Title	**Drive and manoeuvre a steam driven rail vehicle**		
Level	**4**	**Credits**	**10**

Purpose	People credited with this unit standard are able to: demonstrate knowledge and skills required to operate the controls of a steam driven rail vehicle; describe safe braking procedures for a steam driven rail vehicle; demonstrate knowledge and skills required to control a steam driven rail vehicle safely; and demonstrate knowledge of signals and signs used on a steam driven rail vehicle site.

Classification	Commercial Road Transport > Steam Driven Vehicles

Available grade	Achieved

Guidance Information

1 This unit standard applies only to steam driven rail vehicles, including steam locomotives, steam trams, and rail mounted steam cranes. Steam driven rail vehicles fitted with boilers not exceeding 50 litres water capacity, are excluded.

2 Definition
Organisational requirements include any legal requirements, standards, codes of practice, organisational and/or site policies and procedures, industry best practice and manufacturers' instructions. These must be available to candidates, providers, and assessors. The applicable standard is the highest standard specified.

3 Before assessment commences, the boiler must be checked to ensure it has a current boiler certificate.

4 A person who wishes to drive and manoeuvre a steam driven rail vehicle at a site must meet all the requirements of any applicable approved rail safety system or safety case for that site.

5 It is recommended that people seeking credit for this unit standard first hold credit for Unit 21755, *Prepare, bring to steam, and operate a steam driven vehicle and steam boiler*.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge and skills required to operate the controls of a steam driven rail vehicle.

Performance criteria

1.1 The controls of the vehicle are identified, and their use is explained in terms of vehicle behaviour.

Range may include – air compressor(s) and operating pressures, throttle or regulator, locking pin arrangement, operation of engine cylinder drain cocks, brakes, reversing lever, whistle, bell, use of sand.

1.2 The response and behaviour of the vehicle to the operation of the controls are described and demonstrated safely.

Range may include – throttle or regulator, locking pin arrangement, operation of engine cylinder drain cocks, brakes, reversing lever, use of sand, use of lubricators, enroute lubrication.

1.3 Components of the braking system are described in terms of their function in the braking system.

Range may include – air compressor operations, automatic brake valve, distributing valve, triple valve, main reservoir, equalising reservoir, auxiliary reservoir, drain cocks, steam brakes, uncoupling and coupling of vehicle's brake system.

1.4 Effective and efficient use of the brake system is explained and demonstrated in terms of safe and smooth operation of the vehicle and conserving energy.

Range may include – handbrake, straight air brake, independent brake, automatic air brake, steam brakes, uncoupling and coupling of vehicle's brake system.

Outcome 2

Describe safe braking procedures for a steam driven rail vehicle.

Performance criteria

2.1 Safe control and speed on descending grades are described in accordance with organisational requirements.

2.2 Precautions when shunting, including rail condition are described in accordance with organisational requirements.

2.3 Method of testing, including the test result and any faults are described in accordance with organisational requirements.

2.4 Checks to be made prior to moving any motive power are described in accordance with organisational requirements.

Outcome 3

Demonstrate knowledge and skills required to control a steam driven rail vehicle safely.

Range with and without rail service vehicles attached.

Performance criteria

3.1 Smooth starting, acceleration, deceleration, manoeuvring through curves, stopping, and securing the vehicle when stopped are explained and demonstrated safely.

Range forward direction, reverse direction;
includes according to site – level surface, grades, undulating surface.

3.2 Smooth manoeuvring of the vehicle and control of slack actions while towing other rail service vehicles is explained and demonstrated.

Range forward direction, reverse direction;
includes according to site – level surface, grades, undulating surface, starting and stopping on grades.

3.3 Controlled manoeuvring of the vehicle while shunting is explained and demonstrated.

Range may include – through a set of points, shunting individually, operating in conjunction with another shunter, uncoupling and coupling of rail service vehicles.

Outcome 4

Demonstrate knowledge of signals and signs used on a steam driven rail vehicle site.

Performance criteria

4.1 The use and interpretation of signals and signs used on a steam driven rail vehicle site are explained in accordance with organisational requirements.

Range may include – day and night hand signals, locomotive whistle signals, fixed signals, temporary speed boards, communication system between driver and conductor of steam driven trams, signals or actions of shunter, communication system between driver, shunter, and number two crew-person.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 January 1998	31 December 2001
Revision	2	16 May 2003	31 December 2016
Review	3	27 May 2005	31 December 2016
Review	4	16 July 2015	31 December 2022
Review	5	29 April 2021	N/A
Revision	6	16 December 2021	N/A

Consent and Moderation Requirements (CMR) reference	0014

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering, and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.