

LIGHT VEHICLE REPLACEMENT SUSPENSION MODIFICATIONS

Light Vehicles Policy

Number L 1.0

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Revision Date

Intended audience	<p>Transport Inspectors: Provides sufficient guidance to enable thorough and consistent inspection of chassis and suspension components for compliance requirements.</p> <p>Queensland Police Service: Provides sufficient guidance to enable thorough and consistent inspection of chassis and suspension components for compliance requirements.</p> <p>Approved Inspection Stations (AIS): Provides sufficient guidance to enable thorough and consistent inspection of chassis and suspension components to ensure vehicles comply with the requirements for the issue of a Safety Certificate.</p> <p>Approved Persons: Provides sufficient guidance to enable thorough and consistent certification of vehicles for chassis and suspension modifications.</p> <p>Vehicle owner: Provides guidance on vehicle compliance requirements.</p>
Applies to	<p>Passenger vehicles under 4.5 t GVM.</p> <p>Light commercial vehicles under 4.5 t GVM.</p>
Objective	<p>To ensure modifications to the suspension and chassis of light vehicles comply with Queensland Transport vehicle standards.</p>
Background	<p>It has come to the attention of Queensland Transport that passenger and light commercial vehicles are being fitted with replacement air bag or hydraulic suspensions.</p> <p>Modifications are also being carried out that allow the body of the vehicles to be lowered substantially, sometimes on to the road surface.</p> <p>These modifications include:</p> <ul style="list-style-type: none">• Chassis rail redesign;• Bump stop redesign or removal;• Devices added to or included in air bag or hydraulic suspensions that permits the operator to manually adjust the vehicle ride height.

Legislation

Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 1999 - s 5. Vehicles must comply with vehicle standards.
Lists when a vehicle is not in a condition for use on a road.

Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 1999 - s 6 Modifying vehicle.
Lists when a vehicle is correctly modified for use on a road.

Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 1999 - s 30 Approval of modified vehicle.
Lists owners' and Approved Persons' responsibilities when modifying a vehicle for use on a road.

Supporting documents

Vehicle Standards Bulletin (VSB) No.6 - Heavy Vehicle Modifications.

Code of Practice - Light Motor Vehicles.

Code of Practice - Commercial Motor Vehicles.

Modification approval process

Vehicle Standards Bulletin No.6 - Heavy Vehicle Modifications and the Code of Practice - Light Motor Vehicles do not allow an Approved Person to approve suspension modifications to monocoque light vehicles. An individual application demonstrating compliance with all conditions outlined in this document must be sent to Queensland Transport for evaluation.

Suspension modifications to light vehicles (under 4.5 t GVM) with a separate chassis are permitted under Vehicle Standards Bulletin No.6 - Heavy Vehicle Modifications. Refer to section 1.0 Scope of the Code of Practice - Commercial Motor Vehicles. However, no deviation from the VSB is permitted unless specifically authorised by Queensland Transport.

Queensland Transport will not permit the fitting of replacement/additional air bag or hydraulic suspension systems to vehicles that allow the driver to raise and lower all or some corners of the vehicle for show purposes. Suspension replacements may be approved if they:

- Are a direct replacement or addition to the existing suspension;
 - Do not alter the ride height of the vehicle by more than one-third of suspension travel specified by the vehicle manufacturer;
 - Maintain regulated ground clearance requirements;
 - Maintain control of ride height within strict requirements (No manual height control and maintain the ride height when parked).
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Ground clearance of vehicle

The ground clearance of the fully laden vehicle must continue to comply with the Australian Design Rules (ADRs) and the Transport Operations (Road Use Management) Regulation 1995 at all times.

The following requirements must be met:

- The ground clearance must not be less than 100 mm within 1 m of an axle and the vehicle must clear a peak with a gradient of 1:15 on each side;
- The suspension travel in the bump or rebound mode must not be altered by more than one third of that specified by the original vehicle manufacturer;
- The original manufacturer's bump stops must not be altered;
- The fitting of drop spindles or similar devices to lower the ground clearance of the vehicle on the axle assembly is not permitted.

Rear chassis modification

An Approved Person must not approve a chassis modification that allows a vehicle to achieve minimum or zero ground clearance (eg. notching or inserting a "C" section into the chassis) unless Queensland Transport has granted individual permission on the basis that a special need exists. An example of a special need is the provision of a low loading height for wheelchair access but does not include lowering the vehicle for styling or show purposes.

Modification of a vehicle's chassis rail must be carried out strictly in accordance with the H4 code (Vehicle Standards Bulletin No.6 – Heavy Vehicle Modifications).

Height control

A modified vehicle must have a system that will provide automatic control of the vehicle ride height. Non-adjustable regulators or height control valves must be fitted to prevent tampering by the driver when the vehicle is in motion.

The driver may have control of the suspension height with the vehicle stationary only for a special need such as loading a wheelchair bound passenger. However, the system must automatically reset to normal vehicle ride height when the vehicle moves off. These vehicles must have approval granted by Queensland Transport.

Brakes

Where the vehicle manufacturer has fitted a load-sensing valve to the braking system as standard equipment, the brake system bias must be checked in both laden and unladen conditions. This check must confirm the manufacturer's specifications are maintained. The vehicle's braking system may require re-certification to the applicable ADR for the category of vehicle at its date of manufacture.

Transport Inspector's action	<p>During the course of an inspection, where Transport Inspectors encounter vehicles with chassis alterations or are modified by the fitting of an air bag or hydraulic suspension assembly, they are to:</p> <ul style="list-style-type: none"> • Ensure that the vehicle complies with all requirements for the modification including those stated above. • Issue a Defect Notice if modifications do not comply with requirements.
QPS action	<p>During the course of an inspection, where Queensland Police encounter vehicles with chassis alterations or are modified by the fitting of an air bag or hydraulic suspension assembly, they are to:</p> <ul style="list-style-type: none"> • Ensure that the vehicle complies with all requirements for the modification including those stated above. • Issue a Defect Notice if modifications do not comply with the requirements.
AIS action	<p>Approved Examiners inspecting vehicles with chassis alterations or modified air bag or hydraulic suspension are to:</p> <ul style="list-style-type: none"> • Ensure that the vehicle complies with all requirements for the modification including those stated above; • Reject the vehicle if modifications do not comply with requirements.
Approved Person's action	<p>Where Approved Persons are asked to carry out modifications, or certify an existing modification on a vehicle with chassis alterations, or modified air bag or hydraulic suspension, they are to ensure that the vehicle complies with all requirements for the modification including those stated above.</p>
Enquiries	<p>Regional Senior Transport Inspectors or Land Transport and Safety Division - Policy Advice Team on (07) 3253 4851 or (07) 3253 4778.</p>
Authorisation	<p>Issued by Business Manager (Policy Advice).</p>