Motor vehicles

Please note:
The contents of this publication are a guide only and cannot be used as a reference to a point of law. For a detailed explanation, refer to the Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 1999.

For further information or additional copies of this brochure please contact your nearest Queensland Transport Customer Service Centre or phone: (07) 3253 4851 .

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modifications

all about modifications to motor vehicles

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Queensland Transport, *All about modifications to motor vehicles*, 2008

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Contents

Introduction

This booklet provides guidelines for vehicle owners or vehicle modifiers wishing to modify vehicles with a gross vehicle mass of not more than 4.5 tonnes from the manufacturer's original specifications. Following the guidelines in this booklet will ensure that your vehicle meets all applicable Queensland regulations and its safety levels are maintained.

Modifications can be approved in three ways:

Minor modifications

Many minor modifications can be carried out with the approval granted by this booklet. Details of these modifications are outlined in Section 1.

Complex modifications

Complex modifications such as engine, gearbox and rear axle, steering and brake replacements require approval from an Approved Person. Details of these modifications and the Approved Person Scheme are outlined in Section 2.

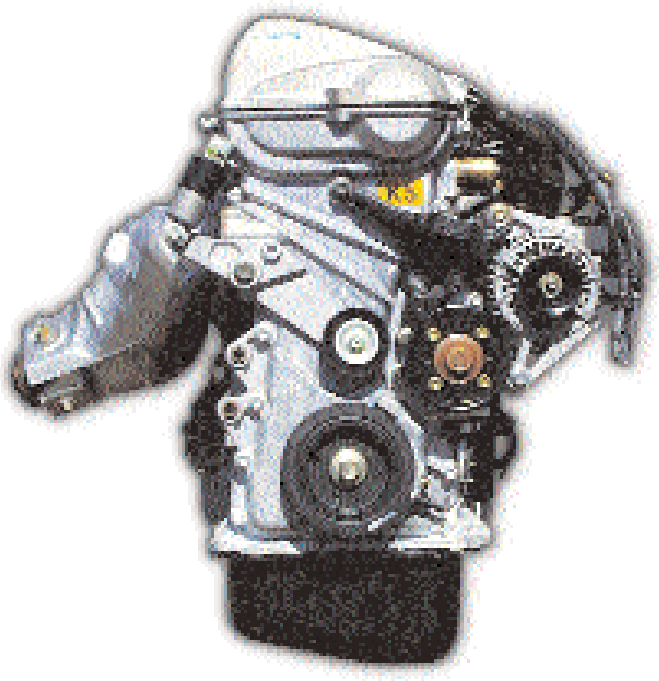
Specific modifications

Some owners require approval for modifications which may be outside the scope of the Approved Person Scheme. Details of how to obtain approval for these modifications are outlined in Section 3.

Section 1
Minor modifications

Replacement engines

Replacement engines that are offered by the manufacturer as an optional engine for that model of vehicle may be fitted. For such conversions, all components, including suspension and brakes, must be identical to those of a vehicle originally produced with the optional engine.



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Exhaust systems

Exhaust systems must comply with Queensland legislation which includes the following conditions:

- Exhaust headers (extractors) may be fitted to any motor vehicle, provided:
  - they do not foul any part of the steering, suspension, brake or fuel systems
  - all fittings for emission control equipment (E.G.R. valve, oxygen sensor, pipes and so on) are incorporated to ensure the vehicle maintains compliance with Australian Design Rules for vehicle emissions
  - exhaust systems must continue to comply with relevant legislation or Australian Design Rules for vehicle noise.
- The exhaust outlet must extend at least 40mm beyond the furthermost outboard or rearmost joint of the floor pan that is not continuously welded or permanently sealed which could permit direct access of exhaust gases to the passenger compartment, but not beyond the perimeter of the vehicle when viewed in plan.
- The exhaust outlet, if to the side of the vehicle, must discharge to the right hand side of the vehicle and downwards at an angle to the horizontal of not less than 15 degrees and not more than 45 degrees.
- The exhaust outlet, if to the rear of the vehicle, must discharge at not more than 10 degrees above or 45 degrees below the horizontal.
- All exhaust and muffler systems must be free of any leaks or mechanical faults and should be adequately supported.

Fuel systems

Powerchips, multiple and/or replacement carburettors may be fitted to any motor vehicle provided the vehicle continues to comply with the emission requirements of the Australian Design Rules applicable at the time of the vehicle's manufacture. Air cleaners must be fitted.

The fitting of nitrous oxide injection equipment is not permitted.

The fuel tank inlet and cap must be located on the outside of the vehicle unless originally fitted inside by the manufacturer.

Lowering or raising of vehicles

The road clearance of a fully laden vehicle must not be less than 100mm measured at any part of the vehicle other than the wheel rim or brake backing plates. (This does not apply where a lesser clearance has been specified by the manufacturer.)

When lowering or raising a vehicle body (front or rear), the following additional restrictions are based on the manufacturer's dimensions for the standard unmodified vehicle while unladen:

- The ride height measured between the rubber bump stop and the corresponding metal stop may be reduced by no more than one third.
- The rebound travel measured between the rubber rebound stop and the corresponding metal stop (or the extension of the shock absorber for vehicles without a rebound stop) may be reduced by no more than one third.

- Coil springs are to remain in locating seats on full suspension droop without forcibly being removed.

In addition, the normal relationship between the front and rear suspension heights must not be unduly affected. Replacement springs (shorter or taller) must have the same or greater load capacity as the original springs.

Suspension coil springs must not be shortened by cutting or heating. Leaf spring suspensions must not be raised by the use of extended shackles, adjustable metal plates or by placing the leaf springs to the opposite side of the axle. If lowering blocks are used, they must be either steel or aluminium.

Airbag or air pressurised shock absorber helper springs may be fitted in addition to the original suspension. However, replacing some or all of the suspension system with an air or hydraulic suspension requires specific approval.

Welding, chrome plating, heating or bending of axles, suspension and steering components

The welding, chrome plating, heating or bending of axles, suspension or steering components, as a method of repair or alteration, is not permitted.

Permanently locking a differential by welding or other means is not permitted and has a dangerous effect on the handling of a vehicle.

Sway bars, torque rods and traction rods

Auxiliary suspension control devices may be fitted provided they are properly engineered and secured and do not affect minimum ground clearance.

Glazing (windscreen and windows)

No material or other object is to be located on the windscreen or windows which will interfere with the driver's vision. Tinted windscreens are permitted subject to the screen having an optical transmission of not less than 75 per cent for a motor vehicle built after 1971 and 70 per cent for any other vehicle.

Transparent material used in a windscreen, window or interior partition of a motor vehicle manufactured after June 1953, must have the characteristics required by any of the following standards:

- Australian Standard AS 2080-1977, AS 2080-1983 or AS 2080-1995
- Economic Commission for Europe R-43/00
- British Standards Institution BS AU178-1980
- Japanese Industrial Standard JIS R 3211-1979, JIS R 3211-1985 or JIS R 3211-1992
- American National Standard ANSI Z26.1-1980
- New Zealand NZ 5443-1987.

Tinting of vehicle windows

Vehicles with non-tinted glass

Automotive tinting material which has a light transmittance factor of not less than 35 per cent (T35) may be used on any non-tinted side or rear window.

Vehicle with factory-tinted glass

Most new vehicles are fitted with tinted window glass. This tint is very light and glass may at first appear to be clear. To check, hold a piece of white paper on the opposite side of the glass. If it has a slight grey, green or brown colour when viewed through the glass, the glass is tinted.

Special grades of film may be applied to factory tinted windows. When these films are applied to tinted glass, the combination of tints must still allow 35 per cent light transmittance.

Windscreens

Tinting may be fitted to the upper portion of a windscreen of a motor vehicle. The tinting must not extend lower than a horizontal line connecting the uppermost points of the arcs swept by the vehicle manufacturer's original wiper blades or the upper 10 per cent of the windscreen, whichever is the lesser. The tinting may be of any shade but must not have a reflectance of more than 10 per cent.

General requirements for window tinting

Film which has a reflectance of more that 10 per cent must not be used on any windscreen or window.

Steering wheels

Altering a steering wheel might affect a vehicle's compliance with the Australian Design Rules (ADRs) applicable to occupant impact protection.

Steering wheels fitted to vehicles manufactured to comply with ADR 10/.. may only be replaced by a steering wheel which has been tested to comply with ADR10/... Where these ADRs apply, the vehicle's steering column and steering wheel are designed to minimise injury to the driver in the event of a crash.

Vehicles that are required to comply with ADR 69/.. or ADR 73/.. or where originally fitted with a driver airbag must not be fitted with a replacement steering wheel without an airbag, unless it is supplied by the vehicle manufacturer as an option for that model.

The diameter of any replacement wheel may be up to 25mm smaller than the original wheel but must not be less than 350mm.

Lighting systems

All additional lighting systems are to be fitted strictly in accordance with Queensland legislation. Some additional requirements are explained below.

Additional pairs of headlights, showing a beam of white light only, may be fitted and must not affect the driver's view. The headlights must be mounted symmetrically. Additional high beam headlights must extinguish automatically when low beam is selected.

A pair of fog lights, showing a beam of white or yellow light, may be fitted to the front of a motor vehicle with the centres no higher than the top of the dipped beam headlight. The lights must be mounted symmetrically not less than 600mm apart.

Fog lights must be capable of being switched on and off independently of any headlights but must only be able to be switched on when the parking lights are on. Fog lights must not be used except in fog or mist or under other atmospheric conditions which restrict visibility.

Blue lights are not allowed on any vehicles except emergency vehicles (for example police, fire and rescue, and ambulance). Red lights and reflectors must face to the rear. White lights and reflectors must face forward. Yellow lights are not permitted except for clearance lights on goods vehicles and buses, and indicators and fog lights on all vehicles.

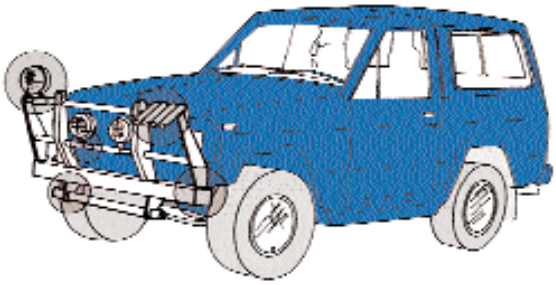
With the exception of indicators, flashing lights are not permitted on any vehicle, except special vehicles for use in hazardous situations (for example tow trucks) and emergency vehicles (for example police).

Some modern 'blue' halogen bulbs provide superior illumination to traditional bulbs. These bulbs contain less red/yellow and more blue frequencies of light to achieve a whiter appearance. Replacement head light bulbs must carry equivalent markings to the original bulb (e.g. an 'E' mark, H4, ADR 51/.. or ECE 37/..).

Vehicle accessories and equipment

It is the owner's responsibility to ensure all accessories and equipment attached to a motor vehicle are designed and fitted in a manner which reduces the risk of injury to pedestrians and other road users making contact with the vehicle when the vehicle is parked or in motion.

Driving lights/brackets must not protrude forward from the front face of any bumper or above the top of any bull bar.



Not approved

Fishing rod holders can only be fitted providing they comply with the following conditions:

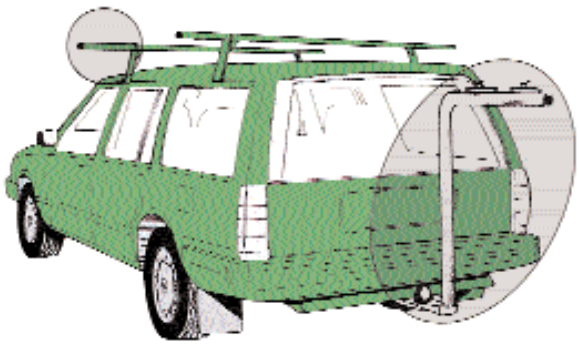
- The fitting allows the driver a view of the road and of traffic to the front and sides of the vehicle.
- They must only be attached to the left side of the vehicle.
- They must be designed to carry no more than four fishing rods.
- Rods, hooks and sinkers must be properly secured.
- Vehicle lighting must not be obstructed by rods or holders.
- Rod holders must be either removed when they are not in use or retracted behind the profile of the bull bar.

Bicycle/wheelchair/roof racks

Tow bar mounted bicycle and wheelchair carrying racks must be removed when not in use, unless specifically approved to remain attached. The bicycle or wheelchair and the carrying rack must not obscure any compulsory lighting or the number plate.

Note: To address this problem, an Accessory Number Plate may be attached to bicycle carriers or other carrying devices. No other copy of the vehicle number plate is acceptable. Details are available at Queensland Transport Customer Service Centres.

Roof racks must not protrude more than 50mm beyond the drip mould.



Not approved

Ladder racks/external roll bars and roll cages

Vertical upright supports may be positioned forward of the windscreen 'A' pillar if their diameter does not exceed 50mm. Supports that are in a position to reflect the vehicle's lights back to the driver must be a matt black, non-reflective finish.

Ideally, no lights should be obscured by the fitting of any vertical support. If any light is obscured, an additional light must be fitted or the original relocated in accordance with the relevant legislation or Australian Design Rules.

Supports, braces and brackets must not have any sharp edges or protrusions and must not interfere with a person's normal access to the vehicle. They should not project more than 150mm from each side of the vehicle or make the vehicle more than 2.5m wide.

Any attachments or modifications to the vehicle's chassis must be in accordance with the vehicle manufacturer's recommendations.

Requirements for internal roll bars and roll cages are covered in Section 2.

Long range radio antennas

Forward mounting should only be undertaken when it is impossible or impractical to install the antenna to the rear of the vehicle.

The installation must be attached as low as is practical to ensure the large diameter section of the antenna projects above the bonnet line for the minimum distance.

Only one long range antenna (large diameter base) may be fitted to the front of a vehicle and must be fitted to the left side. The maximum diameter permitted is 75mm.

All sharp edges or protrusions which could cause injury to anyone making contact with the device must be removed or rounded.

Visual display screens

DVD screens, television receivers, visual display units and so on may be installed in a motor vehicle. No part of the image on the screen may be visible to the driver from the normal driving position unless the screen cannot be operated when the vehicle is moving or it is a driver's aid (e.g. in-car navigation). As well, it must not:

- obscure the driver's view of the road
- impede the movement of anyone in the vehicle
- interfere with occupant restraint systems like head restraints, seat belts and airbags
- increase the likelihood of injury to anyone in the vehicle or
- be fitted if any part of the image on the screen is likely to distract another driver.

Accessory gauges

Any additional internal or external gauges must:

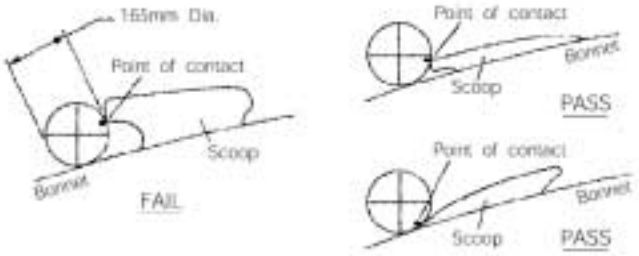
- not interfere with the field of view of the driver
- not produce glare to the driver
- not have the possibility of an oil pressure line, or similar, breaking with pressurised fluids spraying onto the windscreen
- be fitted in such a way to reduce the risk of injury to the vehicle occupants or pedestrians.

Bonnet scoops

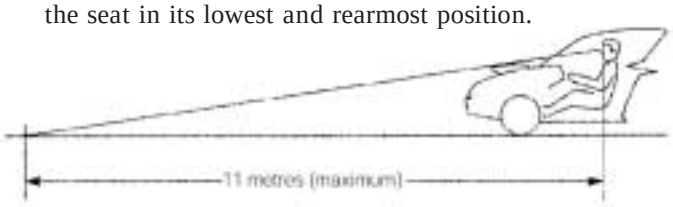
Bonnet scoops/projections may be fitted to a vehicle provided the driver's vision is not restricted under normal operating conditions with the driver's seat located at its lowest and rearmost position.

Bonnet-mounted scoops/projections must meet the following requirements:

- When a 165mm diameter sphere is placed on the bonnet in front of the scoop (or bonnet projection) and rolled backwards until it touches the scoop, no forward point of the scoop or point of contact between the sphere and the scoop must lie above a horizontal plane passing through the centre of the sphere.



- It shall be possible to see either the surface of the road 11m in front of the driver's eye or all of the front edge of the original body when looking across the top of the bonnet scoop. For the purposes of this requirement, the driver's 'eye' position can be taken as being a point 730mm above and 270mm forward of the junction of the seat cushion and seat back with the seat in its lowest and rearmost position.



- The edges at the front of a scoop/projection shall be rounded with a minimum of 10mm radius.
- All other edges and corners shall have a radius of not less than 5mm and be designed to reduce the risk of bodily injury to any person to a minimum.
- The scoop/projection must not have reflective surfaces.
- Any holes in the bonnet must not substantially reduce the strength or impact resistance of the bonnet.
- Air cleaners or carburettors must not protrude beyond the original bonnet profile unless the bonnet scoop/projection is manufactured from equivalent gauge mild steel, compared with that of the original bonnet.
- Air cleaners and/or carburettors must be covered by the bonnet scoop.

Side skirts, flares and spoilers

Side skirts, front and rear spoilers may be fitted provided road clearance and air flow for brake cooling is not adversely affected.

They must not be fitted so that it is likely to increase the risk of bodily injury to any person. All material is to be of a suitable thickness and be free from sharp edges or corners.

Rear spoilers must be within the body shape/outline of the mounting surface (for example boot outline). Minimum thickness of end plates is 4mm and they must be free of sharp edges or corners.

Bull bars

Bull bars must be designed and fitted so that the safety of the vehicle is not adversely affected. They must be firmly and securely mounted and supported, and must not constitute a danger to other road users. Bull bars must not obstruct the vision of the driver and should not project further from the front of the vehicle than is necessary for its attachment. Bull bars should not add a significant load to the front suspension.

Bull bars must be free of sharp protrusions and all exposed sections of the bull bar and fittings must be radiused and deburred. Forward and side members should be designed to reduce the risk of injury to any person who may come into contact with the bull bar.

Bull bars must not obscure the driver's view or any light. In particular, the visibility of indicator lights at all viewing angles must not be reduced, and if so, additional lights must be fitted or the original relocated in accordance with the relevant legislation or Australian Design Rules. Surfaces of the bar that could reflect light from the vehicle's headlights must be matt black.

Vehicles fitted with an airbag or manufactured to comply with ADR 69 - Full Frontal Impact Occupant Protection or both ADR 69 and ADR 73 – Offset
Frontal Impact Protection, can only be fitted with a bull bar which:

- has been certified by the vehicle manufacturer as suitable for that vehicle or
- has been demonstrated by the bull bar manufacturer to not adversely affect compliance with the ADRs or interfere with the critical airbag timing mechanism, as the case may be.

Bull bars that comply with AS 4876.1-2002 provide a higher level of pedestrian protection.

Alternative rims and tyres

Many vehicle owners like to replace the vehicle's original rims and tyres with alternatives of different width, diameter and profile.

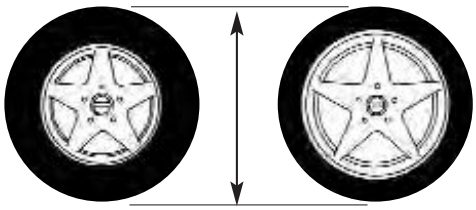
The following sub-sections outline the legal requirements for replacement rims and tyres fitted to a passenger car or derivative, or an off-road passenger car (but not light commercial), which will ensure your vehicle continues to comply with Queensland legislation while allowing for your individual preferences.

Low profile tyres

It is common practice for manufacturers to fit low profile tyres to high performance motor vehicles as standard equipment.

Low profile tyres (e.g. 50 series), replacing standard profile tyres (e.g. 70 series or above), are normally fitted in combination with rims of larger than standard diameter to maintain the correct overall diameter of the wheel.

A diagram of this concept appears below.



STANDARD TYRE LOW PROFILE TYRE

The rim diameter may be varied from the standard size but the overall diameter of the tyre must not vary by more than +15mm or -26mm.

These limits have been set for a number of reasons. Varying the overall diameter of tyres affects ground clearance, centre of gravity, brake effectiveness, steering geometry, performance and speedometer accuracy.

Generally, to meet these limits, 60 series tyres are fitted to rims with a diameter 26mm larger than standard and 50 series tyres are fitted to rims with a diameter 50mm larger than standard.

General conditions for alternative rims and tyres

The rims and tyres must not protrude beyond the bodywork of the vehicle, including flares, when viewed from above with the wheels facing straight ahead. If the vehicle was originally constructed with a portion of the wheel protruding, the wheels must not protrude further than originally constructed.

The tyre to rim fitting and the tyre to rim combination must be in accordance with the Tyre and Rim Standards Manual published by the Tyre and Rim Association of Australia. Reputable tyre retailers should have this information and be able to advise on the correct combinations.

All rims fitted to an axle must be of the same diameter, width and offset. They must not have a circumferential weld other than that which attaches the outer rim to the centre. All rims must have stud hole pitch circle diameters suitable to the hub. Wheel nut tapers must be appropriate to the wheel and must engage the thread of the wheel studs for at least the same length as the nuts provided by the vehicle manufacturer.

Slotted and elongated stud holes are not permitted.

The fitting of spacers or adaptors between wheels and hubs, additional to those provided by the vehicle manufacturer, is not permitted. The tyre and rim must not foul wheel arches or suspension components under any conditions. Steering limit stops must not be adjusted to reduce the turning circle in order to allow the fitting of the alternative rims and tyres.

The tyres must have a tread depth of at least 1.5mm on every part of the tyre that touches the road and not have any apparent defect that is likely to make the vehicle to which they are fitted unsafe. It is not permitted to fit tyres that have been treated by recutting or regrooving unless the tyre has been marked by the original manufacturer as ‘suitable for recutting or regrooving’.

Tyres

The maximum tyre width for a car or car derivative must not be more than 1.3 times the vehicle manufacturer’s widest optional tyre.

However, for an off-road passenger vehicle fitted with front and rear beam axles, the maximum tyre width must not be more than 1.5 times the vehicle manufacturer’s widest optional tyre.

The nominal width of the narrowest tyre fitted to a vehicle must not be less than 70 per cent of the nominal width of the largest tyre fitted and never less than the vehicle manufacturer’s narrowest optional tyre as indicated on the manufacturer’s tyre placard.

Speed and load ratings

The speed rating of all tyres must be:

- a speed of at least:
  - for an off-road passenger vehicle – 140km/h
  - for another car (sedan, station wagon etc.) up to nine adult seating positions or a car derivative – 180km/h
  - for another motor vehicle – 120km/h
- the vehicle's top speed, if lower.

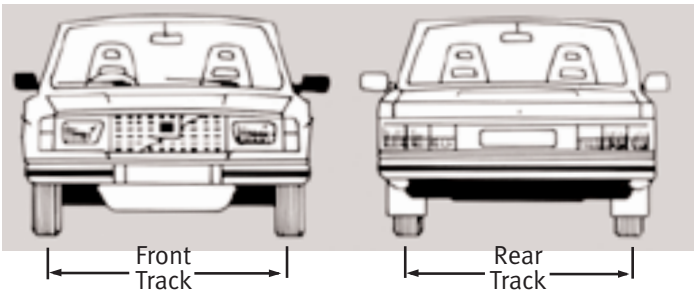
Load ratings of tyres must be at least equal to those specified by the manufacturer on the tyre placard fitted to vehicles made after 1972. For other vehicles, the load rating of a tyre must be capable of carrying the part of the vehicle's gross mass carried by the tyre.

Tyre construction

Tyre tread compounds, patterns, ply ratings and performance characteristics vary. Tyre construction (e.g. radial) and size must be the same on the same axle. Although it is recommended that the tyres are identical (e.g. same brand and tread pattern), this is not mandatory.

Vehicle track

Track is measured at ground level from the centre of the tyre on one side to the centre of the corresponding tyre on the opposite side of the vehicle. Front and rear track differs on many vehicles.



The wheel track must not be reduced to less than the standard track specified by the vehicle manufacturer for the particular model of vehicle.

The track of a car or car derivative may be increased by up to 26mm beyond the maximum specified by the vehicle manufacturer for the particular model of vehicle. Off-road passenger vehicles fitted with front and rear beam axles, may have an increase in track up to 50mm beyond the maximum specified by the vehicle manufacturer for the particular model of vehicle.

Wheel marking

Vehicles built on or after 1 July 1985 must be fitted with original wheels or replacement wheels which are indelibly marked in accordance with approved standards.

These standards include:

- Standards Australia
- Wheel Industries Association (Australia)
- Technischer Uberwachungen Verein
- Japanese Industrial Standards.

Markings must include diameter, width, offset and the manufacturer's trade mark or logo and be located so that they are readily visible when the wheel is correctly installed on the vehicle.

Composite wheels

The use of composite wheels (two or three-piece) is permitted. They must be manufactured and marked in accordance with the standards described above if fitted to vehicles manufactured on or after 1 July 1985.

Repairs to tubeless tyres

Permanent repairs can only be made when the tyre is removed from the rim. The tyre must be examined to ensure it is structurally sound. The damaged area must be prepared on the inside for a patch or mushroom headed plug to be fitted and vulcanised into position. Any repairs to a tyre must be sealed to prevent moisture or contaminants from entering the tyre casing or structure.

Caution: Plug repairs can only be made in the tread area of the tyre and not in sidewalls or where the tread and sidewall meet.

Punctures in tubeless tyres must not be repaired from the outside or without removing the tyre from the rim as this method is prone to failure.

Vehicle owners with doubts on tyre repairs should contact a reputable tyre dealer for proper repairs.

Section 2
Complex modifications

More complex modifications than those types already listed in Section 1 must have approval. Such modifications include replacement non-standard engines, gearboxes and left to right hand steering conversions.

A simplified method for obtaining approvals

While there are some modifications which still require approval from Queensland Transport, most approvals can be obtained through the Approved Person Scheme which operates throughout Queensland. This scheme allows quick and convenient evaluations and approvals.

What can Approved Persons approve?

Many modifications can be approved by Approved Persons, and include:

- Engine Substitution
- Turbocharger and Supercharger Installation
- Transmission Substitution
- Rear Axle Replacement
- Differential Substitution
- Brake System Substitution
- Convertible and Cabriolet Conversion
- Passenger Vehicle Extended Wheelbase Conversion
- Individual and Low Volume Vehicles
- Panel Van to Utility Conversion
- Roll Bar and Roll Cage Installation

- Street Rod Certification
- Seating Capacity Alteration and Seat Belt Installation
- Child Restraint Anchorage Installation
- Motorbike Seating Capacity Alteration
- Fuel Tank Alteration
- Australian Design Rule (ADR) Compliance
- Pre 1972 Imported Vehicle Safety Compliance
- Personally Imported Vehicle Compliance
- Steering Conversion
- Beaming and Torsional Testing

The minimum standards for all of these modifications are contained in the Code of Practice – Light Motor Vehicle Modifications.

What is the Code of Practice?

The Code of Practice is a detailed manual which prescribes the standards for vehicle modifications. Check this Code for the standards relating to the modifications you are thinking about.

All Approved Persons have the Code of Practice. Copies of the Code of Practice are also available through GoPrint retail outlets.

How do Approved Persons approve modifications?

They inspect the modified vehicle to ensure it complies with the Code of Practice. The Approved Person will give you a Certificate of Modification and fit a modification plate to the vehicle if the changes meet the required standards.

How much do approvals cost?

A fee will normally be charged by Approved Persons for any vehicle inspection and approval. This fee is not set by Queensland Transport. Approved Persons set their own fees, which may vary depending on the modifications and the time involved in the inspection.

Who are Approved Persons and where do I find one?

Approved Persons are employed by private industry and authorised by Queensland Transport to approve vehicle modifications.

Automotive businesses throughout Queensland, including most service stations which issue Safety Certificates, have Approved Persons. The names and addresses of Approved Persons are available at Queensland Transport Customer Service Centres.

Do Approved Persons have to modify my car?

No. You can still do the modifications yourself or have them done for you. However, it is strongly suggested that an Approved Person is consulted prior to commencement of any modification to find out the relevant standards for approval.

The scheme allows Approved Persons to approve modifications done by others provided the modifications meet the standards set by the Code of Practice.

Why do I need proof of a modification?

Driving a vehicle with non-approved modifications is illegal. A non-approved modified vehicle can be put off the road immediately by Police or Queensland Transport Inspectors. Drivers may also find that they are not covered by insurance.

The Approved Person Scheme provides a quick and easy way to have most modifications approved and reduces the chance of a costly traffic fine or having your vehicle ordered off the road.

Before you start

Before you modify your vehicle, contact an Approved Person and make sure the modifications can be approved. Don't risk disappointment by spending a lot of valuable time and money altering your vehicle only to find it cannot be approved and driven on the road.

Section 3
Specific modifications

Modifications which are not covered by this booklet or the Approved Persons Scheme, or modifications which involve substantial structural changes to the body or chassis of a vehicle, require a written submission. A fee is payable for the evaluation of plans. Send submissions prior to commencing any modifications or alterations to:

Policy Advice
PO Box 673
Fortitude Valley, Qld 4006.

Applicants should supply as much detail as possible. Incomplete submissions, insufficient details or poor drawings will delay processing of submissions. As a guide, submissions should contain:

- a completed 'Motor Vehicle Modification Application' (Form No. F1854 available at Queensland Transport Customer Service Centres) and
- drafted plans for any modifications or alterations involving structural changes. Plans, on A3 size drafting paper, should include dimensions, plan, elevation, end elevation and sections (where necessary), material description, and welding and machining details.

A word of caution

Modifying a vehicle for use on a road without obtaining prior approval, or permitting the use of a modified vehicle without approval, is a breach of Queensland legislation.

If you modify a vehicle without the necessary approval, you could void your vehicle insurance and may be liable for prosecution.

The permissible modifications outlined in this brochure have been developed in consultation with the vehicle manufacturers and industry.

Section 4
Motorbike modifications

Frame and suspension alterations

Motorbike design is a complex task. Before modifications are made to a motorbike's frame or suspension, you should be aware that structural changes to the frame, steering head, front forks, suspension, brakes or wheels may load vital components well beyond the limits for which they were originally designed. This may increase the probability of failure and may be a danger to the rider and other road users.

Motorbikes with properly designed custom frames, extended forks, hard tail conversions and structural modifications are acceptable, but require specific approval as explained in Section 3. A report will be required from a Registered Professional Engineer detailing the changes and certifying that the motorbike is safe.

Engine replacements

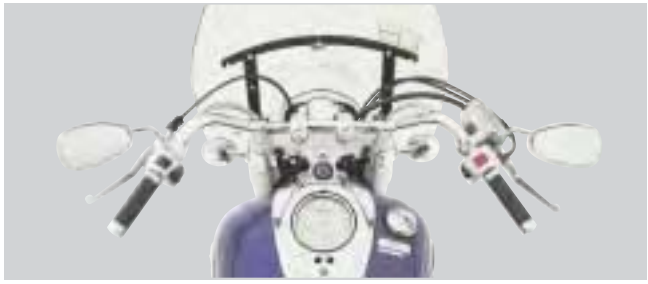
Many manufacturers produce a series of models with the same basic frame fitted with engines of differing capacity. No approval is required if the smaller capacity engine is replaced by a larger capacity engine from the same series provided the brakes and suspension from the larger capacity motorbike are fitted and no modification is required to the frame.

The fitting of any other alternative replacement engine, superchargers or turbochargers will require individual approval in accordance with Section 3.

Steering gear and handle bars

The handle bars of a motorbike must extend at least 250mm, but not over 450mm, on each side of the longitudinal axis of the motorbike. This measurement does not include mirrors and lights.

The lowest part of the hand grip on the handle bars must not be higher than 380mm above the attachment point of the handle bars to the motorbike. Hand grips on the handle bars must be fitted symmetrically.



If the motorbike has the head stem as the steering pivot point, the horizontal distance from the midpoint between the head stem bearings to the centre of the front wheel must not be over 550mm.

Offset triple clamps are often fitted to provide the motorbike with 'a raked out' appearance without the need to modify the frame. These are acceptable provided the trail measurement is not less than 75mm.

Motorbikes must be fitted with footrests for the rider, and for any passenger for whom a seating position is provided.

Exhausts

Motorbikes manufactured from 1 July 1975 are subject to ADR requirements for noise.

Any replacement exhaust system must be as near as practicable to the original component specification and/or comply with ADR noise requirements.

If you modify or replace an exhaust system on a pre-1975 motorbike, you must remember that the law prohibits all motor vehicles from causing excessive noise due to the condition or construction of the vehicle, or the manner in which it is operated.

Motorbikes manufactured from 1 July 1988 have all components of the silencing system marked with the name or trade name of the manufacturer.

These motorbikes carry information of the Stationary Noise Test in the following format:

STATIONARY NOISE TEST INFORMATION
Tested at..... dB(A) at..... r/min
Silencing System: (manufacturer's name)
Identification: (trade description)

Any replacement part of the silencing system must show the trademark or the name of the original manufacturer of the system.

Seat reduction

Compulsory Third Party (CTP) insurance premiums on motorbikes are determined by the seating capacity of the motorbike. Conversion of a motorbike from a two-seater to a single-seater, or vice versa, can be certified by an Approved Person as detailed in Section 2.

For two-seats to single-seat conversion the maximum length of the upholstered section of the seat must be 500mm or less, and the pillion foot pegs must be removed with any associated brackets and threaded holes drilled out. You are not permitted to use a removable cowl or other structure fitted over the seat to reduce the length of the seat. You should seek advice from an Approved Person before performing a seat reduction modification.

Wheels and tyres

On all wheels (including any side-car wheel), the tyre size must be suitable for the rim. Each tyre and rim must be strong enough to support the machine when it is fully loaded. Most major motorbike tyre specialists can tell you the right tyre and rim for your motorbike and the appropriate tyre speed rating.

Chain guards

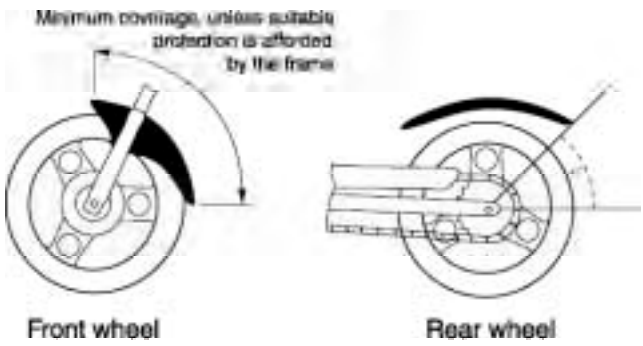
If the motorbike has a chain drive, the driver and any passenger must be protected from the front sprocket and at least the upper part of the chain by the frame or equipment of the motorbike, or by a chain guard. A chain guard must cover the chain to a point at least 300mm to the rear of the rearmost foot rest or above the centre of the rear drive sprocket.

Mudguards

Mudguards must be fitted to all wheels (including the sidecar wheel). Each mudguard must be at least as wide, over its entire length, as its respective tyre.

A front mudguard must cover the rearward section of the wheel through the area between two lines, one vertical and the other horizontal, both drawn through the centre of the wheel. If suitable protection is afforded by the frame or construction of the motorbike, the front guard need only cover the unprotected area.

The mudguard provided for the rear wheel and for the wheel of any sidecar must extend not less than from a point vertically above the foremost part of the wheel rearward to a point not higher than the intersection of the arc of the wheel guard with a line through the centre of the wheel at 45 degrees to a horizontal plane through the centre of the wheel.



Indicators

Indicators are required on all motorbikes manufactured after 30 June 1975.

Sidecars

Sidecars must be fitted to the left hand side of a motorbike. This does not apply to a motorbike and sidecar combination greater than 30 years of age.

When a sidecar or side-box is attached to a motorbike manufactured after February 1976, a mechanical parking brake must be fitted.

The maximum width of the combination, including any load and equipment, must not exceed 1.85m.

Motortrikes

Motortrikes that are constructed by removing the rear swing arm and substituting a suitable after market or self-constructed rear axle assembly and body work are considered to be a modified motorbike, if the motorbike is substantially unmodified forward of the swing arm pivot.

The vehicle does not need to be updated to comply with current ADRs apart from those required as part of the trike conversion. For example, if the motorbike was not required to operate on unleaded fuel when manufactured, then it would not be required to be converted to run on unleaded fuel as part of the trike modification.

The kit or owner designed and/or constructed assembly must be examined by an Approved Person with code LO1 to ensure it is suitable for the motorbike.

You should contact an Approved Person as detailed in Section 2 about obtaining approval for this modification.