DEPARTMENT OF TRANSPORT AND REGIONAL SERVICES

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CODE OF PRACTICE
FOR THE
DEFINED INTERSTATE RAIL NETWORK

VOLUME 3

OPERATIONS AND SAFEWORKING
Part 2: Route Standards

This Code was prepared by DOTARS in 2002. ARTC adopted this Code but advises that it has not been maintained by DOTARS (or successor organisations) and that tables 1 to 7 are out or date. For up to date information for these tables refer to the ARTC Route Access Standard (RAS).

This note on applicability was approved by GM Technical Standards and Environment on 14 March 2013.

MAY 2002

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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 rail 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-Tailem 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 lists 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 elements
- 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

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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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 INFRASTRUCTURE ARRANGEMENTS

The Defined Interstate Rail Network is depicted in Figure 1.

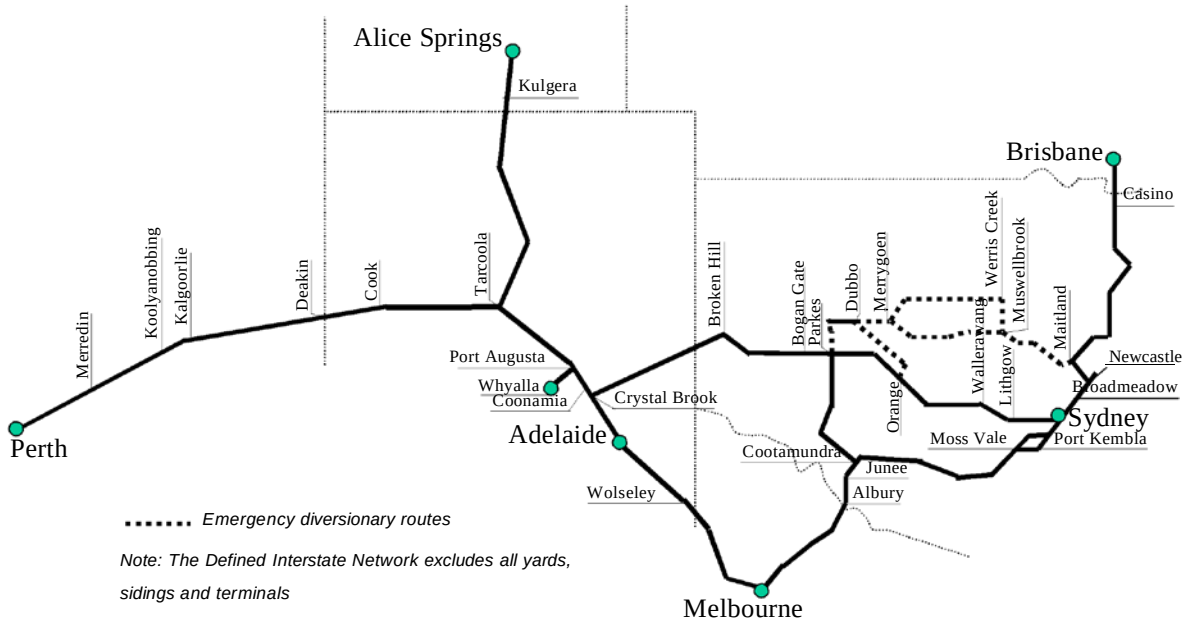

FIGURE 1 ROUTES IN THE DEFINED INTERSTATE RAIL NETWORK

Infrastructure arrangements in terms of Train Control Provider and Location, Network Owners, Access Providers for the Defined Interstate Rail Network are detailed in TABLE 1.

3 DEFINED INTERSTATE RAIL NETWORK SAFEWORKING SYSTEMS

The train controller **shall** be in charge of day-to-day operational control of the Defined Interstate Rail Network Safeworking Systems.

The safeworking systems in operation for each Defined Route Segment, approximate route kilometres and number of lines are detailed in TABLE 2.

4 TRACK GRADIENTS (RULING GRADE)

The maximum track gradient, or ruling grade, over a given route or track section is a major factor in determining the train load to be hauled by a particular combination of locomotives and conversely the power required for a particular train load.

The ruling grade is the up-grade against the direction of train movement so that for any track section there will be two (2) ruling grades, one for each direction of travel. Ruling grades also affect section running times and average speeds.

The maximum track gradients or ruling grades over the Defined Interstate Rail Network are detailed in TABLE 3.

5 SAFEWORKING EQUIPMENT

5.1 SAFEWORKING KEYS

Network owners **shall** put into place systems to manage the provision of safeworking keys.

Safeworking keys needed for the Defined Interstate Rail Network safeworking operations are as follows:

(a) QR routes—“QR points key”

(b) RIC routes—“S.L. and operator’s keys”

(c) ARTC routes in Victoria—“V5PSW key”

(d) ARTC routes other than in Victoria—“S keys” (Boyd and old “S” type)

(e) Westnet routes—“Westnet Traffic Standard keys”

5.2 END OF TRAIN MARKERS

Operators **shall** put in place systems to—

(a) Provide and arrange end of train markers to be positioned and secured at the end of the last vehicle to indicate that the train is complete.

(b) Ensure that the end of train marker once positioned has the capacity to function throughout its intended journey.

6 TRAIN LENGTH MAXIMUMS (INCLUDING LOCOMOTIVES)

6.1 ESTABLISHING TRAIN LENGTH

The procedure is as follows:

(a) Operators **shall** put into place systems to provide an effective means to accurately establish the length of a train (including locomotives worked and hauled).

(b) Train length **shall** be expressed in metres from end to end, fully stretched over the coupling points.

(c) Operators **shall** establish train length before access to the Network is requested or expected.

(d) The length of the train **shall not** exceed the specified maximum length at the Defined Interstate Rail Network entry location, or for any portion of the train's transit unless as approved by the network owner.

6.2 MAXIMUM LENGTH OF TRAINS

The following apply:

(a) The network owner **shall** put into place systems to determine the maximum length of trains permissible for each Defined Network route.

(b) The maximum length of each train is specified in the Access Agreement between the network owner and operator and **shall** include any variations that may occur over individual Defined Network route segments.

(c) The operator **shall not** exceed the maximum length as specified at any time, unless as approved by the network owner.

6.3 OVER-LENGTH TRAIN APPROVAL

(a) A network owner may approve over-length trains where the availability and distribution of route crossing loops or multiple lines are able to accommodate over-length trains.

(b) A network owner **shall** specify the maximum length of over-length trains where approved.

(c) The network owner may approve over-length trains where:

  (i) the over-length train can be scheduled without undue disruption to the schedule of other trains and their schedules; and

  (ii) train performance history (where available) indicates that Defined Interstate Rail Network entry and on-time running for the proposed over-length train can be reasonably expected.

(d) Operators may request an approval for regular over-length trains. The approval **shall** be withdrawn if—

  (i) the operator does not operate regular over-length trains once approved; or

  (ii) changes to other train schedules impact on the continued feasibility of the initial approval.

(e) Operators may request occasional over-length train approvals on a train-by-train basis.

(f) The request for approval **shall** be made to the network owner at least 24 hours before scheduled Network entry.

(g) A train that is found to be over-length without approval **shall not** be permitted to enter the Network. If a train is found to be over-length when already in the Network the train **shall** forego train priority entitlement and in addition **shall** be reduced to standard length at the discretion and convenience of the network owner.

(h) The network owner will grant over-length train approvals through the issue of a train notice.

6.4 OVER-LENGTH TRAIN TRAFFIC MANAGEMENT

The following apply:

(a) Once approval is granted for an over-length train, traffic management by the network owner **shall** be on the basis of the train's performance and not its length.

(b) In the event the over-length train is presented late for Defined Interstate Rail Network entry or subsequently loses time or suffers a failure within the Network, additional impositions are as follows:

(i) a late-running, over-length train **shall not** be permitted to enter the Network until a path can be reasonably offered at the Network entry location;

(ii) the train may be directed to be reduced in length before entering or continuing through the Defined Interstate Rail Network. If this occurs, the approval for over-length **shall** be withdrawn; and

(iii) the train may be delayed for longer than expected periods when being crossed or passed by trains that are not over-length.

7 ROLLINGSTOCK OUTLINE (INCLUDING LOADING)

7.1 IN GAUGE LOADING

The following apply:

(a) Operators **shall** put into place systems to establish that each train is constructed and loaded so as not to exceed the appropriate rollingstock outline.

(b) Operators **shall** establish that the appropriate rollingstock outline is not exceeded before access to the Network, for the train, is requested or expected.

(c) The rollingstock outline **shall not** be exceeded for any portion of the train's transit through the Defined Interstate Rail Network unless as approved by the network owner.

NOTE: For rollingstock outlines refer to Code of Practice for the Defined Interstate Rail Network: Rollingstock (Reference to be inserted)

7.2 OUT-OF-GAUGE LOADING

Out-of-gauge loading is approved and managed as follows:

(a) Network owners may approve out-of-gauge loading where an operator applies for transit through the Defined Interstate Rail Network.

(b) The application **shall** be registered with the network owner before—

(i) the train with out-of-gauge loading is scheduled to enter the Defined Interstate Rail Network; or

(ii) vehicles with out-of-gauge loading are attached to a train within the Defined Interstate Rail Network.

(c) The network owner may refuse approval of out-of-gauge loading applications where the approval may unreasonably impact on the transit performance of other operators using the Defined Interstate Rail Network.

(d) Where approval is granted, train control **shall** manage the out-of-gauge movement through the Defined Interstate Rail Network by—

(i) issuing an out-of-gauge Train Notice advising the approval conditions; and

(ii) administering the approval conditions through train control.

8 TONNAGE MAXIMUMS FOR TRAINS

8.1 MAXIMUM TRAILING LOADS

Operators **shall** put into place systems to establish the trailing tonnage of each train before Defined Interstate Rail Network entry.

A guide to maximum trailing loads for each Defined Interstate Rail Network route segment is shown in TABLE 4.

NOTE: Specific limits may apply for certain trains depending on composition and characteristics.

8.2 STANDARD MARSHALLING REQUIREMENTS

Operators **shall** put into place systems to ensure compliance with the standard marshalling requirements, which include the following:

(a) Requirements of the Australian Code for the Transport of Dangerous Goods by Road and Rail; Sixth Edition.

(b) Requirements of Clause 15, Braking performance of trains.

(c) Limitations on trailing load imposed by draw gear classification.

(d) Vehicles with a gross mass on rail of less than 34 tonne should, wherever possible, be marshalled towards the rear of freight trains.

(e) On the Adelaide-Melbourne-Sydney route, all vehicles with a gross mass on rail of 28 tonne or less **shall** be marshalled so that the trailing load on the foremost such vehicle is not more than 2600 tonne.

9 AXLE LOAD LIMITS

9.1 ROLLINGSTOCK AXLE LOAD LIMITS (EXCLUDING LOCOMOTIVES)

Operators **shall** put into place systems to ensure rollingstock axle load limits are not exceeded.

A guide to axle load limits (excluding locomotives) for each Defined Interstate Rail Network route is detailed in TABLE 5.

NOTE: Specific limits may apply for certain classes of rollingstock depending on individual characteristics.

9.2 LOCOMOTIVES AXLE LOAD LIMITS

Operators **shall** put into place systems to ensure locomotives do not exceed axle load limits.

Locomotive axle load limits are determined with the locomotive in full working order with full supplies of fuel, sand, coolant lubricants and safety equipment.

Locomotive axle load limits for the Defined Interstate Rail Network is 22 tonne. This limit may be exceeded where the network owner has granted local approval or approval at restricted speeds.

NOTE: Specific limits may apply for certain classes of locomotive depending on individual characteristics.

10 ROLLINGSTOCK

10.1 GENERAL REQUIREMENTS

Rollingstock requirements are detailed in the Code of Practice for the Defined Interstate Rail Network, Volume 5: Rollingstock. This Code incorporates engineering and operational standards and practices applicable to the design, construction and operation of the Railway Rollingstock for inter-system use.

10.2 ROLLINGSTOCK ALLOCATION (ROSTERING)

The operator **shall** put into place systems to undertake all requirements associated with the allocation and support of rollingstock to be used on the Defined Interstate Rail Network. This **shall** include the allocation of rollingstock that is:

(a) Certified for operation.

(b) Rated for the maximum axle load and track speed for the class or type of train it is to comprise.

(c) Fit for service in terms of its mechanical and electrical (if applicable) condition.

(d) Fit for purpose in terms of the task to be performed.

10.3 ROLLINGSTOCK OPERATIONAL LOADING LIMITS

The load for any item of rollingstock **shall not** exceed:

(a) The rated specified maximum load.

(b) The maximum axle load for the class of train (excluding locomotives).

10.4 SECURING OF LOADS AND ANCILLARY EQUIPMENT

The operator **shall** put into place systems to secure loads and ancillary equipment and ensure that the means used are fit for purpose.

The systems **shall** be designed so each train completes transit through the Defined Interstate Rail Network without impact upon the safe integrity of the train, other trains, track workers and their equipment, the infrastructure, public property, the general community or the environment.

11 LOCOMOTIVES

11.1 LOCOMOTIVE ALLOCATION (ROSTERING)

The operator **shall** provide the following:

(a) Systems which will allow all requirements associated with the allocation and support of locomotives to be undertaken. This **shall** include the allocation of locomotives that are—

(i) certified for operation;

(ii) rated for the track speed for the class or type of train to which it is allocated;

(iii) fit for service in terms of mechanical and electrical condition;

(iv) fit for purpose in terms of the task to be performed; and

(v) provisioned with sufficient supplies of fuel, sand, coolant lubricants as well as safety, safeworking and communications equipment.

(b) Advance advice to the network owner detailing planned locomotive movements.

(c) Timely advice of subsequent changes to locomotive allocation that may be required for operational reasons.

11.2 LOCOMOTIVE HAULING, AND HOLDING CAPABILITY

The allocation of locomotive power is at the discretion of the operator. This discretion is provided on the basis that the locomotives used **shall** have hauling capacity sufficient for maintaining section running times.

The operator shall put into place systems to ensure train crews are capable of handling their trains safely with the locomotives allocated over the various grades, conditions and operational requirements of the Defined Interstate Rail Network.

11.3 LOCOMOTIVE COMMUNICATIONS EQUIPMENT REQUIREMENTS

The provision of locomotive based communication equipment required for the Defined Interstate Rail Network operations and safeworking **shall** be the responsibility of the operator.

The operator **shall** ensure that locomotive communications equipment is maintained and functional for the intended purpose.

11.4 MOBILE VOICE COMMUNICATIONS ARRANGEMENTS

Train Locomotives **shall** be fitted with voice communications equipment required for train driving and controlling on the Defined Interstate Rail Network. The requirements for voice communications equipment shall be as detailed in TABLE 6.

11.5 DATA COMMUNICATIONS ARRANGEMENTS

Train Locomotives **shall** be fitted with data communications equipment required for train driving and controlling on the Defined Interstate Rail Network. The requirements for data communications equipment shall be as detailed in TABLE 7.

12 EXAMINATION AND TESTING OF THE AUTOMATIC TRAIN BRAKE ON LOCOMOTIVE HAULED TRAINS

The operator **shall** put into place systems for the examination and testing of the automatic train brake on locomotive hauled trains.

The automatic train brake **shall** be examined and tested before a train departs from its origin, and whenever the brake pipe has in any way been affected by uncoupling locomotives or vehicles to, or detached from, a train.

The type of train examination and testing for various circumstances **shall** be conducted in accordance with the summary provided in TABLE 8.

13 BRAKE HOLDING TESTS FOR THE REARMOST VEHICLES (RETENTION TESTS)

The following apply:

(a) The operator **shall** put into place systems for conducting brake holding tests.

(b) The number of vehicles (or for articulated or permanently coupled vehicles the number of triple valve control units) required to conform to the requirements of this sub-section **shall** be:

  (i) Three (3) for freight trains operated in New South Wales;

  (ii) Two (2) for freight trains not entering New South Wales; and

  (iii) One (1) for all passenger trains where a guard is provided or three (3) for passenger trains without guards.

(c) The vehicle operator **shall** ensure that air and hand brakes operate correctly.

(d) The air brakes on the vehicles **shall** remain effectively applied for a period of time, based on train length, considered sufficient for a member of the train (locomotive) crew to reach the vehicles and secure handbrakes in the event of a breakaway en route.

(e) This time **shall** be ten (10) minutes plus three (3) minutes for each 100 metres or part thereof of train length. For example, a train 1240 metres long will require a holding (retention) time of 13 x 3 + 10 = 49 minutes.

(f) If any of the required number of vehicles (as specified in Item (b) above) fail the above test (specified in Item (e) above), generally known as a holding or retention test, the faulty vehicle(s) **shall** be repaired or the train remarshalled to ensure compliance with the requirements of Items (c) and (d) above.

(g) Brake holding tests successfully completed will remain valid for departure within a period of 24 hours from completion of the test. After that period the vehicles **shall** be re-tested.

14 ROLL-BY INSPECTIONS

The operator **shall** put into place systems to carry out roll-by inspections during transit. The roll-by should be designed to provide visual inspection of a train to identify equipment, loading, security or other defects or failure while the train is moving. The following apply:

(a) Qualified workers **shall** carry out roll-by inspections whenever it is possible, safe and practicable to do so. During times of inclement weather, and/or in dark

locations, qualified workers are required to make a judgement about the appropriateness of these procedures to those circumstances.

(b) Where infrastructure and ground conditions allow a roll-by inspection to be done safely, during daylight hours, qualified workers should be on the ground, one each side of the train approximately 5 metres back from any passing train checking for any defects or problems.

(c) Where the qualified workers are train crews conducting crossings or passing during darkness, one crew member **shall** remain on the locomotive and utilise the head light to observe that side.

(d) Where the train crew consists of a driver only conducting crossing or passing, that driver **shall** remain on the locomotive to observe that side.

(e) In all cases, trains **shall** be observed to be complete by the end-of-train marker in position on the last wagon.

15 BRAKING PERFORMANCE OF TRAINS

15.1 STANDARD BRAKING PERFORMANCE (STOPPING DISTANCES)

Minimum operating requirements applicable to rollingstock of all types on any part of the Defined Interstate Rail Network can be found in Volume 5 - Rollingstock Code of Practice.

15.2 INOPERATIVE AIR BRAKES

In all cases, where it is necessary to isolate the air brakes on freight vehicles, the vehicle **shall** be green carded.

15.3 FREIGHT TRAINS

On freight trains, the maximum number of inoperative or isolated brakes permitted on a train **shall** be either of the following:

(a) One conventional two-bogie vehicle for every ten (10) vehicles in the train where the vehicle is isolated as a unit.

(b) One bogie for every ten (10) bogies in the train where individual bogies can be isolated or the isolation of triple valve control units affects more than two (2) bogies. This applies, only on the proviso that the total unbraked mass of the train **shall not** exceed 10% of the total train mass (excluding the mass of the hauling locomotives).

Item (a) above applies where the only vehicles isolated are conventional two-bogie vehicles. In all other cases, the requirements of Item (b) **shall** be followed.

For the purposes of this clause, a four-wheel (two-axle) vehicle **shall** be counted as one bogie, and locomotives under power **shall not** be counted as train vehicles.

15.4 PASSENGER TRAINS

On passenger trains, the number of vehicles permitted to run with the air brake inoperative or isolated **shall** be a maximum of:

(a) One (1) for every ten (10) vehicles (including the train locomotive when applicable); or

(b) One (1) bogie for every ten (10) bogies (including the train locomotive bogies when applicable) where individual bogies can be isolated.

NOTE: Each locomotive is to be counted as one (1) vehicle or two (2) bogies for the purposes of this sub- section.

15.5 FOUR WHEELED OR BOGIE VEHICLES

The following apply:

(a) Any four-wheeled or bogie vehicles which have their brake control unit isolated **shall not** be marshalled adjacent to each other (ie. coupled together) on any freight train during departure or in transit.

(b) Where a group of one or more bogies have the brakes isolated or inoperative there **shall** be a group of at least the same number of bogies with operative brakes between the isolated bogies and the rear of the train, provided always that the requirements of Clause 12, Brake holding tests, have been met.

15.6 ARTICULATED OR PERMANENTLY COUPLED VEHICLES

Articulated or permanently coupled vehicles which are fitted with two (2) or more brake units may be coupled together on departure or in transit provided that there is no more than one brake unit isolated per vehicle and at least half the total number of bogies per vehicle have the air brake system fully functional.

15.7 VEHICLES WITH EXCESSIVE BRAKE TRAVEL

Vehicles with excessive brake travel or a defective slack adjuster and permitted to run with the air brakes operating **shall**, for the purposes of this sub-section, be considered as having the air brake inoperative or isolated.

15.8 GRADE CONTROL VALVES

The operator requirements are as follows:

(a) Grade control equipment provided on vehicles shall be tested and utilised when so instructed by the appropriate authority.

(b) Testing of the equipment is not normally required during train examination procedures of interstate trains before departure, except where specifically required for trains entering New South Wales.

(c) Trains entering New South Wales from South Australia **shall** have a minimum of 80% of tonnage fitted with grade control valves.

(d) Vehicles fitted with grade control valves **shall** be identified by a hollow circle on the data panels.

(e) The exhaust rate with a grade control valve (for setting) (350 kPa to 70 kPa) **shall** be as shown below.

GRADE CONTROL VALVE EXHAUST RATES

Non-relayed systems	Relayed systems
EX— Nominally 15 seconds (15–20 seconds range)	EX— Nominally 15 seconds (15–20 seconds range)
IP— Nominally 50 seconds.	IP— Nominally 70 seconds
HP— Nominally 100 seconds	HP— Nominally 150 seconds

(f) The HP position **shall** retain 50 to 70 kPa brake cylinder pressure for a minimum period of five (5) minutes.

15.9 LOAD COMPENSATING EQUIPMENT

Vehicles fitted with load compensating brake equipment are identified by a hollow square on the data panels.

The change over load for manually operated equipment is normally indicated by a number within the square (or circle where grade control valves are fitted).

Operators **shall** put into place systems which will ensure that the following action is taken:

(a) The load compensating equipment is placed in the 'L' (Loaded) position when either—

(i) the payload (net load) in tonnes indicated by the vehicle way bill is greater than or equal to the number shown on the classification plate; or

(ii) if no number is shown, the payload is 20 tonnes or greater.

(b) At all other times the load compensating equipment is in the 'E' (Empty) position to avoid wheel damage from excessive braking.

15.10 BRAKE CYLINDER PISTON TRAVEL

Brake cylinder piston travel on vehicles **shall** be within the specified limits detailed in TABLE 9.

15.11 SLACK ADJUSTER AVAILABLE TRAVEL

The following apply:

(a) The minimum available slack adjuster travel, allowed before departure, is 50 mm.

(b) Where an air operated slack adjuster is defective and the brake piston travel is in excess of that given in TABLE 9, the air brake **shall not** be isolated, as the brake may still be capable of providing some retarding force. Any such vehicle **shall** be considered as an unbraked vehicle when determining brake percentage, and GREEN carded for attention.

(c) When a mechanical double acting (or in-line) slack adjuster is defective the air brake **shall** be isolated and the vehicle GREEN carded accordingly.

15.12 BRAKE BLOCK THICKNESS

The following apply:

(a) The measurement of brake block thickness is to be made on the outside (facing) surface at the thinnest end of the block in line with the toe (end) of the brake head.

(b) The permitted minimum brake block thickness at the commencement of a journey on the Defined Interstate Rail Network which will enable a train to reach its destination without the need to renew brake blocks en-route, **shall** be as detailed in TABLE 10.

(c) The condemning thickness at any location for composition or cast iron brake blocks is 10 mm.

15.13 INOPERATIVE HANDBRAKES

Vehicles with inoperative handbrakes **shall** be clearly labelled with a NO HAND BRAKE card.

15.14 END COCKS

End cocks on vehicles **shall** be fitted such that—

(a) the operating handle is on the side of the cock furthermost from the auto coupler; and

(b) the coupling cock is positioned so the handle is in its lowest position when opened.

16 IDENTIFICATION

16.1 TRAIN PATHS

The network owner **shall** put into place systems for the allocation of a unique train path identity for each interstate train path as follows:

(a) Train path identity for Interstate trains **shall** be in the following sequence:

Numeral—Day of week train departs from origin location eg. 2 = Monday

Alpha—Location of train origin eg. M = Melbourne, Y = Whyalla

Alpha—Location of train destination eg. P = Perth

Numeral—Identifying train class or type

Alpha or
Numeral—Identifying operator

(b) Where circumstances require that a second or alternative system for the allocation of train path identity is to be maintained, the network owner **shall** arrange and make provisions for the alternative or both train path identities to be used, as is appropriate, but without affecting safeworking or operations.

16.2 TRAINS (INCLUDING LIGHT LOCOMOTIVES)

The following apply:

(a) Trains and light locomotives **shall** be referred to by their train path identity and, where operations and safeworking require, the lead locomotive identity **shall** also be used.

(b) The identity of the lead locomotive of a train **shall** be displayed at all times.

(c) The headlight of the leading locomotive **shall** be fully switched on when the train is moving on the running lines.

(d) Trains and light locomotives **shall** display a single or two red lights to the rear of the train.

(e) An end-of-train marker **shall** be positioned at the rear of the last vehicle to indicate that the train is complete.

16.3 ROLLINGSTOCK

Operators **shall** put into place systems to ensure rollingstock identification is displayed on each item of rollingstock. The identification is required for operational purposes when operating on the Defined Interstate Rail Network and **shall** be displayed as follows:

(a) Rollingstock body to display—

(i) class and number;

(ii) capacity; and

(iii) tare.

(b) Rollingstock bogies to display classification code and serial number.

NOTE: The following information may also be displayed on some bogies.

- *Date last overhauled*
- *Date axle bearings last overhauled*
- *Date axle bearings last greased*
- *Type / model of side bearer fitted (where resilient constant side bearers are used)*

16.4 TRACK VEHICLES AND MACHINES

The following apply:

(a) Track vehicles and machines **shall** be referred to by a unique identity displayed in the direction of movement when working as a train.

(b) When multiple track machines and vehicles are operating as a train, each track machine or vehicle **shall** display its unique identity.

(c) When track vehicles or machines work as a train, the network owner **shall** allocate a train identity number for the movement.

(d) When working as a train, track machines and vehicles **shall** display a white light to the front and a red light to the rear.

(e) All track vehicles and machines **shall** be fitted with electric tail lights and yellow rotating flashing lights which **shall** be operated when travelling on the track or when travelling or working within three metres from the nearest rail.

(f) Track vehicles and machines not fitted with lights shall only be used on track when accompanied by a vehicle or machine that is fitted with lights.

16.5 LOCATIONS

The following apply:

(a) Stations, terminals, yards, crossing loops and block locations **shall** be identified by their respective names.

(b) A track side location **shall** be identified by kilometre location expressed in kilometres and metres, and the name of the section in which it occurs.

(c) The name of the section **shall** consist of the two location names either side of the kilometre location.

16.6 LEVEL CROSSINGS

****** To Be Determined ******

17 TRAIN DOCUMENTATION

17.1 DOCUMENTATION REQUIREMENTS BEFORE NETWORK ENTRY

The following apply:

(a) The operator **shall** put into place systems to provide train control with a train manifest that accurately specifies the composition of the train and includes the following:

(i) the identity of each locomotive working or being hauled;

(ii) the name of each member of the train crew and of other persons travelling on the locomotive;

(iii) the total number of vehicles on the train;

(iv) the gross mass of the train in tonnes (including mass of locomotives working and hauled);

(v) the gross trailing mass of the train in tonnes (excluding mass of working locomotives);

(vi) the length of the train in metres;

(vii) vehicles with dangerous goods including the class of dangerous goods;

(viii) the identity and sequence of vehicles;

(ix) the gross mass of each vehicle;

(x) vehicles with out-of-gauge loading; and

(xi) the origin and destination of each vehicle.

(b) The operator **shall** provide the train manifest to the train control by:

(i) electronic data transfer, if available; or

(ii) photocopy, if convenient; or

(iii) otherwise, by facsimile.

17.2 ON TRAIN DOCUMENTATION

The operator **shall** put into place systems to ensure that the train crew operating the train has in their possession the following documentation:

(a) A brake test certificate declaring the following:

(i) correct braking function;

(ii) details of rollingstock with brakes cut out;

(iii) brake pipe leakage test results; and

(iv) the identity of rollingstock used in brake holding tests.

(b) A manifest specifying each item detailed in 16.1 (a).

(c) Dangerous goods documentation and applicable Emergency Procedure Guides (if dangerous goods are being transported).

(d) Applicable train notices and circulars.

(e) Applicable temporary speed restriction notices.

(f) Appropriate safeworking forms.

17.3 DOCUMENTATION REQUIREMENTS AFTER NETWORK ENTRY

The operator **shall** put into place systems to ensure:

(a) On-train documentation is amended to reflect changes to the train consist during its transit.

(b) Train control is advised of the changes.

17.4 NETWORK OWNER REQUESTED DOCUMENTATION

Upon request from the network owner the operator **shall** provide a copy of any of the documentation detailed in Clause 16.1(a).

17.5 DOCUMENTATION DISCREPANCIES AFFECTING OPERATIONAL SAFETY

The following apply:

(a) Where the operator becomes aware of a documentation discrepancy the operator **shall** advise train control of the discrepancy.

(b) Where train control becomes aware of a documentation discrepancy train control **shall** advise the operator of the discrepancy.

(c) Where the discrepancy impacts on the safe integrity of the train, train control **shall** arrange for the train to be stopped at the first available location where the train crew **shall** compare the on train documentation with the actual composition of the train.

(d) Details of any discrepancy found by the train crew **shall** be provided to train control and a brake test conducted, vehicles re-marshalled or detached as appropriate to rectify the discrepancy.

(e) Examples of documentation discrepancies that may affect safety are as follows:

(i) actual train length exceeds the documented train length;

(ii) actual wagon sequence varies from documented sequence;

(iii) actual wagons on the train vary from documented wagons on the train; and

(iv) actual mass or dimension exceeds documented mass or dimension.

(f) Once the discrepancy has been resolved and the safe integrity of the train assured, normal operations **shall** be resumed.

18 TIME

18.1 WATCHES AND CLOCKS

24-hour time **shall** be observed and used for the purpose of operations and safeworking.

18.2 TIME ZONES

The following apply:

(a) In each State and Territory, local time is observed with the following exceptions:

(i) at Broken Hill, eastbound arrivals and westbound departures **shall** observe central standard time;

(ii) at Cook, eastbound arrivals and westbound departures **shall** observe western standard time; and

(iii) at Alice Springs, arrivals and departures **shall** observe central standard time.

(b) Daylight saving time **shall** be observed on the dates promulgated.

19 TRAFFIC MANAGEMENT

Trains **shall** be managed in accordance with the general principles for traffic management. These are as follows:

- To ensure that operational safety is maintained.
- To schedule feasible train paths.

These principles shall be maintained by observing the following:

(a) The network owner **shall** ensure 'below rail' operating integrity so that operator's train path entitlements can be met. 'Below rail' integrity includes the safe integrity of the track and related safeworking system infrastructure.

(b) Operators **shall** ensure 'above rail' integrity so that the operator's train path entitlements can be met. 'Above rail' integrity includes train crewing, locomotives, rollingstock, passengers, loading and train composition.

(c) Network owners **shall** manage the network on behalf of operators based on agreed train Defined Interstate Rail Network entry / exit times.

(d) Train controls **shall** manage trains according to their schedule with the following objectives:

(i) on-time exit from the network;

(ii) not contributing to time lost; and

(iii) making up time where the gain can be held.

(e) The decision making process within these requirements **shall** be managed by train control in accordance with the traffic management decision making matrix detailed in TABLE 11.

20 SECTION RUNNING TIMES AND ALLOWANCES

The following apply:

(a) The network owner **shall** put into place systems to maintain standard section running times for each section within the network.

(b) Section running times **shall** be varied according to train class or type and direction of movement.

(c) Section running times **shall** be specified for non-stopping movements.

(d) An additional amount of time **shall** be added to the section running time for the section before and after a scheduled train stop. This amount of time **shall** be agreed between the operator and network owner.

(e) Section running times and allowance **shall** be used for the following purpose:

(i) by the network owner for train planning and the production of indicative timetables for issue to operators;

(ii) by train control as a guide for daily planning and traffic management decisions; and

(iii) by train crews as a guide when operating trains through the network.

(f) Trains may traverse a section in better than sectional running times but the maximum speed for the train class, permanent or temporary, and other speed restrictions and warnings **shall** be observed at all times.

TABLE 1—Infrastructure Arrangements

Defined Interstate Rail Network Major Route Segment [Electrified territory #]	Train Control Provider and Location	Network Owner	Access Provider
Acacia Ridge – Roma Street #	QR Mayne	QR	QR
Acacia Ridge – Fisherman Is.#	SRA Broadmeadow		
Acacia Ridge – Greenbank			
Greenbank – Casino		RIC	RIC
Casino – Maitland			
Maitland – Broadmeadow			
Broadmeadow – Sydney #	SRA Sydney		
Sydney – Goulburn #			
Goulburn – Junee	SRA Junee		
Junee – Albury			
Parkes – Cootamundra			
Broken Hill – Parkes	SRA Orange		
Parkes – Orange East Fork			
Dubbo – Orange			
Orange East Fork – Spring Hill			
Spring Hill – Wallerawang			
Parkes – Merrygoen			
Merrygoen – Gulgong	SRA Broadmeadow		
Gulgong – Muswellbrook			
Merrygoen – The Gap			
The Gap – Werris Creek			
Werris Creek – Antiene			
Antiene – Maitland			
Moss Vale – Dombarton	SRA Sydney		
Dombarton – Scarborough			
Scarborough – Coal Cliff			
Coal Cliff – Sydney			
Albury – Wodonga	ARTC Adelaide	ARTC	ARTC
Wodonga – West Footscray			
West Footscray – Tottenham			
West Footscray – Spencer St flyover			
Dynon – Appleton Dock			
Tottenham – Newport			
Newport – Pyrenees Loop			
Pyrenees Loop – Wolseley			
Wolseley – Dry Creek			
Glanville – Pelican Point			
Dry Creek – Port Adelaide A			
Gillman Junction – Port Flat			
Dry Creek – Crystal Brook			
Crystal Brook – Broken Hill			
Crystal Brook – Coonamia			
Coonamia – Kalgoorlie			
Tarcoola – Alice Springs			
Port Augusta – Whyalla			

TABLE 1—Infrastructure Arrangements (continued)

Defined Interstate Rail Network Major Route Segment [Electrified territory #]	Train Control Provider and Location	Network Owner	Access Provider
Kalgoorlie – West Merredin	Westnet Merredin	Westnet	Westnet
West Merredin – Avon	Westnet Northam		
Avon – Midland	Westnet Perth		
Midland – Forrestfield			
Midland – EP Terminal #			
Forrestfield – Kwinana			
Cockburn - Fremantle			

TABLE 2—Safeworking Systems

State	Defined Interstate Rail Network Route Segment	Safeworking System	Approx. Route km	Number of Lines
QLD	Acacia Ridge – Greenbank	Signalled	17	Single
QLD/NSW	Greenbank – Casino	Token	149	Single
NSW	Casino – Maitland	Signalled	641	Single
	Maitland – Broadmeadow			Double
	Broadmeadow – Hornsby		138	Double
	Hornsby – Epping		11	Double
	Epping – West Ryde		4	Four lines
	West Ryde – Rhodes		3	Double
	Rhodes – Concord West		2	Double
	Concord West – North Strathfield Jnc		2	Four lines
	North Strathfield Jnc – Flemington Jnc		3	Single
	Flemington Jnc – Chullora Junction		3	Double
	Junee - Ingleburn		440	Double
	Ingleburn – Glenfield Junction		4	Three lines
	Glenfield Jct – Sefton Pk Jcn via Villawood		21	Double
	Sefton Park Jcn – Chullora Junction		4	Double
	St Marys – Flemington Junction		31	Four lines
	Junee – Albury		160	Single
	Broken Hill – Bogan Gate	Token	640	Single
	Bogan Gate – Parkes	Communications		Single
	Parkes – Cootamundra West	Token		Single
	Parkes – Orange East Fork	Communications	137	Single
	Dubbo – Orange		130	Single
	Orange East Fork – Spring Hill	Signalled	12	Double
	Spring Hill – Murrobo		21	Single
	Murrobo – Newbridge		14	Double
	Newbridge – Bathurst		33	Single
	Bathurst – Tarana		41	Double
	Tarana – Wallerawang		26	Single
	Wallerawang – Lithgow		14	Double
	Lithgow – St Marys		109	Double
	Moss Vale – Dombarton		52	Single
	Dombarton – Coniston		13	Double
	Coniston – Port Kembla		6	Double
	Coniston – Scarborough		22	Double
	Scarborough – Coal Cliff		3	Single
	Coal Cliff – Hurstville		44	Double
	Hurstville – Meeks Road Junction		8	Four lines
	Meeks Road Junction - Marrickville		2	Double
	Marrickville – Chullora Junction		10	Double
	Marrickville – Port Botany		10	Single
NSW/VIC	Albury – Wodonga		6	Single

State	Emergency Diversionary Routes	Safeworking System	Approx. Route km	Number of Lines
NSW	Merrygoen – Gulgong	Token	67	Single
	Gulgong – Muswellbrook		172	Single
	Parkes – Merrygoen		247	Single
	Merrygoen – The Gap		183	Single
	The Gap – Werris Creek		7	Single
	Werris Creek – Antiene	Signalled	137	Single
	Antiene – Maitland		81	Double

TABLE 2—Safeworking Systems (continued)

State	Defined Interstate Rail Network Route Segment	Safeworking System	Approx. Route kms	Number of Lines
VIC	Wodonga – West Footscray	Signalled	301	Single
	West Footscray – South Dynon Junction		3	Double
	South Dynon Junction – North Dynon		2	Single
	South Dynon Junction – Spencer Street		3	Single
	South Dynon – Flinders Street		2	Double BG
	Flinders Street – Caulfield		11	4 lines BG
	Caulfield – Moorabbin		7	3 lines BG
	Moorabbin – Frankston		30	Double BG
	Appleton Dock	Access Authority Working	-	-
	Frankston – Long Island Junction	Siding Conditions	19	Single BG
	Long Island Junction – Long Island		3	Single BG
	West Footscray – Tottenham	Signalled	2	Single
	Tottenham – Newport	Signalled	8	Single
	Newport – Pyrenees Loop	Communications	251	Single
VIC/SA	Pyrenees Loop – Dry Creek	Signalled	508	Single
SA	Dry Creek – Pt Adelaide		8	Single
	Glanville – Pelican Point		9	Single
	Birkenhead to Pelican Point	Access Authority Working		Single
	Gillman Junction – Port Flat	Signalled	3	Single
	Dry Creek – Crystal Brook		193	Single
SA/NSW	Crystal Brook – Broken Hill		369	Single
SA	Crystal Brook – Coonamia		22	Double
	Coonamia – Stirling North	Communications	81	Single
	Stirling North – Spencer Jct	Signalling	10	Single
SA/WA	Spencer Jct – Kalgoorlie	Communications	1907	Single
SA	Spencer Jct – Whyalla	Communications	70	Single
SA/NT	Tarcoola – Alice Springs	Communications	814	Single
WA	Kalgoorlie – West Kalgoorlie	Signalled	5	Single
	West Kalgoorlie – Koolyanobbing		195	Single
	Koolyanobbing – Avon		340	Single
	Avon – Midland		101	Double
	Midland – Forrestfield		10	Double
	Midland – EP Terminal		14	Double
	Forrestfield – Cockburn		39	Double
	Cockburn – Kwinana			Single
	Cockburn – Fremantle	Communications	14	Single

TABLE 3—Maximum Track Gradients (Ruling Grades)

Track Segment	Ruling Grade 1 in	Track Segment	Ruling Grade 1 in
TBA			

TABLE 4—Maximum Trailing Loads

State	Defined Interstate Rail Network Route Segment (All trains in either direction)	Maximum Trailing Load (Conditional on train braking to a "stop" within 2000 metres)
QLD/NSW	QLD and NSW Defined Interstate Rail Network Routes	Maximum permissible for allocated motive power to maintain schedule
NSW/VIC	Albury – West Footscray	4500 tonne
VIC	West Footscray – Wolseley	
VIC/SA	Wolseley – Dry Creek	5000 tonne
SA/WA	Dry Creek – Kalgoorlie	Maximum permissible for allocated motive power to maintain schedule
SA/NSW	Crystal Brook – Broken Hill	
SA/NT	Tarcoola – Alice Springs	
SA	Port Augusta – Whyalla	
WA	Kalgoorlie – Kwinana	5000 tonne (May be exceeded subject to train braking to a "stop within 2000 metres but approval must be obtained)

NOTE (1) Variations may exist beyond the Interstate Network

NOTE (2) Specific limits may apply for certain trains depending on composition and characteristics.

TABLE 5—A Guide to Rollingstock Axle Load Limits (excluding locomotives)

State	Defined Interstate Rail Network Route Segment	Rollingstock Axle Load Limit/Train Speed (Maximum tonne / km/h)		
QLD	Acacia Ridge – Roma Street	19/115	21/100	23/80
	Acacia Ridge – Fisherman Islands			
	Acacia Ridge – Greenbank			
NSW/QLD	Greenbank – Sydney			25/80
NSW	Sydney – Albury			
NSW/VIC	Albury – Wodonga	21/100	21/100	21/80
VIC	Wodonga - West Footscray			
NSW	Broken Hill – Orange East Fork	19/115	21/100	23/80
	Dubbo – Orange			
	Orange East Fork – Wallerawang			
	Merrygoen – Muswellbrook			
	Parkes - Maitland			
	Parkes – Cootamundra			
	Moss Vale – Sydney			
VIC	West Footscray –Tottenham	19/115	21/110	23/80
	Tottenham – Newport			
	Newport – Wolseley			
SA/WA	Wolseley – Dry Creek – Kalgoorlie	19/115	21/110	23/80
SA/NSW	Crystal Brook – Broken Hill			
SA/NT	Tarcoola – Alice Springs			
SA	Port Augusta – Whyalla	-	-	
WA	Kalgoorlie – Koolyanobbing	TBA		
	Koolyanobbing – Avon			
	Avon – Midland			
	Midland – EP Terminal			
	Midland – Forrestfield			
	Midland- Kwinana			

NOTE: Specific limits may apply for certain classes of rollingstock depending on individual characteristic.

TABLE 6—Locomotive Communications Requirements

State	Defined Interstate Rail Network Route Segment	Voice Communications Equipment
QLD	Acacia Ridge – Roma Street	UHF Radio & Hand Held Radio
	Acacia Ridge – Fisherman Is.	
	Acacia Ridge – Greenbank	
QLD/NSW	Greenbank – Broadmeadow	UHF/Satellite (RIC Country Net)
NSW	Broadmeadow – Sydney	UHF Terrestrial
	Sydney – Albury	UHF/Satellite (RIC Country Net)
	Broken Hill – Parkes	
	Parkes – Cootamundra	
	Parkes – Orange East Fork	
	Dubbo – Orange	
	Orange East Fork – Spring Hill	
	Spring Hill – Murrobo	
	Murrobo – Newbridge	
	Newbridge – Bathurst	
	Bathurst – Tarana	
	Tarana – Wallerawang	
	Merrygoen – Gulgong	
	Gulgong – Muswellbrook	
	Parkes – Merrygoen	
	Merrygoen – The Gap	
	The Gap – Werris Creek	
	Werris Creek – Antiene	
	Antiene – Maitland	
	Moss Vale – Dombarton	
	Dombarton – Scarborough	UHF/Satellite (RIC Country Net) UHF Terrestrial
	Scarborough – Coal Cliff	
	Coal Cliff – Sydney	VHF Radio, Mobile Phone
VIC	Albury – Wodonga	
	Wodonga – West Footscray	
VIC/SA	West Footscray – Wolseley	UHF Radio, Mobile Phone
SA	Wolseley - Dry Creek	UHF/VHF Radio, Mobile Phone
SA/WA	Dry Creek – Kalgoorlie	
SA/NSW	Crystal Brook – Broken Hill	UHF Radio
SA/NT	Tarcoola – Alice Springs	VHF Radio
SA	Port Augusta – Whyalla	VHF Radio, Mobile Sat
WA	Kalgoorlie – Avon	UHF Radio, Mobile Phone where available
	Avon – Midland	Trunk UHF Radio, Satellite phone
	Midland – Forrestfield	Trunk UHF Radio Mobile Phone where available
	Midland – EP Terminal	UHF Radio Mobile Phone where available
	Forrestfield – Kwinana	Trunk UHF Radio Mobile Phone where available

TABLE 7—Data Communications Arrangements Requirements

State	Defined Interstate Rail Network Route Segment	Data Communications Equipment
VIC	Newport – Pyrenees Loop	Data Radio facility for Electronic Authority Transmissions

TABLE 8—Requirements for Examination and Testing of Automatic Train Brake on Locomotive Hauled Trains

Circumstances	Type of Examination Required
Full train examination using train locomotive or locomotives conducted before network entry	FX
Full train examination using ground plant conducted before network entry	
Attach train locomotive or locomotives to pre-examine train	FC
Attaching pre-examined wagons in one block	MC
Attaching non-examined vehicles	FX – non-examined vehicles, then MC – for the whole train MC
Attaching pre-examined wagons in more than one block	FC
Detaching vehicles in one block	MC
Detaching vehicles in more than one block	FC
Attach, detach, changing locomotives	MC
Train arrival at final destination	AX
Train departure	DX
Inspecting passing trains	Roll by

TABLE 9—Brake Cylinder Piston Travel

Freight Vehicles	Piston Travel
• Vehicles with unrelayed equipment and no slack adjuster	150-200 mm
• Vehicles with unrelayed equipment and slack adjusters	150-200 mm
• Vehicles fitted with relayed equipment	150-200 mm
• Wabcopac or similar unitised brake equipment (according to manufacturers instructions)	100-150 mm
Passenger Vehicles	25-125 mm
Vehicles with bogie mounted brake cylinders	
• JSL (or similar) cylinders	60-65 mm
• WF cylinders	75-100 mm
Vehicles with body mounted brake cylinders	125-175 mm

TABLE 10—Minimum Brake Block Thickness

Freight Trains (routes)	Composition	Cast Iron
Melbourne - Sydney or Sydney - Melbourne	15 mm	20 mm
Sydney - Brisbane or Brisbane - Sydney	15 mm	20 mm
Melbourne - Brisbane or Brisbane - Melbourne	15 mm	30 mm
Adelaide/Pt Augusta - Perth or Perth - Adelaide/Pt Augusta	13 mm	15 mm
Adelaide/Pt Augusta - Sydney	13 mm	20 mm
Sydney – Adelaide/Pt Augusta	13 mm	15 mm
Melbourne – Adelaide or Adelaide - Melbourne	13 mm	15 mm
Adelaide - Brisbane or Brisbane - Adelaide	15 mm	20 mm

Passenger Train (routes)	Composition	Cast Iron
Sydney - Perth or Perth - Sydney	15 mm	25 mm
Sydney - Melbourne or Melbourne - Sydney	15 mm	15 mm
Sydney - Brisbane or Brisbane - Sydney	13 mm	15 mm
Adelaide - Perth or Perth - Adelaide	13 mm	15 mm
Adelaide - Sydney	13 mm	20 mm
Sydney - Adelaide	13 mm	15 mm
Adelaide - Melbourne or Melbourne - Adelaide	13 mm	15 mm
Adelaide - Pt Augusta - Alice Springs	13 mm	13 mm

TABLE 11—Traffic Management Decision Making Matrix

				Train "A"—Current status		
				Train running "On Time"	Train running "Ahead "	Train running "Late"
				Train "A"—Objective		
				OT Exit	OT Exit	1. Lose no more time 2. Make up time 3. Hold the gain
Train "B"—Current status	Train Running "On Time"	Train "B"—Objective	OT Exit	Scheduled Cross	"A" or "B" Rule 2	B Rule 3
	Train running "Ahead "		OT Exit	A or B Rule 2	A or B Rule 2	B Rule 3
	Train running "Late"		1. Lose no more time 2. Make up time 3. Hold the gain	A Rule 1	A Rule 1	A or B Rule 4

Rule 1. Train "B" may be given priority on condition Train "A" will still meet OT objective.

Rule 2. Both trains must meet their OT objective.

Rule 3. Train "A" may be given priority on condition Train "B" will still meet OT objective.

Rule 4. Give priority to the train where performance indicates it will lose least or no more time, and even make up time and hold the gain.

NOTES: The Traffic Management Decision Making Matrix is used as follows:

[1] Train "A" and Train "B" are competing for priority in relation to traffic management decision by the train control, for example Network entry, a cross or pass with another train in single line territory.

[2] The controller compares the current "status" or performance of both trains in terms of running "On Time", "Ahead" or "Late".

[3] The decision is given to the train and Rule indicated at the point of intersection.