Title	**Describe heavy rigid vehicle dynamics and handling for safe driving**		
Level	**3**	**Credits**	**3**

Purpose	People credited with this unit standard are able to describe: heavy rigid vehicle dynamics; heavy rigid vehicle stability and handling characteristics; effects of loads on heavy rigid vehicle dynamics and handling; and safe practices for driving heavy rigid vehicles.

Classification	Commercial Road Transport > Commercial Road Transport Skills

Available grade	Achieved

Guidance Information

1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.

2 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the Health and Safety at Work Act 2015, and any subsequent amendments and replacements.

3 Definitions
Company requirements refer to instructions to staff on policy and procedures that are available in the workplace. These requirements may include – company policies and procedures, work instructions, product quality specifications and legislative requirements.
Handling characteristics are how a vehicle behaves as a result of its design and the dynamics present at the time.
Heavy rigid vehicle refers to a class NC vehicle which has a gross vehicle mass exceeding 12 tonnes.
Heavy rigid vehicle dynamics means the motion of the vehicle, and the interaction of the various physical forces that affect that motion.
The *system of vehicle control* means placing the vehicle in the correct place on the road, at the right speed and in the right gear in all driving situations but particularly when approaching and negotiating hazards.
Service information may include – technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.

4 Reference material
Professional Skills for Driving Trucks, Wellington, MITO New Zealand Incorporated, 2009. Available from MITO New Zealand Incorporated and public libraries.

Outcomes and performance criteria

Outcome 1

Describe heavy rigid vehicle dynamics.

Performance criteria

1.1 The effects of speed on vehicle stability are identified.

1.2 The effect of vehicle weight on acceleration, deceleration, and braking is described.

1.3 The relationship between vehicle speed, weight and kinetic energy are described.

Range includes effects on braking, cornering, and the consequences of an impact.

1.4 The location of vehicle centre of gravity and the effect it has on handling is described.

1.5 How friction can assist vehicle control is described.

Range includes at least two friction examples.

1.6 The effects of centrifugal force on vehicle handling are described.

Range vehicle weight, speed, centre of gravity.

Outcome 2

Describe heavy rigid vehicle stability and handling characteristics.

Performance criteria

2.1 The effects of vehicle wheelbase and rear overhang are described.

2.2 The influences of road camber, road surface, and lateral wind on vehicle handling are described.

Outcome 3

Describe the effects of loads on heavy rigid vehicle dynamics and handling.

Performance criteria

3.1 The effects of load placement on vehicle dynamics and handling are described.

3.2 Techniques to minimise the height of the centre of gravity are described.

3.3 Managing the effects of live loads on vehicle stability are described.

3.4 Techniques to minimise load shift are described.

Outcome 4

Describe safe practices for driving heavy rigid vehicles.

Performance criteria

4.1 Techniques for reducing the likelihood of loss of control situations are described.

Range 4-second rule, 8-second rule, 12-second rule, vehicle inspections (including on-road checks), system of vehicle control.

4.2 Safe cornering techniques, including observance of recommended cornering speeds are described.

4.3 Techniques for descending steep grades are described.

Planned review date	31 December 2023

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	12 February 2001	31 December 2016
Review	2	22 March 2005	31 December 2016
Review	3	22 October 2010	31 December 2016
Review	4	16 April 2015	31 December 2017
Review	5	16 June 2016	31 December 2020
Review	6	29 November 2018	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 the MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.