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Earth-moving machinery — Method for locating the centre of gravity

AS ISO 5005: 2021

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Australian Industry Group
Better Regulation Division — SafeWork NSW
Construction and Mining Equipment Industry Group
Department of Natural Resources, Mines and Energy, Qld
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Engineers Australia
Institute of Instrumentation, Control & Automation Australia
Minerals Council of Australia
Mining Electrical and Mining Mechanical Engineering Society
University of Queensland

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Earth-moving machinery — Method for locating the centre of gravity

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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 method for determining the coordinates of the centre of gravity of earth-moving machinery such as tractors, loaders, dumpers and graders in any condition of loading or position of attachments.

This document is identical with, and has been reproduced from, ISO 5005:1977, *Earth-moving machinery — Method for locating the centre of gravity*.

As this document has been reproduced from an International Standard, the following applies:

(a) In the source text "this International Standard" should read "this document".

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5005 was developed by Technical Committee ISO/TC 127, *Earth-moving machinery*, and was circulated to the member bodies in June 1976.

It has been approved by the member bodies of the following countries :

Austria	Germany	South Africa, Rep. of
Brazil	Italy	Spain
Bulgaria	Japan	Sweden
Canada	Korea, Rep. of	Turkey
Chile	Mexico	United Kingdom
Czechoslovakia	Philippines	U.S.A.
Finland	Poland	U.S.S.R.
France	Romania	Yugoslavia

No member body expressed disapproval of the document.

INTRODUCTION

Although there are many possible methods of determining the centre of gravity, the intent of this International Standard is to specify one simple and practical method which requires the use of a weighbridge and crane.

There is no single fixed position of the centre of gravity of a machine which has attachments or components that are movable. When such a machine is tilted, as it must be to find the vertical co-ordinates, flexible parts deflect, fluids and loose parts move, and the position of the centre of gravity therefore changes. Again, particularly in the case of earth-moving machinery, the position of the centre of gravity will depend upon the nature and position of any attachments or ancillary equipment with which the item is fitted. It is therefore essential in all cases to state exactly the conditions of test.

NOTES

Australian Standard®

Earth-moving machinery — Method for locating the centre of gravity

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the co-ordinates of the centre of gravity of earthmoving machinery such as tractors, loaders, dumpers and graders in any condition of loading or position of attachments.

2 DEFINITIONS

For the purpose of this International Standard the following definitions apply :

2.1
machine
The machine or other object whose centre of gravity is to be determined.

2.2
apparatus
The equipment required to determine the centre of gravity of a machine.

2.3
attachment
A piece of equipment which is available for mounting on the machine for a particular purpose (for example a bulldozer blade, winch or bucket).

2.4
"left-hand" and "right-hand" sides
These terms apply when facing in the primary direction of travel.

2.5
mass
The mass of the machine as submitted for test.

3 PREPARATION AND LOADING OF MACHINE

The machine shall be clean and shall be tested in normal working conditions or in a specified condition agreed between the manufacturer and the testing authority.

3.1 Radiator, sump, hydraulic and other reservoirs, shall be filled to specified working levels; the fuel tank shall be full or empty or in a specified condition as agreed between the manufacturer and testing authority.

3.2 Tools, spare tyre, and loose accessories and equipment shall be complete as supplied and shall be in the normal stowage positions.

3.3 Tyre pressures shall be as specified in the manufacturer's operating instructions or, if a range of pressures is allowed, at the highest pressure recommended. In the case of machines fitted with hydro-inflation tyres they shall be filled in accordance with the manufacturer's operating instructions.

3.4 The attachment shall be normally put in the operating position; for example :

a) for crawler or wheeled tractors, with the dozer equipment lowered, tilt adjustment horizontal, to the lowest possible position just clear of the horizontal reference plane (see 5.3);

b) for loaders with the bucket fully crowded back and the front linkage in such a position that the lower part of it or the bucket is just clear of the horizontal reference plane;