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Earth-moving machinery — Loaders and backhoe loaders

Part 2: Test method for measuring breakout forces and lift capacity to maximum lift height



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Institute of Instrumentation, Control & Automation Australia
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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 specify a test method for measuring the breakout forces and lift capacity to maximum lift height of wheeled or crawler loaders, or of the loader portion of backhoe loaders, as these machine types are defined in ISO 6165.

This document is identical with, and has been reproduced from, ISO 14397-2:2007, *Earth-moving machinery — Loaders and backhoe loaders — Part 2: Test method for measuring breakout forces and lift capacity to maximum lift height*.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 14397-2 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 1, *Test methods relating to machine performance*.

This second edition cancels and replaces the first edition (ISO 14397-2:2002), which has been technically revised.

ISO 14397 consists of the following parts, under the general title *Earth-moving machinery — Loaders and backhoe loaders*:

— *Part 1: Calculation of rated operating capacity and test method for verifying calculated tipping load*

— *Part 2: Test method for measuring breakout forces and lift capacity to maximum lift height*

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Earth-moving machinery — Loaders and backhoe loaders

Part 2: Test method for measuring breakout forces and lift capacity to maximum lift height

1 Scope

This part of ISO 14397 specifies a test method for measuring the breakout forces and lift capacity to maximum lift height of wheeled or crawler loaders, or of the loader portion of backhoe loaders, as these machine types are defined in ISO 6165.

2 Normative references

The following referenced documents are indispensable for the application 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 6016:1998, *Earth-moving machinery — Methods of measuring the masses of whole machines, their equipment and components*

ISO 6165:2006, *Earth-moving machinery — Basic types — Identification and terms and definitions*

ISO 6746-1:2003, *Earth-moving machinery — Definitions of dimensions and codes — Part 1: Base machine*

ISO 7546:1983, *Earth-moving machinery — Loader and front loading excavator buckets — Volumetric ratings*

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

ISO 14397-1, *Earth-moving machinery — Loaders and backhoe loaders — Part 1: Calculation of rated operating capacity and test method for verifying calculated tipping load*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6165, ISO 6746-1 and ISO 14397-1, and the following apply.

3.1
breakout force
maximum sustained upward vertical force, in newtons, generated at a point 100 mm behind the leading edge of the bucket of a loader, or behind the foremost point of the cutting edge for a loader having a bucket with an irregular (pointed, curved, etc.) cutting-edge shape, by a lift or tilt cylinder, with the bottom of the bucket's cutting edge parallel to, and not more than 20 mm above, the ground reference plane (GRP)

Note 1 to entry: Typical test arrangements are shown in Figures 1 and 2.

3.2
hydraulic circuit working pressure
pressure applied to the specific hydraulic lifting circuit by the hydraulic pump(s)

3.3
hydraulic circuit holding pressure
maximum static pressure in a specific circuit limited by a relief valve at a flow not exceeding 10 % of the rated circuit flow

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