

Australian Standard<sup>®</sup>

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

**Part 2: Tyres**



This Australian Standard® was prepared by Committee ME-063, Earth-moving Equipment. It was approved on behalf of the Council of Standards Australia on 31 January 2008. This Standard was published on 12 March 2008.

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The following are represented on Committee ME-063:

- AUSTROAD
  - Australian Industry Group
  - Construction and Mining Equipment Industry Group
  - Department of Mines and Energy, Qld
  - Department of Primary Industries and Fisheries, Qld
  - Department of Primary Industries, Mine Safety, NSW
  - Motor Trades Association of Australia
  - Safety Institute of Australia (Incorporated)
  - WorkCover New South Wales
- 

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

**Part 2: Tyres**

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## PREFACE

This Standard was prepared by the Standards Australia Committee ME-063, Earth-moving Equipment at the request of users of earth-moving machinery, particularly those involved in major mining operations, 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 earth-moving machinery are being subjected to ever-increasing loads and forces.

The objective of this Standard is to provide all those involved in the earth-moving industry with information on the repair, retreading and correct maintenance of tyres used on earth-moving machinery.

The two parts of the AS 4457 series of Standards are as follows:

Part 1: Wheel assemblies and rim assemblies

Part 2: Tyres (this Standard)

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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## FOREWORD

Earth-moving tyres can be a cause of extremely hazardous situations that may result in fatalities when the correct procedures for the repair, retreading and maintenance of tyres have not been followed. The use of repaired or retreaded tyres that are substandard and the use of tyres that have not been maintained to high standards pose risks to persons operating earth-moving machinery. In order that this element of risk be minimized, controls over the repair, retreading, maintenance and inspection of tyres are considered necessary.

This Standard will note where hazards exist, but this is not an exhaustive list. Site management need to ensure that all hazards are identified, and the appropriate risk controls put into place.

In some cases, the Standard will mention a generally accepted risk control but this still needs to be checked against overall risk management.

## STANDARDS AUSTRALIA

**Australian Standard****Earth-moving machinery—Off-the-road wheels, rims and tyres—  
Maintenance and repair****Part 2: Tyres**

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

This Standard sets out the requirements for the identification, inspection, repair, retreading and maintenance of off-the-road (OTR) pneumatic tyres for earth-moving machinery. It applies to tyres fitted to wheel assemblies and rim assemblies of not less than 600 mm (24 inches) nominal diameter.

**1.2 OBJECTIVE**

The objective of this Standard is to assist repairers and retreaders of tyres and users of earth-moving machinery in minimizing the risk to health and safety of persons working on tyres used on earth-moving machinery.

**1.3 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard:

AS

4457 Earth-moving machinery, Off-the-road wheels, rims and tyres—Maintenance and repairs

4457.1 Part 1: Wheel assemblies and rim assemblies

AS/NZS

2865 Safe working in a confined space

**1.4 DEFINITIONS**

For the purpose of this Standard, the definitions given below apply.

**1.4.1 Bead**

The part of the tyre that is made to secure the tyre to the rim. High tensile steel wires fashioned in a hoop shape are encased in the tyre casing or carcass structure. This comprises one bead core each side (in the case of a radial tyre) or multiple bead cores each side (for bias ply tyres). (See Figure 1.)

**1.4.2 Bead area**

The area of a tyre below the rim line (at the bottom of the sidewall). (See Figure 1.)

**1.4.3 Bias ply tyre**

A pneumatic tyre in which the ply cords in the tyre carcass are laid at alternate angles that are substantially less than 90 degrees to the centre-line of the tread. (See Figure 1.)