



Guidelines for Alternative Wheels and Tyres

Introduction

Changes to your car's wheels and tyres can alter its behaviour on the road. Because of this, there are limits to the changes that are permitted. These guidelines specify those limits. It is still the responsibility of the vehicle owner to ensure the vehicle remains safe even if modified within the limits. If you are unsure you should consult an engineering signatory (see VSI sheet No. 15, "*Engineering Signatories*").

Except in the case where the alternative wheels and tyres need to be certified by an engineering signatory, there is no obligation to notify the Roads and Traffic Authority when you fit alternative wheels or tyres. You should remember, however, that it is your responsibility to prove that your car is thoroughly safe at all times. If your alterations go beyond the above guidelines, there is always the chance that you could be stopped by a police officer and your vehicle issued with a defect notice. Unsafe modifications might also be detected at the annual inspection and the inspection station might then refer your vehicle to the nearest Motor Registry. In either case you will have to justify the modification and this could involve a great deal of time and money.

You should also be aware that modifications to your car can make the insurance cover void. This could mean that you would have to bear the costs of a crash out of your own pocket. Always check with your insurance company before you make any alteration to your car.

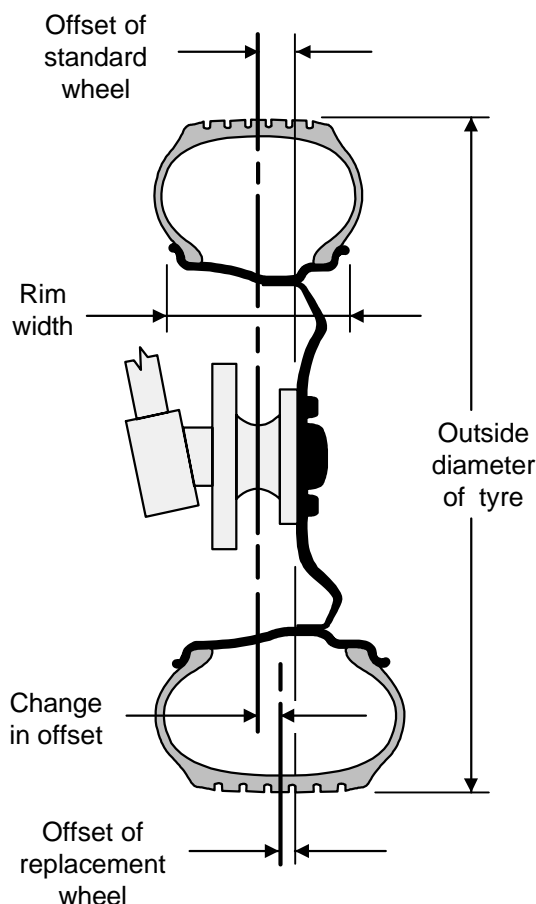
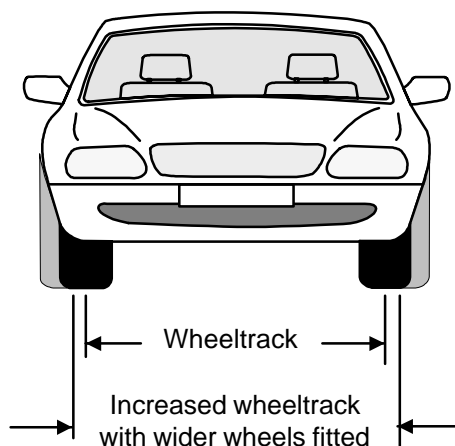
Tyre placard

Road wheels and tyres are vital to your car's safety. Since 1971, strict design standards have been progressively introduced to specify wheel rims that will stop a deflated tyre from coming off the wheel, to specify strength, air pressures, speed ratings and allowable combinations of wheel and tyre sizes. **From 1973 all cars are fitted with a tyre placard (located usually in the glove box) which specifies the wheel and tyre combinations recommended by the vehicle manufacturer.** The placard also specifies recommended air pressure, load capacity and speed rating of tyres.

Wheeltrack and wheel offset

Wheeltrack is the distance between your car's wheels; it is measured between the rim centrelines.

If you fit wider wheels you will probably increase wheeltrack and this is usually associated with a change in wheel *offset* increasing the loads on bearings, axles, suspension joints and steering tie rods.



Wheels

As a general rule, it is recommended you only fit wheels and tyres which are listed on the tyre placard or in the owners handbook. These have been tested and proved for your car.

Sometimes the range of wheels listed by the manufacturer may appear to be limited. While it is recommended that you only fit these wheels, the Authority does not oppose the fitting of wheels outside the range providing they are safe for the vehicle. An important requirement for all replacement wheels is that **the wheel track must not be increased by more than 25mm beyond the maximum specified by the vehicle manufacturer for the particular model.**

Where non original axle or suspension crossmember components are fitted, the offset of the wheel in relation to the axle or stub axle assembly used shall not be increased by more than 12.5mm each side of the vehicle based on the specifications of the axle components used. If an axle assembly is shortened then the track width limit is taken as the axle manufacturers original track dimension, less the amount the assembly has been narrowed, plus 25mm. **If you are contemplating fitting non original axle or suspension components you should seek the guidance of an engineering signatory as an engineering certificate will be required (see below).**

Minor changes to wheels

Wheels up to 26mm wider than the largest optional wheel recommended by the vehicle manufacturer for the vehicle can be fitted without the need to notify the RTA. The outside diameter of the wheel and tyre combination must be no more than 15mm over the largest diameter wheel and tyre combination specified for the vehicle and not more than 15mm below the smallest diameter wheel and tyre combination specified for the vehicle.

Replacement wheels requiring an engineering certificate

Wheels which exceed the diameter and width limits for minor wheel changes must be assessed by an engineering signatory who is recognised by the RTA for the purpose of certifying modified vehicles (see Vehicle Standards Information sheet No. 15, “*Engineering Signatories*”). If the signatory finds that the wheels are safe for your vehicle, you will be issued with a document called an engineering certificate. The original of this certificate is generally required to be submitted to the RTA for notification of the modifications or for registration of the vehicle. **The duplicate copy or owners copy is stamped and endorsed by the RTA and must be kept in the vehicle and should be presented to an authorised officer of the RTA or the police when requested.**

There are limits on the size of wheels which can be certified by an engineering signatory. These limits are as follows:

- **Rear wheels.** The maximum permitted rear rim width for a particular vehicle is determined by its tare weight (10 litres of fuel, no occupants or luggage) in accordance with the following table:

Vehicles built to comply with ADR 24 (after 1/1/1973 for passenger cars)

Tare weight	Allowable rim width increase above the widest optional wheel available as original for the axle assembly used
Up to 800kg	26mm (1.0 inch)
801 - 1200kg	39mm (1.5 inches)
1201 & over kg	51mm (2.0 inches)

Note: 25mm increase in wheel track limit also applies

Vehicles which were not built to comply with ADR 24 (prior to 1973 for passenger cars)

Tare weight	Maximum rim width
Up to 800kg	153mm (6 inches)
801 - 1000 kg	178mm (7 inches)
1001 - 1200 kg	204mm (8 inches)
1201 - 1400 kg	229mm (9 inches)
1401 & over kg	254mm (10 inches)

Note: 25mm increase in wheel track limit also applies

- **Front wheels.** The lesser of each front wheel shall be:
 - i) no wider than the maximum permitted for rear wheels on your vehicle or 204mm;
 - ii) no narrower than 70% of that fitted to the rear wheels; and
 - iii) no narrower than a standard wheel fitted to the your vehicle as original equipment.
- **Front wheel drive vehicles.** For these vehicles, except where the original manufacturer provides to the contrary, front wheel widths shall be no more than 26mm greater than the widest optional wheel offered by the vehicle manufacturer. This requirement also applies to four wheel drive vehicles with constant front wheel drive.

- **Four wheel drive vehicles.** For these vehicles, except where the original manufacturer provides to the contrary, the maximum wheel width is the lesser of the maximum for rear wheels on your vehicle or 204mm, the front and rear wheel widths shall be the same.
- **Vehicles with diagonally split brake systems.** Except where the original manufacturer provides to the contrary, vehicles so equipped must have the same size wheel widths fitted to front and rear wheels. The front wheel offset (and front wheeltrack) shall remain as original.

Additional requirements for replacement wheels

When wheels (and tyres) outside the manufacturers recommended range are fitted to a vehicle the following requirements must be met:

- the wheel rim width must not be less than the minimum width fitted by the vehicle manufacturer for the particular model;
- the wheel (and tyre) must be contained within the body work, or mudguards which includes “flares”, when the wheels are in the straight ahead position;
- the wheel (and tyre) must not foul any part of the body or suspension under all operating conditions;
- all wheels fitted to “an axle” must be of the same diameter, offset, width and mounting configuration (except for spare wheels used in an emergency situation);
- the wheel must not prevent the wheel nuts from fully engaging their studs;
- the wheel rim must not have a circumferential weld other than that which attaches the rim to the wheel centre;
- the wheel must be one designed for the particular hub/axle in respect to bolt pitch circle diameter and wheel nut tapers. **Wheels with slotted stud holes are not permitted;**
- speedometer accuracy must be maintained for the selected tyre and rim combination;
- the fitment of wheel spacers (or adaptors for dual wheel conversions) between the wheel mounting face and the road wheel is not permitted unless fitted as original equipment by the vehicle manufacturer.

Tyres

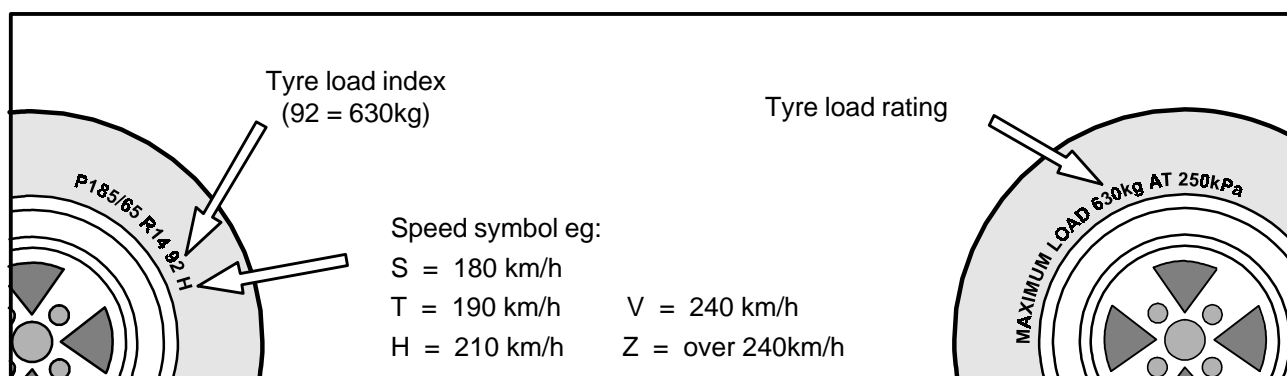
The tyre and rim industry sets standards for the correct combinations of wheels and tyres. Individual tyre manufacturers publish this information as tyre selection charts. If you are in doubt as to which tyres are acceptable alternatives for your car, ask your tyre dealer to check these charts for you. Always make sure that the tyres you fit are correctly matched to your car's wheels.

If the wheels are listed on your car's tyre placard or in the owners handbook then the tyres you fit should be those listed on the placard or in the handbook for these wheels. These have been tested and proved for your car.

Don't mix tyre types or sizes if you can possibly avoid this. Never mix radials with cross-ply tyres on one axle. If you have only two radials, they must be on the rear wheels. Always make sure that both front tyres and both back tyres are the same.

Tyre load rating

Any replacement tyre must have a load rating equal to or better than the rating of the original tyres fitted by the vehicle manufacturer. This information is available from the tyre placard fitted to vehicles made after 1st January 1973.

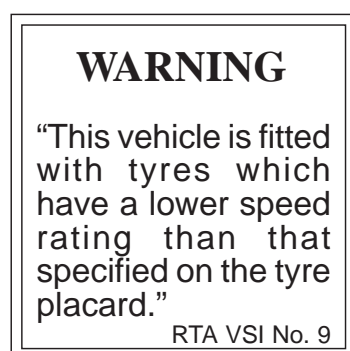


Tyre speed rating

If the speed rating of the tyres specified for your vehicle is *less* than 140km/hr then you must not fit tyres with a lower speed rating.

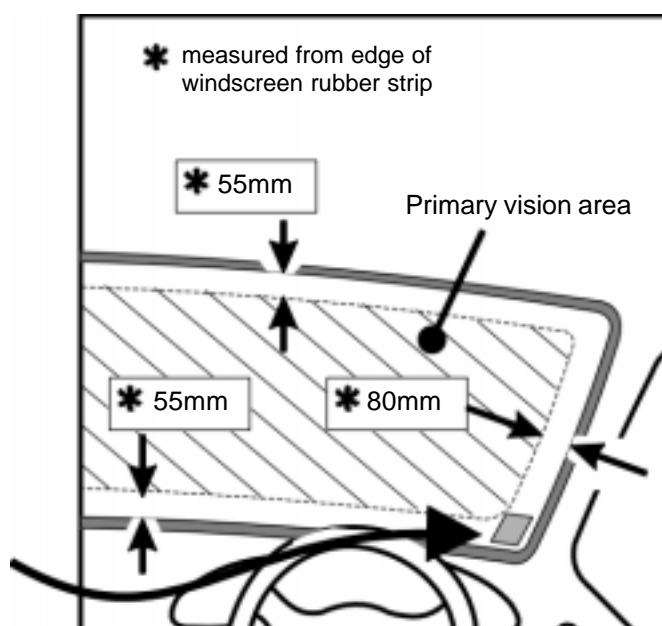
It is strongly recommended that the speed rating of the tyres fitted should be equal to or better than the rating of the original tyres fitted by the vehicle manufacturer, however:

- If the speed rating of the tyres specified for your vehicle is 140km/hr or more, you may fit tyres with a lower speed rating but not lower than 140km/hr.
- If the replacement tyres fitted, including **winter tread tyres** (commonly called “mud and snow” tyres) and **retreaded tyres**, have a speed rating less than that shown on the vehicle’s **tyre placard**, then a **warning label** must be affixed to the vehicle (usually by the tyre dealer) which states:



The label should be at least 40mm x 40mm in size, made of durable material, with not less than 2mm high black lettering on an orange colour background .

The label shall be located in an area conspicuous to the driver, usually on the inside of the windscreen, outside of the primary vision area, which is the area the driver normally looks through when driving the vehicle.



Check with your tyre dealer, what the speed rating is for the tyre fitted to your vehicle, and don't drive the vehicle in excess of this speed.

Retreaded tyres

The Motor Traffic Regulations require that all retreaded tyres fitted to motor cars (omnibuses excepted), motor car derivatives and multi-purpose vehicles on and after 1st January 1980 comply with the provisions of Australian Standard AS 1973, “*Retreaded Pneumatic Passenger Car Tyres*”.

The standard requires among other things that an identification of the retreader and the words “Retread” and “Speed Limited” are permanently and legibly moulded on the retreaded passenger car tyres. The identification may be provided either by the name, registered trademark or other means, such as a code number assigned by the Motor Traders Association of NSW. The speed limits of 120km/h and 140km/h apply to retreaded cross ply car tyres and radial car tyres respectively.

Space saver spare wheels and tyres

The design of some vehicles is such that there is insufficient space available to carry a conventional spare wheel and tyre. In order to avoid the possibility of a tyre puncture or failure rendering such a vehicle immobile, the manufacturer usually provides a ‘*get-you-home*’, temporary-use spare unit, or *space saver*, spare wheel.

There are two types of space saver wheels. The more common of these is a wheel and tyre combination with a narrower width or cross section. The second type is one incorporating a special tyre which, when not in use, is carried deflated on the rim and thus occupies much less space than a conventional tyre.

The durability of space saver spare tyres is inferior to conventional tyres. Also, with dissimilar tyres fitted, the handling and controllability of your vehicle can become unpredictable. Vehicle manufacturers design their space saver wheels and tyres to compensate for any imbalance so you should only use space savers that are supplied or recommended by the manufacturer of your vehicle.

Space saver wheels and tyres should only be used in emergency situations and for as short a distance as possible. When your damaged wheel or tyre is repaired, you should put it back on the vehicle immediately.

Regrooved tyres

Regrooved tyres must not be fitted to motor cars, motorcycles, panel vans, utilities or station wagons. regrooved tyres are acceptable on other types of vehicles providing that it is indicated on the sidewall that the tyres are suitable for regrooving.

Condition of tyres

A tyre must not be used on a vehicle once the tread has worn to an extent where there is less than 1.5mm of tread depth on any part of the surface which contacts the road. Tyres must not be used if there are any deep cuts, bulges, exposed cords or other signs of carcass failure.

FURTHER INFORMATION

RTA Blacktown:

Vehicle Regulation Unit
Level 1, 85 Flushcombe Road
PO Box 558
BLACKTOWN NSW 2148

Tel: (02) 9830 5555
Fax: (02) 9831 0913

RTA Wollongong:

Vehicle Regulation Unit
104 Market Street
PO Box 5398
WOLLONGONG NSW 2500

Tel: (02) 4226 7007
Fax: (02) 4225 8844

RTA Charlestown:

Vehicle Regulation Unit
Cnr Pacific Hwy & Frederick St
PO Box 585
CHARLESTOWN NSW 2290

Tel: 1 800 049 920
or (02) 4940 5555
Fax: (02) 4921 0827

RTA Parkes:

Vehicle Regulation Unit
PO Box 334
PARKES NSW 2870

Tel: 1 800 809 388
Fax: (02) 6862 8496