
**SPECIALIST DRIVING KNOWLEDGE
AND SKILLS**

**Demonstrate knowledge of operating a
light four wheel drive (4WD) vehicle in
an off-road environment**

level:	3
credit:	4
final date for comment:	May 2008
expiry date:	December 2009
sub-field:	Driving
purpose:	<p>This unit standard is for people who are driving light 4WD vehicles in an off-road environment.</p> <p>People credited with this unit standard are able to demonstrate knowledge of: light 4WD off-road vehicle configuration; light 4WD vehicle stability and dynamics when operating off-road; light 4WD vehicle tyre characteristics as applied to light 4WD off-road operations; hazard assessment in light 4WD off-road vehicle operation; safe techniques for driving a light 4WD off-road; driving a light 4WD vehicle through water; and preparing a light 4WD vehicle for on-road use after it has been driven off-road or through water.</p>
entry information:	Open.
accreditation option:	Evaluation of documentation and visit by NZQA and industry.
moderation option:	A centrally established and directed national moderation system has been set up by the NZ Road Transport and Logistics Industry Training Organisation.
special notes:	<p>Definitions</p> <p><i>light 4WD vehicle</i> means any four wheel vehicle with a gross laden weight less than 3500kg and capable of having motive power applied simultaneously to all four wheels. It does not include an all-terrain vehicle for which a Class 6 driver licence is required;</p>

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off-road means a surface other than a sealed or unsealed, formed road or track and includes but is not limited to bush tracks, beaches, river beds and open paddocks;
on-road means a sealed or unsealed, formed road or track;
oversized tyre is a tyre where the diameter of the tyre is larger than the vehicle manufacturer's specifications.

Elements and Performance Criteria

element 1

Demonstrate knowledge of the types and features of light 4WD off-road vehicles.

performance criteria

- 1.1 Vehicle types are described in terms of their design, purpose and passenger carrying capacity.
- Range: long or short wheel-base, designed to carry goods, passengers or a combination of goods and passengers.
- 1.2 Suspension types and their effect on ground clearances are explained in terms of off-road performance.
- Range: independent suspension, live axle suspension systems.
- 1.3 Operation of the drive train is identified in terms of function, controls and components.
- Range: permanent 4WD transmission, selectable 4WD transmission, differentials, hub types.
- 1.4 Entry, departure and break-over angles are explained in terms of fitted accessories.
- Range: accessories must include but are not limited to - tow-bar, sump guard, exhaust pipe protector, bush bars, winch, spare wheel, side steps.

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element 2

Describe light 4WD vehicle stability and dynamics when operating off-road.

performance criteria

- 2.1 Description includes centre of gravity and its effect on vehicle stability.
Range: acceleration, deceleration, cornering.
- 2.2 Description includes requirements for safe loading of goods in terms of load type and load security.
Range: livestock, liquids, passengers, freight.
- 2.3 Description includes driving techniques required to counter load movement.

element 3

Describe characteristics and condition of tyres used on light 4WD vehicles that are operating off-road.

performance criteria

- 3.1 Description includes the performance characteristics of types of tyre.
Range: all terrain, road.
- 3.2 Description includes the effects of tyre type and condition on vehicle handling.
Range: new, worn, mismatched, damaged, directional tread, on-road and/or off-road tyres, inflation, oversized.

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element 4

Describe hazard assessment in light 4WD off-road vehicle operation.

performance criteria

- 4.1 Description includes the identification of hazards and their effects when ascending and descending a hill, and driving across a slope.
- 4.2 Description includes the identification of hazards to be considered when assessing uneven and soft surfaces.
- 4.3 Description includes the factors affecting route selection.
- Range: weather, surface conditions, other traffic, terrain, vehicle.
- 4.4 Description includes hazards associated with towing a light simple trailer off-road.
- Range: articulation, braking, reversing, hill climbing.

element 5

Demonstrate knowledge of safe techniques for driving a light 4WD off-road.

Range: includes but is not limited to - uphill, downhill, across a slope.

performance criteria

- 5.1 Description includes preparation for safe driving.
- 5.2 Description includes appropriate safe driving techniques for the terrain.

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element 6

Demonstrate knowledge of driving a light 4WD vehicle through water.

performance criteria

- 6.1 Description includes methods of determining maximum water depth for specified light 4WD vehicle.
- 6.2 Description includes identification of possible hazards encountered while driving in water.
- 6.3 Description includes components of vehicle to be inspected to confirm suitability for driving in water.
- 6.4 Description includes precautions to be taken before entering water.
- 6.5 Description includes 4WD driving techniques in water.
- Range: driving - with current, against current, across current.

element 7

Explain how to prepare a light 4WD vehicle for on-road use after it has been driven off-road or through water.

performance criteria

- 7.1 Explanation includes reasons for checking light 4WD vehicle to ensure it is ready for on-road use.
- Range: checks include but are not limited to - brakes, lights, indicators, mirrors, windscreen, 4WD disengaged (if applicable), differential lock disengaged (if applicable), hubs, tyres.

Comments on this unit standard

Please contact the New Zealand Road Transport and Logistics Industry Training Organisation office@roadtrain.org.nz if you wish to suggest changes to the content of this unit standard.

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Please Note

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0092 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.