Vehicle Standards Instruction (General 21.2)

Information Sheets for Approved Examiners
Released March 2014
Revised July 2018

INFORMATION SHEET No. 1(a)

Vehicle Standards Bulletin 14
National Code of Practice for Light Vehicle Construction and Modification

Modification Codes

The modification codes for light vehicles are available at https://www.tmr.qld.gov.au/Safety/Vehicle-standards-and-modifications/Vehicle-modifications/Light-vehicle-modifications

INFORMATION SHEET No. 1(b)

Vehicle Standards Bulletin 6
National Code of Practice – Heavy Vehicle Modifications

Modification Codes

The modification codes for heavy vehicles are available at https://www.nhvr.gov.au/safety-accreditation-compliance/vehicle-standards-and-modifications/vehicle-standards-bulletin-6

INFORMATION SHEET No. 1(c)

Queensland Code of Practice – Vehicle Modifications
and
Queensland Standalone Modification Codes for Heavy Vehicles

Modification Codes

The Queensland standalone modification codes for light and heavy vehicles are available at Queensland Code of Practice (PDF, 515 KB)

INFORMATION SHEET No. 2

SEAT BELT REQUIREMENTS FOR PASSENGER CARS, PASSENGER CAR DERIVATIVES, FORWARD CONTROL PASSENGER VEHICLES AND MULTI PURPOSE PASSENGER VEHICLES

MA - Passenger car
MB - Forward control passenger vehicle
MC - Off road passenger vehicle (Multi-purpose passenger vehicle)

2ND EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR PASSENGER CARS AND PASSENGER CAR DERIVATIVES MANUFACTURED FROM JANUARY 1969 – JUNE 1988)

1st Row Seats	**ADR 4,5A (1/1/69)**	**ADR 4,5A (1/1/71)**	**ADR 4A,5A (1/1/74)**
Driver	L/S	L/S	L/S
Outboard Passenger	L/S	L/S	L/S
Centre	L*	L*	L*

2nd Row Seats			
Outboard (1)	-	L/S	L/S
Centre	-	L*	L*

3rd Row Seats			
Outboard (2)	-	-	-
Centre	-	-	-

1st Row Seats	**ADR 4B,5B (1/1/75)**	**ADR 4C,5B (1/1/76)**	**ADR 4D,5B (1/1/84)**
Driver	R	R	R
Outboard Passenger	R	R	R
Centre	L*	L*	L*

2nd Row Seats			
Outboard (1)	L/S	L/S	R
Centre	L*	L*	L*

3rd Row Seats			
Outboard (2)	-	-	-
Centre	-	-	-

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR VEHICLES MANUFACTURED ON OR AFTER 1 JULY 1988)

1st Row Seats	**MA**		
Driver	R		
Outboard Passenger	R		
Centre	L		

2nd Row Seats			
Outboard (1)	R		
Centre	L		

3rd Row Seats			
Outboard (2)	L/S		
Centre	L		

2ND EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR FORWARD CONTROL PASSENGER VEHICLES MANUFACTURED FROM JANUARY 1985 - JUNE 1988)
UP TO 8 SEATS

1st Row Seats	**ADR 4C,5B (1/1/85)**	**ADR 4D,5B (1/1/86)**	
Driver	R (1)	R	
Outboard Passenger	R (1)	R	
Centre	L*	L*	

2nd Row Seats			
Outboard (1)	L/S	R (1)	
Centre	L*	L*	

3rd Row Seats			
Outboard (2)	L/S	L/S	
Centre	L*	L*	

9 SEATS

1st Row Seats	**ADR 4C,5B (1/7/85)**	**ADR 4D,5B (1/1/86)**	
Driver	R (1)	R	
Outboard Passenger	R (1)	R	
Centre	L*	L*	

2nd Row Seats			
Outboard (1)	-	R (1)	
Centre	-	L*	

3rd Row Seats			
Outboard (2)	-	L/S (2)	
Centre	-	L*	

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR VEHICLES MANUFACTURED ON OR AFTER 1 JULY 1988)
UP TO 9 SEATS

1st Row Seats	**MB**		
Driver	R		
Outboard Passenger	R		
Centre	L		

2nd Row Seats			
Outboard (1)	R		
Centre	L		

3rd Row Seats			
Outboard (2)	R		
Centre	L		

2ND EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR MULTI PURPOSE PASSENGER CARS MANUFACTURED FROM JANUARY 1970 - JUNE 1988)

1st Row Seats	**ADR 4,5A (1/1/69)**	**ADR 4,5A (1/1/71)**	**ADR 4,5A (1/1/74)**
Driver	L/S	L/S	L/S
Outboard Passenger	L/S	L/S	L/S
Centre	L*	L*	L*

2nd Row Seats			
Outboard (1)	-	L/S	L/S
Centre	-	L*	L*

3rd Row Seats			
Outboard (2)	-	-	-
Centre	-	-	-

1st Row Seats	**ADR 4B,5B (1/1/75)**	**ADR 4C,5B (1/1/76)**	**ADR 4D,5B (1/1/84)**
Driver	R	R	R
Outboard Passenger	R	R	R
Centre	L*	L*	L*

2nd Row Seats			
Outboard (1)	L/S	L/S	R
Centre	L*	L*	L*

3rd Row Seats			
Outboard (2)	-	-	-
Centre	-	-	-

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR VEHICLES MANUFACTURED ON OR AFTER 1 JULY 1988)

1st Row Seats	**MC CATEGORY (1/7/88)**	**MC CATEGORY (1/7/96)**	
Driver	R	R	
Outboard Passenger	R	R	
Centre	L	L	

2nd Row Seats			
Outboard (1)	L/S	R	
Centre	L	L	

3rd Row Seats			
Outboard (2)	L/S	L/S	
Centre	L	L	

REQUIREMENT CODES:
Where:

L = 'Lap Anchorage'
L/S = Lap/Sash (Pelvic Restraint + Upper Torso Restraint)
L/R = At least 'Lap Anchorage' with Retractor
R = Lap/Sash with Retractor
- = No requirement

NOTES:
*** Lap belts only required if centre passenger seating position fitted.**
(1) If no 'Permanent Structure', then 'Lap Anchorages' are acceptable.
(2) If 'Seat' is adjustable for conversion of occupant space to luggage or goods space, then 'Lap Anchorages' are acceptable.

SEAT BELT REQUIREMENTS FOR OMNIBUS CATEGORIES (MD, ME)

MD - Light omnibus
MD1 - Light omnibus up to 3.5 tonnes GVM up to 12 seats
MD2 - Light omnibus up to 3.5 tonnes GVM over 12 seats
MD3 - Light omnibus over 3.5 tonnes up to 4.5 tonnes GVM
MD4 - Light omnibus over 4.5 tonnes up to 5.0 tonnes GVM
ME - Heavy omnibus

2ND EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS

(FOR VEHICLES MANUFACTURED AFTER 1 JULY 1983 UP TO 30 JUNE 1988)

Omnibus up to 3.5 tonnes GVM up to 12 seats 1/7/83 - 30/6/88

1st Row Seats	**ADR 4C,5B (1/7/83)**	**ADR 4D,5B (1/1/87)**	**ADR 4D,5B (1/1/88)**
Driver	R	R	R
Outboard Passenger	R	R	R
Centre	L*	L*	L*

2nd Row Seats			
Outboard (1)	-	R	R
Centre	-	L*	L*

3rd Row Seats			
Outboard (2)	-	R	R
Centre	-	L*	L*

Omnibus up to 3.5 tonnes GVM over 12 seats 1/7/83 - 30/6/88

1st Row Seats	**ADR 4C,5B (1/7/83)**	**ADR 4D,5B (1983-1988)**	
Driver	R	R	
Outboard Passenger	R	R	
Centre	L*	L*	

2nd Row Seats			
Outboard (1)	-	-	
Centre	-	-	

3rd Row Seats			
Outboard (2)	-	-	
Centre	-	-	

Omnibus up to 4.5 tonnes Gross Vehicle Mass 1/7/87 - 30/6/88
Omnibus over 4.5 tonnes Gross Vehicle Mass 1/7/87 - 30/6/88

1st Row Seats	**ADR 32A (1/7/87)**		
Driver	L		
Outboard Passenger	L		
Centre	-		

2nd Row Seats			
Outboard (1)	-		
Centre	-		

3rd Row Seats			
Outboard (2)	-		
Centre	-		

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS (ADR 5/00)
(FOR VEHICLES MANUFACTURED ON OR AFTER 1 JULY 1988 TO 30 JUNE 1990)

1st Row Seats	**MD1**	**MD2**	**MD3**	**MD4**	**ME**
Driver	R	R	L (1)	L (1)	L (1)
Outboard Passenger	R	R	-	-	-
Centre	L	L	-	-	-

2nd Row Seats					
Outboard (1)	R	-	-	-	-
Centre	L	-	-	-	-

3rd Row Seats					
Outboard (2)	R	-	-	-	-
Centre	L	-	-	-	-

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS (ADR 5/01)

(FOR VEHICLES MANUFACTURED ON OR AFTER 1 JULY 1990 TO 30 JUNE 1992)

1st Row Seats	MD1	MD2	MD3	MD4	ME
Driver	R	R	L (1)	L (1)	L (1)
Outboard Passenger	R	R	-	-	-
Centre	L	L	-	-	-

2nd Row Seats					
Outboard (1)	R	-	-	-	-
Centre	L	-	-	-	-

3rd Row Seats					
Outboard (2)	R	-	-	-	-
Centre	L	-	-	-	-

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS (ADR 5/02)

(FOR VEHICLES MANUFACTURED ON OR AFTER 1 JULY 1992 TO 30 JUNE 1996)

1st Row Seats	MD1**	MD2	MD3(6)	MD4(6)	ME(6)
Driver	R	R	R	R	L/R
Outboard Passenger	R	R	R (5)	R (5)	L (4)
Centre	L	L	L (4)	L (4)	L (4)

2nd Row Seats					
Outboard (1)	R	L/S (4)	L (4)	L (4)	L (4)
Centre	L	L (4)	L (4)	L (4)	L (4)

3rd Row Seats					
Outboard (2)	R	L/S (4)	L (4)	L (4)	L (4)
Centre	L	L (4)	L (4)	L (4)	L (4)

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS (ADR 5/03)

(FOR VEHICLES MANUFACTURED ON OR AFTER 1 JULY 1996 TO 31 DECEMBER 1999)

1st Row Seats	MD1	MD2	MD3(6)	MD4(6)	ME(6)
Driver	R	R	R	R	L/R
Outboard Passenger	R	R	R (5)	R (5)	L (4)
Centre	L	L	L (4)	L (4)	L (4)

2nd Row Seats					
Outboard (1)	R	L/S (4)	L (4)	L (4)	L (4)
Centre	L	L (4)	L (4)	L (4)	L (4)

3rd Row Seats					
Outboard (2)	R	L/S (4)	L (4)	L (4)	L (4)
Centre	L	L (4)	L (4)	L (4)	L (4)

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS (ADR 5/04)
(FOR VEHICLES MANUFACTURED ON OR AFTER 1 JANUARY 2000)

1st Row Seats	MD1	MD2	MD3(6)	MD4(6)	ME(6)
Driver	R	R	R	R	L/R
Outboard Passenger	R	R	R (5)	R (5)	L (4)
Centre	L	L	L (4)	L (4)	L (4)

2nd Row Seats					
Outboard (1)	R	R	L (4)	L (4)	L (4)
Centre	L	L	L (4)	L (4)	L (4)

3rd Row Seats					
Outboard (2)	R	R	L (4)	L (4)	L (4)
Centre	L	L	L (4)	L (4)	L (4)

REQUIREMENT CODES:
Where:

L = 'Lap Anchorage'
L/S = Lap/Sash (Pelvic Restraint + Upper Torso Restraint)
L/R = At least 'Lap Anchorage' with Retractor
R = Lap/Sash with Retractor
- = No requirement

NOTES:
*** Lap belts only required if centre passenger seating position fitted.**
**** Introduced 1 July 1991 for MD1 vehicles (ADR 5/02)**
(1) If no 'Permanent Structure', then 'Lap Anchorages' are acceptable.
(2) If 'Seat' is adjustable for conversion of occupant space to luggage or goods space, then 'Lap Anchorages' are acceptable.'
(3) Upper torso restraint 'Anchorages' shall not be provided for side-facing 'Seats'.
(4) Except for 'Route Service Omnibus', anchorages are to be provided for non-Protected Seats.
(5) If Protected Seat then Lap Anchorages are acceptable.
(6) For Omnibuses complying with ADR 68/00, this table only applies to the driver's seating position.

SEAT BELT REQUIREMENTS FOR COMMERCIAL VEHICLE CATEGORIES (NA, NB AND NC)

NA - Light goods vehicle
NB1 - Medium goods vehicle 3.5 tonnes up to 4.5 tonnes GVM
NB2 - Medium goods vehicle 4.5 tonnes up to 12.0 tonnes GVM

NC - Heavy goods vehicle

2ND EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR VEHICLES MANUFACTURED AFTER 1 JANUARY 1970)

VEHICLES UP TO 4.5 TONNES GROSS VEHICLE MASS 1970 - 1988

1st Row Seats	**ADR 4,5A (1/1/70)**	**ADR 4,5A (1/1/71)**	**ADR 4A,5A (1/7/74)**
Driver	L/S	L/S	L/S
Outboard Passenger	L	L/S	L/S
Centre	L*	L*	L*

2nd Row Seats			
Outboard (1)	-	L/S	L/S
Centre	-	L*	L*

3rd Row Seats			
Outboard (2)	-	-	-
Centre	-	-	-

1st Row Seats	**ADR 4B,5B (1/7/75)**	**ADR 4C,5B (1/7/76)**	
Driver	R	R	
Outboard Passenger	R	R	
Centre	L*	L*	

2nd Row Seats			
Outboard (1)	L/S	L/S	
Centre	L*	L*	

3rd Row Seats			
Outboard (2)	-	-	
Centre	-	-	

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR VEHICLES MANUFACTURED ON OR AFTER: 1 JULY 1988 TO 30 JUNE 1991 FOR NA AND NB1 CATEGORY; 1 JULY 1988 TO 30 JUNE 1992 FOR NB2 AND NC CATEGORY)

1st Row Seats	**NA**	**NB1**	**NB2**	**NC**	
Driver	R	R	L1	L1	
Outboard Passenger	R	R	L1	L1	
Centre	L	L	-	-	

2nd Row Seats					
Outboard (1)	L/S	L/S	-	-	
Centre	L	-	-	-	

3rd Row Seats					
Outboard (2)	L/S	L/S	-	-	
Centre	L	L	-	-	

3RD EDITION AUSTRALIAN DESIGN RULE REQUIREMENTS
(FOR VEHICLES MANUFACTURED ON OR AFTER: 1 JULY 1988 TO 30 JUNE 1991 FOR NA AND NB1 CATEGORY; 1 JULY 1988 TO 30 JUNE 1992 FOR NB2 AND NC CATEGORY)

1st Row Seats	**NA**	**NB1**	**NB2**	**NC**	
Driver	R	R	R	L/R	
Outboard Passenger	R	R	R	L/R	
Centre	L	L	L	L	

2nd Row Seats					
Outboard (1)	L/S (R)+	L/S	L	L	
Centre	L	L	L	L	

3rd Row Seats					
Outboard (2)	L/S	L/S	L	L	
Centre	L	L	L	L	

+ = manufactured after 1 July 1996 for NA category vehicles.

REQUIREMENT CODES:
Where:
L = 'Lap Anchorage'
L1 = At least 'Lap Anchorage'
L/S = Lap/Sash = Pelvic Restraint + Upper Torso Restraint
L/R = At least 'Lap Anchorage' with Retractor
R = Lap/Sash with Retractor
- = No requirement

NOTES:
*** Lap belts only required if centre passenger seating position fitted.**
(1) If no 'Permanent Structure', then 'Lap Anchorages' are acceptable.
(2) If 'Seat' is adjustable for conversion of occupant space to luggage or goods space, then 'Lap Anchorages' are acceptable.

INFORMATION SHEET No. 3
MUDGUARD AND MUDFLAP REQUIREMENTS

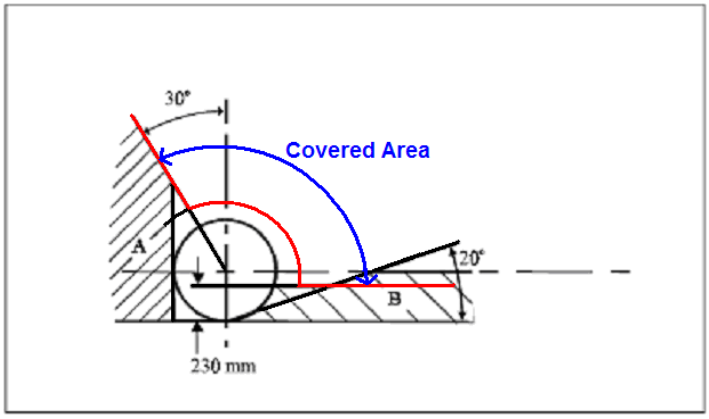
Effective mudguards must be fitted for all wheels on all vehicles. However, this does not apply to a vehicle if the construction or use of the vehicle makes the fitting of mudguards unnecessary or impractical. Examples are:

- Pole type trailers used to carry timber
- Most road making plant
- Some agricultural equipment

Mudguards may include parts of bodywork, etc. and, in the straight ahead position, must cover the full width of the wheels and tyres.

Mudguards and mudflaps must be capable of deflecting downwards any mud, water, stones or any other substance thrown upward by the rotation of the wheels. Mudguards must be fitted to the vehicle in such a manner that, when the vehicle is unladen, the height of the lowest edge of the mudguard, when measured from the ground, does not exceed:

- 230 mm from the ground; or
- in the case of a vehicle built to be used off road, 300 mm from the ground; and
- cover the area of the wheel as shown below.



Mudflaps are not normally required on passenger car type vehicles. However, mudflaps must be in place on vehicles where they form part of the wheel guard system such as vehicles with a tray type body. The mudguards on a single axle trailer must provide continuous protection, for the overall width of the tyres, between a point in area A and a point in area B as shown.

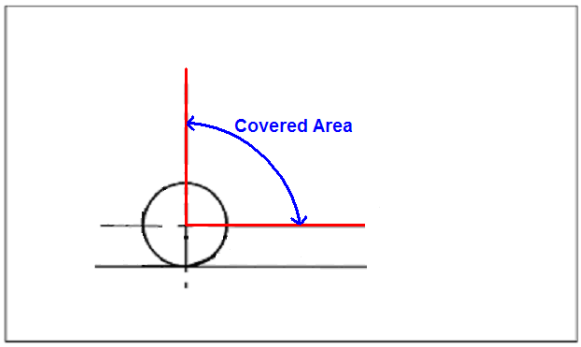
Where two or more axles are fitted, separate guards for each wheel or a single guard which provides the required protection over all the wheels may be fitted.

Mudflaps must be manufactured from a malleable material which is able to maintain its shape under duress.

Special requirements for L-group vehicle (motorbikes, side-cars and motor trikes)

The wheels of a motorbike and motor trike and the wheel of a side-car must be fitted with wheel guards of width not less than the section width of the tyre and must cover the tyre section width at all times. The wheel guards must be so designed as to protect other road users, as far as practicable, against thrown-up stones, mud, ice, snow and water and to reduce for those users the dangers due to contact with the moving wheels.

The front wheel guard must extend not less than from a point vertically above the centre of the wheel rearward to a point not higher than the centre of the wheel or to the point where suitable protection is afforded by the frame or other construction of the vehicle when a mass of 45 kg is distributed in the saddle of the vehicle at its unladen mass.



L-Group Front Wheel

The Federal Department of Infrastructure and Regional Development and Cities made changes to the rear mudguard standards for new motorcycles, removing the requirement that normally led to manufacturers fitting a ‘mudguard extension’. The Department of Transport and Main Roads allows all motorcycles to meet the new standard.

Refer to the Vehicle Standards Instruction on motorcycle mudguard requirements.

INFORMATION SHEET No. 4

HEADLIGHT TESTING SCREENS

1275							
1200							
1125							
1050							
975							
900							
825							
750							
675							
600							
525							
450							
375							
300							
225							
150							
75							

FRONT ELEVATION OF SCREEN

Level with the surface upon which the vehicle is standing during the test.

NOTE: Surface of screen to be "flat" white, glossy finish must not be used. Horizontal lines are to be black and 75 millimetres apart measured from centre to centre of lines. Vertical lines are to be 300 millimetres apart measured from centre to centre of lines and all lines are to be black except the centre vertical line which is to be red.

The thickness of all lines are to be as thin as possible while still providing good visibility for an observer at a distance of 9 metres from the screen during the test. The heights of the horizontal lines above the level of surface upon which vehicle is standing during test are to be clearly marked with black figures, as shown and are to be of a size which provides good visibility for an observer at a distance of 9 metres from the screen during test.

INFORMATION SHEET No. 5

MISSING COMPLIANCE PLATES

For the purposes of registration, all motor vehicles originally manufactured to comply with the Australian Design Rules (ADRs) on or after 1 January 1972 and motorcycles constructed after 1 July 1975 would have been fitted with a compliance plate. Vehicles built prior to this date must comply with the *Transport Operations (Road Use Management – Vehicle Standards and Safety) Regulation 2010*.

Vehicles assembled for the Australian market (locally built and/or imported vehicles manufactured to comply with the ADRs. e.g. Holden, Ford, Mazda, Suzuki, Mercedes Benz, BMW etc.). If inspecting a motor vehicle or motorcycle manufactured after these dates (not including other individually imported vehicles) which does not have a compliance plate fitted, the proprietor/nominee should:

• ask for proof that the vehicle was previously registered in Queensland, i.e. current registration certificate or copy of previous registration certificate;

OR

• if an interstate registration, proof that the vehicle was previously registered in another state or territory. (Note: if the vehicle has been modified, follow procedures outlined in the Modification Section of the Vehicle Inspection Guidelines);

OR

• advise the owner that it **may** be possible to obtain a letter of compliance from the vehicle manufacturer confirming the vehicle was manufactured for the Australian market and met all applicable ADRs at the time of manufacture.

Where the owner of the vehicle is unable to provide any documentation, he/she should be advised to obtain a modification plate and certificate of modification issued by an Approved Person. Where applicable, the Department of Transport and Main Roads will consider issuing a permit exempting the vehicle from the need to fit a compliance plate.

In most instances, vehicles (except motorcycles) built prior to 1 January 1972 will be fitted with a manufacturer's identification plate.

Other Imported vehicles

Vehicles imported into Australia after 1 August 1989 are eligible for the issue of a Safety Certificate or Certificate of Inspection where:

• a personal import (yellow) compliance plate and a Department of Transport and Main Roads modification plate with Code L03; or

• a low volume (green) compliance plate is fitted.

Vehicles imported prior to 1 August 1989

Vehicles which were imported into Australia prior to 1 August 1989 will be eligible for a safety Certificate or Certificate of Inspection on the condition that the owner can provide:

• proof of previous registration in Queensland prior to 1 August 1989; or

• proof of previous registration in another state/territory prior to 1 August 1989; or

• a permit from Queensland Transport, exempting the vehicle from the need to fit a compliance plate as was required in the previous Queensland *Traffic Regulations* and superseded by the *Transport Operations (Road Use Management – Vehicle Standards and Safety) Regulation 2010*, is provided.

Please Note:

Vehicles imported into Australia on or after 1 August 1989 which are more than 15 years old are exempt from the provisions of the Federal *Motor Vehicles Standards Act* and do not require a Compliance Plate to satisfy Department of Transport and Main Roads registration requirements.

These vehicles, if built on or after 1 January 1972, must be fitted with either of the following:

• A modification plate endorsed with either LO1 or LO3; and

• In the case of LO3 endorsement, a permit issued by Department of Transport and Main Roads.

Imported vehicles built on or before 31 December 1971 must comply with the *Transport Operations (Road Use Management – Vehicle Standards and Safety) Regulation 2010*. An Approved Person may issue a modification plate confirming this under Code L02 of the Code of Practice - Light Motor Vehicles.

INFORMATION SHEET No. 6
BULL BARS AND BULL BAR ATTACHMENTS

The purpose of this information sheet is to set the terms for the acceptability of bull bar design and bull bar accessories acceptable for use of the road network in Queensland.

When a poorly designed bull bar is fitted to a vehicle it has the ability to considerably increase the risk of injury to other road users, pedestrians and occupants of the vehicle in the event of a collision. Bull bars can also affect a vehicle's ability to comply with Australian Design Rules relating to frontal impact. As such, a great deal of research is currently being conducted into the possible effects of bull bars and ways of optimising their design.

Accident statistics, confirmed by scientific studies, have shown that a badly designed bull bar may greatly increase the risk of injury to a pedestrian hit by a car, even at relatively low speeds. Below Figure 1 and Figure 2 show the reason for this.

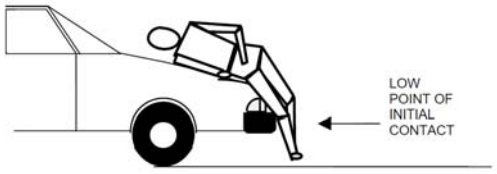


Figure 1.
Pedestrian collision - pedestrian rolls onto bonnet

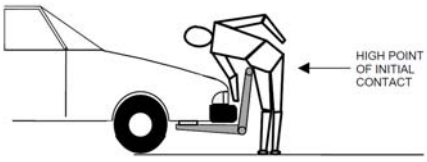


Figure 2. Pedestrian collision with a poorly designed bull bar
Pedestrian pivots about the high contact point, with increased risk of spinal, pelvic and head injuries

Figure 1 shows a pedestrian collision where the pedestrian rolls onto the bonnet of the car. Generally, this is the best scenario for the pedestrian and the risk of injury is minimised. The chances of this happening are better if the point of initial contact between car and pedestrian is as low to the ground as possible.

Figure 2 shows what is likely to happen if the pedestrian is struck by a car with a badly designed bull bar fitted. Because the bull bar presents a higher point of initial contact, the pedestrian is pushed forward and bent around the top of the bull bar, rather than being swept onto the bonnet of the car. As a result, there is a much higher risk of spinal, pelvic and head injuries to the pedestrian, even at relatively low collision speeds.

Bull bar Design

Existing regulations prohibits dangerous projections, sharp corners and obstructions to lighting. As such, a bull bar needs to generally conform to the shape, in plain view, front view and side view, of the front of the vehicle to which it is fitted.

To provide guidance to industry, Standards Australia has published Australian Standard (AS) 4876.1-2002 "Motor vehicle frontal protection systems". This document helps to ensure bull bars are designed in a way which minimises the risk of injury to vulnerable road users and the vehicle continues to meet the Australian Design Rules. As such, bull bars must comply with AS 4876.1-2002, sections 1, 2 and 3.1 and the Department of Transport and Main Roads strongly recommends compliance with section 3.2.

Fitment of bull bars to ADR 69/00 vehicles

Australian Design Rule ADR 69/00 sets minimum levels of occupant protection, as determined by crash testing. Depending on the design and application, a bull bar may positively or negatively affect occupant safety in a crash situation.

ADR 69/00 affects the following vehicles:
From 1 July 1995, all new model MA vehicles (passenger cars)
From 1 January 1996, all MA vehicles (passenger cars)
From 1 January 1998, all new model MB vehicles (forward control passenger vehicles)
From 1 January 1998, all new model MC vehicles (off-road passenger vehicles)
From 1 July 1998 for new model NA1 vehicles (light goods vehicles)
From 1 January 2000 all MB vehicles (forward control passenger vehicles)
From 1 January 2000 all MC vehicles (off-road passenger vehicles)
From 1 July 2000 all NA1 vehicles (light goods vehicles).

On these vehicles, bull bar manufacturers will need to be in a position to show that the fitment of their product does not interfere with the intent of the occupant protection provisions specified in ADR 69/00. Various techniques are being researched, by the industry, for determining the effect of the bull bar on ADR 69/00 (e.g. pendulum tests and computer simulations).

Research to date indicates that the strength of the mounting points is one of the most significant parameters of the bull bar's potential to interfere with the vehicle's crashworthiness. The research has shown that carefully designed mounting points result in little or no effect on the vehicles ability to satisfy ADR 69/00.

Bull bar manufacturers should acquaint themselves with this information and ensure that their bull bar designs comply with these requirements. Manufacturers should utilise the services of a professional engineer to assist them in interpreting this data and applying it to their designs.

Fitment of bull bars to vehicles with air bags

Air bags may be fitted by vehicle manufacturers in order to comply with ADR 69/00 or as an additional safety feature at the manufacturer's discretion. The triggering methods used to deploy the air bags vary greatly in complexity between manufacturers.

The fitting of a bull bar to the front of a vehicle may have an unknown effect on the deployment characteristics of an air bag. Research to date indicates that the strength of the mounting points is one of the most significant parameters of the bull bar's potential to interfere with the vehicle's air bag deployment. The research has shown that carefully designed mounting points can result in little or no effect on the vehicles ability to trigger the air bags.

Bull bar manufacturers should acquaint themselves with this information and ensure that their bull bar designs comply with these requirements.

Manufacturers should consider utilising the services of a professional engineer to assist them in interpreting this data and applying it to their designs. Bull bar manufacturers will need to be in a position to show that the fitment of their product does not adversely interfere with the triggering of the air bag system.

- Exposed edges need to be chamfered and free of burrs or sharp edges.
- Forward facing edges must have radii not less than 5mm.
- Open ended frame members are not permitted.

Labelling

Conforming bull bars shall have a durable plastic or metal plaque permanently attached by bonding, riveting, welding, drive screws, or a durable integral label, on a surface of the bar such that the label can be read when the bar is attached to a vehicle and located where it will not sustain environmental damage.
It shall display the following information in permanent and legible letters not less than 4 mm high:

- A description indicating the vehicle make and year model(s) for which the bar is suited
- The bull bar manufacturer's business name
- An identification code that permits the manufacturer (or importer) to identify a specific production batch
- The statement "this product and the associated fixings must not be modified".

Vehicle lighting

The installation of a bull bar may result in the existing lighting such as headlights, parking lights, turning indicators being obscured and consequently prevent the vehicle from complying with the relevant ADR for Forward Facing Lamps. Where ADR lighting requirements are not satisfied, additional lamps shall be fitted so that the vehicle complies.

Attachments and attachment points on bull bars

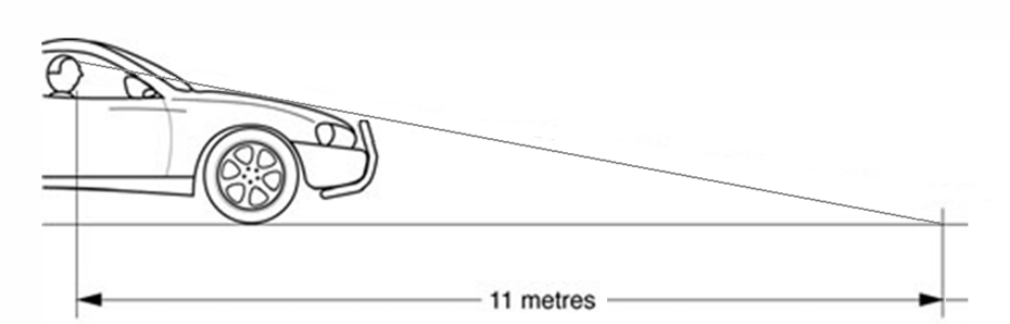
Of particular concern are the ways in which items protruding forward of the bumper or bull bar are fitted e.g. accessory fittings attached to the front of a vehicle such as brackets and attachment points supporting aerials, fishing rod holders and driving lights.

It is acceptable to have attachment points fixed to bull bars for these items provided they are fixed to the rear surface of the bull bar in a manner that prevents them from becoming dangerous projections. Similarly, fishing rod holders may only be fitted if they do not protrude forward of the front face of the bull bar, or in cases where they protrude forward of the front face must be removed when not carrying fishing rods.

Field of vision

The bull bar, together with any attachments, must not reduce a driver's ability to safely drive the vehicle to which it is attached.

When sitting in the driver's seat, in the rearmost position, the driver must be able to see, either the surface of the road 11 meters in front of the vehicle, or the front edge of the vehicle, when looking across the top of the bull bar.



Front Axle Mass

When selecting a bull bar it is important to ascertain the vehicle's front axle mass rating and the mass of the bull bar to ensure the front axle mass is not exceeded. In some cases the bull bar design, bull bar material, attachments (winch, driving lights, etc.) or even the ability to fit a bull bar could be affected.

Please Note:
Modifying a vehicle that adversely affects its safety, or driving or parking an unsafe vehicle on a road, are breaches of the *Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 2010*.

INFORMATION SHEET No. 7

BRAIDED BRAKE HOSES

This information sheet has been rescinded.

INFORMATION SHEET No. 8
MOTOR VEHICLE LIGHTING

Introduction

Motor vehicle lighting plays an important part in vehicle and road safety. Lighting is particularly important in poor visibility circumstances (such as rain or fog) and at night.

Motor vehicle lighting impacts on road safety in two ways:

- it assists the driver's vision by lighting the road surface and surrounding objects;
- it allows other road users to see a vehicle on the road (tail lights, head lights, park lights, stop lights and indicators).

This attachment is about those aspects of motor vehicle lighting that can be checked, and, in many instances, rectified.

What can be checked?

Motor vehicle lighting defects can occur at any time and unless regular safety checks are made, owners may not be aware of a problem.

Lighting can be easily checked when washing or cleaning a motor vehicle, particularly if assistance is available. These types of checks should be conducted regularly to ensure the vehicle's lights comply with the minimum safety standards at all times.

Lights that can be checked include:

HEADLIGHTS

- for effective high or low beam operation;
- for discolouration or imbalance in light when switched on;
- for peeling, tarnishing or deterioration of the reflecting surface;
- for cracks or other damage to lenses.

TURN SIGNAL INDICATORS

- for effective operation (including self-cancelling where it applies);
- for an audible/visible indicator to indicate the signals are operating effectively;
- for excessive discolouration, fading, cracks or other damage to the lenses.

BRAKE LIGHTS (including eye level brake lamps)

- for effective operation when the foot brake is applied;
- for appropriate difference in light intensity when compared with the tail lights in the "on" position;
- for excessive discolouration of fading of the red lenses;
- for cracks or other damage to the lenses.

REVERSING LIGHTS

- For effective lighting when reverse gear is engaged (ensure either the ignition "on" or the engine running);
- For switching off when reverse gear is disengaged;
- For discolouration, cracks or damage to the lenses.

NUMBER PLATE LIGHT(S)

- For effective operation when headlights or tail/park lights are switched on.

A total failure of one or more lighting components (e.g. headlights or brake lights) may signify a blown fuse. Many motorists carry a spare fuse kit in their motor vehicle to avoid inconvenience in such circumstances.

Repair of Lighting Defects

Most lighting defects can be corrected by replacing the damaged bulb, filament, fuse or lens. Care should be taken to ensure that any replacement is of equivalent luminance to that specified by the motor vehicle manufacturer. When a lens is to be replaced, the replacement lens must conform to the original manufacturer's colour specifications. If the defect occurs after repair, the circuit should be checked by an appropriately qualified tradesperson.

REMEMBER

- Lighting defects may seriously impair a driver's ability to see clearly and the ability of other road users to see a motor vehicle with defective lighting.
- A motor vehicle owner is legally responsible for ensuring the vehicle complies with the minimum safety standard at all times.
- Drivers also are responsible for the condition of the motor vehicle they drive.

INFORMATION SHEET No. 9
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 2010* (TORUM-VSS) and changes to the Australian Design Rules (ADRs).

TORUM-VSS requires all vehicles to comply with the ADRs 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 also detailed in the Schedule. The following lists the major changes:

Alternative lights

The TORUM-VSS stipulates that a vehicle may only be fitted with an alternative light or reflector if the light or reflector is required or permitted to be fitted to a vehicle under an Act.

Therefore, an alternative light cannot be fitted to a vehicle unless specifically mentioned in an Act. For example, under body lighting (neon lights) would not be acceptable as they are not mentioned in an Act. However, additional light such as side marker lamps, brake lights, driving lamps, etc. are mentioned in the TORUM-VSS and ADRs and consequently would be considered acceptable if fitted to a vehicle.

Please Note: The use of blue lights is reserved for police and ambulance vehicles only.

Side marker lamps

The ADRs 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. TORUM-VSS allows either red or yellow side marker lights to the rear on any age vehicle.

Optional forward facing lights and reflectors

TORUM-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 at least 200mm above the front position (side) lights.

Headlights

Some headlights may appear to have a blue or yellow tinge when viewed on an angle from the perpendicular. These bulbs are actually "whiter" than the existing bulbs as they contain less of the red/yellow frequencies and more of the blue end of the spectrum.

Additionally, some vehicles are now being fitted with High Intensity Gas-Discharge (HID) or Light Emitting Diode (LED) headlight assemblies. When fitted to comply with the ADRs these lights provide superior illumination compared with traditional halogen bulbs. However, HID and LED headlights are not easily retro-fitted to vehicles not originally offered with the technology and generally fail to comply with the ADRs in the following areas:

- No headlight self-levelling device fitted
- No self-cleaning function fitted
- Design of headlamps reflector not compatible with bulb (light not focused correctly)

Please Note: Additional a main (high) beam headlights under the ADRs and TORUM-VSS, may be fitted at any height above the ground. 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).

Driving Lamps

Information relating to driving lamps can be found in Vehicle Standards Instruction - Light 15.3. This document can be found on the Department of Transport and Main Roads' website at https://www.tmr.qld.gov.au/Safety/Vehicle-standards-and-modifications/Vehicle-standards/Vehicle-standards-instructions

Approved Examiners Action

If, during the course of an inspection, Approved 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.

INFORMATION SHEET No. 10

REPLACING OR REPAIRING WINDSCREENS

Introduction

Windscreen damage or defects may impair a driver's forward vision, create a potential safety hazard and affect road safety. However, windscreens will be subject to some damage such as sandblasting, cracks, and stone chips during normal operation, therefore some deterioration from new condition is allowable.

A windscreen should be clean and free of damage that might impair the driver's view to the front of the vehicle. Things which might impair a driver's vision are:

- The location of the damage;
- The size of the damage;
- Effect on the mechanical strength of the windscreen.

Is a damaged windscreen safe?

When a damaged windscreen is examined the following factors should be considered:

- The location of the damage;
- The size of the damage;
- Effect on the mechanical strength of the windscreen.

To determine if a windscreen should be replaced or repaired, the area of windscreen swept by the wipers to the right of the centre of the vehicle may have bull's-eyes and star fractures up to 16 mm in diameter and cracks up to 150 mm long which do not penetrate more than one (1) layer of the glass in a laminated windscreen, provided they do not interfere with the driver's vision.

In addition, the "primary vision area" (the area of the windscreen which is swept by the windscreen wipers) must not be cracked, scored, chipped, sandblasted or otherwise damaged to the extent that it impairs the driver's vision or damages the wiper blades.

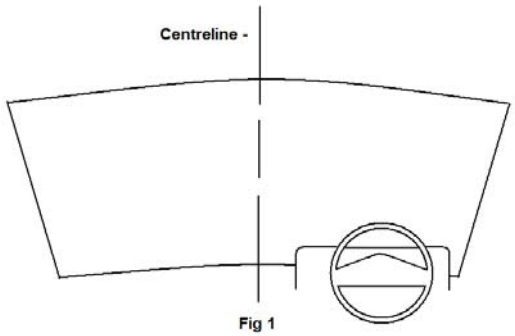


Fig 1

It is recommended that all defects be repaired as soon as possible.

Repairing windscreen damage

Repairing a damaged windscreen, if undertaken correctly, is an acceptable means of reinstating a windscreen to a safe condition.

Repaired windscreens must comply with the following requirements:

- When inspected from the inside of the vehicle, the repair should not exhibit any significant optical defects which would distort or distract the vision of the driver and should restore clarity to the damaged area. (Acceptable limits of repairs are outlined in Note 1);
- Any repair to the windscreen should not reduce the effectiveness of the windscreen wipers;
- Windscreen repair material must be used in accordance with the manufacturer's instructions.

If a repair has been unsuccessful or is unlikely to be effective, the vehicle owner is responsible for replacing the windscreen in order to meet the necessary safety requirements.

NOTE 1:

In a repaired windscreen, a faint outline of the repair, or in some cases, a slight dull spot may be visible where the repair has been performed. A repaired crack may also be detectable by a fine hairline surface mark. These are acceptable and should not cause a vehicle to fail a safety inspection provided the damaged windscreen has been repaired to a standard which complies with the requirements outlined in this document. To date, the extent of windscreen damage considered to be repairable has not been defined. Improved technology has increased the scope of repairable damage and acceptability can only be determined (in accord with the above standards) after the repair has been completed.

It is recommended that repairs of cracks longer than 350 mm be avoided.

NOTE 2:

The Australian Standard AS/NZ 2366.1-1999 (Windscreen repairs – Repair procedures) and AS/NZ 2366.1-1990 (Windscreen repairs – Repair systems) are voluntary standards for the repair of automotive windscreens. They provide recommended practices regarding the repair of laminated windscreens. The use of these Australian Standards is not mandatory.

Replacement windscreens

To ensure the safety of all motor vehicle occupants, replacement windscreens must be of an approved safety glass.

or

The glass must always bear an identification mark indicating the standard to which the glass has been manufactured (e.g. AS2080, BSAU178, JISR3211, ECER-43/00, ANSI-Z26.1) and have a standards mark etched or indelibly printed on the glass.

Windscreens which do not comply with these recognised standards may shatter easily and unexpectedly, creating areas of distorted vision.

Windscreens that do not have a standards mark are illegal

Windscreens fitted to motor vehicles manufactured on or after 1 July 1971, are required by law to be made from glass which has a light transmittance of no less 75 percent. Aftermarket tint film may be applied to the upper portion of the windscreen. The tinting must not extend lower than a horizontal line contacting the uppermost point of the arcs swept by the vehicle manufacturer's original wiper blades. The tinting may be of any shade but must not have a reflectance of more than 10 percent.

Types of windscreens available

There are two types of replacement windscreens available for motor vehicles, laminated or tempered.

Laminated glass windscreens are manufactured like a "sandwich" with glass on the outside and inside surfaces and a clear plastic film between. A laminated screen is more resistant to breakage than tempered glass and even when fractured it remains almost transparent.

Tempered glass is specially treated so that, when broken, it shatters into tiny fragments instead of jagged splinters. Unfortunately, when the windscreen shatters, it is difficult to see through.

Vehicles manufactured on or after 1 January 1994 must be fitted with laminated glass windscreens. Whilst vehicles built before 1 January 1994 do not have to meet this requirement, it is strongly recommended that when a replacement windscreen is needed, laminated glass be used.

Remember:

- Windscreen damage or defects could seriously impair a driver's ability to see clearly, thereby presenting a safety hazard.
- The owner of a motor vehicle is legally responsible for ensuring that his/her vehicle complies with relevant safety standards.
- Drivers are responsible for the condition of the motor vehicle they drive.

INFORMATION SHEET No. 11
RUST AND CORROSION

Introduction

This attachment provides simple guidelines for determining if a rust affected motor vehicle is road safe. The average safe operational life of a motor vehicle can be extended by carefully and regularly checking for rust and by repairing rust as soon as possible as it becomes apparent.

To determine the safety of a rust affected motor vehicle, this attachment proposes a system of classifying the extent and severity of the rust in relation to the motor vehicle's structural components. The attachment also provides some information concerning recommended rust repair techniques.

Even small deposits of rust can be signs of much more extensive corrosion in a motor vehicle. If rust is repaired when it is minor, it will normally be a simple and economic task. However, rust allowed to spread unchecked (or only partially repaired) can damage a motor vehicle beyond economic repair. Severe rust can be an extreme safety hazard to driver, passenger and other road users.

Rust and Motor Vehicle Safety

Motor vehicles are carefully designed as rigid structures for normal road use. However, in an accident they are intended to collapse progressively and absorb energy. If the structure of the motor vehicle is weakened by rust, it could lose some of its structural strength and so become unpleasant to drive. More importantly, however, it can lose its energy absorbing capacity and this means that passengers are at greater risk in a collision or accident.

Typically, rust develops in enclosed body sections or in areas which can accumulate road deposits, e.g. between body panels, inside door panels, around mudguards or inside the sills just below door level. However, rust can occur on any metallic component of the motor vehicle (including suspension and steering components and the exhaust system).

Classification of Rust

The extent of corrosion in a motor vehicle can range from light surface rust to the total breakdown of parent metal of a motor vehicle component. The degree to which a component structure is attacked and degraded can vary widely. In general, the formation of rust and resultant loss of metal occurs in areas which retain moisture, because of a build-up of road dirt and mud etc.

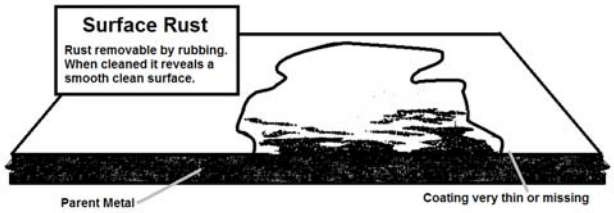
To simplify identification and classification of rust, this attachment classifies the extent of corrosion in three stages.

Stage 1 – Surface Rust

Light, powdery corrosion on the surface of a section of metal is termed surface rust and is sometimes the first indication of corrosion that can be observed; it should warn the owner of a motor vehicle to take steps to prevent the rust from spreading.

Surface rust can occur on or behind any body panel of a motor vehicle particularly if the protective coating is scratched or damaged.

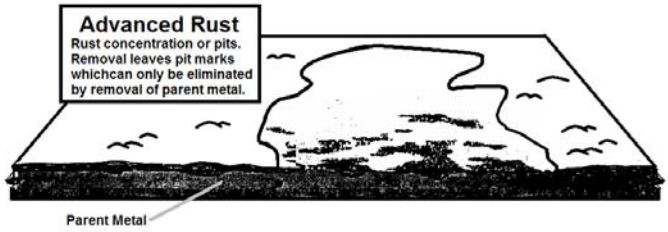
A typical case of surface rust is shown below:



Stage 2 – Advanced Rust

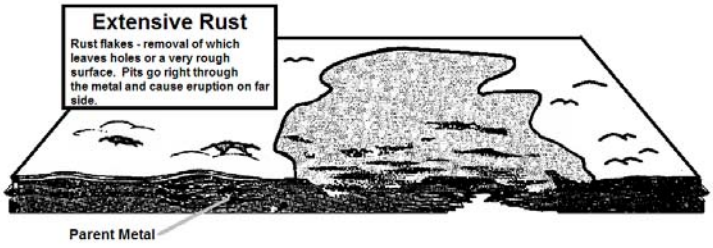
Surface rust, if left unattended, will develop into an advanced form of corrosion which can usually be seen as an eruption of oxidised metal, either on bare metal or under paint. This eruption occurs because the rust reaction involves an increase in volume so that pitting or bubbling of paint is the usual indication of penetration of the rust.

An example of a section affected by advanced rust is illustrated below.



Stage 3 – Extensive Rust

The final stage of the corrosion process is the formation of a heavy encrustation of oxidised metal which completely replaces the parent metal. This results in a hole or series of holes in the body panel or structural member of the motor vehicle when the rust is removed. This category of rust can usually only be rectified by replacement of the affected body panels and parts. The illustration below shows a section affected by extensive rust.



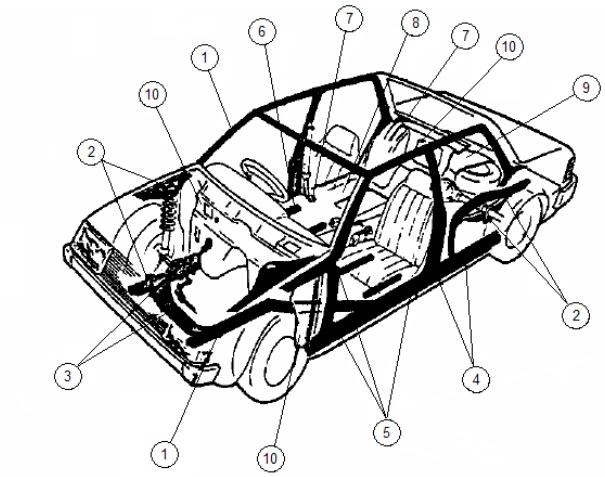
Motor Vehicle Structures and the Effects of Rust

Motor vehicle structural components can be categorised according to their importance to safety. For instance, sub frames and other basic structural sections must be absolutely free of rust because their failure could make a motor vehicle difficult to control and might cause it to crash.

Primary Structure

The primary structure includes any structure or component which, if it collapsed, would render the vehicle uncontrollable or would considerably reduce occupant safety in a crash/collision situation. Examples of components in this category are illustrated below.

Typical Primary Structure Components



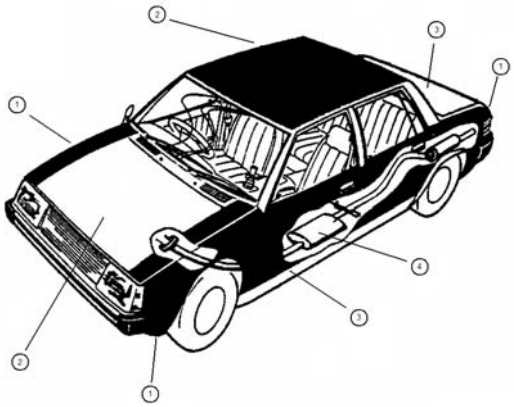
The weakening of any of these components may lead to a crash or greatly reduce the vehicle's structural integrity in a crash.

1. Main structural members such as sub frames and chassis rails.
2. Suspension mountings and parts.
3. Steering component mounting points.
4. Door sills and pillars.
5. Door hinges and latch mounting points.
6. Seat anchorage points.
7. Seat belt anchorage points.
8. All floor panels.
9. Boot floor.
10. Bulkheads.

Secondary Structure

The second category includes any structure or component which, if it collapsed, would not immediately affect a motor vehicle's controllability or the protection provided by its built-in safety system. Normally, surface rust or advanced rust in these structures or components would not make the motor vehicle unsafe. Extensive rust in these components is usually either hazardous to people in or near the motor vehicle because of its sharp edges or because exhaust fumes may escape into the motor vehicle. In such cases, this type of rust would make the motor vehicle unsafe.

The illustration below shows examples covered by this category.



Typical Secondary Components

Extensive rust in these components can be hazardous to vehicle occupants and other road users.

1. Mudguards or fenders.
2. Roof.
3. Boot lid, bonnet and doors (areas within 100 mm of mounting and locking points are primary structures and must be free of advanced or extensive rust).
4. Exhaust system (motor vehicle may fail to meet noise emission standards if exhaust system is deteriorated due to rust).

How to determine if a vehicle is safe

TYPE OF CORROSION	CATEGORY OF MOTOR VEHICLE STRUCTURE	
(RUST)	**PRIMARY**	**SECONDARY**
Surface Rust	Acceptable	Acceptable
Advanced Rust	Not Acceptable	Acceptable*
Extensive Rust	Not Acceptable	Not Acceptable**

* Areas within 100 mm of hinges and locks (e.g. boot lid, bonnet and doors), are considered primary structures and must be free of advanced and extensive rust.

** Extensive rust is not acceptable in secondary components, if it renders the component hazardous to persons in or near the vehicle (e.g. sharp edges, loose panels, or in the case of exhaust fumes, leakage of exhaust gases into the passenger compartment).

Detecting Rust in Motor Vehicles

Since advanced rust is almost always associated with an eruption of oxidized metal and pitting or bubbling of paint, a visual inspection is usually adequate to determine to its presence. However, this method may not be adequate in all cases. In underbody areas prone to rust, such as steering and suspension mounting points and major structural components which include chassis, floor, structural sills and sub frames, the presence of rust should be checked by probing with a rod or similar implement (e.g. screwdriver). This method also should be used to check for presence of rust in other areas where cosmetic damage is not a problem, such as inside wheel arches.

In using this technique, care should be taken to avoid damage to panels or paint work not rust affected in any way. The purpose of such checks is to find out whether rust is present, not to determine its extent.

When checking for advanced rust, particular attention should be paid to seam welds and spot welds. These frequently corrode through from the interior and can result in the eventual detachment of panels. Any panel which is made insecure by such corrosion must be repaired even if it is an area of the component where rust holes are not an immediate danger.

Recommended Rust Repair Methods

The best way to fight rust is to stop it in the first place. Motor vehicles that are kept free of dirt build up in wheel arches and under the body have a much better chance of surviving the rust scourge. Thus, if a motor vehicle is found to have body drain holes or tooling holes blocked up with dirt, they should be cleaned out immediately and rechecked from time to time.

Repair of surface rust is simply a matter of completely removing the deposit and applying a rustproofing coating or oil as is appropriate (body panels should be repainted using a good quality refinishing system). **Note:** Repairs made to primary structure components solely by using body filling compounds are **not acceptable**. Repairs should be made by completely welding in new metal of the same gauge as that of the manufactured component. However, plastic filler or fibreglass can be used to cosmetically smooth a non-structural component.

Extensive rust in structural members can only be repaired by replacing the affected member or by completely removing all rusted material and reinforcing it so that the original strength of the affected structural member is re-established.

REMEMBER

- Rust can seriously affect the safety of a motor vehicle by degrading the structural integrity of the motor vehicle.
- A motor vehicle owner is legally responsible for ensuring a motor vehicle complies with minimum safety standards at all times.
- Drivers also are responsible for the condition of the motor vehicles they drive.

INFORMATION SHEET No. 12(a)

SAFETY CHAINS FOR TRAILERS UP TO AND INCLUDING 3.5 TONNES ATM

Trailers up to 2.5 tonnes ATM must have at least one safety chain complying with AS 4177.4 - 1994 (Trailer and light trailer towing components – Safety chains up to 3.5 tonnes capacity), or as amended from time to time. This standard allows for steel safety chains in accordance with the following:

- up to 1.0 tonne, a chain size of 6.3 mm;
- up to 1.6 tonnes, a chain size of 8 mm;
- up to 2.5 tonnes, a chain size of 10 mm.

Trailers over 2.5 and up to 3.5 tonnes ATM must have two safety chains complying with AS 4177.4 - 1994 or as amended from time to time. This standard allows for steel safety chains in accordance with the following:

- up to 3.5 tonnes, a chain size of 13 mm.

The fitting of safety chains to trailers with a Gross Trailer Mass (GTM) greater than 2.0 tonnes is optional if the trailer is fitted with a brake system which automatically applies if the trailer becomes detached from the towing vehicle.

However, trailers with a 3.5 tonnes ATM or greater, all medium and heavy category pig trailers with rigid drawbars, any other trailers without breakaway brakes and all fixed and rigid pig trailers with a GTM greater than 2.5 tonnes and fitted with automatic pin type couplings, must be fitted with safety chains in accordance with the information contained in AIS Information Sheet 12(b) – Safety Chain Requirements.

Draw Bar Safety Chain Attachments

The chain must be permanently attached to the trailer, shackles are not permitted. For trailers up to 3.5 tonnes ATM, the safety chain attachment can be by welding. The weld must extend around 50% of the circumference of the link and the adjoining link must have free movement.

For trailers of and in excess of 3.5 tonnes ATM, safety chain attachment must not involve welding or deformation of the chain. Suitable pin lock couplings should be used.

The safety chain attachment must be located as near as practicable to the coupling and where 2 points of attachment are required, they must be mounted one on either side of the centre-line of the draw bar.

INFORMATION SHEET No. 12

All pig trailers with rigid drawbars (with or without breakaway brakes but excluding converter dollies) and, any other trailer without breakaway brakes, must be fitted with safety chains that are marked in accordance with the relevant Australian Standard complying with the following:

- trailers that do not exceed 2.5 tonnes ATM must have at least one safety chain complying with Australian Standard AS 4177.4-1994 or Australian Standard AS 4177.4-2004 'Caravan and light trailer towing components Part 4: Safety chains up to 3500kg capacity', or be a safety cable with a certified load capacity of the same
- trailers over 2.5 tonnes and not exceeding 3.5 tonnes ATM must have two safety chains of designation of 3500 kg complying with Australian Standard AS 4177.4-1994 or Australian Standard AS 4177.42004
- trailers over 3.5 tonnes ATM must have two safety chains made from steel of a minimum 800 MPa breaking stress that conforms to the mechanical properties of Grade T chain as specified in Australian Standard AS 2321-1979 'Short Link Chain for Lifting Purposes (uncalibrated)' or Australian Standard AS 2321-2006 'Short Link Chain for Lifting Purposes.' Each chain must be sized such that the minimum breaking load exceeds the ATM.

The length of the safety chain/s must prevent the trailer's drawbar hitting the ground if the trailer is detached from the towing vehicle. The safety chains must be properly connected to the tow bar with attachments capable of withstanding the specified breaking load of each chain. Do not use padlocks. For further information regarding couplings, brake requirements and safety chains please refer to the Vehicle Standard Bulletin - Building Small Trailers (VSB1) available on the Department of Infrastructure and Regional Development and Cities website athttps://infrastructure.gov.au/vehicles/vehicle_regulation/bulletin/vsb1/index.aspx

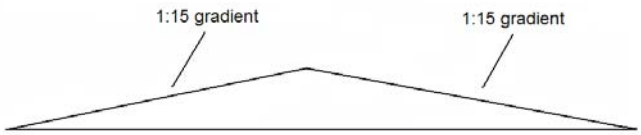
INFORMATION SHEET No. 13
GROUND CLEARANCE REQUIREMENTS

Ground Clearance or Running clearance, of a vehicle, means the distance from the surface on which an unladen vehicle is standing to the lowest point on the vehicle excluding unsprung mass.

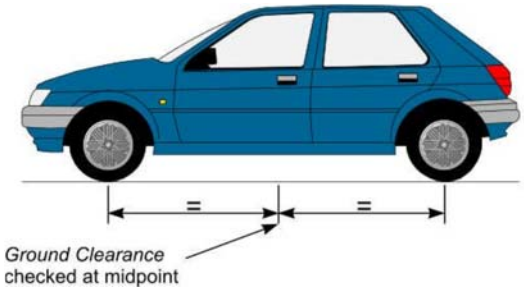
Vehicles built to comply with the Third Edition ADRs must comply with the ground clearance requirements of ADR 43/… Vehicles built to comply with ADR 43/04 must also comply with the *running clearance* requirements.

All other motor vehicles with more than 3 wheels must have a ground clearance of:

- At least 100mm at any point within 1 metre of an axle; and
- At least one-thirtieth of the distance between the centres of adjacent axles at the midpoint between them (refer Figure LS1); and
- At any other point — at least the distance that allows the vehicle to pass over a peak in the road with a gradient on either side of 1:15, if the wheels of 1 axle of the vehicle are on the slope on one side of the peak and the wheels of the next axle are on the slope on the other side.



Gradient 1:15



Measuring *Ground Clearance*

INFORMATION SHEET No. 14

APPROVED INSPECTION STATION SAFETY CHECK
ADR APPLICABILITY TABLES, VEHICLE CATEGORIES AND DEFINITIONS

The Australian Design Rules (ADRs) are available from the Department of Infrastructure, Regional Development and Cities website at https://infrastructure.gov.au/vehicles/design/.

- Second edition ADRs
- Third edition ADRs

The following summaries are guides to the applicability of the ADRs in force for the vehicle categories used in the ADRs.

- L—Category Vehicles—Two and Three Wheeled Vehicles PDF: 830 KB
- M—Category Vehicles—Passenger Vehicles PDF: 877 KB
- N—Category Vehicles—Goods Vehicles PDF: 850 KB
- T—Category Vehicles—Trailer PDF: 809 KB

ADR—Definitions and Vehicle Categories

The function of the Australian Design Rules is to set out definitions for many terms used in the ADRs and to define the categories used in the ADR applicability tables.

Definitions and Vehicle Categories

INFORMATION SHEET No. 15

General information for tyres, tubes and liners

The purpose of this information sheet is to provide some simple information when fitting new or re-treaded tyres, tubes and liners and repairing tyres and tubes.

When fitting a tyre to a rim it is important to ensure that the rim, tube and liner (if fitted) and tyre are in good condition. If any defect or damage is found with the rim, tube and liner (if fitted) or tyre the defective/damaged component must be replaced. Items to consider include but are not limited to the following:

- Rust or corrosion on rims (including locking rings on split rims)
- Cracks in tyres, tubes, liners or rims
- Condition/suitability of repairs performed
- Age of tyres, tubes and liners *
- Cut/bulging/ separating/damaged tyres (including sidewalls)
- Tyre compatibility with rim

* A number of manufacturers recommend tyres, tubes and liners are replaced five to six years after their manufacture date due to degradation of the rubber. However, this degradation is affected by a number of variables (exposure to ultraviolet light, heat and water, sitting for long periods, etc.) and as such there is no mandatory requirement to replace tyre/tubes or linings at this time. The Department of Transport and Main Roads does however recommend tyres, tubes and liners be checked regularly for degradation by an industry expert five years after their date of manufacture.

The date of manufacture can be determined by a code stamped onto the tyre or tube. It is recommended that you contact your local tyre retailer to determine the age of your vehicle's tyres and tubes (if fitted).

If a tyre or tube requires repair the repairs should be performed in accordance with Australian Standard AS1973-1993 (Pneumatic tyres – Passenger car, light truck, and truck/bus - Re-treading and repair process). This standard provides detailed information to ensure the tyre and/or tube is repaired to a safe standard for road use.

The *Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 2010* permits the use of re-treaded tyres provided they meet AS1973-1993. The information below details the requirements listed in AS1973-1993.

Marking of Re-treaded Tyres

Marking on one side: Each re-treaded 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.

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 AS 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.

- ***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.

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 must 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 dis**c. No repair shall be made to the component.

II) If it is considered that there is insufficient material available to successfully machine the brake disc in accordance with the vehicle manufacturer's requirements, **replace the brake disc**.

III) Where the manufacturer specifies that a disc rotor must 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 along and across the lining contact area (i.e. ovality and taper). 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.

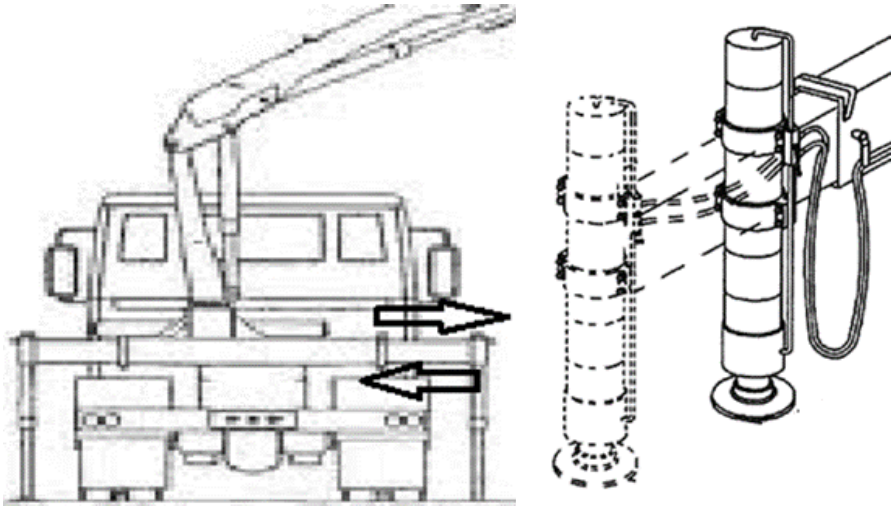
Cracking of brake drums and disc rotors, other than minor surface heat cracks, must result in the drum or rotor being replaced.

INFORMATION SHEET No. 17

Stabilisers and outriggers

The purpose of this information sheet is to provide the requirements for stabilisers/outriggers mounted on light vehicles and trailers, such as vehicle loading cranes.

The objective is to ensure all stabilisers/outriggers are retracted and securely locked to prevent travel while the vehicle is in motion.



Fail reasons

For manually operated stabilisers/outriggers:

- The stabiliser/outrigger's locking device/s are damaged, excessively worn, insecure or inoperative.

For manually operated extendable stabilisers/outriggers:

- The stabiliser/outrigger do not have primary and secondary locking devices in accordance with the version of Australian Standard AS 1418.11 *Cranes, hoists and winches Part 11: Vehicle – loading cranes* that applied at the time the equipment was fitted to the vehicle. If the date of fitting is unknown, then the latter of the date of manufacture of the vehicle or the equipment.
- Since 2004, AS 1418.11 has required manually operated stabiliser/outrigger extensions to be locked in the transport position by two separate locking devices for each stabiliser/outrigger, with at least one of these to be automatically operated, e.g. a spring operated cam and an automatic spring latch'.
- The stabiliser/outrigger arm/s are damaged in such a way to prevent them being fully retracted to the position for travel, or preventing all locking devices engaging.

For all outriggers/stabilisers:

- The stabiliser/outrigger is not safely secured.
- The stabiliser/outrigger foot-plate/s are excessively damaged, excessively worn, and insecure in a way that would cause it to separate from the stabiliser leg (falling off) during travel.
- Audible or visual warning devices, if fitted, are damaged or not working.