

Method for

Measurement of turning dimensions of wheeled earthmoving machinery

[ISO title: Earth-moving machinery — Measurement of turning
dimensions of wheeled machines]

UDC 624.132:621.878/.879:629.11.075

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Road Engineering Standards Committee (RDB/-) to Technical Committee RDB/21 upon which the following bodies were represented:

- Associated Offices Technical Committee
- Construction Industry Training Board
- Construction Plant-hire Association
- Department of Trade and Industry
- Federation of Civil Engineering Contractors
- Federation of Manufacturers of Construction Equipment and Cranes
- Health and Safety Executive
- Institution of Civil Engineers
- Institution of Highways and Transportation
- Ministry of Defence
- National Coal Board
- Trades Union Congress

This British Standard, having been prepared under the direction of the Road Engineering Standards Committee, was published under the authority of the Board of BSI and comes into effect on 30 March 1984

© BSI 10-1999

The following BSI references relate to the work on this standard:
Committee reference RDB/21
Draft for comment 82/10072 DC

ISBN 0 580 13777 5

Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
1 Scope	1
2 Field of application	1
3 References	1
4 Definitions	1
5 Test area	1
6 Test equipment	1
7 Preparation for test	1
8 Test procedure	4
9 Additional optional test procedure for machines whose left and right hand brakes on the non-steered wheels can be applied separately	5
10 Test results	5
Figure 1 — Turning and related diameters	2
Figure 2 — Tyre clearance diameter	3
Figure 3 — Non-stop 180° turn width	6
Figure 4 — Calculation of diameters from measurements between three equally spaced circumference points	7
Publications referred to	Inside back cover

National foreword

This British Standard has been prepared under the direction of the Road Engineering Standards Committee and is identical with ISO 7457 “*Earth-moving machinery — Measurement of turning dimensions of wheeled machines*” published in 1983 by the International Organization for Standardization (ISO). ISO 7457 was produced as a result of international discussion in which the UK took an active part.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words “International Standard” appear, referring to this standard, they should be read as “British Standard”.

Cross-reference

International Standard	Corresponding British Standard
ISO 6165:1978	BS 5718:1979 <i>Glossary of terms for basic types of earth-moving machinery</i> (Identical)

Because ISO 5010 is not yet published the requirement in clause 7 is quoted in full in footnote 2) on page 4.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This International Standard specifies the methods of measuring the turning radius, turning diameter, machine clearance diameter, and inside and outside tyre clearance diameters, described in the horizontal plane by a wheeled earth-moving machine with its equipment when executing a turn.

2 Field of application

This International Standard applies to all types of steerable wheeled earth-moving machinery. It applies irrespective of the type of steering used.

3 References

ISO 5010, *Earth-moving machinery — Steering capability — Rubber-tyred machines*¹⁾.

ISO 6165, *Earth-moving machinery — Basic types — Vocabulary*.

4 Definitions

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

4.1

turning centre

the point about which all turns of constant radius are made (See Figure 1.)

4.2

turning diameter

the diameter of the circular path described by the centre of tyre contact with the surface of the test site of the wheel describing the largest circle when the machine is executing its sharpest practicable turn under the test conditions described in clause 8 (See Figure 1.)

4.3

turning radius

turning radius = $1/2 \times$ turning diameter (as defined in 4.2) (See Figure 1.)

4.4

machine clearance diameter

the diameter of the smallest circle which will enclose the outermost points of projection of the machine and its equipment when it executes its sharpest practical turn, under the conditions described in clause 8 (See Figure 1.)

as the machine clearance diameter is affected by the type of equipment fitted, the latter should be stated in the test report

4.5

outer and inner tyre clearance diameter

the diameter of the circular path described by the outermost point of the loaded (lower) section of the tyre located on the vertical diameter of the outermost wheel and also that of the innermost point of the innermost wheel when the machine is executing its sharpest practical turn under the conditions described in clause 8 (See Figure 2.)

NOTE The criteria for the state of loading of the machine as given in clause 7 shall be observed.

4.6

non-stop 180° turn width

the minimum road width required for the tyre paths of the machine as it makes a 180° turn without stopping

5 Test area

The test area shall be a compacted or paved surface affording good tyre adhesion, capable of displaying legible markings, and resistant to defacement by turning machines. The test surface shall be visually flat, with no more than 3 % grade in any direction. The test area shall be large enough to accommodate the test machine as it negotiates the appropriate tests.

6 Test equipment

The following equipment or its equivalent shall be provided.

6.1 A steel tape, readable to 1 cm and of greater length than the diameter (or radii) to be measured.

6.2 A plumb line, as required in the measurement of clearance diameter (or radii).

6.3 Apparatus for the measurement of pedal effort, as required for the execution of test.

7 Preparation for test

The track of machines having adjustable track axles shall be measured and recorded. The tyre pressures shall be adjusted to those recommended by the manufacturer of the machine. If the manufacturer specifies various pressures or ballast according to ground conditions then those specified for a hard surface shall be used. The tyre sizes and pressures used shall be recorded.

The machine to be tested shall be in its operating condition, and the attachments with which it is equipped and their positions shall be noted.

¹⁾ At present at the stage of draft.