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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 21939-2008

**Earth-moving machinery -- Warning devices for slow-moving
machines -- Ultrasonic and other systems**

土方机械 低速机器报警装置 超声波及其它系统

(English Translation)

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Foreword

This standard is identical with ISO/T R9953.1996 "low-earth-moving machinery and other machinery ultrasonic alarm system" (English Version).

This standard is equivalent translation ISO/T R9953.1996.

For ease of use, this standard made the following editorial changes.

The term --- the "Technical Report" to "this standard";

--- Instead of using the decimal point as a decimal point ", ". ";

--- Delete ISO/T R9953.1996 Foreword.

Appendix A of this standard is a normative appendix.

The standard proposed by China Machinery Industry Federation.

This standard by the national earthmoving machinery Standardization Technical Committee (SAC/TC334) centralized.

Introduction

This standard describes that the detection is installed on the machine and a set of reference necessary qualified alarm device /.

Purpose is to alarm when the operator's line of sight was straight direction machine parts (eg hood) blocked to prevent the machine down Personal car was seriously hurt.

When the machine is self-reversing, the system provides the machine with someone or obstacle path audible and visual alarm signal to the driver.

After all of the currently available methods of assessment, the organization responsible for occupational safety experts and think through the following methods to reduce the matter Behind it is the occurrence of the most effective, that is, from the cab is connected to the visual/audio alarm device ultrasonic sensors or other similar machine monitoring system

Area.

Technical requirements and tests for low-speed machine backup alarm device covered by this Standard has been prepared by ISO/T C127/SC2, the Technical Committee Member organizations will include equipment manufacturers, earthmoving machinery manufacturers, and organizations representing the driver responsible for occupational safety. Require manufacturers and tester Structure of the requirements of this standard to present their experience. Therefore, we should focus on the following.

a) Technical Committee in accordance with the views of experts, followed by detection means can not be executed independently. Only combined with the corresponding model, by optimizing Monitoring area to test accident prevention features. This should be mandatory measurement programs.

b) detecting means for reversing safety issues not generally relates to an electrical connection or other protective machinery sharp edges, but the reliability of operation (such as There should probably include a self-test). Requirements should be focused on these issues.

GB/T 21939-2008/ISO/TR9953:1996 Moving machinery machine low speed warning device Ultrasonic and other systems

1 Scope

This standard specifies the method for evaluating the performance monitoring system, reversing the machine behind the minimum scope of monitoring the driver's visual and auditory channel Interest and self-test features of the system.

This standard applies to GB/T 8498 defined reverse speed equal to less than 5km/h, and the field of vision in line with GB/T 16937.2-1997 Depending on the range of lateral visibility category III (see GB/T 16937.2-1997 4.4.3) and a rearview visibility range category III (see GB/T in 4.5.3) machines 16937.2-1997.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB 1251.1 workplace Auditory danger signal danger signal (GB 1251.1-1989, eqv ISO 7731. 1986) GB 4208 housing protection (IP Code) (GB 4208-2008, IEC 60529:2001, IDT) GB/T 8498 Earth - moving machinery - Basic types - Identification and terms and definitions (GB/T 8498-2008, ISO 6165:2006, IDT) GB/T 10125 artificial atmosphere

corrosion test salt spray test (GB/T 10125-1997, eqv ISO 9227:1990) GB/T 16937.2-1997
moving machinery Perspective evaluation method (eqv ISO 5006-2:1993) ISO 13766:2006
Earth - moving machinery - Electromagnetic compatibility

3 Terms and Definitions

The following terms and definitions apply to this standard.

When reversing, the monitoring area behind the vehicle through visual and auditory signals the driver within the scope of monitoring the position of the object system. Monitoring system System includes elements as defined in 3.1.1 ~ 3.1.3.

3.1.1

Element in the monitoring area object detection.

3.1.2

Analysis of the sensor signal, and the self-test is converted into a corresponding signal to the element indicating device.

3.1.3

Passed to the driver's visual/audio alarm signaling element, the signal corresponding to the distance and area related.

Defining a machine in the three-dimensional region, divided into warning area, the main regional police and the collision area (see Figure 1).

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