



AUSTRALIAN RAIL INDUSTRY
STANDARDS ORGANISATION

AS 7510.3

Braking Systems – Part 3: Multiple Unit Passenger

STANDARDS



Advancing safety and productivity

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Development of this Standard was prepared by an Australian Rail Industry Standards Organisation (ARISO) Development Group consisting of representatives from the following organisations:

Central Queensland University, Downer, Jacobs Group, Knorr-Bremse, Metro Trains Melbourne, Queensland Rail, TfNSW, Wabtec Corporation.

The Rolling Stock Standing Committee verified that ARISO's accredited process was followed in developing the product, before the ARISO Board approved the document for publication.

ARISO wishes to acknowledge the positive contribution of subject matter experts in the development of this Standard. Their efforts ranged from membership of the Development Group through to individuals providing comments on a draft of the Standard during the open review.

I commend this Standard to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.



Alan Fedda
Chief Executive Officer
Australian Rail Industry Standards Organisation

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2026	10 September 2026	This document has been reviewed to ensure it remains relevant and applicable. The latest review assessed the content, confirming that while updates were made to align with current industry practices, technologies, and regulatory requirements, the original authorship and copyright have been acknowledged as required.

Approval

Name	Date
Australian Rail Industry Standards Organisation Board	10 September 2026

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Preface

This Standard was prepared by the Braking Systems – Part 3: Multiple Unit Passenger Development Group, overseen by the ARISO Rolling Stock Standing Committee.

This Standard has been substantially revised from the previous version. The changes improve alignment with current multiple unit passenger rolling stock practice, and strengthen requirements for braking performance, control, redundancy, diagnostics and verification.

Objective

The objective of this document is to provide safety benefits in that proper braking performance contributes to the prevention of collisions or derailments of railway rolling stock by providing controls for known hazards.

This document describes minimum standards for brake performance, features and compatibility for the braking systems of Multiple Unit Passenger Sets.

This document is intended to complement the rolling stock compliance certification process outlined in AS 7501, including all vehicle types such as new, modified and heritage rolling stock.

Compliance

There are four types of provisions contained within Australian Standards developed by ARISO:

- (a) Requirements.
- (b) Recommendations.
- (c) Permissions.
- (d) Constraints.

Requirements – it is mandatory to follow all requirements to claim full compliance with the Standard. Requirements are identified within the text by the term ‘shall’.

Recommendations – do not mention or exclude other possibilities but do offer the one that is preferred. Recommendations are identified within the text by the term ‘should’.

Recommendations recognize that there could be limitations to the universal application of the control, i.e. the identified control is not able to be applied, or other controls are more appropriate or better.

Permissions – conveys consent by providing an allowable option. Permissions are identified within the text by the term ‘may’.

Constraints – provided by an external source such as legislation. Constraints are identified within the text by the term ‘must’.

Using this Standard

Appendices in ARISO Standards may be designated either “normative” or “informative”. A “normative” appendix is an integral part of a Standard and compliance with it is a requirement, whereas an “informative” appendix is only for information and guidance.

ARISO Standards identify known hazards relevant to the railway industry. Appendix A provides a non-exhaustive list of hazards relevant to the scope of this Standard.

Commentary

Commentary *C Preface*

This Standard includes a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by 'C' preceding the clause number and is printed in italics in a box. The commentary is for information and guidance and does not form part of the Standard.

AS 7510.3 PREVIEW ONLY

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Section 1 Scope and general

1.1 Scope

This document describes the requirements for brake performance, features and compatibility for the braking systems of multiple unit passenger sets including fixed consists and self-propelled passenger cars which can be coupled together, and push-pull sets that are new, substantially modified or that are to operate in a network in which they have not previously operated.

This document covers the design and construction of brake systems including electro-pneumatic (EP) and automatic air brake systems.

This document covers the maintenance of the brake systems including EP and automatic air brake systems.

The operation of multiple unit passenger sets, considering network safeworking rules and route standards, is not covered.

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:

- AS 1210:2010, *Pressure vessels*
- AS 2435:1992, *Elastomeric hose for railway air brakes*
- AS 7503:2023, *Rail vehicle identification and markings*
- AS 7504:2018, *Brake Blocks*
- AS 7504.2:2023, *Brake components – Part 2: Brake discs and pads*
- AS 61508-1:2011, *Functional safety of electrical/electronic/programmable electronic safety-related systems, Part 1: General requirements*
- AS/NZS 1200:2015, *Pressure equipment*
- AS/NZS 3788:2024, *Pressure equipment – In-service inspection*
- BS EN 286-3:1994, *Simple unfired pressure vessels designed to contain air or nitrogen – Part 3: Steel pressure vessels designed for air braking equipment and auxiliary pneumatic equipment for railway rolling stock*
- BS EN 14531-1:2015, *Railway applications – Methods for calculation of stopping distances, slowing distances and immobilisation braking – Part 1: General algorithms*
- EN 15595:2018+A1:2023, *Railway applications – Braking – Wheel slide protection*
- UIC 541-05:3ED 2016, *Brakes - Manufacturing Specifications for Various Brake Parts - Wheel Slide Protection Device (WSP)*

NOTE:

Documents for informative purposes are listed in a Bibliography at the back of the Standard.