AS ISO 12117:2020
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Earth-moving machinery — Tip-over protection structure (TOPS) for compact excavators — Laboratory tests and performance requirements

AS ISO 12117:2020

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Better Regulation Division — SafeWork NSW
Construction and Mining Equipment Industry Group
Department of Natural Resources, Mines and Energy, Qld
Department of Regional NSW
Engineers Australia / Mining Electrical and Mining Mechanical Engineering Society
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Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment.

The objective of this document is to establish a consistent and reproducible means of evaluating the load-carrying characteristics of tip-over protective structures (TOPS) under static loading, and prescribes performance requirements of a representative specimen under such loading.

This document applies to TOPS of compact excavators (as defined in ISO 6165) with swing type boom, having an operating mass of 1 000 kg to 6 000 kg.

This document is identical with, and has been reproduced from, ISO 12117:1997, *Earth-moving machinery — Tip-over protection structure (TOPS) for compact excavators — Laboratory tests and performance requirements,* and its Corrigendum 1 (2000), which has been added at the end of the source text.

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 12117 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety requirements and human factors*.

Annex A forms an integral part of this International Standard. Annex B is for information only.

Australian Standard®

Earth-moving machinery — Tip-over protection structure (TOPS) for compact excavators — Laboratory tests and performance requirements

1 Scope

This International Standard establishes a consistent and reproducible means of evaluating the load-carrying characteristics of tip-over protective structures (TOPS) under static loading, and prescribes performance requirements of a representative specimen under such loading.

It applies to TOPS of compact excavators (as defined in ISO 6165) with swing type boom, having an operating mass of 1 000 kg to 6 000 kg.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 148:1983, *Steel — Charpy impact test (V-notch).*

ISO 898-1:1988, *Mechanical properties of fasteners — Part 1: Bolts, screws, and studs.*

ISO 898-2:1992, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread.*

ISO 3164:1995, *Earth-moving machinery — Laboratory evaluations of protective structures — Specifications for deflection-limiting volume.*

ISO 6165: —[1)], *Earth-moving machinery — Basic types — Vocabulary.*

ISO 6683:1981, *Earth-moving machinery — Seat belts and seat belt anchorages.*

ISO 7135:1993, *Earth-moving machinery — Hydraulic excavators — Terminology and commercial specifications.*

ISO 9248:1992, *Earth-moving machinery — Units for dimensions, performance and capacities, and their measurement accuracies.*

ISO 10262: —[2)], *Earth-moving machinery — Hydraulic excavators — Laboratory tests and performance requirements for falling-object guards.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1
tip-over protective structure (TOPS)
System of structural members whose primary purpose is to reduce the possibility of an operator, held by a seat belt system (3.5), being crushed should a machine tip-over.

Note 1 to entry: Structural members include any subframe, bracket, mounting, socket, bolt, pin, suspension, flexible shock absorber used to secure the system to the swing frame, but excludes mounting provisions that are integral with the swing frame.

1) To be published. (Revision of ISO 6165:1987)

2) To be published.