



DEPARTMENT OF TRANSPORT AND REGIONAL SERVICES

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**CODE OF PRACTICE
FOR THE
DEFINED INTERSTATE RAIL NETWORK**

VOLUME 2

GLOSSARY

MAY 2002

IMPORTANT NOTICE AND DISCLAIMER

This Code of Practice has been drafted for use by rail operators and the rail industry on the Defined Interstate Rail Network as defined in this Code in conjunction with, or to supplement, the existing codes of the rail organisations.

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Code of Practice for the Defined Interstate Rail Network

This Code does not supersede previous rules and instructions until the Code (in full or in part) is adopted and officially implemented by the network owner. Once implemented the Code will become mandatory. The Code is for application on the routes listed below.

QUEENSLAND

Acacia Ridge-Dutton Park-Fisherman Islands
Dutton Park-Roma Street
Acacia Ridge-NSW border (Border Loop)

NEW SOUTH WALES

Queensland border (Border Loop)-Maitland
Maitland-Broadmeadow
Broadmeadow-Scholey Street Junction-Morandoo Yard (BHP)
Berowra-Hornsby-North Strathfield-Chullora/Enfield (proposed freight route)
Chullora/Enfield-Sefton-Liverpool-Macarthur (proposed freight route)
Lithgow-Orange-Parkes-Broken Hill
Parkes-Stockinbingal-Cootamundra
Macarthur-Moss Vale-Goulburn-Cootamundra-Albury

(Note: this does not include additional emergency diversionary routes that interstate services may use on occasions and for which details will be included in a separate section of the route standards in the Code).

VICTORIA

Albury-Wodonga-Tottenham-West Footscray
West Footscray-South Dynon/North Dynon
South Dynon-Spencer Street
Tottenham-Newport-North Geelong-Gheringhap
Gheringhap-Ararat-Dimboola-Wolseley
South Dynon-Spencer Street-Flinders Street-Frankston-Long Island (broad gauge)

SOUTH AUSTRALIA/NORTHERN TERRITORY

Wolseley-Taillem Bend-Mile End-Islington-Dry Creek
Dry Creek-Gillman Junction-Port Adelaide-Glanville
Glanville-Pelican Point
Gillman Junction-Port Flat
Dry Creek-Crystal Brook-Coonamia-Port Pirie
Crystal Brook-Peterborough-Broken Hill
Coonamia-Port Augusta-Tarcoola-WA border
Tarcoola-Alice Springs
Port Augusta-Whyalla

WESTERN AUSTRALIA

SA border-Kalgoorlie-Avon-Midland
Midland-Forrestfield
Midland-East Perth terminal
Forrestfield-Cockburn-Kwinana
Cockburn-Fremantle

PREFACE

This Code of Practice for the Defined Interstate Rail Network was developed by the rail industry.

The Australian Transport Council agreed to an Inter-Governmental Agreement (IGA) for Rail Uniformity in November 1999. As a result of this agreement the Australian Rail Operations Unit (AROU) was established from 1 January 2000 to work with industry to finalise and implement a Code of Practice for the Defined Interstate Rail Network. The IGA also provided for the establishment of an Industry Advisory Committee (IAC) to assist the AROU. Prior to the establishment of the AROU an Industry Reference Group working under the auspices of SCOT Rail Group produced the first draft of a set of National Codes of Practice for Railways.

The work has been sponsored by the rail industry, the Australasian Railway Association, State, Northern Territory and Commonwealth Governments.

This Code includes Volumes for each operational and engineering discipline and a Glossary defining the terminology used.

The General Requirements and Interface Management Code is a common document relevant to all railway disciplines. The other Volumes in the Code of Practice address the detailed principles, guidelines and mandatory requirements related to the individual disciplines for the range of railway activities comprising the defined interstate rail network.

The Commonwealth Government through the Commonwealth Department of Transport and Regional Services is responsible for administering issues related to the update and maintenance of the Code based on advice from industry. Code Management procedures for the Code of Practice for the Defined Interstate Rail Network are available from the Department.

The Code of Practice has been developed specifically to meet the uniformity requirements for the Defined Interstate Rail Network (DIRN). This Network excludes any yards, sidings and terminals, which may be associated with the Network by way of access, geographic location or any other reason. The practices detailed provide three (3) levels of information as follows:

- (a) Principles providing guidance and information to railway organisations on issues that should be considered.
- (b) Guidelines that provide guidance on one means of meeting some of the requirements of AS 4292.
- (c) Mandatory requirements necessary to enable the operational objectives of the 1998 report titled "Study of Rail Standards and Operational Requirements" to be reached.

The principles, guidelines and mandatory requirements have not been developed for use by other railway networks and are not relevant to special application railways such as sugarcane and heavy haul railways, which are constructed, operated and maintained in ways that meet the specific needs of those operations. In these cases special operating and technical requirements and standards, not provided for in this Code of Practice, will normally apply to accommodate the particular environments in which they operate.

The mandatory requirements for the DIRN do not require application retrospectively and are generally applicable in the case of significant upgrading and modification, new construction or in the implementation of new systems. Infrastructure and rollingstock built to standards in existence prior to the publication of this Code of Practice may be restricted in their use. Other practices deemed mandatory for the DIRN would require a period of time to provide for implementation, particularly in the case of operational and safeworking systems. The staged implementation of these requirements will be the subject of an industry based implementation plan developed in association with the Australian Rail Operations Unit.

The Code of Practice includes significant sections that are notated as "To Be Determined" or "To Be Inserted", which with amendments to existing clauses will be the subject of continuing development.

CODE OF PRACTICE VOLUMES

The following details the Code of Practice for the Defined Interstate Rail Network by Volume and Part number:

- Volume 1 General requirements and interface management
- Volume 2 Glossary
- Volume 3 Operations and safeworking
 - Part 1 Rules
 - Part 2 Route standards
- Volume 4 Track, civil and electrical infrastructure (known as Infrastructure Code)
 - Part 1 Infrastructure management
 - Part 2 Infrastructure principles
 - Part 3 Infrastructure guidelines
- Volume 5 Rollingstock
 - Part 1 Interface and general requirements
 - Part 2 Freight rollingstock
 - Part 3 Locomotives
 - Part 4 Passenger cars
 - Part 5 Other on-track vehicles

SOURCE DOCUMENTS

During the preparation of this Code of Practice the following principle source documents were used:

Australian Standards

AS

- 4292 Railway safety management
- 4292.1 Part 1: 1995 General and interstate requirements
- 4292.2 Part 2: 1997 Track, civil and electrical infrastructure
- 4292.3 Part 3: 1997 Rollingstock
- 4292.4 Part 4: 1997 Signalling and telecommunications systems and equipment
- 4292.5 Part 5: 1997 Operational systems
- 4292.6 Part 6: 1997 Railway interface with other infrastructure
- 1085 Railway permanent way material
- 1085.1 Part 1: 2000 Steel rails

Australian Code for the Transport of Dangerous Goods by Road and Rail Sixth Edition 1988

CODE CHANGE PROCEDURES

Ongoing change procedures for the Code of Practice for the Defined Interstate Rail Network are available from the Department of Transport and Regional Services.

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FOREWORD

This document has been developed to provide a reference to the meaning of terms used in the Code of Practice for the Defined Interstate Rail Network. References to commonly used terms (for example "sleeper") are not necessarily made unless the term may cause misinterpretation in some railway organisations. All references made in AS 4292 have been included, however in some circumstances definitions have been expanded for use in this Code.

1 SCOPE AND IMPLEMENTATION

1.1 INTRODUCTION

The Foreword to AS 4292 Parts 2 to 5 - 1997 is as follows:

“FOREWORD

A means of complying with this Standard may be by an organisation entering into a commitment to conform to a code of practice which has been deemed by an appropriate authority to comply in respect of the organisation’s type of operation. It is envisaged that in time, a range of codes of practice applicable to specific railway activities may be developed to address different types of railway operation such as tramways, tourist/heritage, short haul and advanced technology railways, as well as interstate and other main line operations.”

This Code of Practice has been developed as a means of complying with parts of AS 4292 in the context of the Defined Interstate Rail Network.

In conformity with AS 4292, before applying the Code to individual railway operations it is always necessary to determine the level of risk the application of the Code imposes on such railway operations. As with AS 4292, in making this determination at least the following matters are to be taken into account:

- (a) The role of the railway.
- (b) The function in the organisation of the person, corporation, contractor or supplier who is applying the Code.
- (c) The commercial agreements between owners, operators and functional areas.
- (d) The promotion of commercial and technological innovation.
- (e) Existing safety procedures and practices.
- (f) The need to determine which life cycle phases are applicable to an organisation.

1.2 APPLICATION FRAMEWORK

- (a) Subject to any relevant legislation, the Code of Practice only supplements AS 4292. In the event of any inconsistency between:
 - (i) the application of any part of AS 4292 and the Code; or
 - (ii) the interpretation of a provision of AS 4292 with the Code or a provision of the Code,

AS 4292 is to prevail.

- (b) Any procedures or training manuals prepared by a railway organisation are to be read subject to the following order of precedence:
 - (i) AS 4292; and
 - (ii) the Code.
- (c) The Code of Practice for the Defined Interstate Rail Network (hereafter called the "Code") is aimed at those involved in management and work activities associated with railways on the Defined Interstate Rail Network. In this context the intention of the Code is to provide a more unified, harmonised and efficient operation than that which existed prior to the publication of the Code. The Code seeks to facilitate trains of differing sizes, characteristics, types, and purposes with differing owners and train managers to operate on and between the rail networks that constitute the Defined Interstate Rail Network giving one type of rail operation no advantage over that of another whilst at the same time providing capacity for efficiency and innovation.

- (d) The Code sets out principles, guidelines and mandatory requirements aimed at providing a uniform approach to rail operations and supports the provision of safe and efficient infrastructure, rollingstock and operating systems.
- (e) Where adopted, the principles, guidelines and mandatory requirements described in the Code **shall** be incorporated into the management systems of the owner or operator, by implementing standards and procedures based on these practices. It is recommended that a review of the Code precede its adoption to ensure compatibility with the existing systems.
- (f) The Code applies to work activities undertaken in all functional areas of the railway. The uniformity and underlying safety management principles are stated. Uniform requirements for health and fitness, competency, management and associated issues for rail workers are described. Requirements for interface coordination management are also described, including identification of issues for which interface coordination should be implemented.

2 GENERAL TERMINOLOGY

Active level crossing warning system	Control of the movement of vehicular or pedestrian traffic across a railway level crossing by devices such as flashing light signals, gates or barriers, or a combination of these, where the device is actuated prior to and during the passage of a train through the crossing.
Car	Used when describing or referring to rail vehicles of a specific type or group, eg. freight cars, passenger cars, service cars, box cars, tank cars, flat cars (commonly referred to as a 'wagon').
Civil infrastructure	Track formation and drainage (but excluding track), fixed structures beside, over or under the track (eg. culverts and bridges), including supports for overhead electrical traction equipment, supports for signalling and telecommunications equipment but excluding that equipment.
Classified track machines	Track machines that have been certified as capable of operating track circuits.
Competence	The possession of skills and knowledge, and the application of them to the standards required in employment.
Crossing loop	A line, secondary to the main line, provided primarily for crossing or passing trains.
Drugs	For the purpose of the drug and alcohol policy, substances that may impair a worker's capacity for safe operation whilst on duty.
Electric traction infrastructure	Equipment and systems associated with the supply and reticulation of electricity for traction purposes, but excluding elements of civil infrastructure supporting or otherwise associated with the equipment or systems.
Ensure	To take all reasonable actions in so far as controllable factors will allow.
Fatigue	<p>There is no universally accepted definition of fatigue, but working conceptual definitions in the transport context typically refer to a combination of symptoms and contributory factors including:</p> <ul style="list-style-type: none"> • impaired performance (loss of attentiveness, slower reaction times, impaired judgements, poorer performance on skilled control tasks and increased probability of falling asleep) and subjective feelings of drowsiness or tiredness • long periods awake, inadequate amount or quality of sleep over an extended period, sustained mental or physical effort, disruption of circadian rhythms (the normal cycles of daytime activity and night sleep), inadequate rest breaks and environmental stresses (such as heat, noise and vibration).
Functional area	As described in AS 4292 Parts 2-5.
Guidelines for the Defined Interstate Rail Network	Practices applicable to the Defined Interstate Rail Network that comply with AS 4292 for the scope of activities they describe. Recommended practices may be adopted as guidelines for the Defined Interstate Rail Network.
Heavy track equipment	Track maintenance machines or items of equipment which under normal conditions cannot be removed from the track manually by two workers. A road-rail vehicle that can only be removed from track at locations such as level crossings or machinery used where thermit welding is undertaken is regarded as heavy track equipment.

Interface coordination plan	A plan for a railway operation that delineates the responsibilities of each party or functional area involved.
Intermediate siding	A siding in a section provided for purposes other than crossing or passing of trains.
Interstate system	Any railway system or part of a railway system, designated by its owner as a route to be used for movement of interstate traffic.
Light track equipment	Any small track maintenance machine or item of equipment that, under normal conditions, can be removed from the track by two workers. A lightly loaded road-rail vehicle that can be safely removed from the track may be regarded as light track equipment.
Locomotive	A single item of rollingstock that is self-propelled and which may contain a driver.
Main line	The line normally used for running trains through and between locations.
May	The word "may" indicates the existence of an option.
On or near the track	The space within 3 metres of the nearest track when measured horizontally and at any level above or below the rail when measured vertically, unless in a position of safety.
Operator	The person or body responsible by reason of ownership, control or management, for the provision, maintenance or operation of trains, or a combination of these, or a person or body acting on its behalf.
Organisation	An owner or an operator, or a person or body that is both owner and operator.
Owner	The person or body responsible by reason of ownership, control or management, for the construction and maintenance of track, civil and electric traction infrastructure, or the construction, operation or maintenance of train control and communication systems, or a combination of these; or a person or body acting on its behalf.
Passive level crossing warning system	Control of the movement of vehicular or pedestrian traffic across a railway level crossing by signs or devices, none of which are activated during the approach or passage of a train, and which rely on the road user detecting the approach or presence of a train by direct observation.
Pilot (to pilot a train)	Supervision by a competent worker of each train movement over a worksite or infrastructure defect with the competent worker on the ground observing the infrastructure and directing the movement of the train at speeds not exceeding 10 km/h.
Principles	Principles describe fundamentals applicable to all railways comprising the defined interstate network. Principles defined in the Code may include a list of factors that should be considered.
Prescribed concentration of alcohol	A concentration of 0.02 grams or more of alcohol in 100 millilitres of blood.
Qualified worker	A worker qualified to perform the duties required for a specific task.
Rail safety worker	A paid member of the staff of the railway, a contractor, subcontractor or an employee of either, or a volunteer, performing safety related work related to the functions described in the Code of Practice, <i>General Requirements and Interface Management</i> .
Rail vehicle	Used where the context requires, or is enhanced by, a differentiation between rail and road vehicles.

Railway	A guided system designed for the movement of rollingstock, which has the capability of transporting passengers, freight or both on a track together with its infrastructure and associated sidings, and includes a heavy railway, light railway, an inclined railway or a tramway, having a nominal gauge in each case not less than 600mm, but excludes crane type runways and slipways.
Recommended practices	Accepted practices for the defined interstate network. They should also be considered as guidelines for the Defined Interstate Rail Network.
Requirements for the Defined Interstate Rail Network	Requirements for the Defined Interstate Rail Network regarded as mandatory.
Road-rail vehicle	A road vehicle fitted with retractable rail guidance wheels.
Rollingstock	Any vehicle that operates on or uses a railway track, including any loading on such a vehicle, but excluding a vehicle designed for both on- and off-track use when not operating on the track. Rollingstock is a collective term for a large range of rail vehicles of various types, including locomotives, freight and passenger "wagons". (Refer Section 5, Rollingstock Terminology.)
Safety related work	Safety activity in one or more of the following: <ul style="list-style-type: none"> (a) Driving and operation of trains. (b) Control of the movement of trains. (c) The design, construction, repair, maintenance, upgrading, inspection or testing of track, rollingstock, civil and electric traction infrastructure, and signalling and telecommunications equipment.
Shall	The word " shall " indicates that a statement is mandatory.
Should	The word "should" indicates a recommendation.
Siding	A portion of line connected by points to a main line or loop where vehicles can be placed or stored.
Signalling and telecommunications infrastructure	Signalling equipment and telecommunications equipment provided and used as part of the safeworking and operating systems of the railway, but excluding supports for such equipment.
Track	The combination of rails, rail connectors, sleepers, ballast, points, and crossings, and substitute devices where used.
Track work	Construction, maintenance or repair work on infrastructure or around a track that potentially restricts train movements.
Train	A single unit of rollingstock or two or more units coupled together, at least one of which is a locomotive or other self propelled unit.
Utility	A powerline, pipeline, conveyor, telecommunications line or similar item, or a duct carrying any of these, together with associated equipment and systems.
Validation	Confirmation that particular requirements for a specific intended use are fulfilled.
Vehicle	Used to denote rail vehicles where reference to a specific type or class is not required or not intended.
Verification	Testing and evaluation of an item of equipment or a system to assure compliance with its specification or other requirements.

Wagon	Used when describing or referring to rail vehicles of a specific type or group, eg. freight wagons, passenger wagons, service wagons, box wagons, tank wagons, flat wagons.
Yards and terminals	A system of tracks not designated as part of the defined interstate rail network used for loading or unloading trains or for other purposes.
Yard limits	A portion of the running lines identified by yard limits signs marking the entrance to the yard or movement within the yard.

3 OPERATIONS AND SAFEWORING TERMINOLOGY

3.1 GENERAL

Absolute block working	A system of controlling traffic where (under normal operations) only one train is allowed in the block section at a time.
Absolute signal	A fixed signal designated as an absolute signal, normally controlled by a person usually from a signal box or control office. Its normal indication is at stop.
Approved abbreviations	Approved abbreviations are as follows: hrs hours JCT Junction km kilometre km/h kilometre per hour Loco locomotive LL light locomotives m metres mins minutes Mt Mount No. Number Pt Port RC Rail Car TM track vehicle or machine TA Train Authority TSR temporary speed restriction
Attended block location	A block location at which an authorised worker is on duty for the working of trains.
Automatic signal territory	A length of railway under the direction of the train controller governed by signal indications that operate automatically for the passage of a train. It may also include locations where such signals may be locally or remotely controlled.
Automatic train protection (ATP)	A system that supervises train speed and target speed, alerts driver of the braking equipment, and enforces braking when necessary.
Axle counter	A system that detects the presence of a train by counting the passage of wheels that have entered and left a particular track section.
Bi-directional working	Operation of a line where the flow of traffic can be authorised to move in either direction.
Block	A length of line of defined limits.
Block location	A defined location that separates block sections.
Block point	A place where trains are not able to cross or pass but is available for the purpose of reporting or obtaining an authority.
Blocking facility	A device used by an authorised person to maintain signals at stop thereby preventing a proceed authority being inadvertently issued. It may be achieved through mechanical or electronic means.
Centralised traffic control	A safeworking system of remotely controlling the points and signals at a number of locations from a centralised control room.
Cross	The process of two trains meeting at crossing loops, while travelling in the opposite direction on single track.
Detonating signals	Impact explosive devices secured on top of the rail of the track to be protected, to attract the attention of train crews.

Double line working	The operation of two parallel main lines carrying traffic in each direction on a separate track.
Driver	An authorised worker in charge of a locomotive or train.
End-of-train marker	A physical device to indicate "end-of-train" fitted to the trailing end of the last vehicle of a train.
Exclusive occupancy	Sole use of a track section by a single train or track workers.
Facing points	Those points by which a train or vehicle can be diverted from one line to another.
Fixed block	A train separation system based on the segmentation of the track into a series of blocks. It is intended that a space consisting of one or more blocks is to exist between trains.
Fixed signal	A manually or power operated signal which is permanently located near the line.
Global positioning system (GPS)	A satellite navigation system that uses satellites to determine position in terms of latitude and longitude.
Hand signal	A signal other than a fixed signal provided by an authorised worker to regulate the passage of trains and/or protect workers on or about the track.
Joint occupancy	Simultaneous use of a section by two trains, or by a train and track workers, or by several track workers.
Kilometre location	The distance in kilometres from a set point, used to identify a specific place in a section.
Level crossing protection	The function undertaken by an authorised worker responsible for the protection of a level crossing.
Limit of authority	A physical track location to which a train can be given an authority to proceed. It may be a sign or a signal capable of displaying a stop indication or a specific kilometre location.
Location	The designated name used to describe a place on the railway.
Location ahead sign	A sign marking the approach to a location and the location's recognition by its designated name.
Low speed	A speed which will enable a train movement to be stopped within half the distance the line is seen to be clear ahead, but which does not exceed 25 km/h.
Movement	The operation on rail of a train or other track vehicle or machine.
Moving block	A train separation system where a safe space is maintained ahead of a moving train commensurate with its speed relative to other trains, track and train characteristics.
No authority required (NAR)	A system whereby the authorised workers make their own arrangements for safe occupation of the track between the passages of trains.
Normal speed	A speed that does not exceed the speed limit currently in force for the locality and class of train.
Overlap	A section of track on the departure side of a limit of authority, which must be clear, before a train can be authorised to pass the previous limit of authority in order to provide a margin of safety.
Out of service (track or infrastructure)	A portion of the track or infrastructure that is unsafe and is closed to normal operations.

Pass	The process of one train overtaking another travelling in the same direction at a crossing loop on single track.
Permissible rollingstock outline	The outline that defines the limiting cross-sectional geometry for rollingstock and its load including kinematic effects. It includes the static rollingstock outline and the affects of vehicle centre and end throw, track tolerances and dynamic rollingstock limits. Also referred to as "Rollingstock outline" or "Maximum kinematic rollingstock outline". Also equivalent to the "Permissible rollingstock outline" defined in AS 4292 Part 2.
Permissive signal	A fixed signal designated as a permissive normally controlled by the passage of trains. Its normal indication is a PA.
Permissive block working	A system whereby two or more trains travelling in the same direction and spaced a block apart, may consecutively enter a block section of single line on signal indication.
Permissive working	A system whereby a train or two or more trains travelling in the same direction may enter a single line indication on signal indication and are permitted to proceed at low speed to the preceding train or next stop indication.
Rollingstock gauge	The specified dimension limits which an item of rollingstock must not normally exceed for a particular line.
Route	The path from one limit of authority to the next in the direction of travel.
Running line	A line (other than a siding) that is used for the through movement of trains.
Running movement	Any movement on running lines authorised by a Proceed authority (PA).
Safeworking system	An integrated system of operating procedures and technology for the safe operation of trains and the protection of people and property on or in the vicinity of the railway.
Section	The line between two successive interlockings or block locations.
Shunt	The movement of trains or rail vehicles for the purpose of marshalling trains or altering their consist.
Shunting and emergency movements	Any movement authorised by a Proceed restricted authority (PRA), Work authority (WA) or Shunt authority (SHA).
Sighting distance	The distance along the track where a limit of authority or warning prior to a limit of authority can be first reasonably viewed by the train crew of an approaching train, and the physical location of that limit of authority warning.
Single line working	The operation of a main line upon which trains are operated in either direction on a single track.
Track circuit	An electric circuit that uses the rails of a railway track as conductors such that a train electrically connects them via its axles. The absence or presence of this rail-to-rail connection indicates the absence or presence of a train or item of rollingstock.
Track section	The section of track between two locations specified for operating purposes.
Track speed	The maximum train speed for a segment of track.
Trailing points	Those points over which trains or vehicles approaching from two lines converge onto one line.

Train authority	An instruction in the prescribed format issued by the train controller in connection with the movement of a train.
Train control	Worker or workers in charge of the process for the management and control of traffic movements and occupancy authorities.
Train controller	The person responsible for the management and control of traffic movements and occupancy authorities.
Train control jurisdiction	Train control for a portion of the network for which the train controller for the time being is responsible.
Train crew	Worker or workers in charge of the operation of trains.
Train detection system	A system that detects the presence of a train or any other on track vehicle intended to be detected on a section of track. Systems include track circuits, axle counters, treadles and global positioning systems.
Train location system	*** Under Review ***
Train notice	Operational information issued by or on behalf of the infrastructure owner.
Train path	The track over which a train may be authorised to travel. It consists of routes linked consecutively.
Train running information (TRI)	Information issued by the train controller to relevant workers to make them aware of the running times of trains.
Worksite protection	The process for ensuring the safety of personnel at a track worksite and ensuring that the site is safe for trains.
Worksite supervisor	The worker responsible for the safety of personnel at a track worksite and ensuring that the site is safe for the operation of trains.

3.2 OCCUPANCY AUTHORITY (AUTHORITY) DEFINITIONS

Occupancy authority (Authority)	A formal authority of a kind described in these rules issued to a train crew or track work supervisor allowing occupancy or obstruction of one or more block sections.
Proceed authority (PA)	A formal authority for a train to proceed in the forward direction under normal operating conditions where exclusive occupancy of the track section to which it applies is guaranteed.
Proceed restricted authority (PRA)	A formal authority for a train to move in the forward direction at restricted speed to enter the limits of a preceding train or track obstruction.
Work authority (WA)	A formal authority for a train to move in either direction between specified locations.
Shunt authority (SHA)	A formal authority for a train to move outside the limits of a block location or yard for shunting.
Conditional proceed authority (CPA)	A formal authority to proceed in the forward direction conditional upon the train crew obeying an instruction to cross or pass another train or trains specified in associated crossing or passing instructions.
Local possession (LP)	A formal authority to close down a defined section of track for a specified period. The track section may be occupied by any number of separate track forces and associated work trains. Operational safety within the section is controlled locally by the overall track work supervisor.

Track occupancy authority (TOA) A formal authority for occupancy of the track by track workers and their movement in either direction within specified limits. The track may be broken or otherwise obstructed while the work is being carried out and trains are not permitted through the track section during currency of the TOA.

Track work authority (TWA) A formal authority for occupancy of the track by track workers and their movement in either direction within specified limits. The track may be broken and obstructed while work is being carried out, but it must be restored and cleared for the passage of trains as necessary during the currency of the authority. The track supervisor directs trains through the worksite. Trains may be subjected to delays, reduced speeds or other restrictions at the worksite.

NOTE: See also—

No authority required (NAR)
Train running information (TRI)
in Clause 3.1

4 TRACK AND CIVIL INFRASTRUCTURE TERMINOLOGY

4.1 GENERAL

Air Gap A gap between the maximum kinematic outline and structures, or between maximum kinematic outlines on adjacent tracks, which provides a margin for maintenance or other action to maintain clearances prior to infringement of the maximum kinematic outline.

Ballast Depth Distance from the formation to the base of the sleeper measured below the lowest rail seat. For steel sleepers the base of the sleeper is considered to be the sleeper toe.

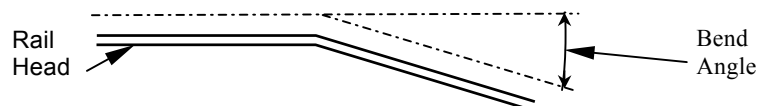
Ballast Shoulder Height (H) Height of the shoulder ballast above the sleeper base as measured at the end of the sleeper.

Ballast Shoulder Width (S) Width of the shoulder ballast as measured from the sleeper end.

Base Operating Standard (Clearances) The outline that may be infringed only in special circumstances where no exceedence of the appropriate track tolerances for clearance is permitted.

Bearer A type of sleeper used under points and crossing track structures. Bearers are generally larger in dimension than standard sleepers to provide support for both tracks as well as the increased loading experienced under such track structures.

Bend The angle made between the extension of the centreline of one rail and the centreline of the adjacent rail in the horizontal plane.



Box anchor Application of four (4) rail anchors to a sleeper, that is, two (2) to each rail with one on each side of the sleeper.

Cant

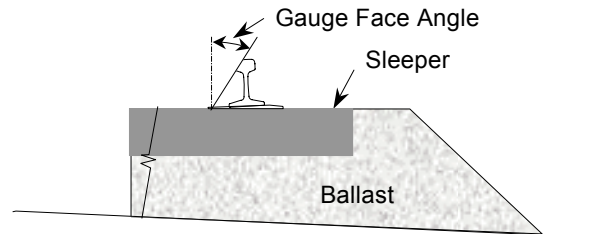
- Rail "Cant" is the inclination of the base of the rail relative to the sleeper base.
- Track "Cant" is the design difference in level of the two rails in curved track (otherwise called superelevation).

Check rail	<p>A rail placed inside the running rail which comes into contact with the back of the wheel flange and is used—</p> <p>(a) in points and crossing work to provide steering of the wheelset such that the crossing nose is not contacted by the opposite wheel; and</p> <p>(b) on sharp curves (usually where there is significant passenger traffic) as a check against the opposite wheel of the wheelset climbing the high rail.</p> <p><i>NOTES:</i></p> <p>[1] <i>This is an extension of the AS 4292 definition.</i></p> <p>[2] <i>"Elevated guardrails" is a term used in AS 1085 Part 1 to describe a specific type of rail performing the function described in item (a) above.</i></p>
Continuously welded rail track	Track where the rail is joined by welding (and other non-moveable joints such as glued insulated joints) in lengths greater than 300 m.
Crossing	A track component that enables a wheel travelling along one rail to pass through the rail of a track which crosses its path.
Cross level	The difference in level of the two rails in a track.
Cross level variation	The actual variation from the design cross .
Defined event	The specific conditions which cause a special location to be at a higher than acceptable risk.
Design certification	Certification that the design complies with the defined standards and requirements.
Design neutral temperature	Design temperature at which there are no temperature induced stresses in the rail. Used in relation to continuously welded rail or rail with mechanical joints where a rail joint gap is also specified.
Design verification	A design check made by an independent competent professional engineer.
Detailed inspection	<p>Investigation of specific aspects of the infrastructure condition or behaviour in detail which may involve visual inspection, measurements, testing and some diagnostic assessment for the following purposes:</p> <p>(a) Determining required repairs or remedial actions.</p> <p>(b) Capacity rating.</p> <p>(c) Assessing proposed changes to the required functional capability.</p> <p>(d) Determining condition standards or assessment rules.</p> <p>These are in addition to the requirements for general inspection.</p> <p>At "special locations" detailed inspections should be used to determine and review the defined events.</p>
End batter (Rail)	A permanent plastic deformation of a rail end at a joint resulting from wheel impacts.
Fixed point	A point or location in the track where the rail needs to be fixed and cannot be allowed to move longitudinally relative to the sleepers and ballast. This may include such locations as turnouts, level crossings and transition points from dog spiked timber sleepers track to resilient fastened concrete sleepers track.

Gauge The distance between the inside running (or gauge) faces of the two rails, measured between points 16 mm below the top of the rail heads.

NOTE: This is an extension of the AS 4292 definition.

Gauge face angle The angle between a line perpendicular to the sleeper plane (ie. the plane of the track) and the line tangent to the rail gauge face where wheel flange contact occurs.



General inspections Essentially visual inspections but may include some elementary site testing and measurement. They should include the requirements of a patrol inspection in addition to inspection of all readily visible elements of the infrastructure and elements known to contain critical defects.

Guard rail A rail (inside or outside the running rail) used to restrain lateral movement of a derailed wheelset. Used to protect structures or control the lateral movement of the wheelset on bridges or in other higher risk situations.

Horizontal alignment Horizontal alignment of the rails is generally measured using the mid-ordinate offset (version) of a chord of defined length. Limits in this Code have been set based on the variation from the actual design version.

Long welded rail Track where the rail is welded into lengths between 110 m and 300 m, with the rail lengths joined by fishplated joints. Some thermal expansion is provided for at the joints.

Maintenance intervention standard (clearances) The outline, which requires maintenance actions to be taken to restore clearances without the need to consider operating restrictions.

Maximum kinematic rollingstock outline Refer to "Permissible rollingstock outline" in Section 2.1.

Mechanically jointed rail track Track where the rail less than 110 metres in length is joined by mechanical rail joints.

Mechanical rail joint A rail joint made by mechanical means (as opposed to welding), generally using bolted fishplated sliding joints that are designed within limits to allow the rail to expand and contract with temperature.

Open ballasted track Track comprising rails, fastenings, sleepers and ballast. It does not include track comprising slab or embedded systems, or track on transom deck bridges.

Operating restriction A restriction on the operation of rollingstock (eg. reduced speed, axle load) to provide an appropriate level of risk in response to a specific infrastructure condition.

Part worn rail Any recycled rail that has previously carried traffic, including rail used for closures and inserts.

Patrol inspections	<p>Visual inspections for obvious unsafe conditions, changed conditions, or evidence of high rates of deterioration of the infrastructure that indicate unacceptable risk to operations.</p> <p>Patrols should be sufficient to enable the need for more detailed inspections to be determined.</p>
Permanent rail joint	Non-welded rail joints intended for use in track in the long term. They include fishplated joints, glued insulated joints and expansion joints.
Permissible structure outline	The outline relative to the track cross-section that defines the limiting cross-sectional geometry, which no part of any structure or trackside fixture may infringe.
Point	A track component that provides a path for a wheel to transfer from one track to another and usually consists of a section of bent and planed rail (known as the switch rail) and its connecting parts (for example switch rod brackets, reinforcing bars and high strength tips where appropriate). The term point is also used to describe the end of the switch rail that is machined into a sharp tip.
Points and crossing (structures)	<p>Track structures constructed from combinations of points, crossing and other related components, and include slips, diamonds and turnouts that provide for one track to join or cross another whilst maintaining continuous support and direction to the rollingstock wheels. They may also be used to construct catch points.</p> <p>A set of points is located at the position where one track separates into two tracks (or vice-versa) and generally includes moving rail components each called a point (alternatively called a switch). A crossing is located at the position where one rail crosses another rail.</p>
Rail combined wear	<p>Rail wear where both side and top wear are significant.</p> <p>Combined wear may be calculated by determining the loss of cross-sectional area as a percentage of the original area of the head.</p>
Rail side wear	<p>Rail wear that normally occurs in the high leg of curved track and has only a minimal amount of top wear.</p> <p>Side wear can be measured either by determining the width of the rail 16 mm below the running surface in mm, or the loss of head area as a percentage of the original head area.</p>
Rail top wear	Rail wear that normally occurs on the top running surface of the rail in tangent track or the low legs of curves. Usually has a minimal side wear component.
Resilient rail fastening	A fastening that provides a degree of elasticity between the sleeper and rail with the aim of avoiding the loosening of the fastening due to vibration, as well as enhancing the ability of the fastening system to resist longitudinal creep forces and buckling forces associated with continuously welded rail (CWR).
Short welded rail	Track where the rail is welded into lengths less than 110m, with the rail lengths joined by mechanical joints.
Special locations	Locations which exhibit a history of proneness to certain events that may significantly increase the risk of failure, and require actions to be taken when a specified defined event occurs. Conditions at the locations cannot be adequately ascertained through normal scheduled inspections.
Spreader Bar	Bars used to hold the points in the correct position relative to each other.

Static rollingstock outline	The limiting cross-sectional outline and an associated design vehicle configuration, which define the limiting static outline dimensions of rollingstock. The static rollingstock outline must be met by the rollingstock under all maintenance and loading conditions (eg. at all wheel diameters in the range for new and condemnable worn wheels).
Stress free temperature	Actual temperature at which there are no temperature induced stresses in the rail.
Stock Rail	The rail to which a point fits up against in the closed position. A switch set is made up of the point and stock rails and associated components. The term is also sometimes used loosely to describe other plain rail sections in a points and crossings structure.
Structure clearance register	A register of all structures that have been built inside the Structure Outline Standard for the line section and therefore require to be part of a formal inspection and assessment process. The register should detail the structure location and type, and the clearance standards required at the location.
Structure outline	The standard that determines what structures on the line section require inclusion in the clearance register.
Superelevation	See "Cant".
Switch	See definition of Point.
Temporary rail joint	Non-welded rail joints intended for temporary joining of rails only, and generally requiring special measures to be implemented with their use. These measures permit the short-term passage of trains and may include special inspections or speed restrictions.
Top	Vertical alignment of the rails. Top is generally measured using the offset at a defined point along a chord of defined length.
Track buckle	A substantial misalignment contributed to by longitudinal thermal stresses overcoming the lateral or vertical resistance of the track.
Track geometry	The horizontal and vertical alignment, cross-level and cant of the track.
Transom	Transverse members of track-supporting structures generally made from timber, to which the running and guard rails are fastened. These members are designed specifically as structural members of the track-supporting structure and should not be treated as sleepers unless specifically provided for in the Code.
Twist	The variation in actual track cross-level between two locations separated by a nominated distance interval (along the track).
Wing Rail	The rails of a crossing (on the end closest to the switch in a turnout) that are flared to allow the passage of the wheel to transfer to or from the crossing nose. Named for their resemblance to a wing in shape.

4.2 RAIL DEFECT CODE DEFINITIONS

BC	Bolt hole crack
BE	Bolt hole elongation
BF	Broken foot
BN	Bolt hole non-conforming
BR	Broken rail
CR	Corroded rail
FW	Foot/web separation
HS	Horizontal split
HW	Head/web separation
MD	Mill defect
MJ	Mechanical joint, suspect
NO	Notches
OT	Other (brittle fracture etc)
PR	Piped rail
RS	Rail surface condition
SC	Shatter cracks
SH	Shelling rail
TD	Transverse defect
TM	Multiple TDs
TS	Transverse defect from shelling
TS	Transverse split
TW	Transverse defect from wheel burn
VS	Vertical split
WA	Weld defect: arc weld
WB	Wheel burn
WF	Weld defect: flash butt
WR	Weld defect: repairs of surface defects
WT	Weld defect: aluminothermic

4.3 RAIL DEFECT POSITION CODE DEFINITIONS

F	Foot (flange)
H	Head
W	Web
X	Head + web
Y	Web + foot
Z	All

4.4 RAIL DEFECT RESPONSE TIME DEFINITIONS

Specified in days (eg. 30 days)	To be carried out, or the defect reassessed, within the specified period.
No action	The defect need not be recorded on a database unless required for quality assurance or research purposes.

4.5 RAIL DEFECT MAINTENANCE ACTION DEFINITIONS

Observe	The defect is to be visually inspected for evidence of discolouration, red or purple oxidation around a crack (also called bleeding), surface cracking or similar faults at intervals not greater than 90 days. An ultrasonic inspection should be carried out every 12 months.
Reassess	Repeat original assessment process, and carry out actions as required.
Restrict speed	<p>Reduce train speed to no more than 30 km/h to limit consequences of failure—</p> <p>(a) as an action in response to identification of a rail or rail weld defect; or</p> <p>(b) to compensate for actions or reassessment of identified defects not being undertaken.</p> <p>Speed restrictions higher than 30 km/h may be specified, provided suitable action to limit defect growth is undertaken during the response period.</p>
Repair	The defect is to be repaired.
Plate	The defect is to be fishplated to specified standards in accordance with requirements for the temporary joint design used. Any plated defect must be treated as a temporary joint and monitored in accordance with specified inspection requirements for the temporary joint method used. A defect that has been plated and subsequently breaks should be treated as a broken rail and replated or removed as required.
Remove	The defect is to be removed or the rail replaced, as specified.
Pilot	Refer to "Pilot (a train)" in Section 1.

4.6 RAIL DEFECT CATALOGUE

Bolt hole crack	<p>A progressive fracture that originates at a bolt hole and progresses radially away from the hole.</p> <p>The origin is usually stresses along the edge of the hole from the bolt. The stresses may be the result of vertical or horizontal rail movement, improper drilling, a burr on the edge of the bolt hole, or rollingstock impacts. Growth may be erratic and accelerated when subjected to additional stresses. Upon service failure the rail may break into several pieces.</p> <p>As bolt holes are normally associated with fishplated joints, visual detection may only be possible after removal of plates. The crack may be accentuated by oxidation (bleeding).</p>
Bolt hole elongation	<p>A mechanical compression or damage at a bolt hole arising from interaction with the bolt. The hole becomes oval with the resultant metal flow concentrating stress. This defect may progress to a bolt hole crack if at a rail end. A horizontal split web may develop in a welded rail if the defect is not removed.</p> <p>As bolt hole defects are normally associated with fishplated joints, visual detection may only be possible after removal of plates.</p>
Bolt hole, non-conforming	<p>Any hole drilled in a rail web that does not comply with specifications with respect to horizontal or vertical position, size, shape, condition or separating distance from other holes or rail end.</p> <p>This defect may result in additional stresses in bolt holes.</p> <p>As bolt hole defects are normally associated with fishplated joints, visual detection may only be possible after removal of plates.</p>
Broken foot	<p>A progressive fracture in the foot of the rail with a vertical split. The separation is substantially longitudinal but usually turns out to the edge of the foot. These separations are often called half moon breaks.</p> <p>The cause is usually improper bearing on plates, damage to rail foot or a seam, segregation or inclusion.</p> <p>The crack is usually visible and may be accentuated by oxidation (bleeding).</p>
Broken rail	<p>A square or angular sudden rupture, transverse separation of the head, web and foot of the rail.</p> <p>This type of failure usually occurs in very cold weather and is often caused by concentrated loadings (overstressing) from rollingstock or track maintenance operations.</p> <p>If any sign of a defect is present, the break should be reclassified according to the type of defect.</p>
Corroded rail	<p>Corrosion of the metal on the foot or web of the rail which results in pits or cavities. Corrosion occurs in wet or damp areas and is usually a slow process. However, the process will be greatly accelerated in situations where electric current passes through the rail, or where chemicals, for example acidic ground water or fertilisers are concentrated.</p> <p>Points of high stress from corrosion pitting or severe reduction in cross-section may cause sudden failure.</p> <p>Excavation of ballast, bitumen etc. may be required to view the corroded rail.</p>

Foot web separation	<p>A crack that occurs in the foot and web fillet area. It is a progressive crack along the fillet.</p> <p>Visual detection is by seeing a crack running along the foot/web fillet.</p>
Head web separation	<p>A crack that generally occurs in the rail end and separates the head from the web. It starts developing parallel to the head/web fillet and may, as it develops, curve either upwards or downwards, or in both directions simultaneously.</p> <p>It is a progressive crack along the fillet. This is a serious defect because it can—</p> <ul style="list-style-type: none"> (a) result in a long section of the rail head falling out; and (b) occur throughout the remainder of the rail and therefore result in multiple breaks. <p>Detection is by visual observation of a crack and rust running along the head/web fillet.</p>
Horizontal split head	<p>An internal defect that occurs within the head of rail. It is a progressive longitudinal fracture in the rail, where separation along a seam spreads horizontally through the head, parallel to the running surface. It may curve upwards or downwards before breaking.</p> <p>The origin of this defect is an internal longitudinal seam, segregation, or inclusion. This may be seen generally by a widening in the top of the rail head. A horizontal crack will eventually start to form on the sides of the rail head.</p> <p>This defect can result in a long section of the rail head falling out and can occur throughout the rail and therefore result in multiple breaks.</p>
Horizontal split web	<p>A defect that occurs within the web of the rail and may start from a weld. As it grows it may curve downwards or upwards or simultaneously in both directions.</p> <p>This defect is fast growing and can result in a long section of the rail head and web falling out.</p> <p>Detection is by visual observation of a horizontal crack forming on the sides of the rail web, which can be noticed by rust marks.</p>
Mechanical joint	<p>A rail where an unidentified ultrasonic response is received. Further information should be provided by the tester to assist with the visual inspection.</p>
Mill defect	<p>Deformations, cavities, seams or foreign material found in the head, web or foot of a rail. They are formed during rail manufacture.</p> <p>Further development depends on the type of defect, its position within the rail, and loading of the rail.</p> <p>Surface defects may be visible but generally the defect is too small to be visible.</p>
Multiple transverse defects	<p>Defects where there is more than one transverse defect in the same rail.</p> <p>Refer to transverse defect for description, origin, manner of propagation, visual detection information and failure mode information.</p>
Notches	<p>Mechanical damage to the head, web or foot of the rail that results in a point of high stress. It may be caused by hammer blows, equipment contact, damaged wheels, overdriven fastenings, local corrosion, wear from plates or fastenings, saw cutting or gas cutting. Defects are visible.</p>

Piped rail	<p>A longitudinal internal defect that occurs within the web of the rail. The development of a vertical split web due to heavy loads can lead to an opening of a cavity and a bulge in the web. The pipe may originate from a mill defect and may contain inclusions.</p> <p>Shallow cracks due to distortion may be found in the bulging surface, and a slight depression above the pipe. Cracking can also develop at the edge of the bulge.</p> <p>Upon service failure the rail may break into several pieces.</p>
Rail surface defect	<p>A rail surface condition, for example corrugation, checking and rust, which does not permit an adequate ultrasonic test.</p>
Shatter crack	<p>A defect originating as a series of small hydrogen inclusions or cracks in the head of a rail. This defect is likely to exist throughout the length of the rail and is characterised by a series of closely spaced internal defects that occur within the head of rail.</p> <p>Shatter cracks are likely to progress to transverse defects.</p>
Transverse defect	<p>A single isolated transverse internal defect that occurs within the head of rail. The remaining rail length between adjacent welds should be checked ultrasonically for other transverse defects. If these are present then the defect should be treated as a multiple transverse defect (TM). See “Multiple transverse defect”.</p> <p>The origin of this defect is an imperfection in the steel, eg. a shatter crack, minute inclusion, or an internal longitudinal seam or segregation. Impact of the wheels and bending stresses start the growth of a transverse separation around the imperfection.</p> <p>Visual detection is only possible after the defect has reached the surface. Rail breakage almost always occurs before the defect becomes visible.</p>
Transverse defect from shelling	<p>A transverse defect propagated from shelling.</p> <p>This defect originates below the rail surface usually at the gauge corner on high legs of curves and can mask a transverse defect that grows into the rail head.</p> <p>The origin of this defect is high stresses below the rail surface that grow from an imperfection in the steel, for example a minute inclusion.</p>
Transverse defect from wheel burn	<p>A transverse defect propagated from a wheel burn.</p> <p>A slipping wheel heats the rail surface and may flow the metal. Rapid cooling forms thermal cracks and wheel pounding starts horizontal separations.</p> <p>Visual detection is usually not possible due to masking by the wheel burn.</p>
Transverse split	<p>An internal defect that occurs within the web of the rail.</p> <p>It most commonly originates from damage of the web.</p> <p>Generally the defect is visually detectable.</p>
Unclassified defects	<p>Includes all other unclassified rail defects. Response and action should be determined based on the nature of the defect.</p>

Vertical split head	<p>An internal defect that occurs within the head of rail.</p> <p>It is a progressive vertical fracture in the rail, where separation along a seam spreads vertically through the head, parallel to the side of the rail.</p> <p>This is a serious defect because it can—</p> <ul style="list-style-type: none"> (a) result in a long section of the rail head falling out; and (b) occur throughout the remainder of the rail and therefore result in multiple breaks. <p>Detection is by visual observation of widening in the top of the rail head, or the dropping of one side of the rail head.</p>
Vertical split web (VSW)	<p>An internal defect that occurs within the web of the rail. It is a progressive vertical fracture in the rail, where separation along a seam spreads vertically through the web, parallel to the web of the rail.</p> <p>In itself a VSW is not a serious defect; however, it may develop into a serious defect, for example piped rail or horizontal split web.</p> <p>It can occur throughout the rail.</p>
Weld defect (Head)	<p>Internal defects that occur within the head, web or foot of a rail at welds joining rails. They usually start from imperfections within the weld zone, for example lack of fusion or inclusions from the welding process.</p> <p>Visual detection is only possible after the defect has reached a surface.</p>
Weld defect (Web)	
Weld defect (Foot)	
Weld defect: repairs of surface defects	<p>A defect in the head of the rail that occurs as the result of aluminothermic or arc weld repair to the running surface of the rail. It may manifest into any of the head and surface defects outlined above.</p> <p>Visual detection is only possible after the defect has reached a surface.</p>
Wheel burn	<p>A scar on the running surface of the rail caused by intense friction heating from driving wheel slippage.</p> <p>The flowed metal may chip out and thermal cracks may develop into a transverse defect.</p>

4.7 NON-WELDED JOINT DEFECT CATALOGUE

Fishplate cracks	Cracks or notches in a fishplate central to the joint. Visual detection is possible by close examination of the fishplate for signs of cracks and bleeding. Dye penetrant or similar can be used to carry out a detailed inspection.
Missing or ineffective fishbolts	Ineffective fishbolts include the following: (a) Cracked or broken fishbolts. (b) A loose fishbolt with the fishbolt nut not providing any compression to the spring washer. (c) A fishbolt providing reduced clamping or longitudinal resistance.
Loose fishbolts	A loose fishbolt is one where the fishbolt nut provides some but not full compression of the spring washer.
Defects in electrical insulation	Any defect that could potentially cause a signal failure.
End batter	*** <i>Under Review</i> ***
Joint gap defect	*** <i>Under Review</i> ***

4.8 RAIL LUBRICATION/FRICTION MODIFIERS DEFECT CATALOGUE

Excessive lubrication	*** <i>Under Review</i> ***
Uneven lubrication	*** <i>Under Review</i> ***

4.9 GUARD RAIL DEFECT CATALOGUE

Sleeper fastenings missing or ineffective	*** <i>Under Review</i> ***
Component Damage	*** <i>Under Review</i> ***

4.10 CHECK RAIL DEFECT CATALOGUE

*** *Under Review* ***

5 ROLLINGSTOCK TERMINOLOGY

5.1 GENERAL

Bogie	A structure incorporating suspension elements and fitted with wheels and axles, used to support rail vehicles at or near the ends and capable of rotation in the horizontal plane. It may have one, two or more axle sets, and may be the common support of adjacent units of an articulated vehicle. (The bogie is commonly referred to as a 'truck' in AAR terminology.)
Brake	A system fitted to rollingstock to inhibit movement, typically achieved by means of compressed air or vacuum, or manually through mechanical means (eg. handbrake).
Full continuity test (FC)	An air brake examination that confirms the train crew has control of the train by testing that there is brake pipe pressure throughout the train.
Full train inspection (FX)	An examination which checks the mechanical condition of all vehicles in the train, confirms the security of all loads and equipment on the train, and confirms the correct operation of the braking system throughout the train. It also identifies any vehicles on the train with non-functioning brakes, and checks the make up of the train and confirms that it is consistent with safe and efficient operations of the train.
Green carding	A process used to identify an item of rollingstock with a defect that does not prevent the vehicle from continuing on the network but does indicate that repairs are required.
Holding test (HT)	An air brake examination to check that the brakes on the last three vehicles of a train will remain applied for a predetermined time in the event of a break-away.
Modified continuity test (MC)	An air brake examination that confirms the correct brake operation on the first three vehicles beyond the further most amalgamation point when a locomotive/s or vehicles are attached or detached from a train.
No handbrake carding	A process used to identify an item of rollingstock with inoperative handbrakes.
Overhang	The distance between an end of a vehicle and the axle closest to that end.
Red carding	A process used to identify an item of rollingstock with a defect that prevents the vehicle from operating on the network until repaired.
Roll-by	A visual inspection of a train to identify equipment, loading security or other defects or failure whilst the train is moving.
Rollingstock outline	Refer to "permissible rollingstock outline" in Section 3.1.
Service braking distance	The distance to stop a train under normal braking, when travelling at its maximum permissible speed for the line, and with regard to the performance capability of the train and its location.

5.2 FREIGHT VEHICLE TYPES

Articulated wagon	A car comprising two or more units, the adjacent ends of individual units being supported on a common bogie and permanently connected by a device that permits free rotation in all planes.
Articulated platform	The individual end and intermediate units of an articulated flat or well car.
Box Car	A fully enclosed car with side and end walls and roof, having one or more doors in each side.
COFC	An acronym for 'container on flat car'.
Container flat car	A flat car specially equipped with approved securing devices for the transport of freight containers. The car may have a full width deck, with or without apertures, or be of skeletal construction.
Container well car	A well car specially equipped with approved securing devices for the transport of freight containers.
Curtain side car	A box car in which the side walls consist entirely or predominantly of weatherproof flexible panels.
General purpose flat car	A car with a full width substantially flat deck, without side walls and with or without stanchions, bulkheads and other load support and restraint systems.
Hopper car	A car with the floor and/or walls sloping from the sides and ends to one or more discharge points or hoppers. Hopper cars may have open or covered tops and incorporate one or more of— <ul style="list-style-type: none"> (a) bottom doors (sliding or swing) for gravity discharge; (b) equipment for pneumatic pressure discharge; (c) equipment for vacuum discharge.
Louvre car	A box car in which the wall panels include louvres or similar devices for ventilation.
Motor car carrier	A rail vehicle specially equipped for the transport of private and light commercial motor vehicles.
Open car	A car with substantially vertical sides and ends, a flat floor and an open top, with or without doors in the side walls or floor.
Refrigerated car	A box car with insulated walls, roof and floor, with or without provision for the application of refrigeration equipment.
Skeletal car	A car whose only longitudinal load bearing structure between the bogies is the centre sill. The load support structure consists of lateral members attached to the centre sill.
Steel products car	A rail vehicle specially equipped for the transport of steel products in bulk, eg. rolled sections, slabs, bars, billets, plate, coiled strip.
Tank car	A car comprising a horizontal, basically cylindrical container for the transport in bulk of liquids, compressed gases, granular or pelletised solids and like materials.
TOFC	An acronym for 'trailer on flat car' (piggyback).
'TOFC' car	A flat car specially equipped with bridge plates, wheel guides, support and lashing equipment for the transport of road trailers with or without prime movers.

Well car A flat car having the height above rail of the underframe/deck structure reduced between the bogies to provide additional vertical load space.

5.3 PASSENGER VEHICLE TYPES

Diesel-electric multiple unit car (DMU)	A multiple-unit car in which the propulsion power is supplied by a diesel engine.
Electric multiple unit car (EMU)	A multiple-unit car in which the propulsion power is provided by electric power supplied from an external source eg. overhead via pantographs.
Intermediate Car	A passenger car without a drivers compartment and not intended or equipped to operate as the lead car in a MUC or MCS consist. Intermediate cars may be powered or non-powered.
Multiple-Car Set (MCS)	Two or more compatible easily separable SU cars coupled together to form an operating consist. A MCS may include all powered cars or a combination of powered and trailer cars.
Multiple-Unit (MU) Car	A car designed to operate as part of a Multiple Unit consist of similar, semi-permanently coupled cars, with a drivers compartment and control unit fitted at one or both ends of each end (terminal) car of the consist, enabling operation in both directions without turning the consist. Powered bogies may be fitted to one or more cars in the consist. MU cars must be coupled to another compatible car or cars to meet operational requirements without the need for special handling. Intermediate cars will not normally have a drivers compartment, and may be powered or non-powered. The end cars of MU consists, fitted with drivers compartments, may also contain the power units, and do not necessarily have provision for the carriage of passengers.
Multiple-Unit Consist (MUC)	A semi-permanently coupled consist of powered MU cars, with or without trailer cars, and a driving position in each end car.
Power Car	A car that contains the equipment and facilities necessary to produce, convert or distribute the power required for propulsion, control and auxiliary purposes.
Powered Car	A car fitted with powered or driven bogies for propulsion.
Self-propelled passenger car (SPC)	A car fitted with powered bogies for propulsion. Tractive power may be provided by overhead electric power or by vehicle-mounted diesel-electric, diesel-hydraulic or similar power units. Power generation or supply equipment may be mounted on individual cars, with control equipment fitted to one or both of the end cars in a Multiple-Unit consist.
Single-unit (SU) Car	A car designed to operate as a stand-alone car, with a drivers compartment and control unit <u>at one or both ends of the car</u> . Single unit cars are generally capable of being coupled together with similar cars and operating in multiple-car sets. SU cars with a drivers compartment at one end only will normally be coupled together with another SU powered or non-powered driving car to enable operation in both directions without turning. Non-powered single-unit cars may also be fitted with a drivers compartment and control equipment.
Trailer Car	A non-powered passenger car, with or without a drivers compartment and control facilities.

6 ELECTRICAL INFRASTRUCTURE TERMINOLOGY

6.1 GENERAL

Static clearance	The safe distance between the earthed materials of any structure and the live parts of the overhead line equipment, under all permissible conditions and tolerances.
Passing clearance	The safe distance between the earthed materials of any structure or rail vehicle and the live parts of the overhead line equipment, or between any earthed materials and the pantograph of electric trains under any permissible conditions of operation, maintenance including rollingstock kinematics.

7 SIGNALS AND TELECOMMUNICATION TERMINOLOGY

7.1 GENERAL

Interlocked	Interconnected components of signalling and signal systems, with or without points or crossings, designed so that no conflicting movements can be signalled.
Interlocking	An arrangement of interlocked signals and points.