

Queensland Code of Practice: Vehicle Modifications (QCOP)

Code LS10 High Lift – Up to 150 mm (Modification Certification)

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CODE LS10

High Lift - Up to 150 mm (Modification Certification)

Code LS10 applies to vehicles of ADR category MC, NA and NB1.

1.0 Introduction

LS10 code provides modification standards for lifting vehicle ride height according to an appropriate LS9 design by changes to suspension, tyres or body blocks on light vehicles of categories MC (Off Road Passenger Vehicle), NA (Light Goods Vehicle with GVM up to 3,500 kg) and NB1 (Medium Goods Vehicle with GVM up to 4,500 kg). Modifications that result in changes to the ride height of these categories of vehicles are classified into four types.

Minor Modification- Change in ride height due to fitting of alternate tyre and rim combination that is permitted by the original vehicle manufacturer or otherwise permitted in the relevant Code of Practice without certification is deemed as a Minor Modification and does not require certification under LS10. For more details refer to LS Section of National Code of Practice (NCoP) Vehicle Standards Bulletin 14 (VSB-14) and the Vehicle Standards Instruction “Minor Modifications”.

Basic Modification- A modification that is not a Minor Modification and results in increase in ride height of (a) up to 50 mm due to modified suspension or (b) up to 25 mm due to larger tyre or (c) up to 75 mm due to combination of (a) and (b) is a Basic Modification and does not require certification under LS10, provided the modification is carried out according to the guidelines in LS9 and LS10.

Complex Modification- A modification that is neither a Minor Modification nor a Basic Modification and results increase to ride height of (a) up to 100 mm due to modified suspension or (b) up to 25 mm due to larger tyre or (c) up to 50 mm due to body blocks or (d) up to 150 mm due to any combination of (a), (b) and (c) is a Complex Modification and requires certification under LS9 and LS10.

Specific Modification- A modification that results in change to ride height that is not covered by Minor, Basic, or Complex Modification categories. Specific Modifications to ride height change are outside the scope of LS9 and LS10. For Specific Modifications, an application may be made to TMR Vehicle Standards unit.

The above classification covers both vehicles with and without an Electronic Stability Control (ESC) system.

Note: Fitting tyres with a larger diameter increases ride height by half that amount. For example, tyres with 50 mm larger diameter increase ride height by 25 mm.

2.0 Scope

Code LS10 covers modifications that result in a vehicle lift not exceeding 150mm.

The conversions must be carried out only in accordance with designs certified under Code LS9 by an Approved Person (AP) accredited by the Department of Transport and Main Roads (TMR).

Table LS10-1 below further clarifies when certification is not required and when it is required.

Table LS10-1 Lift Guide for Vehicles with and without ESC

Certification	Suspension	Tyres	Body blocks	Total lift
Not required	1 to 50 mm	1 to 25 mm	--	up to 75 mm
Required	51 to 100 mm	--	1 to 50 mm	up to 150 mm

2.1 Modification permitted under Code LS10

The following is a summary of the modifications that are permitted to be certified under Code LS10, based on a relevant LS9 design certification:

- Increase in ride height of vehicles of categories MC, NA and NB1;
- Modifications resulting in total vehicle height being raised by no more than 150mm;
- Modifications that result in the total vehicle height being raised by no more than 100 mm by modified suspension;
- Modifications that result in the total vehicle height being raised by no more than 25mm by larger tyres;
- Modifications that result in the total vehicle height being raised with body blocks by no more than 50 mm (or no more than 25 mm if the increase in ride height due to suspension exceeds 75 mm);
- Modification of front suspension using different struts or uprights;
- Independent rear suspension modifications using different struts, trailing arms or uprights;
- Conversion using a complete suspension assembly from a different vehicle model;
- Fitting of complete rear suspension assembly using components from different vehicle model(s); and
- Alternative wheel and tyre specifications for vehicles with modified axles or suspension.

2.2 Modifications not permitted under code LS10

The following is a summary of the modifications that are NOT permitted to be certified under Code LS10:

- Design of the modification of particular vehicles (this is covered by Code LS9);
- Modifications that are not in accordance with Code LS9 and there is not relevant and appropriate LS9 certification; and
- Modifications that increase the ride height by (a) more than 100 mm from suspension or (b) more than 25 mm from tyres or (c) more than 50 mm (or more than 25 mm if the increase in ride height due to suspension exceeds 75 mm) from body blocks or (d) more than 150 mm combined from the original manufactured height.
- Modifications that raise the vehicle ride height more than 50mm from the original as-manufactured height on vehicles that have had the wheel track reduced from the as-manufactured width.

2.3 Modifications not requiring certification

Note that vehicle lift designs that do not exceed 75 mm above the original manufacturer's specifications and are achieved only from a lift from modified suspension (lift up to 50 mm) and/or lift from larger tyres and rims (lift up to 25 mm) do not require certification.

Checklist LS10

CODE LS10 - High Lift – Up to 150 mm (Modification Certification)

Form No: LS10

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

Modification Certificate Number:				
1	Design			
1.1	Insert LS9 Design Approval Package Number..... (the Design)			
1.2	Has the vehicle been modified exactly in accordance with the plans and specifications issued under the LS9 Design Approval Package given above?	Y	N	
1.3	If the vehicle was originally equipped with ESC, and if the modification affects the ESC, has the ESC system been assessed/tested and found to operate satisfactorily?	N/A	Y	N
2	Vehicle condition prior to modification			
2.1	Is the front suspension serviceable?	Y	N	
2.2	Is the steering box serviceable?	Y	N	
2.3	Is the steering linkage serviceable?	Y	N	
2.4	Is the chassis serviceable?	Y	N	
3	Workmanship			
3.1	Is all work, including welding, of satisfactory quality and has all work been performed in accordance with recognised engineering standards?	N/A	Y	N
3.2	Do all new or replaced fasteners comply with the applicable requirements of <i>Section LZ Appendices - Appendix A Fasteners</i> in the NCOP?	Y	N	
3.3	Are high tensile bolts and self-locking nuts used on all critical joints and mountings?	Y	N	
4	Modification Details			

4.1	What was the original height of the vehicle body prior to any modification?			
4.2	What is the height of the vehicle body following completion of all lift modifications?			
4.3	Is the difference in heights less than 150 mm?	Y		N
4.4	What is the largest size tyre on the tyre placard? Owner's handbook may be used if tyre placard is missing.			
4.5	What size tyre has been fitted?			
4.6	Is the increase in overall tyre diameter less than 50 mm for MC, NA and NB1 category vehicles?	N/A	Y	N
4.7	If the vehicle body has been lifted relative to the chassis, is the overall body lift 50 mm (or 25 mm if the increase in ride height due to suspension exceeds 75 mm) or less?	N/A	Y	N
4.8	If the suspension has been modified to provide an increase in vehicle body height, is this increase 100 mm or less?	N/A	Y	N
5	Handling Dynamics Test (as specified by LS9 certification) Respond Y if this testing was conducted as part of LS9 design certification and no additional testing is prescribed in the design package for LS10 certification.			
5.1	Has the vehicle undergone a Handling Dynamics Test as required by LS9 design package?		Y	N
5.2	Did the vehicle pass the test satisfactorily?		Y	N
5.3	Is the driver satisfied that the vehicle is safe to drive?		Y	N
5.4	Is a copy of the handling dynamics test results form attached as required by LS9 certification?		Y	N
6	Vehicle condition after modification			
6.1	Is the front suspension serviceable?		Y	N
6.2	Is the steering box serviceable?		Y	N
6.3	Is the steering linkage serviceable?		Y	N
6.4	Is the chassis serviceable?		Y	N
6.5	Is the dipped beam headlight height less than 1200mm?		Y	N

6.6	Have the headlights been adjusted?		Y	N
6.7	Have all brake tests been satisfactorily completed?	N/A	Y	N
6.8	Is the combined height increase 150 mm or less?		Y	N
6.9	Do the mudguards continue to comply as with applicable ADR 42/...?		Y	N
6.10	Have all components affected by the lift such as gear levers, brake hoses etc. been modified and fitted to comply with Code LS9?	N/A	Y	N
6.11	Have all items affected by the lift such as drive shaft joint operating angles, spline engagement and axial movement of CV joints, wheel alignment been checked and found to be within design limits over the entire suspension travel?	N/A	Y	N

Note: If the answer to any question is **N (No)**, the modification cannot be certified under Code LS10.

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					