

# Vehicle dimensions and mass permitting manual (volume 1)

## Part I

### Definitions and glossary

**Current as at 11 August 2017**

#### **Disclaimer**

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# Part I: Definitions and glossary

## Introduction

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**About this part**

This part of the *Vehicle dimensions and mass permitting manual* provides a comprehensive list of specific terminology and abbreviations used in the manual.

This part is divided into two chapters:

- chapter I1 lists terms defined in the Land Transport Rule: Vehicle Dimensions and Mass 2016 (the VDAM Rule), and
- chapter I2 lists general terms related to vehicle dimensions and mass permitting.

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**Audience**

The intended audience for this part is all users of this manual.

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**In this part**

This part contains the following chapters:

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# Chapter 11: Defined terms

## Definitions from the VDAM Rule

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<b>Introduction</b>	The definitions listed alphabetically below are defined terms in part 2 of the VDAM Rule.
<hr/>	
<b>Access provider</b>	<p>Access provider has the meaning given in the Railways Act 2005, ie the person who controls the use of that railway line by rail operators (including that person if it is also a rail operator).</p> <p>The access provider may engage rail personnel to exercise or assist in exercising control on its behalf; but those rail personnel are not ‘access providers’ themselves.</p>
<hr/>	
<b>Agency</b>	Agency means the New Zealand Transport Agency established under section 93 of the Land Transport Management Act 2003.
<hr/>	
<b>Agricultural motor vehicle</b>	<p>An agricultural motor vehicle is a motor vehicle that is designed, constructed, or adapted for agricultural purposes and:</p> <p>a) includes:</p> <ul style="list-style-type: none"> <li>i. an agricultural trailer, and</li> <li>ii. an agricultural tractor, but</li> </ul> <p>b) does not include any vehicle that is:</p> <ul style="list-style-type: none"> <li>i. of a class specified in table A of part 2 of the Land Transport Rule: Vehicle Standards Compliance 2002, and</li> <li>ii. designed or constructed for general road use.</li> </ul>

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## Definitions from the VDAM Rule continued

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### **Agricultural purpose**

Agricultural purpose:

a) includes:

- i. land cultivation
- ii. growing and harvesting crops (including horticulture and viticulture)
- iii. rearing livestock, and

iv. any land management operation undertaken in connection with:

- (A) the operation or management of a farm; or
- (B) a purpose described in (i) to (iii).

b) does not include forestry, or any land management operation not referred to in (a)(iv) above.

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### **Agricultural tractor**

An agricultural tractor means a vehicle that is designed and constructed principally for the purposes of:

- a) towing an agricultural trailer, or
  - b) drawing, or powering, an implement ordinarily used for an agricultural purpose.
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### **Agricultural trailer**

An agricultural trailer:

- a) means a trailer that is used principally for agricultural purposes, and
  - b) includes a wheeled agricultural implement, the wheels of which are in contact with the road when the implement is being towed, but
  - c) does not include:
    - i. a trailer that is:
      - (A) designed principally for the carriage of goods, and
      - (B) operated at a speed exceeding 40km/h, or
    - ii. a logging trailer.
- 

### **Ambulance service**

Ambulance service means a service that complies with the requirements in *NZS 8156:2002 Ambulance Sector Standard*.

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## Definitions from the VDAM Rule continued

### Articulated bus

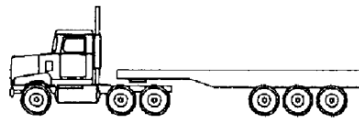
An articulated bus is a bus consisting of two or more rigid sections that:

- a) articulate relative to each other, and
- b) have interconnecting passenger compartments that allow passengers to move freely between them, and
- c) are not easily detachable from each other without specialist equipment.

### Articulated vehicle

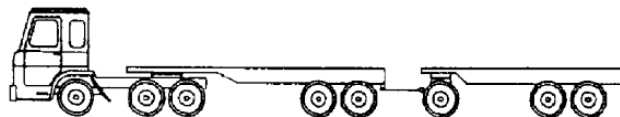
An articulated vehicle is any motor vehicle with a semi-trailer attached, so that part of the semi-trailer is superimposed upon the motor vehicle.

A substantial part of the weight of the semi-trailer, and its load, is borne by the motor vehicle.



### A-train

An A-train is an articulated vehicle towing a full trailer.



### Axle

An axle is one or more shafts, spindles, or bearings in the same vertical transverse plane. In conjunction with the wheels mounted on it, an axle transmits a portion of the weight of the vehicle to the roadway, and:

- a) if two or more wheels of a motor vehicle are substantially in the same line transversely and some or all of them have separate axles, the axles of all those wheels are to be treated as one axle
- b) if the longitudinal centre-line of an axle of a motor vehicle is less than 1 metre distant from the longitudinal centre-line of another axle, the two axles are to be treated as one axle ('a dual axle'), and
- c) for the purposes of measuring the distance of a dual axle from any other axle, the measurement is taken from the longitudinal centre-line of the axle that is nearer to the axle from which the distance is to be measured.

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## Definitions from the VDAM Rule continued

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- Axle set** Axle set means:
- a single axle set
  - a tandem axle set
  - a twin-steer axle set
  - a tri-axle set, or
  - a quad-axle set.
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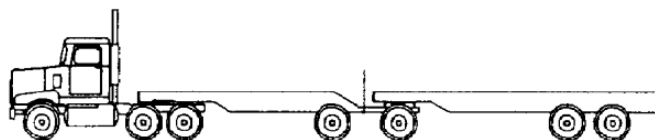
**Beacon** Beacon means a warning lamp comprising one or more sources designed to emit a flashing light or a revolving beacon of light.

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**Brake code mass** Brake code mass has the meaning given in schedule 4 of the Land Transport Rule: Heavy-vehicle Brakes 2006, ie the maximum laden mass of a vehicle as calculated using statutory maximum axle load criteria.

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**B-train** A B-train is a motor vehicle comprising a towing vehicle and two semi-trailers connected at two points of articulation where the forward distance of the longer trailer divided by the forward distance of the shorter trailer does not exceed 1.4m.



**Caravan trailer** Caravan trailer means a trailer that is permanently equipped with features intended to make the vehicle suitable as a person's dwelling place. It must include at least one sleeping berth and one table, both of which may be of a design that allows them to be retracted or folded away.

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**Category** Category, in relation to an overdimension vehicle, means the category assigned to that vehicle by part 1 of schedule 6 of the VDAM Rule.

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## Definitions from the VDAM Rule continued

<b>Class</b>	Class (in relation to vehicles) means a category of vehicle of one of the groups A, L, M, N and T, as specified in Table A: Vehicle classes in part 2 of the VDAM Rule.
<b>Combination vehicle</b>	A combination vehicle is a towing vehicle in combination with one or more trailers or another motor vehicle that is being towed.
<b>Controller</b>	Controller means the person who is the National Controller in accordance with section 10, or a Group Controller appointed under section 26, of the Civil Defence Emergency Management Act 2002.
<b>Converter dolly</b>	A converter dolly is an individual trailer unit with a fifth wheel coupling used to convert a semi-trailer to a full trailer. A dolly must have either: <ul style="list-style-type: none"> <li>a) a rigid drawbar associated with an oscillating fifth wheel and a single axle or a tandem axle set, or</li> <li>b) a tandem axle set with a hinged drawbar with a fixed fifth wheel.</li> </ul>
<b>Direction-indicator</b>	A direction-indicator is a lamp used for signalling an intention to change direction to the right or to the left.
<b>Emergency services</b>	Emergency services means New Zealand Police, New Zealand Fire Service or an ambulance service.
<b>Enforcement officer</b>	Enforcement officer has the meaning given in section 2 of the Land Transport Act 1998, ie: <ul style="list-style-type: none"> <li>a) a sworn member of the police</li> <li>b) a non-sworn member of the police who is authorised for the purpose by the Commissioner, or</li> <li>c) a person who is appointed to that office by warrant under section 208 of the Land Transport Act 1998 or who holds that office by virtue of the Land Transport Act 1998.</li> </ul>

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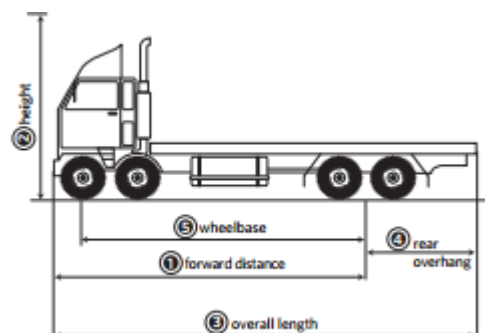
## Definitions from the VDAM Rule continued

### Forklift

A forklift is a motor vehicle (not fitted with self-laying tracks) designed principally for lifting, carrying and stacking goods by means of one or more tines, platens, or clamps.

### Forward distance

The table below describes the measurement of forward distance on different types of vehicles or trailers.



Type of vehicle/trailer	Measurement of forward distance
Rigid vehicle	The distance from the rear axis to the front of the vehicle or its load, whichever is foremost.
Front section of an articulated bus	
Full trailer	The distance from the rear axis to the front of the trailer (excluding the drawbar and front axle set with its associated carriage) or its load, whichever is foremost.
Simple trailer	The distance from the rear axis to the centre of the point of attachment to the towing vehicle.
Rear section of an articulated bus	
Semi-trailer	The distance from the rear axis to the centre of the kingpin.
Pole trailer (one axle set)	The distance, excluding load, from the trailer's rear axis to the centre of the point of attachment to the towing vehicle with the drawbar fully extended.
Pole trailer (two axle sets)	The distance, excluding load, from the trailer's front axis to the centre of the point of attachment on the towing vehicle with the drawbar fully extended.

### Frangible

Frangible means breakable or readily deformable.

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## Definitions from the VDAM Rule continued

### Front axis

The front axis means:

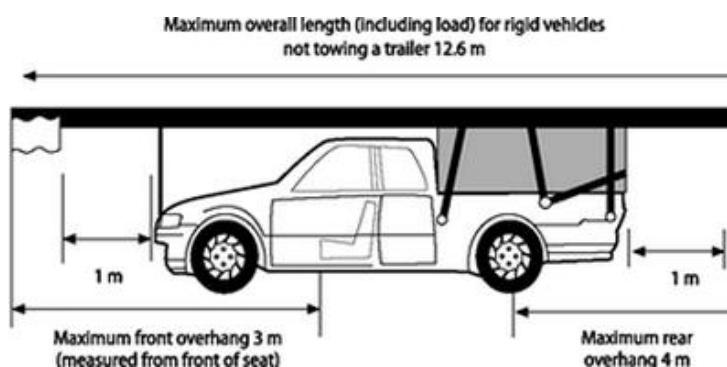
- the centre point of the front axle set of a trailer that has two axle sets and is steered by the front axle set, or
- the centre of the foremost axle of a rigid vehicle with motive power.

### Front overhang

The front overhang of a vehicle is the distance measured to the foremost point of the vehicle, including its load but in the case of a full trailer excluding the drawbar, measured from the following positions:

Type of vehicle/trailer	Measured from...
Rigid vehicle	the front edge of the driver's seat, when in the rearmost position (see illustration below).
Semi-trailer	the centre of the kingpin
Full trailer	the centre of the turntable
Simple trailer	the centre of the tow coupling
Load of a pole trailer combination	the centre of the turntable on the towing vehicle

The diagram below shows the front (and rear) overhangs applying to rigid vehicles.



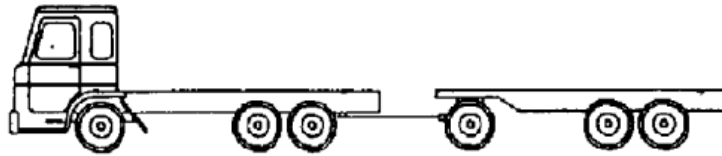
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## Definitions from the VDAM Rule continued

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### **Full trailer**

A full trailer is a trailer with two axle sets, the foremost of which is steered by a drawbar (as shown in the image below).



The term 'full trailer' also includes a semi-trailer with non-steering axles coupled to a converter dolly.

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### **Gross combination mass (GCM)**

Gross combination mass (GCM) has the meaning given in Land Transport Rule: Heavy Vehicles 2004, ie (for a vehicle that is permitted to tow another vehicle) the maximum permitted combined mass of the towing vehicle and any combination of attached trailers or vehicles, determined by the vehicle manufacturer or the Transport Agency, and approved by the Transport Agency.

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### **Gross mass**

Gross mass, in relation to any vehicle or combination vehicle, means the total mass of that vehicle and its load, equipment and accessories, which may be determined by calculating the sum of the mass on the vehicle's axles or axle sets.

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### **Gross vehicle mass (GVM)**

Gross vehicle mass means the maximum safe operating mass for a vehicle (including the mass of any accessories, crew, passengers or load) that is derived from the design, capabilities and capacities of the vehicle's construction, systems and components, and that:

- a) is determined by:
    - i. the Transport Agency, or
    - ii. the manufacturer of the vehicle, or
    - iii. if the vehicle is modified after manufacture, a certifier approved by the Transport Agency, and
  - b) may be recorded on the register of motor vehicles as a weight in kilograms.
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## Definitions from the VDAM Rule continued

<b>Heavy motor vehicle</b>	<p>A heavy motor vehicle is a vehicle that is either:</p> <ul style="list-style-type: none"> <li>a) of class MD3, MD4, ME, NB, NC, TC or TD, or</li> <li>b) a vehicle (not of a class specified in Table A: Vehicle classes in part 2 of the VDAM Rule) with a gross vehicle mass that exceeds 3500kg.</li> </ul>
<b>Heavy passenger service vehicle</b>	<p>A heavy passenger service vehicle is a passenger service vehicle whose gross vehicle mass exceeds 3500kg.</p>
<b>High productivity motor vehicle (HPMV)</b>	<p>A high productivity motor vehicle (HPMV) means a heavy motor vehicle or heavy combination vehicle that is operating under a permit issued under the VDAM Rule to, with or without a load:</p> <ul style="list-style-type: none"> <li>a) exceed a gross mass of 44,000kg, or</li> <li>b) vary from a dimension requirement in schedule 2 listed in section 5.9(5) of the VDAM Rule, or</li> <li>c) both exceed a gross mass of 44,000kg and vary from a dimension requirement in schedule 2 listed in section 5.9(5) of the VDAM Rule.</li> </ul>
<b>Hours of darkness</b>	<p>Hours of darkness is defined as:</p> <ul style="list-style-type: none"> <li>a) any period of time between half an hour after sunset on one day and half an hour before sunrise on the next day, or</li> <li>b) any other time when there is not sufficient daylight to render clearly visible a person or a vehicle at a distance of 100 metres.</li> </ul>
<b>Indivisible load</b>	<p>An indivisible load is a load that cannot reasonably (without disproportionate effort, expense or risk of damage to the load) have its size reduced or be divided into two or more sections for road transport. This definition includes loads specified in the VDAM Rule as indivisible.</p>
<b>Inter-vehicle spacing</b>	<p>Inter-vehicle spacing is the distance between a towing vehicle (excluding the tow coupling shroud) and trailer (excluding the drawbar or tow rope or front dolly but including the load).</p>

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## Definitions from the VDAM Rule continued

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**Level surface** A level surface (including a reasonably level surface) in relation to a road means a road or weigh platform (including weigh scale surfaces) of such a minimal gradient that a heavy motor vehicle or combination vehicle on it does not move forwards or backwards after the enforcement officer has requested all brakes on such vehicle be released.

**Note:** The vehicle should not otherwise be restrained by any artificial restraining force, such as chocks, when an enforcement officer requests that the brakes be released.

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**Light motor vehicle** A light motor vehicle is a motor vehicle with a gross vehicle mass that is 3500kg or less.

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**Light passenger service vehicle** A light passenger service vehicle is a passenger service vehicle with a gross vehicle mass that is 3500kg or less.

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**Load** A vehicle's load (which includes part of a load):

- a) includes covers, ropes, ties, blocks, tackles, barrows, or other equipment or objects used in the securing or containing of a load on a vehicle or the loading or unloading of a vehicle, whether or not any other load is on the vehicle, but
- b) does not include animal wastes discharged from animals being carried on a vehicle at the time.

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**Load-sharing axle set** A load-sharing axle set is an axle set suspension system that has effective damping characteristics on all axles of the set and is built to divide the load between the tyres on the set so that no tyre carries a mass more than 10% greater than the mass it would carry if:

- a) the load were divided in the axle set so that each tyre carries an equal load, or
- b) the axle set is a tandem axle set comprising a twin-tyred axle and a single large-tyred axle and is built to divide the load between the tyres on the set so that:
  - i. 60% of the load is borne by the twin-tyred axle and 40% of the load is borne by the large single-tyred axle, or
  - ii. 55% of the load is borne by the twin-tyred axle and 45% of the load is borne by the large single-tyred axle.

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## Definitions from the VDAM Rule continued

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<b>Load-sharing trailer</b>	<p>A load-sharing trailer is a type of short, load-sharing semi-trailer that is not designed to directly carry any goods.</p> <p>It has one or more axles equipped with a kingpin, a fifth wheel and other parts necessary for attaching it to the rear end of a towing vehicle and the front portion of a second gooseneck trailer.</p>
<hr/>	
<b>Low volume vehicle</b>	<p>Low volume vehicle has the meaning given in the Land Transport Rule: Vehicle Standards Compliance 2002, ie it is a vehicle of a class specified in Table A: Vehicle classes, other than class MD3, MD4, ME, NB, NC, TC or TD, that is:</p> <p>a) manufactured, assembled or scratch-built in quantities of 200 or less at any one location in any one year, by a manufacturer whose total production of vehicles does not exceed 200 units over the same period, and where the construction of the vehicle directly or indirectly affects compliance of the vehicle with any of the vehicle standards prescribed by New Zealand law; or</p> <p>b) modified uniquely, or in quantities of 200 or less at any one location in any one year, in such a way as to affect compliance of the vehicle, its structure, systems, components or equipment, with a legal requirement relating to safety performance applicable at the time of the modification.</p>
<hr/>	
<b>Manned steering jinker</b>	<p>A manned steering jinker is a specialised load-bearing vehicle that is steered by an operator and used to carry the rear of a long load.</p>
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<b>Mass</b>	<p>In relation to a vehicle, mass means the quantity of material contained in or on the vehicle that, when subjected acceleration due to gravity, will exert downwards on a level surface a force that can be measured as the weight of the vehicle.</p>
<hr/>	
<b>Maximum towed mass (MTM)</b>	<p>Maximum towed mass (MTM) has the meaning given in the Land Transport Rule: Heavy Vehicles 2004, ie the maximum permitted mass of all vehicles that may be towed behind a vehicle as determined by the manufacturer of the towing vehicle and approved by the Transport Agency.</p>

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## Definitions from the VDAM Rule continued

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**Mobile crane** A mobile crane is a non-load carrying self-propelled vehicle designed solely or principally for lifting objects using a boom with lifting gear.

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**Modify** In relation to a vehicle, 'to modify' means to change the vehicle from its original state by altering, substituting, adding or removing any structure, system, component or equipment.

Repair work is not defined as modification.

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**Motor vehicle** Motor vehicle has the meaning given in section 2 of the Land Transport Act 1998, ie it means a vehicle drawn or propelled by mechanical power, including a trailer.

The definition of a motor vehicle does not include:

- a) a vehicle running on rails
  - b) a trailer (other than a trailer designed solely for the carriage of goods) that is designed and used exclusively as part of the armament of the New Zealand Defence Force
  - c) a trailer running on one wheel and designed exclusively as a speed-measuring device or for testing the wear of vehicle tyres
  - d) a vehicle designed for amusement purposes and used exclusively within a place of recreation, amusement, or entertainment to which the public does not have access with motor vehicles
  - e) a pedestrian-controlled machine
  - f) a vehicle that the Transport Agency has declared is not a motor vehicle under section 168A of the Land Transport Act 1998, or
  - g) a mobility device.
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**Non-steering axle** A non-steering axle is any axle of a vehicle whose wheels remain substantially parallel with the longitudinal centre-line of the vehicle while the vehicle is turning.

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**Operate** In relation to a vehicle, 'to operate' means to drive or use the vehicle on a road, or to cause or permit the vehicle to be on a road or to be driven on a road, whether or not the person is present with the vehicle.

'Operator' has a corresponding meaning.

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## Definitions from the VDAM Rule continued

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**Oscillating axle** An oscillating axle means any axle that complies with the following provisions:

- a) the axle has four wheels and four or eight tyres attached to it, consisting of two pairs of wheels, and
- b) each of the pair of wheels is mounted on a separate axle affixed to the vehicle so as to share the load equally between the two wheels and to permit oscillation of the separate axles in a vertical transverse plane that is at right angles to the longitudinal centre-line of the vehicle, and
- c) the centre of each such wheel is at least 500mm distant from the centre of every other wheel fitted to the motor vehicle.

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**Overall length** Overall length means the length of a vehicle or vehicle combination measured in a straight line. It includes:

- a) the length of any load, and
- b) the length of the drawbar in a fully extended horizontal straight ahead position measured to the towing eye centre of a full trailer when measured on its own.

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**Overdimension load** Overdimension load means an indivisible load on a motor vehicle that exceeds the dimension limits in schedule 2 of the VDAM Rule.

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**Overdimension motor vehicle** Overdimension motor vehicle means a motor vehicle or combination vehicle (including any load) that exceeds one or more of the dimension limits in schedule 2 of the VDAM Rule.

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**Overweight motor vehicle** Overweight motor vehicle means a motor vehicle or combination vehicle (including any load) that exceeds the gross mass limits for general access in part 2 of schedule 3 of the VDAM Rule.

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## Definitions from the VDAM Rule continued

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**Passenger service vehicle** A 'passenger service vehicle' has the same meaning in the VDAM Rule as in the Land Transport Act 1998, ie it:

- a) means a vehicle used or available for use in a passenger service for the carriage of passengers, but
- b) does not include:
  - i. a vehicle designed or adapted to carry 12 or fewer persons (including the driver) provided by one of the passengers being carried, or
  - ii. a vehicle specified as an exempt passenger service vehicle in the regulations or the rules.

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**Pilot vehicle** A pilot vehicle is a motor vehicle that escorts an overdimension and/or overweight motor vehicle, and that warns road users of the potential hazard created by the overdimension and/or overweight vehicle or its load, or both.

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**Pivot steer vehicle** A pivot steer vehicle is a vehicle with a chassis that is split into two dependent parts that are connected by a permanent steering pivot.

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**Pole trailer** A pole trailer is a trailer that is attached to a towing vehicle by a telescoping or sliding pole, and is designed to support a common long load spanning between the trailer and the towing vehicle.

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**Quad-axle set** A quad-axle set is a set of four axles where:

- a) the centres of the first and fourth axles are spaced not less than 3.75 metres and not more than 4 metres apart
- b) all axles contain an equal number of tyres, and
- c) none of the axles is a single standard-tyred axle.

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## Definitions from the VDAM Rule continued

### Rear axis

Rear axis has the following meanings:

In relation to a vehicle with...	'rear axis' means
one non-steering axle	that axle
a non-steering axle set of two axles	(i) midway between those axles, if each axle has an equal number of tyres on it, or (ii) two-thirds of the distance from the lesser-tyred axle towards the greater-tyred axle, if one axle has twice as many tyres on it as the other axle
<ul style="list-style-type: none"> <li>• a non-steering tri-axle set, or</li> <li>• a non-steering quad-axle set, or</li> <li>• an overdimension vehicle with more than three axles</li> </ul>	midway between the extreme axles of the set
a rear axle set that includes one or more steerable axles in conjunction with one or more non-steering axles <sup>1</sup>	midway between the extreme non-steering axles of the set
a rear axle set that includes one or more retracted axles in conjunction with one or more non-retracted axles	midway between the extreme non-retracted axles of the set
no axle arrangement listed above	a position determined by the Transport Agency

#### Note:

1. This applies except in relation to a semi-trailer with two non-steering axles at the front and two steering axles at the rear, where 'rear axis' means the centre-line of the second non-steering axle.

### Rear overhang

Rear overhang means the distance from the rear axis to the rear of the vehicle or its load, whichever is greater.

For pole trailers transporting a long load, rear overhang is the distance from the rear axis or centre of the bolster to the rear of the vehicle or its load, whichever is greater.

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## Definitions from the VDAM Rule continued

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**Rear trailing unit distance** The rear trailing unit distance is the maximum distance from the centre of the fifth wheel or tow coupling on the towing vehicle to the rear of the combination.

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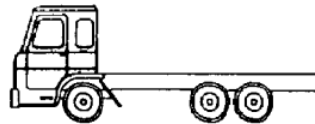
**Repair** 'To repair' means to restore a damaged or worn vehicle, its structure, systems, components or equipment.  
It includes the replacement of damaged or worn structures, systems, components and equipment with equivalent undamaged or new ones.

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**Retractable axle** A retractable axle is an axle that has a convenient adjustment to allow the axle load distribution of the axle set to be varied substantially.  
An axle that is retracted is not considered to be part of the axle set.

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**Rigid vehicle** A rigid vehicle is a vehicle with motive power, driver's position and steering system that does not have any pivot points to allow any part of the chassis of the vehicle to move or rotate in relation to any other part of the chassis of the vehicle.



The definition of 'rigid vehicle' includes a pivot steer vehicle.

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**Road** Road has the meaning given in section 2 of the Land Transport Act 1998, ie it includes:

- a) a street
- b) a motorway
- c) a beach
- d) a place to which the public have access, whether as of right or not
- e) all bridges, culverts, ferries and fords forming part of a road or street or motorway, or a place referred to in (d) above, and
- f) all sites at which vehicles may be weighed for the purposes of the Land Transport Act 1998 or any other enactment.

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## Definitions from the VDAM Rule continued

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**Road controlling authority (RCA)** In relation to a road, the road controlling authority is the authority, body or person having control of the road.  
It includes a person acting under and within the terms of a delegation or authorisation given by the controlling authority.

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**Roadway** Roadway means that portion of the road used or reasonably usable for the time being for vehicular traffic in general.

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**Rubbish truck** A vehicle designed and constructed for the collection and transport of rubbish and which is fitted with a compactor.

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**Semi-trailer** A trailer with only one axle set where the point of attachment to the towing vehicle or leading trailer:

- a) is no further rearward than the rearmost axle of the towing vehicle or rearmost axle of the leading trailer, or
- b) if the towing vehicle is a rigid vehicle and has more than one axle in its rear axle set, is no more than 300mm rearward of the rear axis of the towing vehicle.

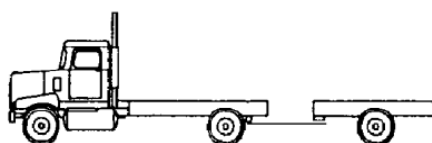
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**Side lamp** A vehicle lamp of lower power than the head lamps used for the purpose of indicating the presence of the vehicle when seen from a distance, and also for indicating the approximate width of the vehicle. A side lamp includes:

- a) a forward-facing side lamp, which indicates primarily the front end of the vehicle
- b) a rearward-facing side lamp (rear lamp, red tail-lamp), which emits a red light indicating primarily the rear end of the vehicle, and
- c) a sideways-facing side lamp, which is mounted between the front and rear extremities on the side to indicate primarily the side of the vehicle.

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**Simple trailer** A trailer (other than a semi-trailer) that has only one axle set, as shown in the image below.




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*Continued on next page*

## Definitions from the VDAM Rule continued

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<b>Single-tyred axle</b>	A single-tyred axle means any axle fitted with two or more wheels, but which is neither an oscillating axle nor a twin-tyred axle.
<b>Single axle set</b>	A single axle set is either one axle or two axles having their centres spaced less than 1 metre apart.
<b>Single large-tyred axle</b>	A single large-tyred axle means a single-tyred axle where the manufacturer's designated tyre section width is 355mm or more but less than 444mm.
<b>Single mega-tyred axle</b>	A single mega-tyred axle means a single-tyred axle where the manufacturer's designated tyre section width is 444mm or more.
<b>Single standard-tyred axle</b>	Single standard-tyred axle means a single-tyred axle where the manufacturer's designated tyre section width is less than 355mm.
<b>Specialist overdimension motor vehicle</b>	A motor vehicle that is designed for a primary purpose of carrying out a specialist function that requires overdimension equipment and is not primarily designed to transport overdimension or overweight loads.
<b>Standard load</b>	A standard load is a load that will fit on a motor vehicle within the dimension limits in schedule 2 and within the mass limits for general access in section 4 of the VDAM Rule.
<b>Standard motor vehicle</b>	A motor vehicle whose dimension limits comply with schedule 2 and mass limits comply with requirements for general access in section 4 of the VDAM Rule.

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## Definitions from the VDAM Rule continued

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<b>Static roll threshold (SRT)</b>	The maximum level of steady turning lateral acceleration a vehicle can tolerate without rolling over, which is expressed as a proportion of 'g' where g is the acceleration constant due to gravity (9.81 m/s/s).
<b>Swept path</b>	Swept path means the maximum road width required by a vehicle when it negotiates a turn.
<b>Tandem axle set</b>	A tandem axle set means an axle set comprising two axles having their centres spaced not less than 1 metre and not more than 2 metres apart.
<b>Towing vehicle</b>	A rigid vehicle that tows a trailer or another motor vehicle.
<b>Tractor</b>	A motor vehicle (not being a traction engine) designed exclusively for traction at speeds not exceeding 50km/h.
<b>Traffic control device</b>	Traffic control device has the meaning given in the Land Transport Rule: Traffic Control Devices 2004, ie a device used on a road for the purpose of traffic control. It includes any: a) sign, signal, or notice b) traffic calming device, or c) marking or road surface treatment.
<b>Trailer</b>	A vehicle without motive power that is capable of being drawn or propelled by a motor vehicle from which it is readily detachable. It does not include: a) a side-car attached to a motor cycle, or b) a vehicle normally propelled by mechanical power while it is being temporarily towed without the use of its own power.

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## Definitions from the VDAM Rule continued

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**Tri-axle set** A set of three axles, where:

- a) the centres of the first and third axles are spaced not less than 2 metres and not exceeding 3 metres apart
- b) all axles contain an equal number of tyres, and
- c) none of the axles is a single standard-tyred axle.

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**Twin-steer axle set** A twin-steer axle set means an axle set of two axles with single tyres, where both axles are connected to the same mechanism in order to steer similarly.

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**Twin-tyred axle** A twin-tyred axle is any axle, not being an oscillating axle, that has a wheel track of 1.3 metres or more and is equipped with four or more tyres.

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**Vehicle** Vehicle has the meaning given in the Land Transport Act 1998, ie a contrivance equipped with wheels, tracks or revolving runners on which it moves or is moved. It includes a hovercraft, a skateboard, in-line skates, and roller skates. But it does not include:

- a) a perambulator or pushchair
- b) a shopping or sporting trundler not propelled by mechanical power
- c) a wheelbarrow or hand-trolley
- d) a pedestrian-controlled lawnmower
- e) a pedestrian-controlled agricultural machine not propelled by mechanical power
- f) an article of furniture
- g) a wheelchair not propelled by mechanical power
- h) any other contrivance specified by any other rule not to be a vehicle for the purposes of this definition, and
- i) any rail vehicle.

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**Vehicle axle index (VAI)** A rating, determined by a road controlling authority, which:

- a) indicates the relative effect on road pavements of the mass on the axles of a motor vehicle compared to standard axle mass, and
- b) describes the highest rating for any of the axles on the vehicle.

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## Definitions from the VDAM Rule continued

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**Vehicle inspector or inspecting organisation**

Vehicle inspector or inspecting organisation has the meaning given in the Land Transport Rule: Vehicle Standards Compliance 2002, ie an individual appointed by the Director of Land Transport Safety under 2.2(1) of the Vehicle Standards Compliance Rule to carry out inspection and certification activities in accordance with requirements and conditions imposed by the Director.

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**Vehicle recovery service vehicle**

A vehicle used in a vehicle recovery service for towing or transporting any motor vehicle on a road.

It does not include a vehicle that is not designed or adapted for the purpose of towing or carrying motor vehicles.

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**Visible**

'Visible' describes anything that can be seen by a driver with normal vision under normal atmospheric conditions.

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**Wheelbase**

Wheelbase means the distance from a vehicle's rear axis to its front axis.

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# Chapter I2: Glossary

## List of general terms

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<b>Introduction</b>	<p>The terms listed alphabetically below are used in this manual with the intended meaning provided in the explanation of each term, unless the context indicates otherwise.</p> <p>References to ‘the VDAM Rule’ refer to the Land Transport Rule: Vehicle Dimensions and Mass 2016.</p>
<b>Acceleration</b>	<p>Acceleration is the rate of change of the velocity of an object, over time. In the context of motor vehicles, it is usually expressed as the time (in seconds) that a vehicle takes to go from one speed to a higher speed.</p> <p>A vehicle must be able to accelerate effectively from a stop, or increase speed while moving. This enables safe interaction with other road users, especially at intersections, traffic lights and when overtaking another vehicle.</p>
<b>Axle group</b>	<p>An axle group is a series of axles in which the axle spacings are all less than 2.4 metres.</p>
<b>Axle index</b>	<p>The axle index is the ratio of the mass on an axle, to the reference axle mass for that axle. For details see <i>Chapter B9: Calculating the vehicle axle index (VAI)</i> in part B of this volume of the manual.</p>
<b>Axle number</b>	<p>The axle number is used to identify the number and location of each axle on a vehicle. Axles are always numbered from the front of the vehicle. For example, on a two-axled vehicle, the front axle would be numbered (1), and the rearmost axle would be numbered (2).</p>

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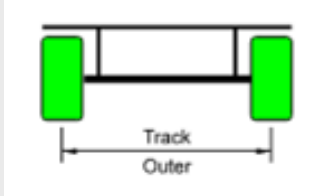
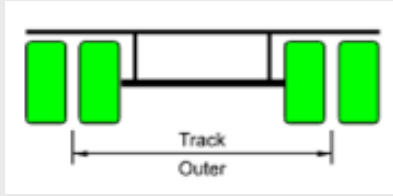
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## List of general terms continued

- Axle set type** Axle set types are distinguished by the number of axles that are placed together. Axle set types include:
- (IN) Individual (see *Axle type* below)
  - (TS) Twin steer
  - (T) Tandem
  - (Tri) Tri-axle
  - (Q) Quad-axle.

**Axle spacing** Axle spacing is the longitudinal distance between centre lines of any two adjacent axles.

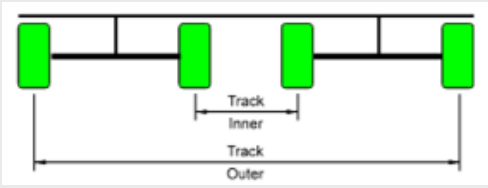
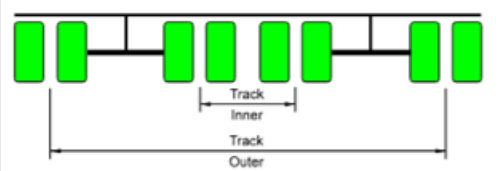
**Axle type** Individual axles are distinguished by the number and type of tyres, as shown in the table below.

Individual axle type	Code
<p><b>Single-tyred axle</b></p> 	<p><i>Can be either:</i></p> <ul style="list-style-type: none"> <li>• Single standard-tyred: <b>S</b></li> <li>• Single large-tyred: <b>SL</b></li> <li>• Single mega-tyred: <b>SM</b></li> </ul>
<p><b>Twin-tyred axle</b></p> 	<p><b>T</b></p>

*Continued on next page*

## List of general terms continued

**Axle type**  
(continued)

Individual axle type	Code
<p><b>Four-tyred oscillating axle</b></p> 	<p>(4)</p>
<p><b>Eight-tyred oscillating axle</b></p> 	<p>(8)</p>

**Base of operations**

A base of operations is a site office established for at least 24 hours to manage a contract of works, or a local depot to which drivers report daily for assignment of tasks or to commence driving.

**Bridge class**

Bridge class is a measure of the ability of the main structural members of a bridge to carry overweight vehicles.

**Bridge engineering supervision**

Bridge engineering supervision is supervision provided to ensure that the effects of a vehicle are kept within the capacity of a bridge.

Bridge engineering supervision is indicated if the DLR exceeds 130%.

However, this limit may be exceeded without bridge engineering supervision if a detailed structural analysis of the bridge shows that allowable stress levels are not exceeded when the particular vehicle operates unsupervised.

**Bridge engineering self supervision**

Bridge engineering self supervision (BESS) is a training and registration system for companies and drivers of heavy vehicles that operate under an overweight permit. BESS registration is a requirement for obtaining overweight permits that include restrictions on crossing bridges. For details see *Chapter B6: Bridge engineering self supervision (BESS)* in part B of this volume of the manual.

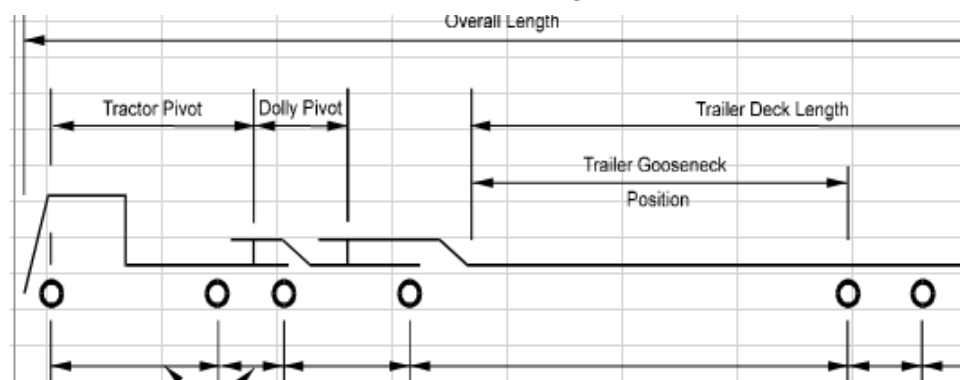
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## List of general terms continued

<b>Certificate of Loading</b>	A certificate of loading is a document issued by a Certificate of Fitness issuing authority. It states the maximum permissible loading.
<b>Continuous permit</b>	A continuous permit covers the movement of a vehicle that is used frequently, and in a specific area or on a specific route. The vehicle's load is constant and not considered to be divisible.
<b>Crawl speed</b>	Crawl speed is defined as a maximum uniform speed of 10km/h on bridge crossings.
<b>Critical span</b>	The critical span of a bridge is the length of the most critical longitudinal span of a particular bridge, as assessed during rating of the bridge.
<b>Critical wheelbase</b>	The critical wheelbase is the wheelbase giving the VGI (ie maximum GI) – see <i>Chapter B10: Vehicle parameter calculations other than VAI</i> in part B of this volume for a method of determination.
<b>Deck loading ratio</b>	The deck loading ratio is an indicator of the extent to which the axles of a vehicle will load a particular bridge deck.
<b>Divisible load</b>	A divisible load is a payload that is either a fluid, or has more than one separate component (even though these components may be temporarily connected for the purposes of handling, storage, or transport). Examples include milk, gravel, logs, animals, or bundles of steel or timber.

### Dolly pivot point

The dolly pivot point is identified in the diagram below.



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## List of general terms continued

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**Dolly width** Dolly width is measured as the distance to the outside of the tyres. If this can be varied, it is necessary to indicate the range of widths that may be achieved.

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**Engine power** Engine power is the rated power of the tractor unit, after allowing for ancillaries. It may be expressed in brake horse power (BHP) or kilowatts (kW).

**Note:** 1 BHP = 0.75 kW.

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**ESC** Electronic stability control (ESC) is a computerised technology that improves a vehicle's stability by detecting and reducing loss of traction (skidding).

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**Evidence** In the context of vehicle permitting, evidence includes (but is not limited to) documents that support compliance with requirements, for example:

- PBS reports
- signed letters
- copies of registration, or
- audit reports.

The Transport Agency may seek to verify any information supplied as evidence.

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**Fraction of capacity (FOC)** Fraction of capacity (FOC) is a measurement bridge engineers use to determine the capacity of bridges to carry overweight loads.

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**Gradeability** The gradeability of a vehicle refers to the steepness of grade that a motor vehicle is capable of climbing at an efficient speed.

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**Gross index (GI)** The gross index is the ratio of the mass on any grouping of axles, to the reference mass for that grouping.

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*Continued on next page*

## List of general terms continued

### High speed transient off-tracking

High speed transient off-tracking refers to the sideways distance that the last trailer in a combination moves outwards to either side during a high speed turning manoeuvre, such as changing lanes or taking evasive action.

The distance is measured by comparing the position of the centre of the rear axle of the last trailer, with the path taken by the centre of the steering axle during the manoeuvre.

### Identical vehicle

A vehicle (or vehicle combination) can be considered identical for operating on multiple registration permits if it meets all of the following criteria:

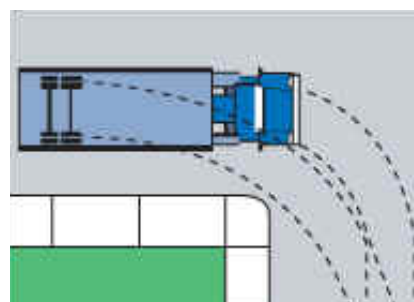
- same prime mover (only one prime mover is allowed per permit)
- identical axle spacings
- same tyre size
- identical inner and outer wheel track
- all units (including prime mover) in the combination have a sufficient GVM for the load in question, and
- all units (including prime mover) in the combination have sufficient MTM, GCM, 5th wheel, tow bar and tow ball ratings, etc, where applicable, for the load in question.

### Low speed off-tracking

Low speed off-tracking refers to the phenomenon of a rear axle moving inwards from the path of the steering axle during a low or moderate speed turn (see image right).

The longer the wheelbase of the vehicle or the tighter the turn, the more off-tracking occurs.

Measuring the extent to which a vehicle off-tracks is important for permitting, as it will ascertain the risk to other road users (including pedestrians) posed by heavy vehicles; for example, when turning 90 degrees at an intersection.



### Manager, System Management (regional)

The Manager, System Management, is the regional manager of one of the Transport Agency's eight regional offices: Auckland, Hamilton, Tauranga, Napier, Wanganui, Wellington, Christchurch and Dunedin.

*Continued on next page*

## List of general terms continued

<b>Maximum allowable gradient for combination (MGC)</b>	<p>The MGC is the maximum uphill gradient that a particular vehicle combination can negotiate without subjecting the pavement surface to the possibility of damage through loss of traction by driving wheels.</p> <p>For the formula for calculating the MGC see <i>Chapter B10: Vehicle parameter calculations other than VAI</i> in part B in this volume.</p>
<b>Mobile plant</b>	<p>Mobile plant is a vehicle that is operated mainly off the highway, and which does not carry a separate payload while on the highway.</p> <p>This includes mobile cranes, motor scrapers, dump trucks, drilling rigs, front-end loaders, forklifts, crushing plants and batching plants.</p>
<b>Mobile power crane</b>	<p>A mobile power crane is a self-propelled, pneumatic tyred vehicle consisting of either:</p> <ul style="list-style-type: none"> <li>• a crane mounted on a purpose made crane carrier, or</li> <li>• a crane mounted on a truck.</li> </ul>
<b>Multiple trips</b>	<p>Multiple trips are the separate movements of one particular vehicle over the same route with similar payloads within a limited time period.</p>
<b>Normal limits</b>	<p>Normal limits are the work time limits specified in section 30ZC of the Land Transport Act 1998.</p>
<b>OPermit</b>	<p>OPermit is a computer-based system used by the Transport Agency for processing overweight and HPMV higher mass permit applications. The system contains bridge, highway and vehicle data. It is used for checking pavements and bridges on a specified route for their ability to carry vehicles that exceed general access mass limits.</p>

*Continued on next page*

## List of general terms continued

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<b>Overdimension permit</b>	An overdimension permit is a permit issued by the Transport Agency to allow the movement on a public road of a motor vehicle that exceeds the dimension limits specified in section 6.49 of the VDAM Rule, or is unable to comply with the requirements of its dimension category as specified in schedule 6, part 1 of the VDAM Rule.
<b>Overweight permit</b>	An overweight permit is a permit issued by a road controlling authority to allow the movement on a public road of a heavy motor vehicle that exceeds the mass limits specified in section 4 of the VDAM Rule.
<b>Pavement grade</b>	The pavement grade is a measure of the ability of a road pavement to carry overweight vehicles.  For details see <i>Chapter B10: Vehicle parameter calculations other than VAI</i> in part B in this volume of the manual.
<b>Pavement loading ratio (PLR)</b>	The PLR is an indicator of the extent to which the axles of a particular vehicle will load a particular road pavement.  For the method of calculation see <i>Chapter B10: Vehicle parameter calculations other than VAI</i> in part B in this volume of the manual.
<b>Payload</b>	Any load carried by a vehicle that is not permanently attached to the vehicle.
<b>Payload weight</b>	The payload weight is the weight that will (if necessary) be transported/loaded on to the vehicle.
<b>Performance based standards (PBS)</b>	Performance based standards (PBS) focus on how a vehicle performs on the road, rather than the traditional prescriptive regulations of length and mass.  The standards encourage vehicle operators, manufacturers and designers to think innovatively about vehicle design and technology to create HPMVs that comply with the standards.
<b>Permit Issuing Officer (PIO)</b>	The PIO is the person who processes and issues vehicle dimensions and mass permits on behalf of the road controlling authority.

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## List of general terms continued

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**Reference axle weight** The reference axle weight is the nominal allowable mass given to an axle. It takes into account the axle type and spacing. In general terms the reference axle mass is equivalent to the legal axle mass limit – see *Chapter B9: Calculating the vehicle axle index (VAI)* in part B in this volume of the manual.

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**Reference gross weight** The reference gross weight for any grouping of axles is the nominal allowable mass given to that grouping of axles – see *Chapter B10: Vehicle parameter calculations other than VAI* in part B in this volume of the manual.

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**Single trip** A single trip is a continuous movement under an overweight permit by one vehicle. This includes a movement in one general direction with stops totalling no more than two days but without change of load.

Also included is an outward plus return journey over substantially the same route with stops totalling no more than two days, with or without change of load.

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**Small standard tyres** Small standard tyres are tyres with smaller footprint areas, and hence lower reference axle masses, than standard tyres.

For details see *Chapter B9: Calculating the vehicle axle index (VAI)* in part B in this volume of the manual.

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**Spaced axle** A spaced axle is an axle that is 2.4 metres or more from another axle.

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## List of general terms continued

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<b>Specified standard tyres</b>	<p>Specified standard tyres have larger footprint areas, and hence higher reference axle loads, than standard tyres.</p> <p>For details see <i>Chapter B9: Calculating the vehicle axle index (VAI)</i> in part B in this volume of the manual.</p>
<b>Startability</b>	<p>Startability is the ability of a vehicle to start moving forward on a grade, without posing any additional risk to other road users.</p>
<b>Strippable load</b>	<p>A strippable load is a payload that can be significantly reduced in mass (albeit with some difficulty) without causing irreparable damage.</p> <p>Some examples include:</p> <ul style="list-style-type: none"><li>• removing blade, rippers and ripper mechanism from a tractor</li><li>• removing jib and counterweights from a crane</li><li>• cutting of a log which would otherwise be cut at a mill, and</li><li>• cutting of a welded steel truss.</li></ul> <p><b>Note:</b> Once the load is stripped, the parts are then a divisible load.</p>
<b>Suspension type</b>	<p>Suspension types include:</p> <ul style="list-style-type: none"><li>• A for Air Bag</li><li>• B for Walking Beam (may be in combination with leaf spring)</li><li>• H for Hydraulic</li><li>• R for Wire Rope</li><li>• L for Leaf Spring</li><li>• O for Other, or</li><li>• D if on Drive Axle.</li></ul>
<b>TORO</b>	<p>TORO refers to the Transport Register Online website at <a href="https://toro.nzta.govt.nz/">https://toro.nzta.govt.nz/</a></p>
<b>Total unit mass</b>	<p>The tare mass of a vehicle unit plus the load to be carried on the unit.</p>

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## List of general terms continued

### Tracking ability

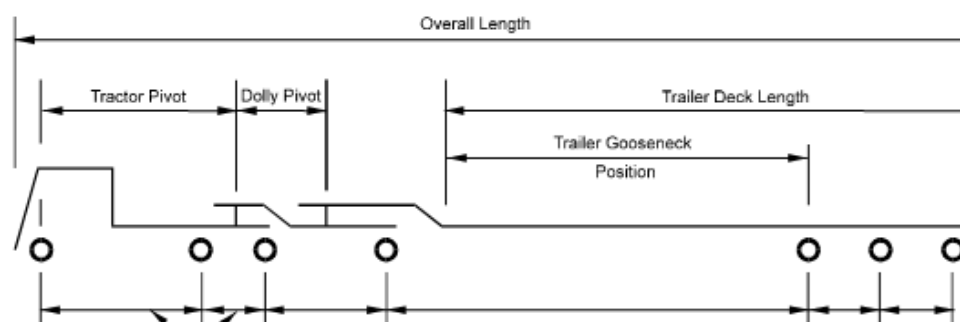
The tracking ability of a vehicle refers to that vehicle's ability to remain on a straight path. It ensures a vehicle remains within its traffic lane during forward movement on a straight road at highway speed.

### Traction friction coefficient

The traction friction coefficient is a value that reflects the friction force developed between the wheel or tyre and the pavement surface during traction.

### Tractor pivot point

The tractor pivot point is illustrated in the diagram below.



### Tractor width

The tractor width is measured as the distance between the outsides of the tyres.

### Trailer deck height

The trailer deck height is the distance between the ground and the top of the deck. This height may be variable.

### Trailer deck length

The trailer deck length is the distance measured from the base of the gooseneck to the end of the deck.

### Trailer gooseneck height

The trailer gooseneck height is the distance from the deck of the trailer to the highest point on the gooseneck.

### Trailer gooseneck position

The trailer gooseneck position is the distance from the base of the gooseneck to the centre of leading axle on the trailer.

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## List of general terms continued

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**Trailer width** The trailer width is measured as the distance between the outsides of the tyres.

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**Transporter** A transporter is a vehicle specifically designed to carry a payload.

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**TSL number** A TSL number is a transport service licence number.

Companies or individuals must hold the appropriate transport service licence (TSL) if they operate:

- a passenger service
- a goods service
- a vehicle recovery service, or
- a vehicle rental service.

There are different kinds of TSLs for each type of service.

Vehicles for which no TSL is required include:

- mobile cranes
- mobile plant and machinery
- special purpose vehicles, and
- agricultural vehicles.

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**Tyre size** Tyres are categorised as ‘standard’ if they are less than 355mm wide.

Tyres are categorised as ‘large’ if their width is 355mm or more but less than 444mm.

Tyres with a width of 444mm or more are categorised as ‘mega’ tyres.

Tyre measurements need to be specified on permit applications. For details see *Chapter B9: Calculating the vehicle axle index (VAI)* in part B in this volume of the manual.

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**Unit** For permit issuing purposes, a ‘unit’ is defined as something that can be used singularly or in conjunction with other units to make an overall vehicle.

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## List of general terms continued

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<b>Vehicle</b>	For permit issuing purposes a 'vehicle' is defined as the complete combination (of units) that the permit will be issued for. Different combinations of units require different permits unless the permit is for multiple identical vehicles (see <i>Identical vehicle</i> above).
<b>Vehicle gross index (VGI)</b>	The VGI is the maximum gross index for a vehicle. It is an indicator of the effect of the gross load of a vehicle on bridges.
<b>Vehicle tare weight</b>	The tare weight (or simply 'tare') is the unladen weight of a vehicle. The tare weight includes a full fuel tank and any normal running gear. For air bag axle vehicles, the tare value is the weight at zero bag pressure.
<b>Wheel track</b>	The wheel track is the distance between the centres of the left-side and right-side wheels of a pair of wheels.
<b>Work time rules</b>	Work time rules include but are not limited to part 4B of the Land Transport Act 1998 and the requirements of the Land Transport Rule: Work Time and Logbooks 2007.
<b>Yaw damping ratio</b>	The yaw damping ratio is the rate at which the sway of the rear trailer in a combination diminishes (decays) after a short duration steering manoeuvre has taken place, such as when moving back into a line of traffic after an overtaking manoeuvre. To reduce risk to other road users, a quick recovery is required. A longer recovery time increases the workload on the driver to bring the vehicle under control.

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