

AS 4457.1:2024



Earth-moving machinery — Off-the-road wheels, rims and tyres — Maintenance and repair

Part 1: Wheel assemblies and rim assemblies



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This Australian Standard ® was prepared by ME-063, Earthmoving Equipment. It was approved on behalf of Standards Australia's Standards Development and Accreditation Committee on 01 October 2024.

This Standard was published on 1 November 2024.

The following are represented on Committee ME-063:

- Australian Industry Group
- Better Regulation Division (Fair Trading, SafeWork NSW, TestSafe)
- Construction and Mining Equipment Industry Group
- Department of Regional NSW
- Engineers Australia
- Forestry Corporation of NSW
- Institute of Instrumentation, Control & Automation Australia
- Minerals Council of Australia
- Resources Safety & Health Queensland
- The Australasian Institute of Mining & Metallurgy
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This Standard was issued in draft form for comment as DR AS 4457.1:2023.

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ISBN 978 1 76139 880 3

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Originated as AS 4457—1997.
Revised and redesignated AS 4457.1:2007.
Second edition 2024.

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Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment, to supersede AS 4457.1:2007.

The objective of this document is to specify minimum requirements for the identification, safe demounting, inspection, maintenance, testing and mounting of off-the-road wheel and rim assemblies for rubber-tyred earth-moving machinery.

Key changes to this document are as follows:

- (a) Improving identification and maintenance of wheel and rim components to make the maintenance and repair process less error prone.
- (b) Revised information relating to the inspection and maintenance of wheel assemblies and rim assemblies.

A list of all parts in the AS 4457 series can be found in the Standards Australia online catalogue.

The terms “normative” and “informative” are used to define the application of the appendix to which they apply. A normative appendix is an integral part of a Standard, whereas an informative appendix is only for information and guidance.

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Introduction

At the request of users of earthmoving equipment, particularly those involved in major mining operations, this Standard has been revised and is supported by the inspectorates of Queensland, New South Wales and Western Australia. These bodies have expressed their concern that wheels, rims and tyres for earthmoving equipment are being subjected to increased loads and forces.

Where a wheel or a rim assembly has failed, pieces of the rim or wheel assembly have been thrown for considerable distances. Fatalities and serious injuries have also occurred when correct procedures have not been followed. The release of large quantities of energy in an uncontrolled manner poses a risk to persons nearby and to minimize the risk, some controls over the repair, maintenance and inspection of wheels and rim assemblies are considered necessary.

NOTES

Australian Standard®

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Part 1: Wheel assemblies and rim assemblies

1 Scope and general

1.1 Scope

This document sets out minimum requirements for the identification, safe demounting, inspection, maintenance, testing and mounting of off-the-road wheel and rim assemblies for rubber-tyred earth-moving machinery. It applies to the fitment of wheel assemblies and rim assemblies of equal to or greater than 600 mm (24 inches) nominal diameter.

This document includes advice on work health and safety (WHS); however, the user of this document needs to refer to relevant federal, state and territory regulations and determine legal requirements as applicable.

1.2 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:

NOTE Documents for informative purposes are listed in the Bibliography.

AS 1627.4, *Metal finishing — Preparation and pretreatment of surfaces, Part 4: Abrasive blast cleaning of steel*

AS 2207, *Non-destructive testing — Ultrasonic testing of fusion welded joints in carbon and low alloy steel*

AS/NZS 1554.5, *Structural steel welding, Part 5: Welding of steel structures subject to high levels of fatigue loading*

AS ISO 9934.3, *Non-destructive testing — Magnetic particle testing, Part 3: Equipment*

1.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

1.3.1 assemble

process of assembling all components of the rim/wheel assembly with the tyre mounted ready to inflate

1.3.2 cold inflation pressure

tyre inflation pressure set in accordance with both the tyre and rim manufacturer's recommendations

1.3.3 competent person

person who has acquired, through education, training, qualification, experience, of a combination of these, the knowledge and skill enabling that person to perform the required task

1.3.4 demountable rim

rim assembly which is secured to a hub via a tapered mounting face and not installed with a wheel disc (nave plate)