

AIS INFORMATION SHEET No. 15

RETREADED TYRES

The *Transport operations (Road Use - Vehicle Standards and Safety) Regulation 1999* permits the use of retreaded tyres retreaded in accordance with Australian Standard (AS) 1973 (Pneumatic tyres – Passenger car, light truck, and truck/bus - Retreading and repair process). The details listed below advise of the requirements listed in AS 1973 to ensure compliance.

Marking of Retreaded Tyres

Marking on one side: Each retreaded tyre shall bear on at least one side wall or shoulder the following marking:

- a. The nominal size of the tyre.
- b. The word 'RADIAL' or 'R' in the size designation, for a radial ply tyre.
- c. The word 'TUBELESS' if applicable.
- d. The maximum load rating, ply rating, or service description of the tyre.

Note: In the case of a remould, the service description is to be clearly identified as the original service description applicable to the tyre when new.

Marking on both sides: Each retreaded tyre shall bear on both side walls or shoulders the following marking:

- a. The word 'RETREAD' or 'REMOULD' if applicable.
- b. For passenger car tyres, the maximum speed rating, expressed as follows:
 - i) For radial ply tyres, 'MAX SPEED 140km/h', or 'MAXIMUM SPEED 140km/h', or 'SPEED LIMITED 140km/h'.
 - ii) For diagonal ply tyres, 'MAX SPEED 120km/h' or 'MAXIMUM SPEED 120km/h', or 'SPEED LIMITED 120km/h'.
 - iii) For tyres having winter treads, 'MAX SPEED 110km/h' or 'MAXIMUM SPEED 110km/h', or 'SPEED LIMITED 110km/h'.

Note: The maximum speed rating shall be placed adjacent to 'Retread' or 'Remould', as applicable.

- c. For light truck tyres, the maximum speed rating, expressed as follows:

- i) For tyres having an original speed category when new of 'L' (120km/h) or higher, 'MAX SPEED 120km/h', or 'MAXIMUM SPEED 120km/h', or 'SPEED LIMITED 120km/h'.
- ii) For tyres having an original speed category when new of less than 'L' (120km/h), the original speed category.

Note: The maximum speed rating shall be placed adjacent to 'Retread' or 'Remould', as applicable.

d. For truck/bus tyres:

- i) The speed equivalent to the original speed category.

Note: Retention of the original speed category on both side walls is sufficient to satisfy this requirement.

- ii) If structural belts have been replaced, the word 'REBELTED', and
- iii) The word 'REGROOVABLE' if the retread is specifically designed for regrooving. Only tyres marked regroovable are permitted to be regrooved.

Note: After major repairs have been carried out in the crown area, regrooving may be performed to reinstate tread grooves.

e. For speed limited truck/bus tyres:

- i) The original speed symbol shall be removed from the tyre.
- ii) Each speed limited tyre shall bear on both side walls or shoulder of the retreaded tyre the following marking, max. speed 80km/h or speed limited to 80km/h.

Method and position of marking: All new marking (except for date code) on a retreaded tyre shall be in letters not less than 4mm high, be permanently and legibly marked in the shoulder or upper side wall of the tyre, and be durable for the life of the retread.

Date coding shall be a digit week/year code.

Branding with a hot iron is not permitted on passenger car or light truck tyres.

Removal of marking: The following information shall be removed from the tyre during retreading:

- a. The word 'TUBELESS' if a tyre originally designated as tubeless has been converted to tube type.
- b. The word 'REGROOVABLE' if the retread is not designed for regrooving.

- c. Any previous retreader's name or registered trademark.
- d. Any marks of approval.

Removal or mutilation of any original tyre speed category symbol is not required on passenger car and light truck tyres.

Any original speed category for truck/bus tyres must not be removed.

Marking on Repaired Tyres

Repaired tyres shall be marked as follows:

- a. All major repairs shall be marked, in a legible and permanent manner, with the identification of the repairer and the date on which the repair was carried out.

Note: Marking is not required for unreinforced repairs.

- b. The word 'TUBELESS' shall be removed if the tyre, originally designed as tubeless, has been converted to tube type.

Branding with a hot iron is not permitted on passenger car or light truck tyres.

Definitions

Shall indicates that a statement is mandatory.

Retreading is the process of reconditioning a worn tyre by topcapping, fullcapping, remoulding, or the application of a pre-cured tread.

Remoulding is a retreading process in which new rubber is applied to the casing extending from bead area to bead area.

Topcapping is a retreading process in which tread rubber is applied only to the tread area of the buffed casing.

Fullcapping is a retreading process in which new tread rubber is applied to the area of the casing normally in contact with the road and extending over the shoulder area.

Shoulder is the transitional area of a tyre between the side wall and the crown.

Precured retreading is the process by which a previously cured and patterned tread is cured to the casing.

Winter tread tyre is a tyre with a tread pattern and a structure that is primarily designed to ensure a performance better than that of an ordinary (road) tyre in mud and fresh or melting snow. The tread pattern of winter tread usually consists of a groove (rib) or solid block elements, or both, which are more widely spaced than on an ordinary (road) tyre.

Note: Tyres having winter treads are also known as 'Mud and Snow', 'M & S' or 'Snow' tyres.

AIS INFORMATION SHEET No. 16

BRAKE DRUMS AND DISCS

The purpose of this information sheet is to set the terms for the acceptability of brake drums and disc dimensions and the criteria for the replacement of worn or damaged brake drums or discs used in the automotive industry.

This procedure is in accordance with Australian Standard 3617 (Parameters for the machining and reconditioning of brake drums and discs). When the braking system of a motor vehicle is inspected, serviced, overhauled, repaired, reconditioned or rebuilt, the condition of each brake drum or brake disc fitted to the vehicle shall be inspected in accordance with the following standards:

Brake drums

After removal of the brake drum from the vehicle, the brake drum should be inspected for:

- **Cracking:** If the drum is cracked, **replace the brake drum**. No repair shall be made to the component. (See Queensland Transport comment at end of AIS Information Sheet 16).
- **Glazing and excessive scoring:** If the brake drum is glazed or excessively scored, place it on a suitable fixture and measure it in accordance with the section titled 'Measurement Parameters'.
- **Heated or hardened hotspots:** If the brake drum has heated or hardened hotspots, place it on a suitable fixture and measure it in accordance with the section titled 'Measurement Parameters'.

After inspection and assessment, the following should be taken into account:

- i) If the drum is cracked, **replace the brake drum**. No repair shall be made to the component. (See Queensland Transport comment at end of AIS Information Sheet 16).
- ii) If it is considered that there is insufficient material available to successfully machine the brake drum in accordance with the vehicle manufacturer's requirements, **replace the brake drum**.
- iii) Where a vehicle manufacturer specifies that a brake drum may not be machined, **replace the brake drum**.
- iv) If, after machining, the brake drum measures on or above the maximum diameter specified by the vehicle manufacturer, **replace the brake drum**.

- v) Where after machining the brake drum, and remeasuring in accordance with the section titled 'Measurement Parameters', any of the parameters are outside the vehicle manufacturer's recommendations, **replace the brake drum.**
- vi) After machining, inspect the drum for any flaws or defects, including excessive scoring or undercutting. If any flaws are present, **replace the brake drum.**
- vii) If after machining the brake drum, heated or hardened hotspots are still present, **replace the brake drum.**

Brake discs

- i) If any cracking is evident, **replace the brake disc.** No repair shall be made to the component. (See Queensland Transport comment at end of AIS Information Sheet 16).
- ii) If it is considered that there is insufficient material available to successfully remachine the brake disc in accordance with the vehicle manufacturer's requirements, **replace the brake disc.**
- iii) Where the manufacturer specifies that a disc rotor may not be machined, **replace the brake disc.**
- iv) If, after machining, the brake disc measures on or below the minimum thickness specified by the vehicle manufacturer, **replace the brake disc.**
- v) Where after machining the brake disc, and remeasuring in accordance with the section titled 'Measurement Parameters', any of the parameters are outside the vehicle manufacturer's recommendations, **replace the brake disc.**
- vi) After machining, inspect for any flaws or defects, including excessive scoring or undercutting. If any flaws are present, **replace the brake disc.**
- vii) After machining the brake disc, heated or hardened hotspots are still present, **replace the brake disc.**

Measurement Parameters

The following dimensions shall be measured and recorded to ascertain the suitability for reuse or machining:

- a. For brake drums, the following shall be observed:
 - i) *Diameter* The diameter of the brake drum shall be measured in at least 6 equispaced positions across the area of lining contact. The largest measured diameter shall be deemed to be the diameter.

- ii) *Radial runout* When rotating the drum on a suitable fixture, a dial gauge shall be used to record the runout of the drum.

b. For brake discs, the following shall be observed:

- i) *Thickness* Using suitable measuring equipment, the disc thickness shall be measured in at least 6 equispaced positions around and across the pad contact area. The smallest dimension measured shall be deemed to be the thickness of the disc.
- ii) *Lateral runout* A dial gauge should be used to measure the brake disc lateral runout.

Definitions

Brake drum: A hollow, machined, round drum that rotates with the wheel axle/hub and against which brake linings are forced into contact when the brakes are applied.

Brake disc: A flat, machined, round disc that rotates with the wheel axle/hub and against which the brake pads clamp when the brakes are applied.

Lateral (axial) runout: A measurement of the lateral or sideways change in the position of the disc rotor wearing surface during one revolution.

Radial runout: A measurement of the radial change in the position of the brake drum wearing surface during one revolution excluding any bearing movement or other clearances.

Machining: The process of turning or grinding a brake drum or disc to remove surface imperfections such as scoring and glazing, and to eliminate lateral disc runout and other dimensional problems.

Maximum diameter: The largest diameter specified by the vehicle manufacturer at which a brake drum can remain in service.

Minimum thickness: The smallest thickness specified by the vehicle manufacturer at which a brake disc can remain in service.

Shall: Indicates that a statement is mandatory.

Should: Indicates that a statement is advisory.

Please Note:

Linings or disc pads must *not* be worn below wear indicators. If no indicators are provided, the thinnest part of the lining or disc pad must *not* be worn below manufacturer's specifications.

Brake drums or disc rotors must *not* be worn or machined below manufacturer's specifications.

Queensland Transport Comment:

Cracking of brake drums and disc rotors, other than minor surface heat cracks, must result in the drum or rotor being replaced.

AIS INFORMATION SHEET No. 17

REPLACEMENT STEERING WHEELS

(Revised August 2003)

Queensland Transport has previously approved replacement steering wheels and hub attachment kits (boss kits) for use on vehicles complying with Australian Design Rules (ADR's) 10A and 18.

Queensland Transport's criteria for aftermarket steering wheels are:

1. The steering wheel when tested must comply with one of the following standards:

ADR 10/01;
ECE R 12/00;
FMVSS 203-32 FR 2414; or
FMVSS 204-32 FR 2414.

2. The steering wheel must ***not*** be fitted to a vehicle with a driver side airbag.
3. That each type of wheel construction must be tested, i.e 3 or 4 spoke.
4. Steering wheels must be at least 350mm in diameter and must not be more than 26mm smaller than the original steering wheel.
5. Notification to Queensland Transport must include the type of steering wheel e.g. wood, leather, vinyl, 3 or 4 spoke etc. and the range of motor vehicles and models to which the steering wheel and boss kit can be fitted and for which approval is sought.
6. Each wheel/hub combination does not necessarily need to be tested on each vehicle as this could result in a very onerous test program that will always be difficult to keep up to date. The manufacturer will need to make an engineering judgement when conducting their assessments to ensure that the test program is relevant to their product range and vehicles.

A number of companies have provided information that Queensland Transport has assessed and has no objection to the steering wheels listed below and in the attached documents, being used on vehicles complying with ADR's 10A, 10/00 (Steering Column) or 18, 18/.. (Instrumentation) as replacements for original equipment, provided:

- the vehicle is not, or was not, manufactured to comply with ADR 69/00 and 73/00; or
- the vehicle is not a pre ADR 69/00 vehicle equipped with an air bag as original equipment.

Queensland Transport will accept products with the following brand names:

Momo, Australi, ET, SAAS, Autotechnica, Formuling and OBA.

AUTOTECNICA

- 4 spoke wheel & VN Boss P/No: 22 - 218 & 510 CA (test certificate supplied)
- 4 spoke wheel & EA Boss P/No: 22 - 218 & 143 C (test certificate supplied)
- 3 spoke wheel & VN Boss P/No: 22 - 971 & 510 CA (test certificate supplied)
- 3 spoke wheel & EA Boss P/No: 22 - 971 & 143C (test certificate supplied)

A list of replacement steering wheel and boss kits supplied by Autotechnica that are deemed acceptable are available from the Vehicle Safety and Access Section on telephone (07) 3253 4770. This list also makes reference to SAAS boss kit assemblies that are also deemed acceptable.

SAAS

Also refer to Autotechnica listing.

- 4 spoke wheel & VN Boss P/N: EX4CW & 163L, Commodore,
- 4 spoke wheel & EA Boss P/N: EX4CW & 162L, Falcon,
- 3 spoke wheel & VN Boss P/N: GTW14-SCWH & 163L, Commodore,
- 3 spoke wheel & EA Boss P/N: GTW14-SCWH & 162L, Falcon.

OBA (imported by NETWORK AUTO IMPORTS)

<u>OBA (Part No.)</u>	<u>NETWORK AUTO IMPORTS (Part No.)</u>
MIZAR (Poly or Leather)	PAB, PAS, PAC, PAG
MIZAR (Mahogany Wood)	MAB, MAS
CAPRI (Poly or Leather)	CAPRI. CAPRI/C (includes Centre Poly Pad)
FOURSTAR (Poly or Leather)	FSTAR, FSTAR/C (includes Centre Poly Pad)

Fitted with approved OBA attachment hub kits. A list of replacement steering wheel and boss kits supplied by Network Auto Imports that are deemed acceptable are available from the Vehicle Safety and Access Section of Queensland Transport on telephone (07) 3253 4770.

BOSS STEERING WHEELS

Part Numbers: BLGY, BLBLK, BLR, BLBLU, BLGN and BVL1 to BVL18.

FORMULING

- Futuro 952 series (3 spoke 370mm diameter),

· Tradition 962, 963, or 967 series (3 or 4 spoke 360 or 380mm diameter) to suit:		
Falcon	XD, XE, XF	Futuro & Tradition
Commodore	VB, VC, VH, VK, & VL	Futuro & Tradition
Gemini	TX, TC, TD, TE, TF & TG	Tradition
Holden Premier	HZ	Tradition
Sigma	GE, GH, GJ, GK, & GN	Tradition

Please Note:

The minimum diameter of any replacement steering wheel must not be less than 350 mm. The replacement wheel must be designed in a similar manner to the original (e.g. padded centre hub and dished spokes) and the diameter must be no more than 26 mm smaller than the original steering wheel.

Licensed Examiners Action:

If, during the course of an inspection, Licensed Examiner's encounter vehicles manufactured to comply with the previously mentioned ADR's and fitted with a replacement steering wheel, they are to ensure that the individual replacement steering wheel complies with the previously mentioned details. Replacement steering wheels that do not comply should be rejected immediately.

AIS INFORMATION SHEET No. 18

FITTING OF BODY LIFT KITS AND SUSPENSION HEIGHT MODIFICATIONS TO MOTOR VEHICLES

A number of queries have been received by Queensland Transport in relation to the permissible maximum heights that a motor vehicle can be raised.

Body Lift Kits

The maximum allowable height increase permitted by Queensland Transport has been set at 50 millimetres (2 inches).

Suspension Height Modifications

The suspension travel in the bump or rebound mode must not be altered by more than one-third of that measurement as specified by the **original** manufacturer.

These limits have been set after taking into consideration the following aspects of modifications of this type:

- stability characteristics of the vehicle;
- strength of componentry being utilised;
- the road holding ability and handling characteristics of the modified vehicle;
- braking characteristics of the modified vehicle; and
- the wheels and tyres fitted to this vehicle must comply with the requirements of the Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 1999.

It should be noted that both modifications can be performed simultaneously to a vehicle to gain extra vehicle body height but individual specifications must not be exceeded. Modifiers may have to obtain the original bump stop clearance to calculate the allowable acceptable increase.

A policy in relation to this matter has now been finalised and will require:

- An individual vehicle modification application to be made to Queensland Transport for **body lift kits** (blocks between body/cabin and chassis mounts) up to 50 mm in height. Applications must indicate all changes being made to implement the modification (including steering and braking componentry) and materials used in the lifting blocks. Body lifts in excess of 50 mm will **not** be considered.

If acceptable, a letter of approval for the installation of a body lift kit will be issued by Queensland Transport.

- **Suspension height modifications** carried out in accordance with good engineering practice will be considered acceptable where the suspension travel in the bump or rebound mode is not altered by more than one-third of that measurement as specified by the original manufacturer. A vehicle modification application will **not** be required.

This onus is on the modifier/owner of the modified vehicle to ensure these standards are satisfied.

Modifications where leaf springs are remounted from under axle to over axle are **not** regarded as an acceptable form of suspension modification and will **not** be approved.

The vehicle modifier is responsible for ensuring that the vehicle is modified in accordance with relevant standards and recognized automotive practice.

Please Note:

If, at the time of inspection, any vehicles display signs of non compliance with these standards, the vehicle is to be rejected. The vehicle owner/operator can be directed to have the installation comply with the required standard and/or obtain relevant approval documentation.

AIS INFORMATION SHEET No. 19

COMMERCIAL VEHICLE MODIFICATIONS CARRIED OUT PRIOR TO 1990

Since 1 March 1995, heavy commercial vehicles in the range 4.5 tonnes up to and including 16.0 tonnes Registered Gross Vehicle Mass (RGVM) are being inspected at Approved Inspection Stations. Since that date, a number of queries have been received by the Vehicle Safety and Access Section of Queensland Transport regarding non certified vehicle modifications.

The Approved Persons (formerly Authorised Officers) Scheme was extended to include all in-service commercial motor vehicles in excess of 4.5 tonnes Gross Vehicle Mass (GVM) on 1 July 1990.

A considerable number of commercial vehicles were modified prior to 1990 and continually inspected by Queensland Transport Inspectors have been issued with Certificates of Inspection but no official certification for the modifications had been issued. Certificates of Inspection were issued if the workmanship was of a satisfactory standard and free of any defects. However, vehicles found to have defects in the particular modification were required to be repaired and appropriate certification obtained.

As a means of dealing with old modified and unapproved vehicles, it will be acceptable for Approved Inspection Stations to inspect vehicles in this range and issue a Certificate of Inspection or a Safety Certificate if:

- the vehicle was modified prior to 1 July 1990; and
- the vehicle has been continually inspected and registered; and
- there is no evidence of any defect with a particular modification; or
- if a vehicle has become unregistered, proof or evidence is available to ascertain that the vehicle previously met the above criteria (copies of this documentation must be retained by the Approved Examiner for verification as required).

However, vehicles in the above categories that are found to have defects in a particular modification, are required to be repaired and obtain appropriate certification from an Approved Person. Note that the modification need not comply with the exact requirements of the Code of Practice but should comply with the intent **and relevant details included on the checklist**.

Vehicles modified after 1 July 1990 must meet all current requirements and be fitted with a modification plate that indicates the particular modifications to that vehicle.

If approached, Approved Persons may certify modifications inspected by Queensland Transport officers prior to the introduction of the Heavy Vehicle Modification Code of Practice in 1990.

AIS INFORMATION SHEET No. 20

SUSPENSION MODIFICATIONS

It has come to the attention of Queensland Transport that passenger and light commercial vehicles are being modified by fitting replacement air bag or hydraulic suspensions. A number of other modifications are also being carried out to allow the body of the vehicle to be lowered substantially and sometimes on to the road surface. Modifications include chassis rail and bump stop redesign and the fitting of devices to operate the air bag or hydraulic suspension componentry.

As enquiries about these modifications appear to be on the increase, the following policy has been developed.

General principles

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;
- they do not alter the ride height of the vehicle by more than one-third of suspension travel specified by the vehicle manufacturer;
- they maintain regulated ground clearance requirements; and
- the control of ride height meets strict conditions.

Modification approval process

Vehicle Standards Bulletin No.6 - Heavy Vehicle Modifications and the Code of Practice - Light 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 forwarded 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. However, no deviation from this code is permitted unless specifically authorised by Queensland Transport.

The following characteristics of the modified vehicle are to be taken into account when this type of modification is being evaluated by an Approved Person or Queensland Transport.

Ground clearance of vehicle

The ground clearance of the fully laden vehicle must continue to comply with the Australian Design Rules (ADR's) and the *Transport Operations (Road Use Management) Regulation 1995 at all times*. Simply put, the ground clearance must not be less than 100mm within 1m of an axle and the vehicle must clear a peak with a gradient of 1:15 on each side. Additionally, 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

The 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 be able to control the suspension height with the vehicle stationary only to suit 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.

Brakes

If a load-sensing valve is fitted as standard equipment by the manufacturer, the brake system bias needs to be checked in both laden and unladen conditions to ensure the manufacturer's specifications are maintained. This may also require the vehicle's braking system to be re-certified to the applicable ADR for the category of vehicle at its date of manufacture.

Licensed Examiners Action:

If, during the course of an inspection, Licensed Examiners have cause to inspect vehicles modified by the fitting of a replacement/additional air bag or hydraulic suspension assembly, they are to ensure that individual modifications are in accordance with the previously mentioned details. Modifications of this type which do not comply with the above requirements are to be rejected immediately.

Please also refer to Section 2, Part 2, of this Code of Practice regarding certification procedures which are considered acceptable to Queensland Transport (Modification Plate/Approval Letter).

AIS INFORMATION SHEET No. 21

LIGHTING STANDARDS

This Information Sheet summarises the major changes to vehicle lighting standards resulting from the introduction of the *Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 1999 (TO(RUM-VSS))* and changes to the Australian Design Rules (ADR's).

TO(RUM-VSS) requires all vehicles to comply with the ADR's applicable to them and, for pre ADR vehicles, with the standards listed in the Schedule. Pre ADR vehicle lighting is therefore detailed in the Schedule while ADR lighting is not. Special lighting requirements such as flashing lights are detailed in the Schedule. The following lists the major changes:

Alternative lights

Additional lights fitted to motor vehicles and, in particular, alternative lighting on dressed up vehicles with underbody lighting, such as neon lights and ultra violet lights, are acceptable, subject to certain conditions.

(TO(RUM-VSS)) allows lights not mentioned in the standards to be fitted in addition to the required lights, whereas the former *Traffic Regulation 1962* required specific approval, which was not often granted. Lights that flash or are white, red, yellow or blue are mentioned in the standards. However, pink lights, for example are not mentioned and could, theoretically, be fitted.

The use of blue lights are reserved for police vehicles in Queensland but ambulances and fire engines in other states may use blue lights.

As such, additional underbody lighting such as neon lights and ultra violet lights are acceptable provided the light omitted is not blue, yellow, red or white. Of the last two, red lights must not be seen from the front and white must not be seen from the rear. Other colours are acceptable as long as they do not flash or dazzle another driver.

Other additional lighting requirements are covered by the regulations and which is summarised in the brochure "*All About Modifications to Motor Vehicles*". This brochure may be sighted on the Queensland Transport website at:

www.transport.qld.gov.au/qt/driver.nsf/index/vehiclemods

Additional mandatory lights, e.g. an extra pair of direction indicator lights, are also permitted. The Australian Design Rules set mandatory position, width and height limits for a primary set of lights fitted to a vehicle. In the case of light and heavy omnibuses (MD and ME categories), all commercial vehicles (N category) and medium and heavy trailers (TD and TC categories), additional direction indicator, hazard warning, stop, parking and rear position lights may be fitted to satisfy specific operational requirements.

These operational requirements could include the need to better project manoeuvring intentions in congested traffic such as for buses frequently stopping to pick up and set down passengers, the need to have additional lights to retain signalling capability in case of primary light breakages, and where operating environment results in low mounted lights becoming covered in dirt or dust.

The maximum height limits for particular lights, which includes stop lights, fitted to the above categories of vehicles do not apply when provided as additional lights.

Side marker lights

The ADR's have been changed to align with European standards and allow side marker lights to show yellow to the rear. Some new vehicles already have these lights fitted. *TO(RUM-VSS)* allows either red or yellow side marker lights to the rear on any age vehicle.

Optional forward facing coloured lights and reflectors

Concern has previously been expressed at the practice of fitting multi-coloured lights and reflectors to the front of prime movers, rigid vehicles and semi trailers.

Coloured lights or reflectors e.g. blue, green, red, etc. were not permitted by the previous *Traffic Regulations 1962* to be fitted to the bumper bar, roof or front of these vehicles.

The only exception to these requirements was forward facing yellow lights placed on the roof of cabins to enable road users to identify a heavy vehicle from the front.

(*TO(RUM-VSS)*) requirements for external cabin lights are as follows:

- A motor vehicle fitted with front end outline marker lights (**previously referred to as front clearance lights**) may also have additional forward facing lights on or above the roof of its cabin.
- The additional forward facing lights must be spaced evenly between the front end-outline marker lights, with their centres at least 120mm apart.
- When on, an additional forward facing light must show a yellow or white light and not use over 7 watts of power.

NOTE: Front end-outline marker lights may only be fitted to a vehicle that is at least 1.8 metres wide. A pair of front end-outline marker lights must be fitted to a motor vehicle that is more than 2.1 metres wide, however, end-outline marker lights are not required when the vehicle's structure prevents them from being being at least 200mm above the front position (side) lights.

Headlights

Some new factory fitted headlights may appear to have a blue or yellow tinge. Advice from the federal Department of Transport and Regional Services (formerly the Federal Office of Road Safety) is that these colours can sometimes be seen on some of the new technology lights when viewed from the side. However, these lights do emit white light in the required angles and comply with the ADR's.

Note that a main (high) beam headlight under the ADR's, and now under *TO(RUM-VSS)*, may be fitted at any height above the ground compared to the previous height of 0.6 m to 1.4 m in the *Traffic Regulation 1962*.

Motorcycles, including motor tricycles, with twin headlights side by side may have one light as low beam and the other as high beam. That is, the high and low beam do not need to be symmetrical about the longitudinal centre line of the motor cycle, including motor tricycle(s).

Blue Headlights

"Blue" halogen bulbs are a recent innovation in vehicle lighting technology. They operate at higher temperatures and provide superior illumination to the conventional halogen bulb.

Historically, the white light emitted from headlamps on motor vehicles has been generated from incandescent light sources and contains a predominance of red/yellow frequencies. This has become the accepted norm for white light. The new bulbs, which are actually "whiter" than the existing bulbs, contain less of the red/yellow frequencies and more of the blue end of the spectrum. The bulbs may be perceived as a very light blue.

The envelope around the filament of these bulbs is dyed blue, primarily to reduce the red/yellow frequencies that are always present in light produced by incandescent filament bulbs.

Motor vehicles have been required to comply with Australian Design Rules (ADR's) for lighting since October 1991. ADR 13 mandates the number and position of lamp assemblies, ADR 46 prescribes the photometric requirements of the lamp itself and ADR 51 is the standard for filament bulbs.

ADR 51 accepts ECE regulation 37 as an alternative standard for filament bulbs and prescribes the dimensional and photometric requirements for filament bulbs (including headlamps). This ensures inter-changeability and correct functioning when installed in a complying lamp unit.

All complying bulbs sold in Australia would be marked with the "E" mark and possibly the words "Suitable for European Use". The packaging may also indicate compliance with ADR 51 or ECE 37.

When a replacement complying bulb of the correct type (for example H4 45/60 Watts) for a complying headlamp is fitted to that assembly, the light emitted will be within the spectral requirements for white light. This will not be in breach of Section 63 to Schedule 1 of the *Transport Operations (Road Use Management- Vehicle Safety and Standards) Regulation 1999*.

Although these lamps are a standard fitment to many newer vehicles, a "blue" complying lamp can be fitted to a lamp assembly on a vehicle that was not originally fitted with these bulbs.

It is important to note that ADR 51 limits the power of various bulb types, and bulbs of a similar style but higher power rating will not comply and should not be used. For example, the common H4 bulb that has a complying rating of 45/60 watts, is available in much higher rating of 45/100 watts. The higher powered bulbs produce more glare and the resulting light pattern would not comply with the ADR.

Although regulations do not require drivers of pre-1991 vehicles to fit complying bulbs, consumers should be careful when fitting non-complying "blue" light bulbs to pre-ADR vehicles, as the resulting light spectrum may fall outside the standard for white light (that is, the blue frequencies may predominate).

If a Licenced Examiner suspects that the light output from a headlight appears blue, the examiner should take appropriate action based on the following summary tables:

For vehicles manufactured on or after 1 October 1991

- Bulb must be marked.
- Bulb must be the correct wattage.

For vehicles manufactured prior to 1 October 1991

- Bulb does not have to be marked.
- Bulb may be alternative higher wattage.
- Bulb must not show obvious blue light (when viewed directly ahead).

Licenced Examiners Action:

If, during the course of an inspection, Licenced Examiners have cause to inspect vehicles modified by changing the original lighting componentry assemblies, they are to ensure that individual vehicles comply with the previously mentioned details. Modifications of this type which do not comply with the above requirements are to be rejected immediately.