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Heavy commercial vehicles — Vehicle stability during tipper body operation — Tilt-table test method

Véhicules utilitaires lourds — Stabilité du véhicule pendant l'utilisation de benne basculante — Méthode d'essai avec table basculante

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 33, *Vehicle dynamics and chassis components*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

A test method is presented for estimating the steady-state rollover threshold of vehicles with a tipper body, using a tilt table device at different inclination angles of the tipper body. Knowledge of a vehicle unit's lateral stability limits during tipping operation is important to prevent rollover, understand operational safety limits, and validate vehicle modelling and design efforts.

Heavy commercial vehicles — Vehicle stability during tipper body operation — Tilt-table test method

1 Scope

This document provides a tilt-table test method for estimating vehicle lateral stability during tipping (or dump) operations. The test method results in a limit curve that creates an envelope of the tipper vehicle unit's rollover threshold, at different tipper body inclinations. This document is applicable to both rear and side tipping vehicles.

This document applies to heavy commercial vehicles and commercial vehicle combinations, as defined in ISO 3833, equipped with rearward or sideways tipping (or dump) bodies (trucks and trailers with maximum weight above 3,5 tonnes, according to ECE and EC vehicle classification, categories N2, N3, O3 and O4).

NOTE The stability envelope can be applied to autonomous construction vehicles.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 8855, *Road vehicles — Vehicle dynamics and road-holding ability — Vocabulary*

ISO 15037-2:2002, *Road vehicles — Vehicle dynamics test methods — Part 2: General conditions for heavy vehicles and buses*

ISO 16333:2011, *Heavy commercial vehicles and buses — Steady-state rollover threshold — Tilt-table test method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8855, ISO 15037-2 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
tipper body
device on a commercial vehicle unit that contains the payload and can be rotated around an axis

Note 1 to entry: Unloading in a tipping operation is performed by tilting the tipper body around its pivot axis until the payload is discharged.

Note 2 to entry: In some countries this term is more commonly known as a dump body.

3.2
tipping hinge
revolute joint between the *tipper body* (3.1) and associated subframe, forming the axis about which the tipper body revolves during a tipping operation