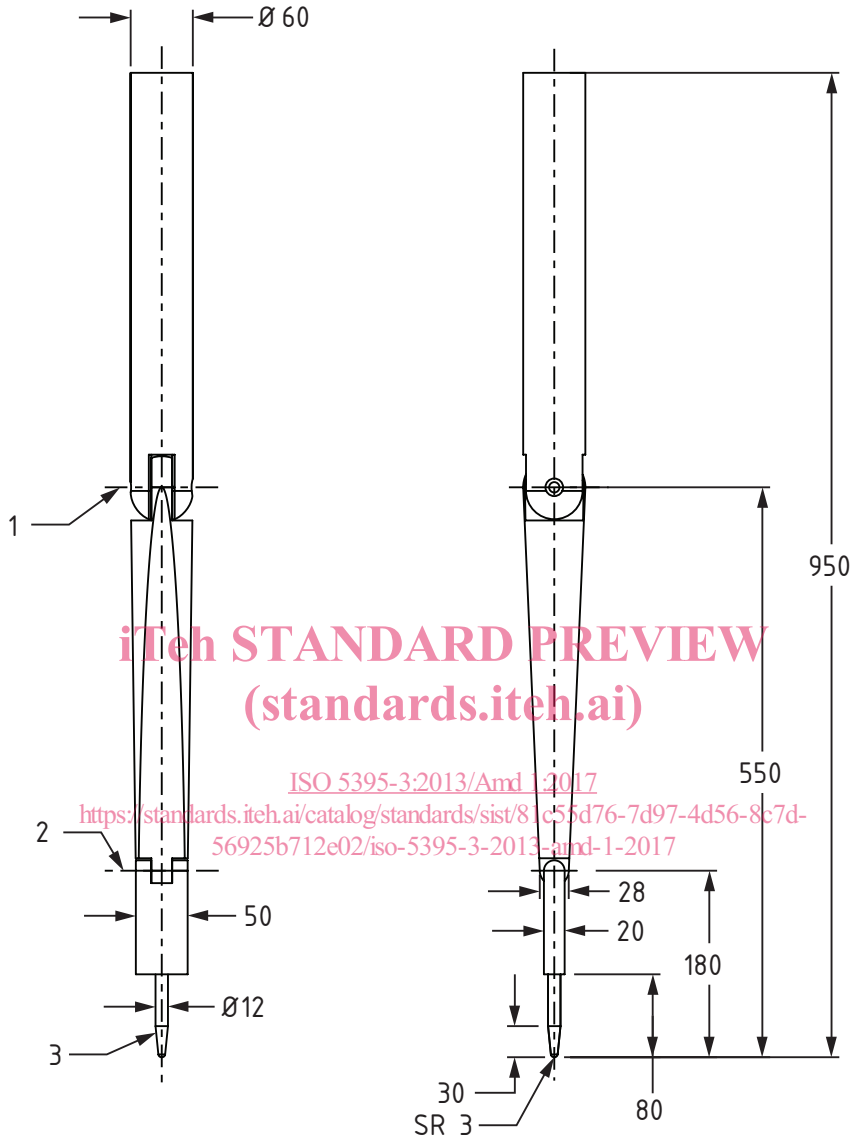
If a lawnmower can be fitted with a high-tip grass catcher (see Figure A.1), it shall be tested empty in the normal operating position and the high-tip grass catcher shall also be tested in the fully raised position filled to its maximum volumetric capacity with a material of 150 kg/m^3 ± 10 kg/m^3 density.

As an alternative to filling the grass catcher to its maximum volumetric capacity with a material of 150 kg/m^3 ± 10 kg/m^3 density, an equivalent mass can be positioned and secured inside the grass catcher at its volumetric centre of gravity.

Page 38, Figure B.4

Replace Figure B.4 with the following figure:

Dimensions in millimetres



Key

1 elbow joint
2 wrist joint (not flexible)
3 finger joints (not flexible)

Figure B.4 — Test probe

Page 42, Bibliography

Add the following reference and renumber succeeding references to [10] and [11]:

[9] ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

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