

ONRSR Guideline

Road Rail Vehicle Management and Operations

safe railways for Australia

Document ID:	ONRSR-1963997744-20B
Version number:	1.02.0
Approved by:	Chief Executive
Date approved:	11 August 2023

Office of the National Rail Safety Regulator

Level 1, 75 Hindmarsh Square, Adelaide SA 5000

PO Box 3461, Rundle Mall, Adelaide SA 5000

Phone: 08 8406 1500

Fax: 08 8406 1501

- E: <u>contact@onrsr.com.au</u>
- W: <u>www.onrsr.com.au</u>
- www.twitter.com/ONRSRAustralia

Copyright information

© Office of the National Rail Safety Regulator 2023. This material may be reproduced in whole or in part, provided the meaning is unchanged and the source is acknowledged.

Table of contents

1	Pur	pose	4
2	Background4		
3	Scope4		
4	Definitions5		
5	5 Guidance on RRV management and operations compliance		5
	5.1	Engineering assessment and certification process	6
	5.1	.1 Compliance criteria	6
	5.1	.2 Compliance considerations	6
	5.2	Inspection and maintenance regimes	9
	5.2	2.1 Compliance criteria	9
	5.2	2.2 Compliance considerations	9
	5.3	Configuration management	10
	5.3	3.1 Compliance criteria 1	10
	5.3	3.2 Compliance considerations	10
	5.4	Operating procedures 1	10
	5.4	1.1 Compliance criteria 1	10
	5.4	2 Compliance considerations	11
	5.5	Risk assessment	12
	5.5	5.1 Compliance criteria 1	12
	5.5	5.2 Compliance considerations	13
	5.6	Competency assessments	13
	5.6	6.1 Compliance criteria 1	13
	5.6	6.2 Compliance considerations	14
6	Rele	evant legislation and references1	4
	6.1	Legislation1	14
	6.2	ONRSR publications1	15
	6.3	Industry guidance and training and assessment1	15

1 Purpose

The purpose of this guideline is to assist rail transport operators (RTOs) in understanding ONRSR's expectations for the safe operation of road rail vehicles (RRVs, also known as hi rail or high rail vehicles) as part of an effective safety management system (SMS), consistent with the requirements of the *Rail Safety National Law* (RSNL).

2 Background

Since 2012, the Office of the National Rail Safety Regulator (ONRSR) has worked closely with industry and the Rail Industry Safety and Standards Board (RISSB) on identifying and managing risks associated with RRV operations to achieve an industry-wide improvement in the safe operation of RRVs. These interactions have occurred with the rail industry over the years across various forums like:

- > RRV operations-focussed risk workshops,
- > Safety campaigns,
- > Education and guidance resources and
- > Regulatory activities.

This document seeks to collate the information from various industry interactions and RRV operations-specific guidance material developed by RISSB.

3 Scope

This document offers general guidance on ONRSR's expectations for managing RRV-related safety systems and processes to RTOs (accredited rail infrastructure managers – RIMs and / or rolling stock operators – RSOs) as well as third parties (like contractors) operating under an accredited RTO's accreditation. It also provides a list of items that need to be considered in addressing the relevant parts of the RSNL and Regulations. The issues discussed are not exhaustive and it should be noted that as the safety risks for individual RTOs may vary based on their operations, so too would their requirements for compliance.

The guidance covers the following issues broadly:

- > engineering certification and compliance with RISSB-developed Australian Standard AS: 7502 Road Rail Vehicles
- > registration and identification of RRVs for granting network access
- > validity of certification and network registration
- competencies of the independent competent persons (ICPs) carrying out the engineering certification
- > inspection and maintenance procedures focussed on rail worthiness aspects of the RRV's rail guidance system (RGS), like mandated periodicity of twist tests, brake tests and nondestructive testing to check structural integrity of the RGS
- > RRV defect management process
- > recertification requirements arising from any configuration change and/or significant modifications as part of a broader change management approach
- > operating procedures for the safe use of specific types of RRV

- adequacy and robustness of risk assessments to address the hazards associated with RRV use in various modes of operation (on rail, on-off railing, between worksites, degraded and abnormal operations)
- > consideration of different risks due to differences in traction and braking configuration of a particular RRV type and operating profile
- > competency assessments for RRV operations and maintenance.

4 Definitions

ICP	Independent Competent Person
RIM	rail infrastructure manager
RSO	rolling stock operator
RTO	rail transport operator
RSNL	Rail Safety National Law
RGS	rail guidance system
RRV	road/rail vehicle
DD\/ typo	PPV types are breadly defined as follows (as defined in section 2 of AS:7502 Page

RRV type RRV types are broadly defined as follows (as defined in section 2 of AS:7502 Road Rail Vehicles and RISSB Guideline – Operating Road Rail Vehicles *)

*These RRV type classifications are for indicative purposes only to differentiate between the variety of traction and braking arrangements possible, with each combination presenting a different risk profile. RTOs may have a different interpretation of RRV types from the practices and nomenclature adopted on respective networks:

- > Type 1: Self-Powered Rail Wheels, braking and traction applied directly on the rail wheels
- > Type 2: Friction Drive, various arrangements providing for either traction or braking between road and rail wheels (even via an extension hub or idler)
- > Type 3: Direct Drive, braking and traction directly applied on road wheels.

5 Guidance on RRV management and operations compliance

Overview of accreditation arrangements

RRV operations are conducted under an RTO's accreditation as an RSO. If an RTO accredited only as a RIM wishes to undertake RRV operations under its effective control and management, it will also need RSO accreditation.

Where an RSO and a RIM are accredited as separate entities, the RSO needs to meet the RIM's requirements for accessing the network. This typically involves the RSO obtaining a track access agreement, or similar, from a RIM with the RIM undertaking an RRV registration process to verify that the RRV complies with the standards set by the RIM for operation on the network.

In addition, the RSO needs to conduct robust risk assessments considering the RIM's safe working / operational rules and procedures. People competent and experienced in the use of RRVs should be involved in conducting risk assessments with other relevant stakeholders (e.g. maintainers, protection officers, worksite supervisors).

Any equipment and personnel supplied by contractors (who do not have rail safety accreditation in their own right) must be considered and integrated under the RSTO's SMS. That is, the equipment is inspected and assessed as safe and drivers competent as if they were the accredited RSTO's

own equipment and personnel, with these aspects covered off in the contractor management process.

The key objective is to achieve the following:

- > RRVs are robust and fit for purpose to comply with the operating requirements on track or transitioning off the track (i.e. the design and construction of the RGS are suited to the configuration and functionality of the base vehicle and inspection and maintenance regimes).
- > RRVs are not susceptible to derailment and operational risks are considered and managed through a robust risk assessment process.
- > The operational and park braking systems are effective when the vehicle is operated on rail (i.e. effectiveness in stopping the vehicle, holding the vehicle against unintended movement and holding the vehicle during the transition between road and rail modes).
- > The people operating RRVs when on rail and those responsible for inspecting and maintaining them are competent.

The following sections are intended to assist RTOs in meeting the legislative requirements under the RSNL by listing criteria or issues that need to be considered in addressing the relevant parts of the RSNL and Regulations.

Further relevant reading material is also referenced in section 6 of this document.

5.1 Engineering assessment and certification process

5.1.1 Compliance criteria

Rail Safety National Law National Regulations, Schedule 1

- > Clause 19 General engineering and operational systems safety requirements
- > Clause 18 Procurement and contract management

5.1.2 Compliance considerations

The following considerations should assist the RTO in assessing whether they are compliant with the compliance criteria.

Engineering certification: The design and construction of the rail guidance equipment is typically required to be certified by an engineer. This is usually in the form of a certificate provided by the supplier of the rail guidance equipment and should confirm:

- > The RRV (i.e. the rail guidance equipment and the vehicle it is fitted to) is fit for the intended purpose and meets the specified design parameters.
- > The rail guidance equipment is structurally sound.
- > The rail guidance and associated equipment has been tested for correct operation and meets the design parameters.
- > For vehicles that operate on the road, there is a current road vehicle registration and the appropriate roadworthy certification, depending on the state or territory.
- > A risk assessment has been undertaken with controls in place for identified hazards.

While the certificate may be provided by the supplier, an engineering assessment is required by qualified engineering personnel, defined as Independent Competent Persons (ICPs) in AS:7502.

 The engineering assessment report ideally should include information on following design aspects/ parameters in compliance with AS: 7502. (For details on the required contents of the Engineering Design Report, please refer to AS 7501 Railway Rolling Stock Compliance Certification.) The following should be considered:

- > Rail braking systems, both operational brake and park brake: Is the braking independent of the vehicle's drive train?
- > Have braking performance criteria been established?
 - Has the vehicle's braking system been designed and tested to ensure it can stop within the distance and maximum safe operating speed specified by the RIM and RRV standard criteria?
 - Has the vehicle's park brake been designed and tested to ensure it will remain stationary indefinitely on the maximum grade it will encounter?
- > When operated on rail does the vehicle's braking rely on the vehicle's drive train? Are there adequate means of braking on rail wheels if:
 - the vehicle's drive train fails
 - there is inappropriate load distribution between rail and road wheels which reduces braking effort on the drive tyres
 - tyre condition and incorrect inflation compromise braking effort
 - the only braked axle is raised off the rail (for example when placing the vehicle on track or removing it from the track)?
- > the maximum grade the RRV will operate on
- > the maximum speed the RRV will operate at
- > track geometry parameters the vehicle must be capable of negotiating (e.g. twist limits, minimum curve radius)
- > insulation from track circuits
- > wheel profile
- > track gauge and back-to-back measurements
- > tolerance for the alignment of rail guidance equipment
- design load (keeping in mind the weight of the rail guidance equipment forms part of the vehicle's load)
- > safe working loads of load lifting equipment when in rail mode:
 - Is there a system of automatically limiting loads when in rail mode? (E.g. any RRV acting in a lifting mode should be fitted with a limit switch to ensure rail wheels to not lift when over-reaching occurs.)
 - Is the vehicle operator provided with a safe working loads chart for when the vehicle is in rail mode?
- rolling stock outlines as specified by the RIM's Train Operating Conditions (TOC) or equivalent (i.e. Kinematic Envelopes)
- safety equipment to be fitted (e.g. flashing warning light, reversing camera, reversing beeper, horn, occupant restraint – seat belt, communications by way of radio, headlights, and speed indicator)
- > vigilance and data recording facilities
- > driver incapacitation systems fitted

> electrical safety (for use in electrified networks) – height restrictors fitted for vehicles with lifting equipment (cranes, elevated work platforms, excavators).

Independent Competent Person: Competence of all persons verifying designs of, or modifications to, road rail vehicles shall be in accordance with AS 7501:2013, Section 4, Independent Competent Person: "A person accepted by the RSO as having practical and theoretical knowledge and experience in specified areas to critically and capably examine, determine and record compliance of new or modified rolling stock against the AS 7500 series or other applicable standards as identified within AS 7500 series."

As part of meeting engineering certification requirements, the SMS should include:

- > the authorised persons nominated to accept the certification and issue registration to RRVs to access the network – typically rolling stock engineers (could be joint certification with network infrastructure managers)?
- > the validity time frames of certification and registration of RRVs
- > means to capture details of engineering certifications and keeping these up to date databases, spreadsheets, online platform shared between RRV owners / ICPs and the RIMs
- > Do the contractual arrangements (if hiring RRVs from contractors / unaccredited third party RRV owners) and safety interface agreements (for RRVs operated by accredited rolling stock operators) reflect the engineering certification requirements?
- > Do the RSO's procedures require it to audit competency of ICPs at nominated regular intervals (say 3-5 years)?

Note: Older RRVs may not have engineering certification provided by the supplier, in which case they should have an engineering assessment conducted to confirm the condition of the vehicle is fit for purpose, which includes a recommended inspection and maintenance regime to monitor the condition of the vehicle so that faults are identified and rectified before they become critical.

Commissioning: RSOs should keep a record of static and dynamic testing conducted on RRVs to confirm that the RRV:

- > safely negotiates the track on which it will operate without any infringement with the infrastructure (e.g. correct wheel / rail interface, trackside equipment, etc.) in all intended vehicle loading / hauling scenarios
- > does not interfere with safety critical rail systems (e.g. signals, level crossings etc.)
- > speedometer is accurate during on-rail mode
- > braking systems will stop the RRV within the specified distance given its maximum safe operating speed (including the towing of trailers when attached);
- > brakes have been tested for all intended different vehicle loading / hauling scenarios
- > has been fitted with a functional parking brake to hold it against rolling at specified grade indefinitely (testing may require a hold of 15-20 minutes), when the RRV is on / off the rails
- > has been fitted with the required communication systems which are functional in likely abnormal conditions
- > has been fitted with appropriate warning systems such as head lights, flashing lights, audible sounds like the horn
- > especially for type 2 RRVs employing friction drive traction arrangements:
 - disc brakes have been fitted to the rail wheels of the vehicle and evidence that the vehicle will stop within a safe distance for all modes of operation

- interlocking has been fitted to ensure there is braking capability for on and off track movements (Note - many RIMs have prohibited the use of type2 RRVs unless additional braking controls are introduced that keep at least one axle in braked position on rail during track on / track off movement.)
- > complies with rolling stock outline as specified by the network owner Kinematic Envelope;
- > complies with the twist test
- > complies with the ride stability test.

Decommissioning and re-use: Procedures for identifying a faulty or de-commissioned RGS (or individual components which will prevent re-use without requalification) should be included in the SMS.

If a previously used RGS is to be fitted to another vehicle, there must be a robust engineering assessment/qualification of the old rail guidance equipment and the suitability of the vehicle it is being fitted to, in order to ensure it is safe for use on the new vehicle.

The RSO should be able to demonstrate the process for unique identification of the RGS and traceability.

5.2 Inspection and maintenance regimes

5.2.1 Compliance criteria

Rail Safety National Law National Regulations, Schedule 1

- > Clause 19 General engineering and operational systems safety requirements
- > Clause 20 Process control
- 5.2.2 Compliance considerations
- > The RSO should have an inspection and maintenance regime for RRVs which includes:
 - a daily inspection checklist that covers the safety critical systems (e.g. braking systems, speedometer, stub axle, suspension, horn, lights, rail guidance systems, tyre tread)
 - maintenance being performed as per technical maintenance plan (or its equivalent)
 - records showing that maintenance of safety critical equipment on the RRV is up to date and complete, with independent checking and / or sampling of these records (e.g. populated worksheets completed, defects addressed and signed off by appropriate persons)
 - up to date records of defects reported during service and corrective action taken and independent checking of this
 - periodic detailed maintainer inspections.

Sample templates of the types of compliance checks to undertake are contained in *RISSB Guideline – RRV operations* appendices A, B, C & D.

- > The results of all inspections should be recorded.
- > There should be a system for reporting defects so they are rectified. This should include a method for reporting, tagging and isolating unsafe equipment.
- > Any operating restrictions should be communicated to subsequent users of the equipment.
- > The frequency of the periodic detailed maintainer inspections should be determined based on the Original Equipment Manufacturer's recommendations (or engineering condition

assessment where this is not available) and the amount of use of the vehicle. The period should be re-assessed in light of emerging issues or rate of degradation being detected during the life of the vehicle.

> There should be compliance with specified maintenance schedules with a focus on rail worthiness aspects related to the RGS including specified periodicity of twist tests, brake tests and non-destructive testing to check the structural integrity of the RGS.

5.3 Configuration management

5.3.1 Compliance criteria

Rail Safety National Law National Regulations, Schedule 1

- > Clause 19 General engineering and operational systems safety requirements
- > Clause 12 Management of change
- > Clause 7 Document control arrangements and information management

Configuration change refers to a situation in which the RRV's rail worthiness is deemed considerably modified due to the following reasons:

- > replacement of the RGS to access a different gauge network
- > substantial modification to the RGS in terms of suspension and securing arrangements, wheel profile, material composition of stub axle
- > replacement of the RGS arising from post-incident management (including derailment, collision or any other impact situation with the RGS).

5.3.2 Compliance considerations

For any configuration change, the RSO should ensure that the RRV is safe to use. ONRSR will seek evidence of this, including the following:

- > proof that the RRV is as safe or safer to use post-modification:
 - a certificate stating that the RRV, after modification, still meets the standards for rail application
 - for vehicles that operate on the road, a current vehicle registration and the appropriate roadworthy certification depending on the state or territory
 - a risk assessment detailing controls to risks associated with identified hazards in the current operating environment after modification
 - competent people have been involved in the above
- > evidence that the RRV has been tested such that it does not cause damage to infrastructure (e.g. correct wheel / rail interface, power lines, trackside equipment, etc.) in various intended vehicle loading / hauling scenarios
- > a requalification certificate for purchased RRVs or previously decommissioned rail guidance equipment, if intended to be reused.

5.4 Operating procedures

5.4.1 Compliance criteria

Rail Safety National Law National Regulations, Schedule 1

> Clause 19 General engineering and operational systems safety requirements

> Clause 10 Safety audit arrangements

5.4.2 Compliance considerations

Operating: The RSO should have detailed operating procedures for each type of RRV in use. It is particularly important these describe the type of rail braking system fitted to the vehicle and how it operates. The purpose of detailed operating procedures is to describe the correct way of operating the RRV (both on and off rail) covering:

- > pre-use inspection procedures and evidence that these are carried out:
 - checking of braking system function
 - checking of speedometer where fitted
 - checking of stub axles, suspensions (visual only)
 - checking of horn and other annunciation system
 - checking of headlights, windscreen wipers and other lighting systems
 - checking of communication equipment
- > operational procedures which describe safe use of RRVs for each type of rail activity in all operating modes:
 - safe on and off rail movements
 - safe gradient
 - visibility
 - brake interlocking
 - runaway procedures
- > Safe Work Method Statement (SWMS) for each type of RRV and for all operating scenarios
- > emergency procedures for each type of RRV in road and rail modes
- > defect reporting and management system
- > placing the vehicle on the track, ensuring
 - the nature of the vehicle's braking system is appropriate to how the vehicle operates (and whether risk of runaway is being introduced) as each rail guidance axle is being lowered to the rail
 - there is a list of safe locations for placing and removing the vehicle from the track or that the features of appropriate on/off track points (e.g. gradient, road traffic volumes and traffic speed, visibility, surface condition) have been identified
- > operating the vehicle when it is on the track, highlighting:
 - key differences in the handling characteristics of the vehicle when on rail compared to when it is on road or its 'normal' mode (and ensuring these are captured through risk assessments)
 - whether there is significantly reduced braking performance when compared to operation on the road, which may be further deteriorated by wet rail and/or rail contaminated by other factors (e.g. grease, vegetation matter, ballast material)
 - vehicle stability (particularly important with load lifting equipment such as excavators, tip tray trucks and elevated work platforms)
 - safe working arrangements (noting RRVs are typically insulated from track circuits in signalled territory)

- whether operating across level crossings (noting RRVs are typically insulated from track circuits in signalled territory)
- whether operating on other track circuits (e.g. electronically-operated points)
- travelling mode (to ensure kinematic envelope is not infringed)
- whether operating multiple vehicles in 'convoy', or under the one track authority, to prevent collision between rail vehicles
- governing and co-ordinating the movement of rail vehicles (including RRVs within worksites) to prevent collision
- > road travel and checking the effect of road travel on rail components
- > timing of rail component operational inspections
- > securing the vehicle when it is on track against unintended movement (runaway)
- > removing the vehicle from the track and clearing the danger zone, again observing how the vehicle operates (and whether the risk of runaway is being introduced) as each rail guidance axle is being raised from the rail
- > procedures for safe removal of the vehicle from the track in the event of mechanical failure
- > procedures for managing 'not safe to use' RRVs
- > storage, security and post-use inspection of the vehicle once work finished.

Auditing: The RSO's audit program should involve:

- > checking RRV drivers are correctly operating RRVs
- > audit and review of populated worksheets (e.g. daily pre-use inspections, defect reports) and maintenance records.

5.5 Risk assessment

The identification and assessment of safety risks should guide the safety controls and processes used to demonstrate that the risk to safety has been eliminated or minimised so far as is reasonably practicable (SFAIRP).

5.5.1 Compliance criteria

Rail Safety National Law

- > Section 46 Management of risks
- > Section 99 Safety management system

Rail Safety National Law National Regulations, Schedule 1

> Clause 16 Risk management

An RTO's organisational risk register, and any risk assessments, must consider the operation of the RRV under normal and abnormal conditions, including:

- > emergency mode
- > degraded mode
- > abnormal mode

It is recommended that RTOs conduct a bow tie analysis to identify known risks when evaluating loss of control events associated with RRV operations. A record of the bow tie analysis is

considered evidence of why the RTO has chosen certain controls over others in demonstrating that they have minimised risk SFAIRP (section 46 of the RSNL).

Bow tie analyses relating to RRV risks are available on the ONRSR website: <u>www.onrsr.com.au</u> by following the links to the Presentations section under the Publications menu.

5.5.2 Compliance considerations

- > The risk assessment(s) / risk register should assess the following RRV risks when the vehicle is used on rail or in the vicinity of the danger zone in all vehicle-operating modes:
 - runaway (with special consideration to type 2 RRVs where indirect braking controls through a roller or an extension drum are used
 - collision
 - derailment, including rollover (e.g. load lifting equipment such as RRV excavators, elevated work platforms, trucks fitted with tipping trays and cranes)
 - fire (similar to any mobile plant carrying substantial quantity of fuel). It is recognised that there have been only a very limited number of RRV fire-related incidents in Australia over recent years.

ONRSR will expect the RTO to be able to demonstrate that:

- > all operating modes have been considered in the risk assessment, such as:
 - on tracking
 - off tracking
 - stowage on rail
 - degraded / abnormal operations
- > all environmental factors been considered in the risk assessment, such as:
 - grades
 - visibility
 - sighting distance
 - wheel / rail interface and condition
- > controls listed in the RSO's risk assessment have a strong link to:
 - the design, construction, commissioning and maintenance of RRVs and how these are aligned to the specific operating conditions for all networks on which they intend to operate
 - detailed operating procedures for RRVs, with separate operating procedures for different types of RRVs employed by the RSO
 - training and assessing the competence of RRV operators and maintainers
 - inspection and maintenance regimes which include both daily (pre-use) checks and periodic detailed inspections
 - emergency recovery procedures.

5.6 Competency assessments

5.6.1 Compliance criteria

Rail Safety National Law

> Section 117 Assessment of competence

Rail Safety National Law National Regulations

> Regulation 30 Records of competence

Rail Safety National Law National Regulations, Schedule 1

- > Clause 15 Training and Instruction
- > Clause 18 Procurement and contract management
- > Clause 24 Rail safety worker competence

There is a specific Australian Qualifications Framework (AQF) competency for use in assessing the competence of people to operate RRVs:

> TLIC3045A Operate Road/Rail Vehicle. <u>http://training.gov.au/TrainingComponentFiles/TLI10/TLIC3045A_R1.pdf</u>

5.6.2 Compliance considerations

- > RTOs must assess the available AQF qualifications and units of competence and ensure rail safety workers operating, maintaining and inspecting RRVs have attained these where they are relevant to their work.
- If the AQF has not been used, there must be a strong link between the performance criteria described in TLIC3045A Operate Road/Rail Vehicle and the detail provided in the RSO's RRV operating procedures. Competency assessment tools must clearly document how each candidate understands and has the ability to apply the RTO's RRV operating procedures.
- If an RSO is relying on the portability of AQF competencies, they must still have a process to 'verify the competence' of the individual to apply those skills to the RSO's specific RRV equipment and operating environment (e.g. a valid Australasian Railway Association Rail Safety Worker ID card).
- > In the absence of the RSO using the AQF competency, they must have established their own system for assessing the competency of people driving RRVs. This must at least consist of:
 - training material (likely be the operating procedures referred to above)
 - assessment tools which document a combination of written and oral responses and practical demonstration, ideally using the performance criteria listed in TLIC3045A (see link above) as a guide to assess the rigour of the RSO's assessment tools
 - competency assessments undertaken by someone qualified and experienced in the use of RRV equipment and who preferably holds a Certificate IV in Workplace Training and Assessment.
- > RRV drivers should also hold:
 - a current licence for the class of vehicle being operated
 - competency for the operation of the type of machinery being used
 - relevant workplace safety authority High Risk Work Licence, if required
 - a form of identification required under s118 of the RSNL that is sufficient to enable identification of the competence of the worker to operate the RRV.

6 Relevant legislation and references

6.1 Legislation

safe railways for Australia

The RSNL and National Regulations are available on the ONRSR website at www.onrsr.com.au

6.2 **ONRSR** publications

ONRSR publications are available from the ONRSR website at www.onrsr.com.au

- > Safety bulletin Managing the risks associated with road rail vehicles
- > RRV safety improvement workshop presentation
- > Application of the AQF to Rail Safety Worker Competence Assessment Policy

6.3 Industry guidance and training and assessment

- > Relevant Australian Standards are available via the RISSB website <u>www.rissb.com.au</u> (RISSB membership may be required) or for purchase via SAI Global Standards <u>http://www.saiglobal.com/online</u>:
 - AS:7502 Road Rail Vehicles
 - AS 7501 Railway Rolling Stock Compliance Certification
- RISSB Guideline Operating Road Rail Vehicles, is available for download from the RISSB website <u>www.rissb.com.au</u> (RISSB membership may be required).
- > AQF units of competency and qualifications are available from https://training.gov.au