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ICS 65.060.80
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INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

LY/T 1667-2019

Machinery for forestry -- Operator protective structures -- Laboratory tests and performance requirements

林业机械 驾驶员保护结构实验室试验和性能要求

(English Translation)

Issued on: October 23, 2019 **Implemented on: April 1, 2020**

Issued by: State Forestry and Grassland Administration

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces LY/T 1667-2006 "Laboratory Tests and Performance Requirements for Forestry Machinery Driver Protection Structures", and the main technical changes compared to 1667-2006 are as follows.

-The content of normative references has been modified (see Chapter 2, Chapter 2 in 2006);

-Modified terms and definitions (see Chapter 3, Chapter 3 of 2006);

--- Modified the content of the test method (see 4.3.3, 2006 version 4.3.3).

This standard adopts the translation method equivalent to the international standard ISO 8084.:2003, "Performance Requirements", also incorporates the content of the amendment ISO 8084.:2003/Amd.1..2015.

The documents of our country that have consistent correspondence with the international documents referenced normatively in this standard are as follows.

--GB/T 8420-2011 The size of the earthmoving machinery driver and the minimum movement space of the driver (ISO 3411.:2007, IDT)

--GB/T 17772-2018 Regulations for laboratory-approved deflection limit of earth-moving machinery protective structures (ISO 3164.:2013, IDT)

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--GB/T 19365-2012 Forestry machinery mobile and self-propelled forestry machinery terms, definitions and classifications (ISO 6814.:2009, IDT) Please note that some elements of this document may involve patents. The issuer of this document is not responsible for identifying these patents.

This standard is proposed and managed by the National Forestry Machinery Standardization Technical Committee (SAC/TC 61).

1 Scope

This standard specifies laboratory test methods and performance requirements for forestry machinery driver protection structures (OPS). It works for ISO 6814 Mobile forestry machinery as defined in the following, which is engaged in harvesting, combined operations, consolidation, and skidding. The design of OPS gives the driver a Reasonable protection to keep drivers from penetrating objects such as saplings, branches and broken winch wire ropes and puncture injuries in forestry production Damage, except for the protection of small projectiles such as chain teeth. OPS that meets this performance standard cannot be absolutely protected in all possible environments Operator safety, but the purpose is to minimize the operator's injuries under normal operating conditions.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

ISO 3411 Body size of earthmoving machinery drivers and their minimum movement space (Earth-moving machinery-Physical dimensions of operators and minimum operator space envelope) ISO 3164 Laboratory-Specified Deflection Limits for Earthmoving Machinery Protective Structures (Earth-moving machinery-Laboratory evaluations of protective structures-Specifications for deflection-limiting volume) ISO 6814 Machinery for forestry-Mobile and self-propelled machinery-Terms, definitions and classification)

3 Terms and definitions

The following terms and definitions apply to this document.

Operator protective structure OPS Reduces the possibility of the driver being injured by penetrating objects such as swaying trees, branches and broken winch ropes 3.2 Roll-over protective structure ROPS Structural device used to minimize the possibility of being squeezed to the driver wearing a seat belt when the machine is overturned.

Note: This structural device includes all underframes, supports, frames, sleeves, bolts, pins,

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suspension devices or elastics used to fix this structural device to the frame Shock absorbers, but do not include mounting members integrated with the rack.

Falling-object protective structure FOPS Structural devices that provide reasonable protection for drivers from falling objects (such as trees, rocks, etc.).

Deflection-limiting volume DLV Approximate vertical projection of a tall male driver sitting in a standard workwear and hard hat, as defined in ISO 3411.

4 Laboratory tests

Warning. Certain tests specified in this standard and the test procedures used may cause dangerous situations.

4.1 Equipment

4.1.1

Provide appropriate materials, equipment and fixing methods to ensure that OPS and its mechanical structure can withstand the applied force during the test.

4.1.2

Necessary test device for pushing the test object to each tested surface, including a steel with 90 mm diameter hemispherical ends Baton. When testing glass or polycarbonate, rubber or synthetic materials should be used to make non-metallic gaskets. The materials of the gaskets should be uniform and dense.

It is uniform in thickness, with a thickness of 20 mm, a diameter of 90 mm, and a Shore hardness of 90 HA.

4.1.3

The accuracy of the instrument for measuring the force and structural deformation applied to the OPS shall meet the accuracy requirements given in Table 1.

Table 1 Instrument accuracy requirements

Parameter error

Measurement size ± 5% of maximum size ± 5% of maximum pressure required to measure pressure

4.2 Preparation

4.2.1

The deflection limit (DLV) and its installation position shall meet the requirements of ISO 3164. DLV should be firmly fixed to the machine installation driving the driver 's seat is at the same position and remains in the same position throughout the test. When a machine

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has multiple seats, the seat with the DLV closest to each test surface of the OPS was tested.

4.2.2
Install OPS on the test frame for testing. It is not necessary to install the OPS on the whole machine for testing, but it is necessary to ensure that the OPS and the frame are installed by the tester.

The installation mode is consistent with the normal installation method.

4.2.3
All removable windows, guards and other parts that are not part of the OPS should be removed from the test frame Remove to avoid increasing the strength of OPS.

4.2.4
The glass material that does not affect the OPS structural performance during the test may be removed.

4.2.5
When the same structural component is used for multiple tests, the guard plate that has weakened or deformed after the previous test can be replaced.

4.2.6
If OPS is fixed on a complete machine, the frame should be fixed firmly so that the OPS structure can be individually stressed and absorbed independently Test energy.

4.3 Test method

4.3.1
During the test, the test device shall be perpendicular to the outer surface of the OPS, and slowly apply force to the OPS through the test device (maximum 5 mm/s, approximately static State loading), until the force reaches 17 800 N for 1 min, and then withdraw the force.

4.3.2
If the object to be tested is made of a mesh-like material, the line of force of the force during loading should pass through the center of the mesh.

4.3.3
Apply loads to the following five positions at the opening.

a) central location;

b) along the middle of the longest side;

c) the middle position along the shortest side;

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