

Title	Drive an electric multiple unit on a main line managed by a network operator		
Level	4	Credits	18

Purpose	People credited with this unit standard are able to: prepare to drive an EMU on a main line managed by a network operator; drive an EMU demonstrating defensive driving techniques on a main line managed by a network operator; demonstrate knowledge and use of EMU braking systems on a main line managed by a network operator; describe follow-up procedures and complete documentation required when driving a train; and demonstrate and apply knowledge of Automatic Train Protection to ensure the safe and efficient operation of the train.
----------------	--

Classification	Rail Transport > Rail Operations
-----------------------	----------------------------------

Available grade	Achieved
------------------------	----------

Guidance Information

- Recommended skills and knowledge for entry:
Unit 29374, *Obtain, interpret and communicate information required for the safe and efficient operation of the train*; Unit 29375, *Interpret and comply with rules, running systems and procedures and apply professional standards to drive a train*; Unit 29376, *Maintain a safe and secure environment when working on or near the rail corridor*; Unit 29377, *Apply detailed knowledge of features, distractions, working procedures and instructions when driving a train*; Unit 18874, *Prepare for service and dead towing, identify and manage faults and shut down an electric multiple unit*.
- Assessment against this unit standard is to be carried out within the context of an organisation operating under a current, valid Rail Licence issued in accordance with the provisions of the Railways Act 2005. The organisation's operating rules, codes, and instructions, referred to in this unit standard, are those the organisation has in place to meet the requirements of the Rail Licence.
- Legislation relevant to this unit standard includes:
Health and Safety at Work Act 2015.
Railways Act 2005 and subsequent amendments.
- Definitions
Continuous operation refers to a period from when a driver books on at the start of a shift, until he or she books off at the end of the shift that includes a minimum of two hours of driving during that shift.
Main line refers to any principal length of track operated by a rail network operator.

Multiple unit whistle refers to any audible warning device installed on motive power units.

Network operator refers to operators with a railway network route of 40 kilometres or more.

Organisational procedures refer to documents that include: operating rules, codes, instructions, and practices; equipment operating instructions; documented quality management systems; and health and safety requirements.

Train Control is where the movements of all trains in a specified area are brought under the direction of a Train Control Officer.

5 Range

Electric multiple units (EMU) for this unit standard may include but are not limited to sets of – Matangi FP/FT, Ganz Mavag EM/ET, AK class EMU; evidence is required for the operation of at least one type of EMU.

6 Operation of the EMU must be of a reasonable duration to allow for the demonstration of performance outcomes specified in this unit standard. Typically, the assessment would be expected to require two sessions of continuous operation time of two to four hours, covering day and night conditions over an electrified section of track.

7 Assessment information

- a All activities and evidence must be in accordance with organisational procedures.
- b For the purposes of this unit standard, operation of the EMU must include the conveyance of passengers.
- c The operation of an EMU over any prescribed main line requires the multiple-unit driver to first be familiar with the route. It is recommended that assessment against this unit standard only be undertaken following a reasonable period of exposure to the track and surrounding environment. The time required for familiarisation will vary depending on the length and other aspects of the route.

Outcomes and performance criteria

Outcome 1

Prepare to drive an EMU on a main line managed by a network operator.

Performance criteria

1.1 Working instructions are received, interpreted, and followed.

Range standing instructions, timetable requirements, special instructions.

1.2 EMU crew is briefed about job requirements including special requirements which may affect the running of the service or safety issues which may affect the safety of the passengers.

Range may include but is not limited to – detonators, signal flags, emergency air line plugs, air hose spanner, spare air hoses, fire extinguisher, chocks, toolkit.

Outcome 2

Drive an EMU demonstrating defensive driving techniques on a main line managed by a network operator.

Performance criteria

- 2.1 EMU controller is operated.
- Range increase and decrease power without damage to traction motors. Acceleration is performed smoothly and consistently with railhead.
- 2.2 EMU set is operated with consideration to its composition.
- Range may include but is not limited to – multiple unit length, motor unit and trailer unit combinations, condition of rolling stock.
- 2.3 EMU warning devices are monitored en-route.
- Range may include but is not limited to – all doors closed light, brake pipe pressure gauge, train management system, computerised monitoring, vigilance device.
- 2.4 EMU is operated with consideration to road characteristics and environmental conditions.
- Range may include but is not limited to – current and anticipated terrain, rate of acceleration, speed restrictions, condition of track, presence of track maintenance workers, passengers preparing to board.
- 2.5 Signal locations are anticipated, and indications are acted upon correctly during the entire operation.
- 2.6 Any signal displaying a 'caution' indication is acted upon and defensive strategies or equipment are employed.
- 2.7 EMU headlight and multiple unit whistle is used in accordance with regional requirements.
- 2.8 Communications with multiple unit crew and Train Control is carried out in accordance with job requirements.
- 2.9 EMU is operated in varied environmental conditions and in degraded mode.
- Range environmental conditions include but are not limited to – day, night, wet, dry, slippery.

Outcome 3

Demonstrate knowledge and use of EMU braking systems on a main line managed by a network operator.

Performance criteria

- 3.1 Actions to take in the event of an emergency stop are described.
- 3.2 EMU brakes are operated.
- Range may include but is not limited to – slow down train, service stop, passenger comfort.
- 3.3 EMU controller is operated correctly in conjunction with braking systems.
- 3.4 EMU is positioned correctly at station platform.
- 3.5 Principles of braking on steep descents are described.
- Range may include but is not limited to – failure of electro-pneumatic brake, heavy passenger loading.

Outcome 4

Describe follow-up procedures and complete documentation required when driving a train.

Performance criteria

- 4.1 Steps for the reporting of incidents and unusual occurrences en-route are described.
- 4.2 Steps for the reporting of problems with multiple unit are described.
- 4.3 Steps for diagnosing and managing faults and breakdowns are described.
- 4.4 Documentation is completed.

Outcome 5

Demonstrate and apply knowledge of Automatic Train Protection to ensure the safe and efficient operation of the train.

Performance criteria

- 5.1 Type of Automated Train Protection is identified for the train being operated in a designated area.
- Range may include but not limited to – European train control system, electronic train protection, vigilance alert, Tranzlog.
- 5.2 Automatic Train Protection is used.

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	24 May 2002	31 December 2016
Review	2	20 November 2009	31 December 2018
Review	3	21 January 2016	31 December 2022
Review	4	29 April 2021	N/A

Consent and Moderation Requirements (CMR) reference	0013
--	------

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

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.