

Queensland Code of Practice: Vehicle Modifications (QCOP)

Code LS12: Light Trailer Modifications

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Queensland Government



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CODE LS12

LIGHT TRAILER MODIFICATIONS

1.0 Scope

The LS12 code specifies requirements for a suitably qualified Approved Person to certify modifications to trailers with an aggregate trailer mass (ATM) of 4500 kg or less. The modified trailer must continue to comply with the relevant requirements of Vehicle Standards Bulletin 1 – *Building Small Trailers* (VSB-1).

Modifications that can be certified under this code are explained in Section 1.1.

Simple changes to the trailer such as, the fitting of a spare wheel carrier, bolting on a storage box or adding a cage to a box trailer do not require certification. However, when making these changes be aware that the trailer's dimensions may change or lights/number plates may be obscured. It is essential to ensure the trailer remains compliant to VSB-1 after any changes.

1.1 Modifications permitted under Code LS12

Modifications that may be certified under LS12 code are:

- Modifications to suspension, brakes, tow couplings, drawbars, wheels (rims & tyres) and trailer chassis such that the trailer continues to comply with VSB-1;
- Rerating of the trailer's ATM such that the trailer continues to comply with VSB-1 and revised ATM does not exceed 4500 kg.

1.2 Modifications not permitted under Code LS12

Modifications that must not be certified under LS12 code are:

- Changes resulting in a trailer that does not comply with VSB-1;
- Modifications to a trailer with an ATM greater than 4500 kg;
- Modifications resulting in a change to the trailer's category as defined in Administrator's Circular 0-7-5 (semi, pig, dog etc)*;
- A change to a trailer's registration category (box trailer, boat trailer, caravan);
- Increase in ATM such that the revised ATM exceeds 4500 kg.

***Note:** If modifications result in a change of the trailer's category as defined in Circular 0-7-5, or registration type (e.g. pig trailer to dog trailer, semi-trailer to dog trailer, box trailer to boat trailer, caravan to box trailer, and so on) they are regarded as newly manufactured and must be constructed to meet VSB-1 and issued with a new Vehicle Identification Number (VIN) and trailer plate.

2.0 Basic Modifications without Certification

The following modifications may be carried out provided they do not affect compliance with VSB-1 and meet the general safety requirements specified below for each modification:

2.1 Replacement Tyres and Rims

A trailer with an ATM of 4.5 tonnes or less may be equipped with tyres other than those listed for that particular variant provided that:

- the load rating of the tyres is not less than the lowest load rating listed on the tyre placard of the vehicle or equivalent variant of that model vehicle; and
- the speed rating is of at least 120 km/h; and
- all requirements specified in sections 2.2 - 2.5 are met.

2.2 Wheel Attachment

Replacement wheels must be designed for the particular hub/axle and have the same bolt/stud pitch circle diameter and the same centre location method. The wheel nuts or bolts must have the same tapers as the wheel. Wheels with slotted bolt/stud holes must not be used.

Replacement aluminium alloy rims should be located on the hub/axle by the same diameter centre spigot as the original wheel, using suitable adaptor rings where necessary.

Wheel nuts and bolts must have a thread engagement length at least equal to the thread diameter, except where specified otherwise by the vehicle manufacturer.

Wheel spacers (or adaptors for dual wheel conversions) between the wheel mounting face and the road wheel must not be used unless fitted as original equipment by the vehicle manufacturer.

Modifications to disc brake calipers, hubs and suspension and steering components to enable the fitting of replacement wheels must not be undertaken.

2.3 Clearance

No part of the wheel must touch any part of the body, chassis, braking system or suspension under any operating condition. To check this, the vehicle must be fully laden and capable of negotiating raised obstacles that would normally be encountered whilst driving such as speed humps and driveway entries. The wheels must be contained within the bodywork, or mudguards (including *flares*).

Suspension stops must not be modified to provide clearance for wheels.

2.4 Overall Nominal Diameter

The overall diameter of any tyre fitted to a braked on-road trailer originally fitted with passenger car tyres must not be more than 15mm larger or 26mm smaller than that of any tyre designated on the trailer plate.

The overall diameter of any tyre fitted to a trailer specifically designed for off-road use and originally fitted with 4WD tyres or light truck tyres must not be more than 50mm larger or 26mm smaller than that of any tyre designated on the trailer plate.

Note: Increases in tyre diameter are subject to compliance with all other requirements specified under this clause and may therefore be limited by other factors such as insufficient clearance.

2.5 Tyre and Rim Sizes

Tyres and rims fitted to each axle of a trailer must be of the same diameter, offset, width and mounting configuration (except for spare wheels used in an emergency situation).

Tyres fitted to an on-road trailer originally fitted with passenger car tyres must not be more than 30% wider than vehicle manufacturer's widest optional tyre.

Tyres fitted to a trailer specifically designed for off-road use (and originally fitted with 4WD tyres or light truck tyres) must not be more than 50% wider than vehicle manufacturer's widest optional tyre.

Note: The rim width must not exceed the recommendations for the tyre fitted.

2.6 Wheel Track

The wheel track of trailer must not be increased by more than 25mm beyond the maximum specified by the trailer manufacturer for the particular model. This means that the rim offset must not be changed by more than 12.5mm.

The wheel track of a trailer specifically designed for off-road use (and originally fitted with 4WD tyres or light truck tyres) must not be increased by more than 50mm beyond the maximum specified by the trailer manufacturer for the particular model.

Note: A reduction in wheel track is not permitted on any trailer.

3.0 Coupling

A coupling fitted to a trailer with an ATM of 3500kg or less may be replaced provided the following conditions are met:

- The replacement coupling's mounting position/points are identical to the original coupling; and
- The replacement coupling meets the appropriate standard and is marked accordingly;

- The replacement coupling does not result in an increase in the effective length of the drawbar.

Note: Information relating to the relevant standards and markings for couplings are provided in VSB-1. When replacing a trailer's coupling it is essential that this information is followed.

When replacing the coupling on a trailer with an ATM greater than 3500kg and/or if the replacement coupling's mounting position differs from the original the modification will be required to be certified by an Approved Person under the LS12 code.

4.0 Safety Chains

A trailer's safety chains can be extended or shortened provided the replacement chain/s (including joiners such as hammerlocks):

- Are marked in accordance with the relevant Australian Standard;
- For trailers with an ATM not exceeding 2500kg have at least one safety chain meeting Australian Standard AS 4177.4-1994 or AS 4177.4-2004;
- For trailers with an ATM over 2500kg but not exceeding 3500kg have at least two safety chains meeting Australian Standard AS 4177.4-1994 or AS 4177.4-2004;
- For trailers with an ATM over 3500kg ATM have at least two safety chains made from steel of a minimum 800MPa breaking stress which conforms to Grade T chain as specified in Australian Standard AS 2321-1979 or AS 2321-2006.

Note: Each chain must be sized such that the minimum breaking load exceeds the trailer's ATM.

In some cases the safety chain attachment point/s may be modified or new attachment point/s fitted. In such circumstances testing must be conducted to ensure they are capable of withstanding minimum loads specified in VSB-1 and will be required to be certified by an Approved Person under the LS12 code.

5.0 Body Modifications

Storage boxes, cages, carriage racks and so on may be modified or fitted to a trailer provided:

- The trailer's dimensions remain compliant;
- They are fitted securely;
- They are designed and fitted in a way which minimises the risk of injury to vulnerable road users.

Note: When fitting storage boxes, carriage racks, and so on it is important to consider how much weight they will impose on the trailer when loaded.

6.0 Compliance with applicable vehicle standards

Trailers modified under code LS12 must continue to comply with the applicable requirements of the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2021*.

VSB-1 establishes a set of design and construction standards for road trailers (with an ATM of 4.5 tonnes or less) that operate as an alternative to the ADRs.

The standards in VSB-1 are based on the ADRs – but are simpler and more practical to use. They offer a low-cost alternative, by eliminating the need for some of the more expensive forms of vehicle testing and evidence that are required under the ADRs.

VSB-1 is available on the Department of Infrastructure, Transport, Regional Development and Communications website available at:

https://www.infrastructure.gov.au/vehicles/vehicle_regulation/bulletin/

7.0 Specific requirements for modifications

Modifications to a trailer must meet the standards set out in VSB-1.

Changes to trailer ratings must address necessary changes to all other affected parts. FOR EXAMPLE, increasing ATM rating may involve changes to suspension, tow coupling, brakes, safety chains and chassis rails.

Checklist LS12

Code LS12 - Light Trailer Modifications

Form No: LS12

Provide an answer to each of the following (N/A=Not Applicable, Y=Yes, N=No)

Modification Certificate Number:	_____	
1	General	
1.1	Does the modified trailer comply with VSB-1?	<input type="checkbox"/> Y <input type="checkbox"/> N
2	Trailer ATM	
	Before Modification: _____ kg	
	After Modification: _____ kg	
2.1	Was the trailer's original ATM 4500 kg or less?	<input type="checkbox"/> Y <input type="checkbox"/> N
2.2	Is the trailer's revised ATM 4500 kg or less?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
3	Chassis	
3.1	Is the trailer's chassis suitable for the trailer's revised ATM?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
3.2	Does the trailer's drawbar meet the VSB-1 minimum strength requirements at its revised ATM?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
4	Dimensions	
4.1	Are the trailer dimensions within the limits permitted in VSB-1 and ADR 43/04?	<input type="checkbox"/> Y <input type="checkbox"/> N
5	Braking System	
5.1	Does the trailer's braking system comply with the requirements of VSB-1?	<input type="checkbox"/> Y <input type="checkbox"/> N

[Continued on the following page]

6	Tyres and Rims	
6.1	Does the Modification Plate show the tyre and rim sizes and load ratings that are suitable for trailer's rating?	<input type="checkbox"/> Y <input type="checkbox"/> N
6.1	Are tyres and rims fitted in conformance to the modification plate?	<input type="checkbox"/> Y <input type="checkbox"/> N
7	Tow Coupling	
7.1	Does the tow coupling, tow coupling mounting and drawbar (if applicable) meet the requirements of ADR 62/..?	<input type="checkbox"/> Y <input type="checkbox"/> N
8	Safety Chains (Please note: N/A is only an option when certifying a dog trailer or fifth wheeler trailer)	
8.1	Are the correct number of safety chains fitted?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
8.2	Does/Do the safety chain/s comply with the applicable Australian Standard?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A
9	Lighting System	
9.1	Do the lights and the reflectors comply with VSB-1?	<input type="checkbox"/> Y <input type="checkbox"/> N
10	Axles and Suspension	
10.1	Is the trailer's suspension type fit for the purpose?	<input type="checkbox"/> Y <input type="checkbox"/> N
10.2	Are all suspension components adequately rated?	<input type="checkbox"/> Y <input type="checkbox"/> N
10.3	Are all axles adequately rated?	<input type="checkbox"/> Y <input type="checkbox"/> N
11	Caravan Requirements	
11.1	Have all caravan requirements of VSB-1 been met?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A

Note: If the answer to any question is **N (No)** the ATM re-rating cannot be certified under Code LS12.

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CERTIFICATION DETAILS																
Make						Model						Year of Manufacture				
VIN																
Chassis Number (If applicable)																
Brief Description of Modification/s																
Vehicle Modified By																
Certificate Number (If applicable)																
Vehicle Certified By (<i>Print</i>)																
Signatory's Employer (If applicable)																
Signatory's Signature											Date	_____				