

## Guidelines for lights and light signalling devices for heavy vehicles

### Introduction

The following information summarises the main requirements for lights and light signalling devices on trucks, buses and heavy trailers -

- a) built prior to the introduction of Australian Design Rule (ADR) 13/00,
- b) built to comply with ADR 13/00.

The requirements of ADR 13/00 “*Installation of Lighting and Light Signalling Devices*” became applicable for vehicles manufactured on or after 1 October 1991.

Not all the requirements are listed here. However, the summary will give a reasonable indication of what the required lights are and their location on the vehicle to comply with the Road Transport (Vehicle Registration) Regulation 2007 and the ADRs.

**It is acceptable for older vehicles to be up-graded to comply with the later ADR 13/00 requirements.**

Note that ADR 13 requires individual lights and reflectors to meet stringent performance standards.

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# A. General requirements for lights

## Prevention of glare

Any **headlight** fitted to a vehicle must be built and adjusted to provide the necessary amount of light without dazzling the driver or rider of an approaching vehicle.

Any **external light** on a vehicle should not be positioned such that the lens is directly visible to the driver, or light is reflected by mirrors towards the driver's eyes.

## Pairs of lights

With the exception of **number-plate lights**, **side marker lights** and **interior lights**, if a pair of lights is fitted to a vehicle, they should be fitted symmetrically.

# B. Mandatory lights and light signalling devices

## 1. Headlights

### Headlights to be fitted to a vehicle

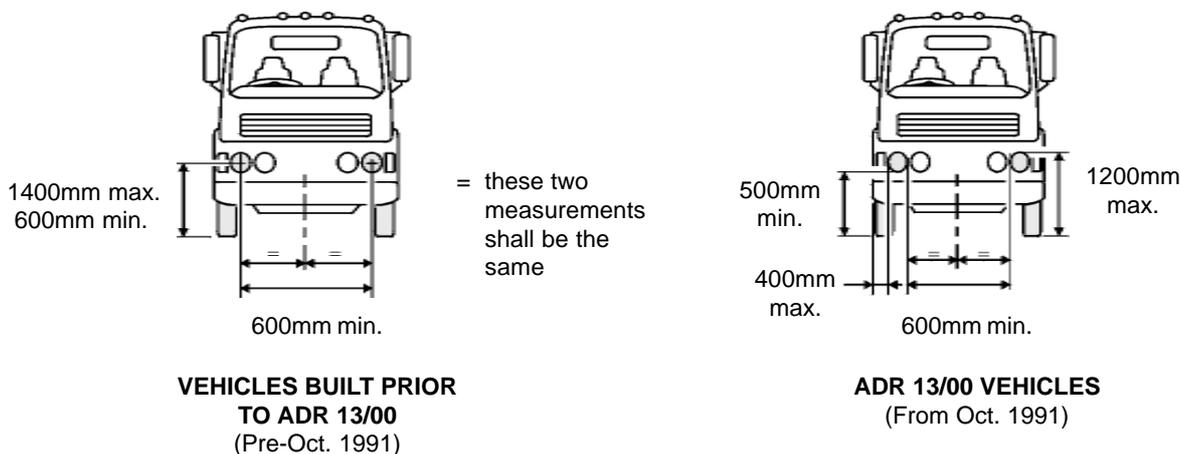
A motor vehicle must have a pair of **low-beam headlights** fitted to it (except *Special Purpose Vehicles* intended for daylight use only), so that either -

- a) each **low-beam headlight** can also work in the **high-beam** position, or
- b) a **pair of headlights** that can work in the **high-beam** position is also fitted to the vehicle.

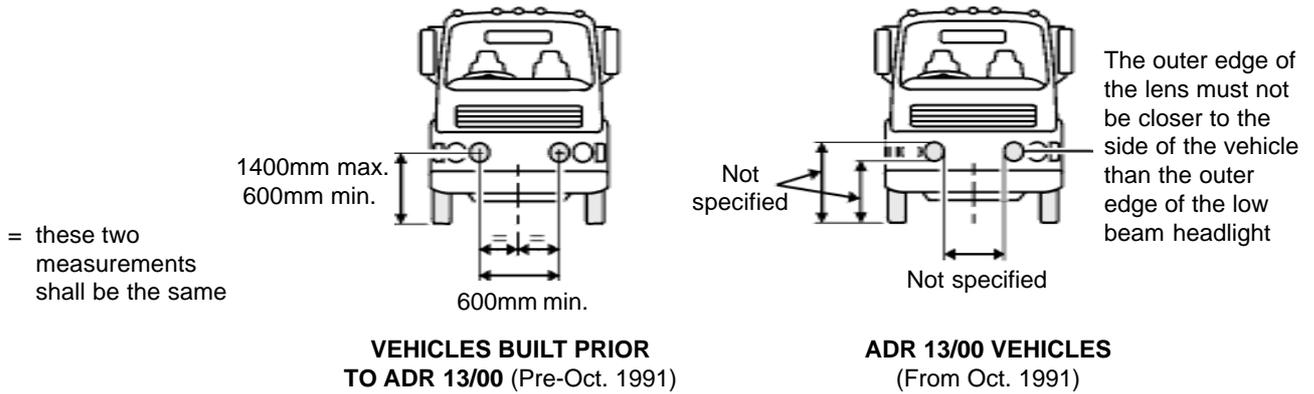
A motor vehicle may also have additional pairs of high-beam headlights fitted to it. ADR 13/00 limits the number of high-beam headlights to 2, 4 or 6. "**Driving lights**" that project "white" light in front of the vehicle are additional high-beam headlights.

Headlights must be fitted to a vehicle so that their light does not reflect off the vehicle into the driver's eyes.

### Location of low-beam headlights



## Location of high-beam headlights



## Performance of headlights

When switched-on, a headlight or additional headlight fitted to a vehicle must -

- show only **white** light,
- project its main beam of light ahead of the vehicle, and
- illuminate the road ahead of the vehicle.

## Effective range of headlights

- a **low-beam headlight** must be effective at a distance of at least 25 metres.
- a **high-beam headlight** must be effective at a distance of at least 50 metres.

## Changing headlights from the high-beam to low-beam position

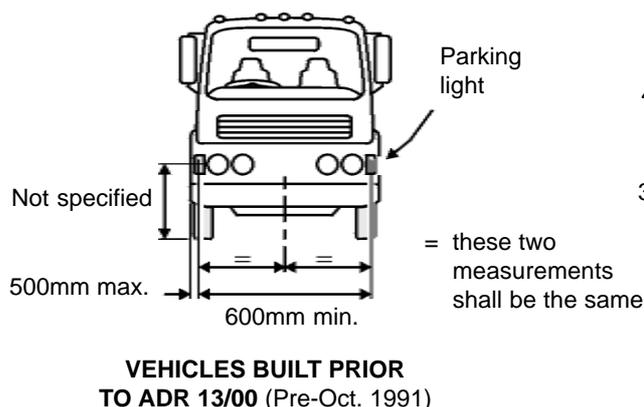
A **motor vehicle** fitted with high-beam headlights must be fitted with a *dipping device* enabling the driver in the normal driving position to -

- change the headlights from the high-beam to low-beam position, or
- simultaneously switch-off all high-beam headlights and switch-on the low-beam headlights.

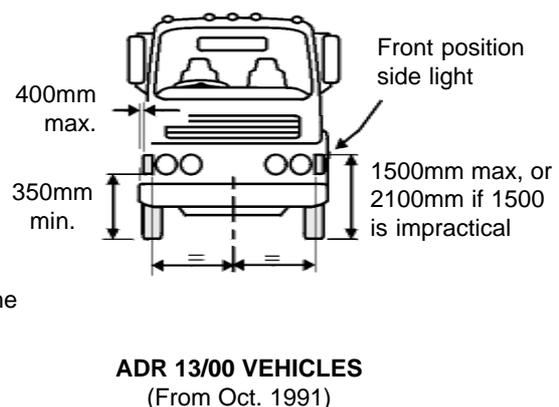
The vehicle must also be fitted with a **high-beam warning light** to indicate to the driver that the headlights are in the high-beam position.

## 2. Parking lights/ Front position-side lights (ADR 13/00)

### Location of parking lights



### Location of front position side lights



## Performance of parking lights

When switched-on, a parking light must -

- show a **white** light visible 200 metres from the front of the vehicle, and
- not use more power than 7 watts.

## Wiring of parking lights

Parking lights must be wired so that, when a headlight on the vehicle is switched-on, the parking lights -

- stay switched-on if they are already switched-on, or
- come on if they are not already switched-on.

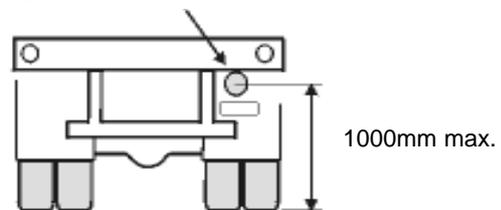
# 3. Tail lights (Rear position-side lights)

## Location of tail lights

A vehicle must have at least **one** tail light fitted at the rear. Vehicles built after 1st January 1988 must have at least 2 tail lights fitted symmetrically, one on each side of the vehicle.

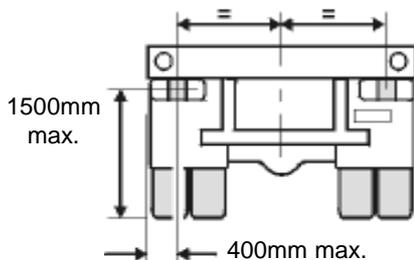
A vehicle may have fitted to it one or more **additional tail lights** at any height above ground level.

If only one tail light it must be located centrally on the right hand side

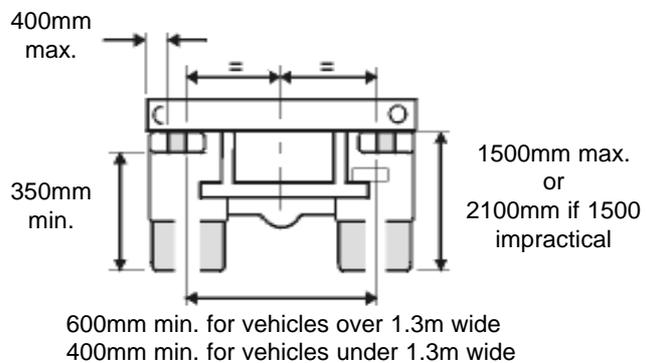


VEHICLES BUILT BEFORE JAN. 1988

= these two measurements shall be the same



VEHICLES BUILT PRIOR TO ADR 13/00 (Pre-Oct. 1991)



ADR 13/00 VEHICLES (From Oct. 1991)

**Tail lights** fitted in accordance with these requirements may also serve as **rear clearance lights** if they meet the location and visibility requirements for rear clearance lights.

## Performance of tail lights

When switched-on, a tail light must -

- show a **red** light visible 200 metres from the rear of the vehicle, and
- not use more power than 7 watts.

## Wiring of tail lights

A tail light must be wired to come "ON" and stay "ON" when a parking light or headlight on the vehicle is switched-on.

## 4. Number-plate lights

At least **one** number-plate light must be fitted to the rear of a vehicle in a location that illuminates the number-plate. A number-plate must be mounted so that the upper edge is no higher than 1.3 metres from the ground.

When switched-on, the number-plate light or lights must illuminate a number-plate on the rear of the vehicle with **white** light, so that the characters on the number-plate can be easily read at night 20 metres from the rear of the vehicle.

A number-plate light -

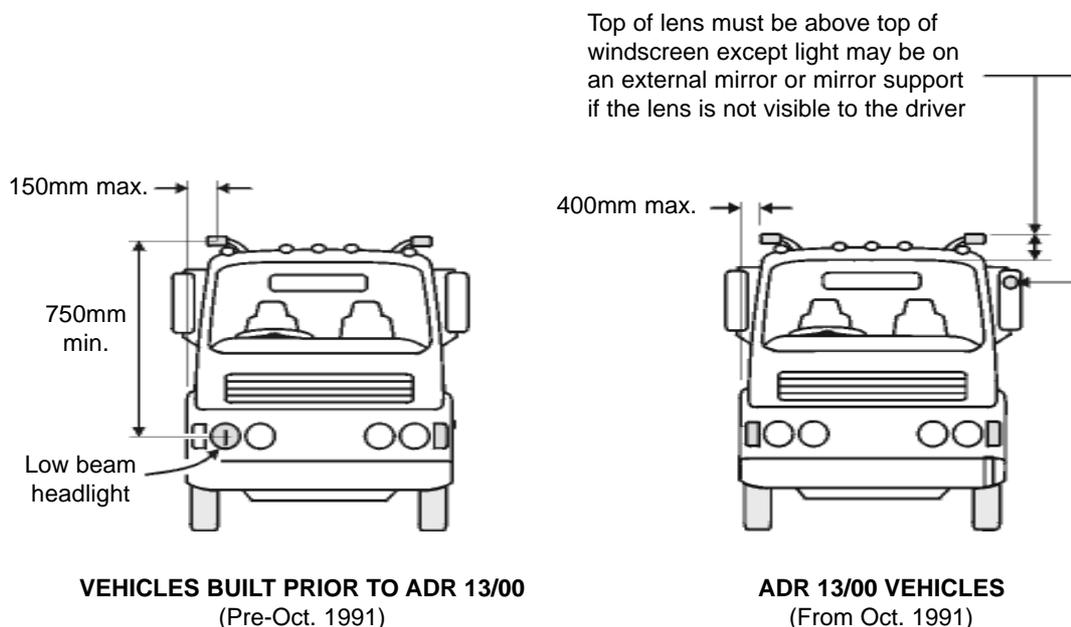
- a) may be combined with a *tail light*,
- b) must not project white light to the rear of the vehicle except by reflection,
- c) must not obscure the characters on the number-plate,
- d) must be wired to come on and stay on when a parking light or headlight on the vehicle is switched-on.

## 5. Clearance lights /End outline marker lights

### Front clearance lights

A pair of front clearance lights must be fitted to a motor vehicle that is 2.1 metres wide (or more), or a prime mover.

*Front clearance lights may also be fitted to a vehicle that is at least 1.8 metres wide but not to a vehicle less than 1.8 metres wide.*



### Performance of front clearance lights

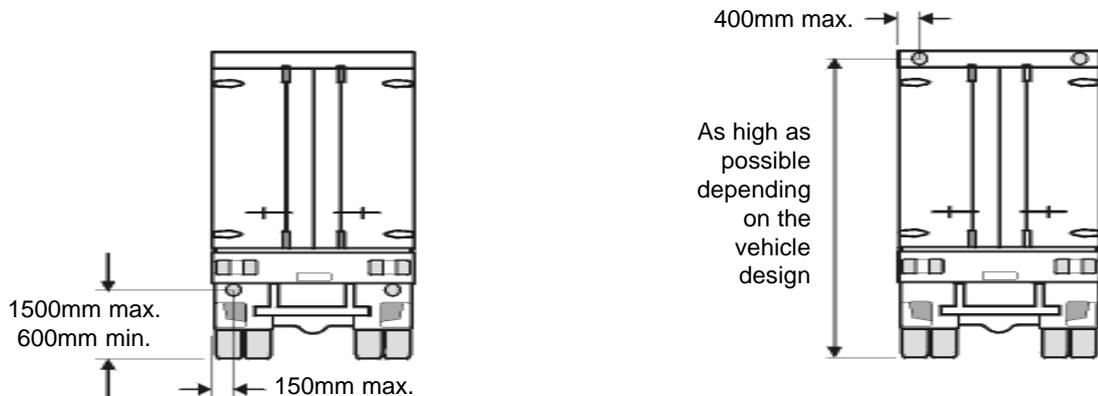
When switched-on, a front clearance light must -

- a) show a **yellow** or **white** light (trailers built to comply with ADR 13/00 may show **amber** light) and be visible 200 metres from the front of the vehicle, and
- b) not use more power than 7 watts.

## Rear clearance lights

A pair of rear clearance lights must be fitted to the rear of a vehicle that is 2.1 metres wide or more.

*Rear clearance lights may also be fitted to a vehicle that is at least 1.8 metres wide but not to a vehicle less than 1.8 metres wide.*



**VEHICLES BUILT PRIOR TO ADR 13/00**  
(Pre-Oct. 1991)

**ADR 13/00 VEHICLES**  
(From Oct. 1991)

## Performance of rear clearance lights

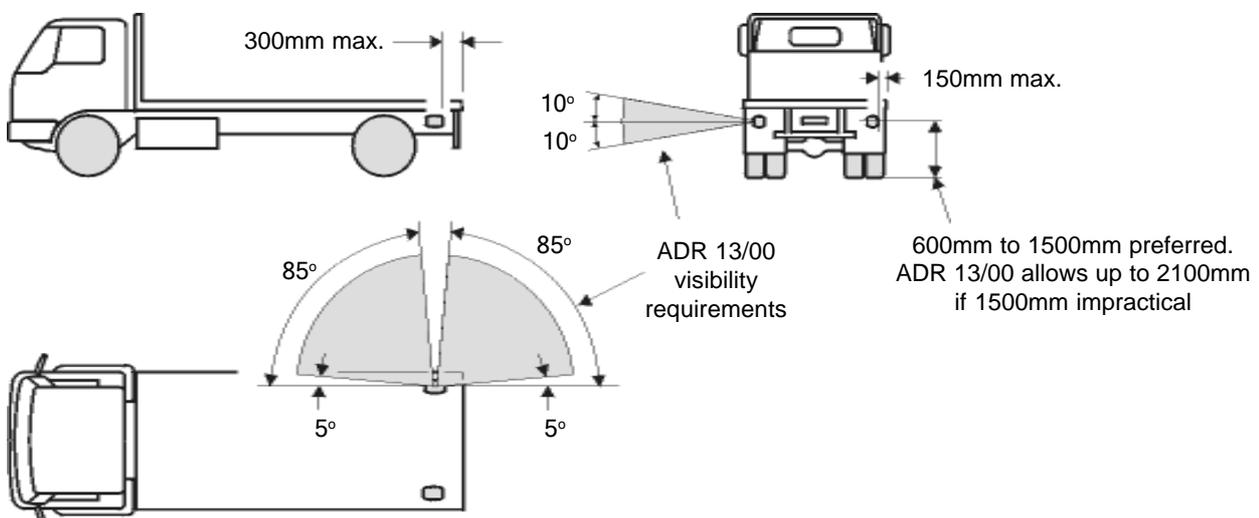
When switched-on, a rear clearance light must -

- show a **red** light visible 200 metres from the rear of the vehicle, and
- not use more power than 7 watts.

## 6. Side marker lights

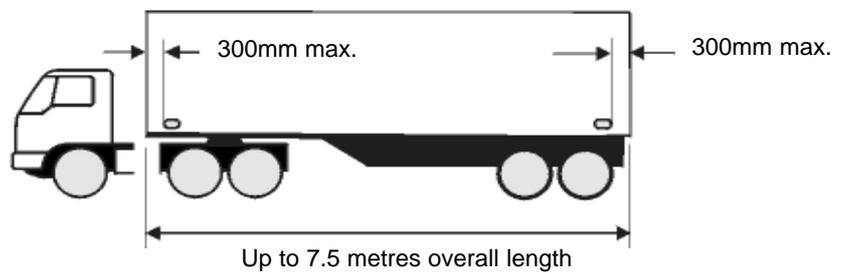
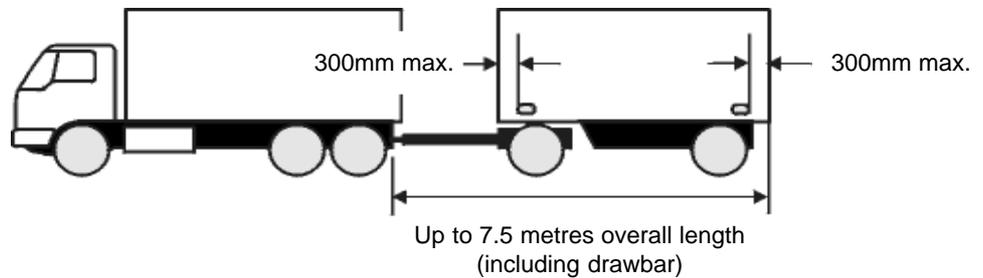
### Which vehicles need side marker lights?

A pair of side marker lights must be fitted towards the **rear** of the sides of a **motor vehicle** that is more than 7.5 metres long and 2.1 metres or more wide.



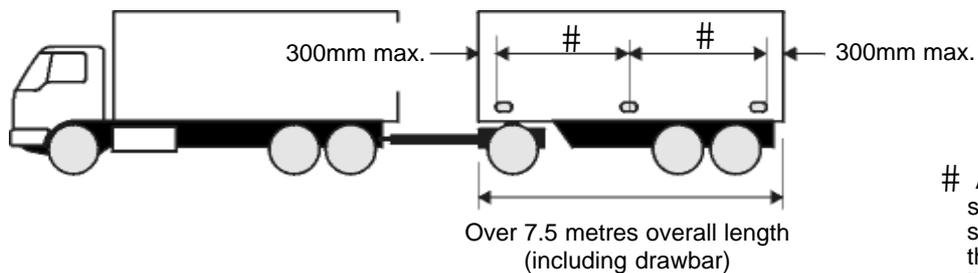
At least 2 side marker lights must be fitted towards each side of -

- a) a **trailer** that is -
  - i) up to 7.5 metres long, and
  - ii) at least 2.2 metres wide.
- b) a **semi-trailer** that is up to 7.5 metres long

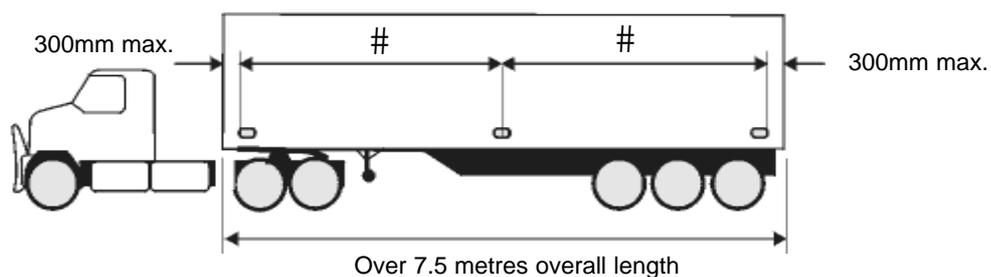


At least 3 side marker lights must be fitted towards each side of -

- a) a **trailer** that is -
  - i) more than 7.5 metres long, and
  - ii) at least 2.1 metres wide.
- b) a **semi-trailer** that is more than 7.5 metres long.



# Additional lights shall be equally spaced between the first and rear lights



## Q Side marker lights on pole-type trailers

A **motor vehicle** built to draw a pole-type trailer, or a **pole-type trailer** with one cross-bar or bolster must have a side marker light fitted to each side of the cross-bar or bolster.

A **pole-type trailer** with at least 2 cross-bars or bolsters must have fitted to each side of -

- a) the front cross-bar or bolster a light which, when switched-on, shows a **yellow** or **amber** light to the front, and
- b) the back cross-bar or bolster a light which, when switched-on, shows a **red** light to the rear.

### Location of side marker lights

A **side marker light** must not be more than 150mm from the nearer side of the vehicle.

A **front side marker light** fitted to a trailer (excepting pole-type trailers) must be -

- a) within 300mm of the foremost point of the side of the trailer, or
- b) if the construction of the trailer makes it impracticable to comply with this, then as close as practicable to the front of the trailer.

A **rear side marker light** fitted to a vehicle or trailer (excepting pole-type trailers) must be:

- a) within 300mm of the rearmost point of the side of the vehicle, or
- b) if the construction of the vehicle makes this impracticable, as close as possible to the rear of the vehicle.

The centres of adjacent side marker lights fitted to the side of a vehicle or trailer (excepting pole type trailers) must be an equal distance apart.

A **side marker light** must be fitted to a vehicle so that -

- a) its centre (for ADR 13/00, the top of the lens) is not more than -
  - i) 1.5 metres above ground level, or
  - ii) if it is not practicable to fit it lower, 2.1 metres above ground level.
- b) its centre (for ADR 13/00, the bottom of the lens) is at least 600 millimetres above ground level, and
- c) it is, as far as practicable, in a row of side marker lights along the side of the vehicle.

*A vehicle fitted with side marker lights in accordance with the above, may have fitted to it additional side marker lights than that specified.*

### Performance of side marker lights

When switched on, a side marker light must -

- a) show light visible for 200 metres from the vehicle, and
- b) not use more power than 7 watts.

When switched-on, a side marker light, other than a pole trailer light referred to above must show **yellow** or **amber** light towards the front of the vehicle and **red** light towards the rear of the vehicle.

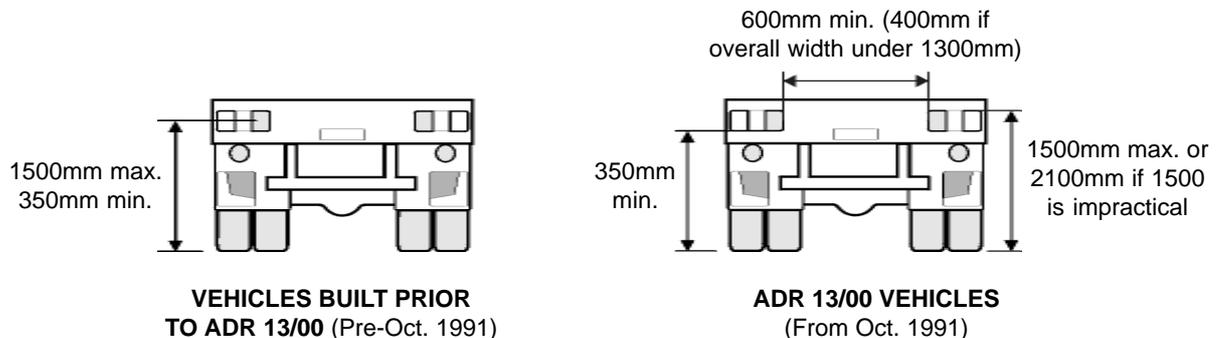
### Side marker lights and rear clearance lights

The *rearmost* side marker light of a vehicle may also be a *rear clearance light*.

## 7. Brake lights

At least one brake light must be fitted to the rear of a motor vehicle or trailer if first registered prior to January 1986. Motor vehicles and trailers made on or after January 1986 must have a pair of brake lights fitted to the rear.

A vehicle may have fitted to it one or more additional brake lights as long as they are at least 350mm above ground level.



### Performance and operation of brake lights

When switched-on, a brake light must show a **red** light visible 30 metres from the rear of the vehicle.

A brake light on a trailer must come on -

- when any device which independently activates the brakes fitted to the trailer is applied, and
- when the brake light of the towing vehicle is switched-on.

*A brake light may also be operated by an engine brake, retarder or similar device.*

## 8. Reversing lights

Trucks and buses built to comply with ADR 1 (applicable from July 1975 for trucks and buses over 4.5t GVM) must be fitted with reversing lights. Audible warning “beepers” used in reversing are **not** mandatory.

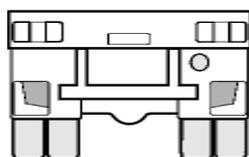
**One or more** reversing lights **may** be fitted to the rear of trailers.

A reversing light must show **white** or **yellow** light, (**white** light only for ADR 13/00 vehicles) to the rear of the vehicle.

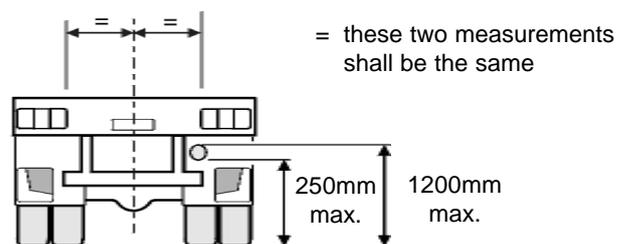
**A reversing light fitted to a motor vehicle or trailer must be wired so that it is switched-on only when the vehicle (or the vehicle towing the trailer) is in reverse gear.**

### Location of reversing lights

Location not specified



**VEHICLES BUILT PRIOR TO ADR 13/00 (Pre-Oct. 1991)**



**ADR 13/00 VEHICLES (From Oct. 1991)**

## 9. Direction indicator lights

A **motor vehicle** must have -

- a pair of direction indicator lights fitted on or towards its front, facing forward, and
- a pair of direction indicator lights fitted on or towards its rear, facing backwards.

If the vehicle is built to comply with ADR 13/00 the vehicle must also have **two repeating side direction indicating lamps** which may either be -

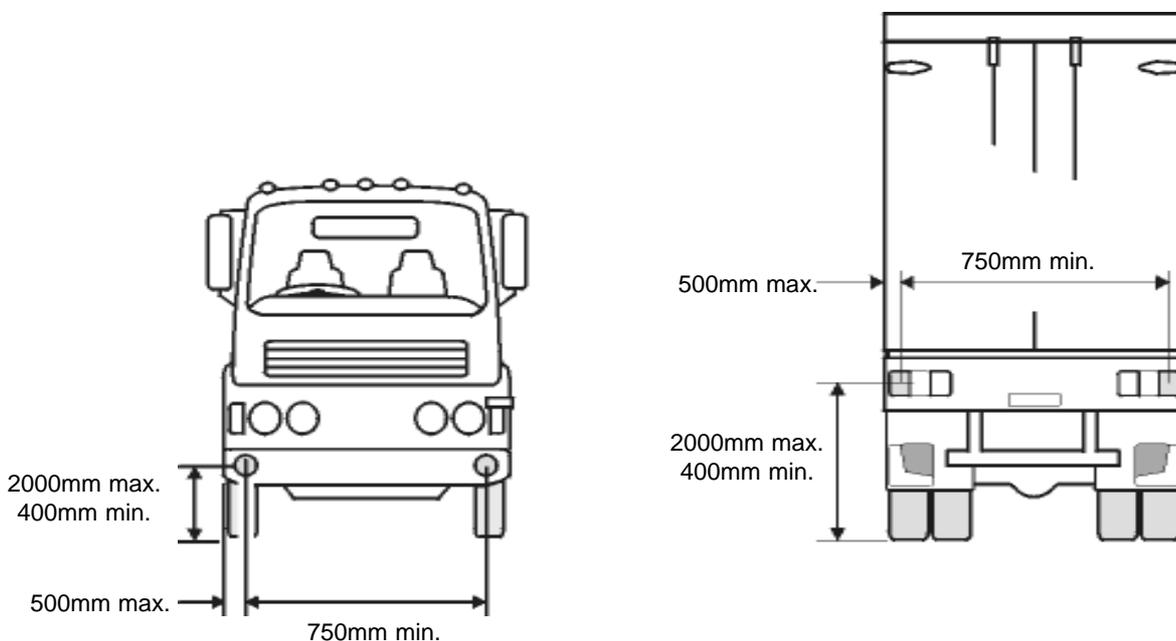
- incorporated in the front direction indicator lamps if the visibility requirements shown on page 11 can be met, or
- be provided by the fitting of an additional pair of indicator lights at each side near the front of the vehicle, or
- a combination of both of the above.

### Direction indicator lights on a trailer

A pair of direction indicator lights must be fitted on or towards the rear of a trailer, facing rearward.

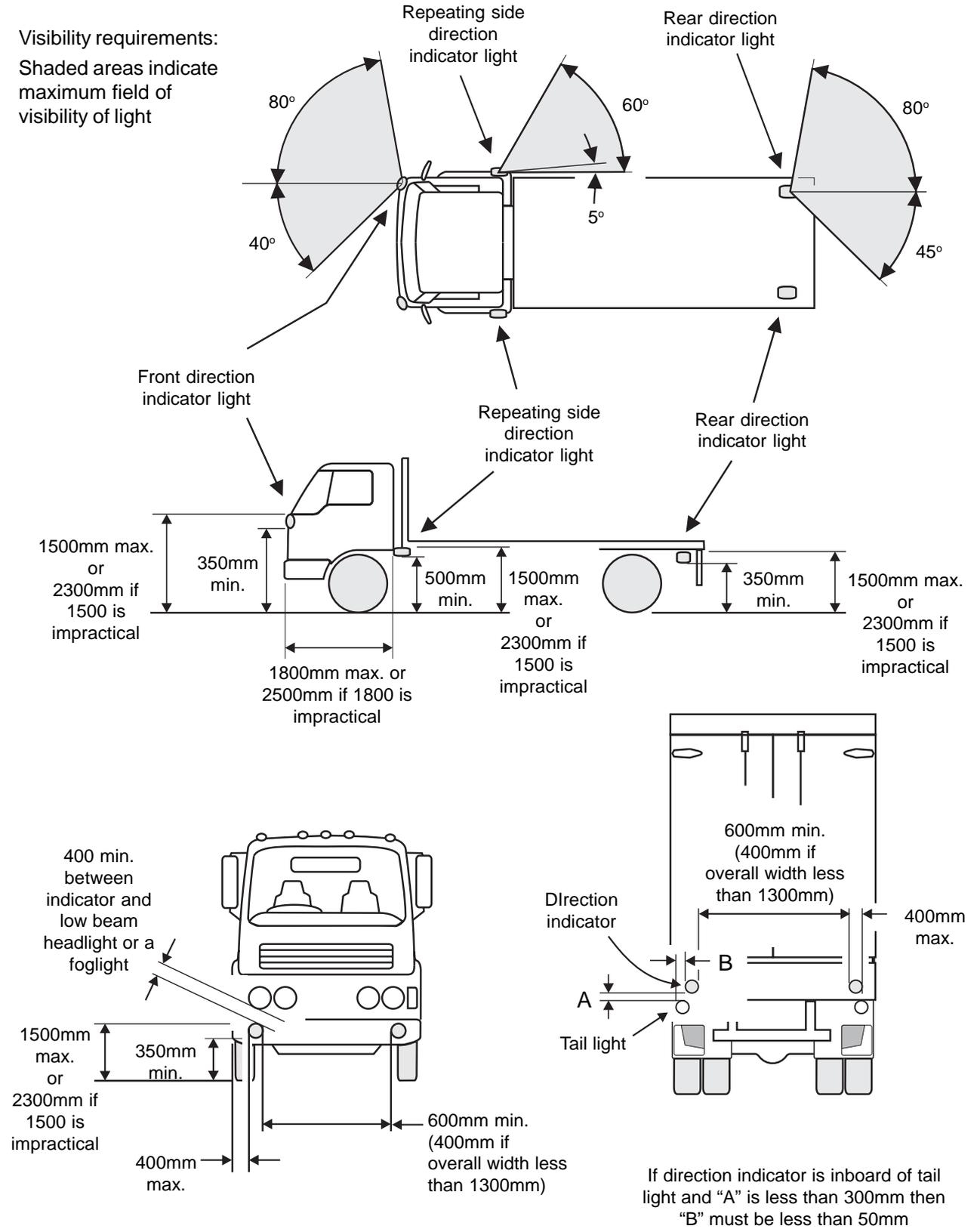
### Location of direction indicator lights

- Location of direction indicator lights for vehicles built prior to ADR 13/00 (pre Oct. 1991)



b) Location of direction indicator lights for vehicles built to comply with ADR13/00 (from Oct. 1991)

Visibility requirements:  
Shaded areas indicate maximum field of visibility of light



A vehicle fitted with direction indicator lights in accordance with figures 1 or 2 (as applicable) may be fitted with additional pairs of direction indicator lights.

## Operation and visibility of direction indicator lights

A direction indicator light must -

- a) when operating, display regular flashes of light at a rate of not less than 60, and not more than 120, flashes per minute,
- b) be controlled by a switch that can be operated by a person in the driving position of the vehicle,
- c) be wired to an *audible* or *visible* **tell-tale** in the vehicle that shows the driver of the vehicle that the light is operating,
- d) flash in phase with any other light of the same type fitted on the same side of the vehicle.

The direction indicator light must -

- a) if the light shows to the front of the vehicle, be -  
**white** or **yellow** if the vehicle was built prior to January 1973 (ADR 6),  
and **yellow** or **amber** if the vehicle was built on or after January 1973.
- b) if the light shows to the rear of the vehicle, be -
  - i) **yellow** or **amber**, or
  - ii) if the vehicle was manufactured before 1 January 1973 - **yellow** or **red**.
- c) if the light shows to the side of the vehicle, be **yellow** or **amber**.

When operating, a direction indicator light must be visible at all times from a distance of 30 metres from the light.

When operating, each direction indicator light of one pair of lights fitted on or towards the front of the **motor vehicle** that is more than 7.5 metres long or a **prime mover**, must be visible at a point 1.5 metres away from the side when standing near the rear of the vehicle.

## 10. Hazard warning lights

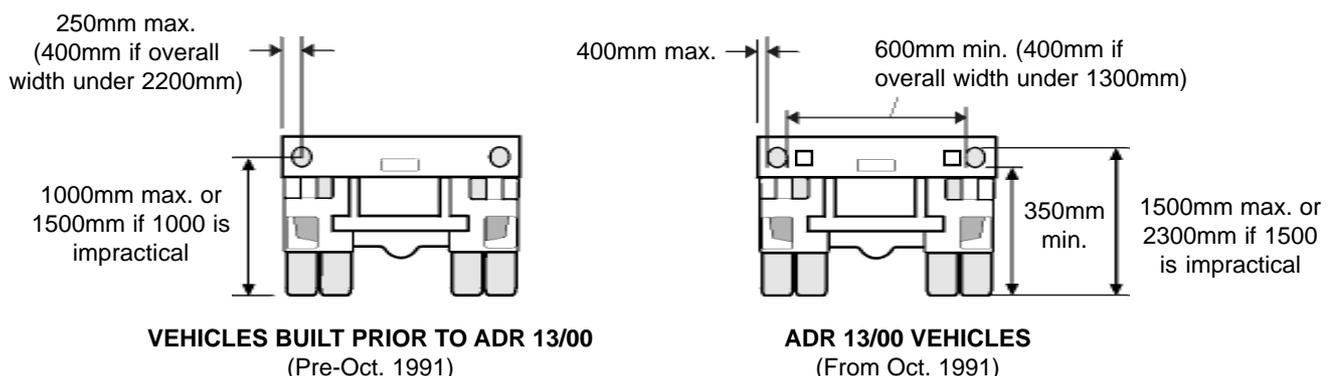
From September 1983, motor vehicles must be equipped with hazard warning lights. The hazard warning signal shall be provided by the simultaneous operation of the **direction indicator lights** on both sides of the vehicle.

## 11. Reflectors

### Rear reflectors

A **motor vehicle** or **trailer** other than a pole-type trailer, must have towards each side of its rear, a rear facing **red** reflector.

A **pole type trailer** must have at least 4 rear facing **red** reflectors on its back cross-bar or bolster.



A vehicle fitted with rear facing red reflectors in accordance with the above may be fitted with additional red reflectors at any height above ground level or any distance from the side of the vehicle.

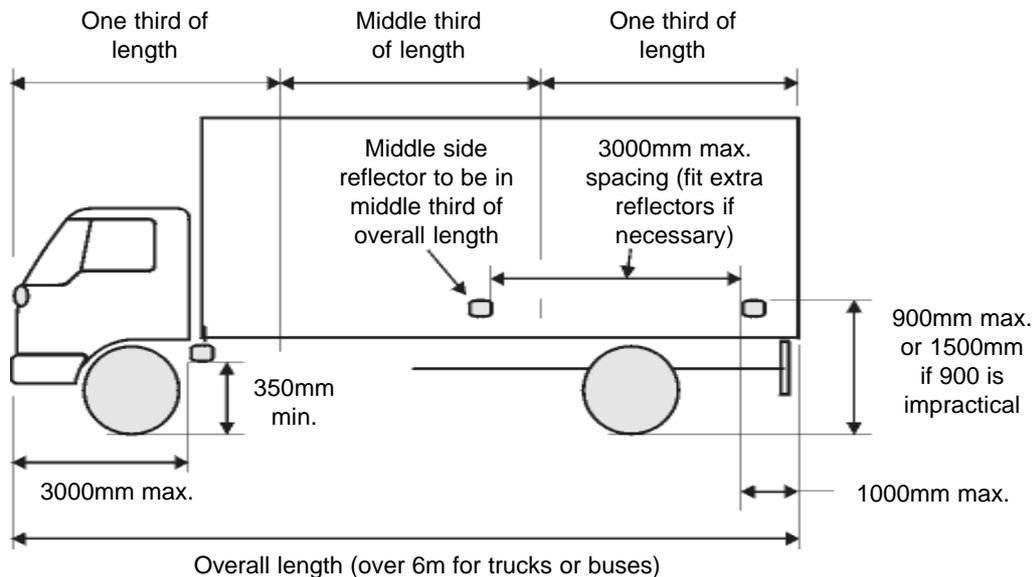
### Side reflectors on pole-type trailers

**Amber, red or yellow** side facing reflectors must be fitted along the length of the left and right faces of the pole of a pole type trailer at intervals of not more than 1.25 metres.

### Reflectors on the side of a vehicle - vehicles built to comply with ADR 13/00

All trucks and buses over 6 metres long made after October 1991 and all trailers made after October 1991 must be fitted with side facing **amber** reflectors.

At least one side reflector must be fitted to the middle third of the vehicle. The foremost reflector must be no more than 3 metres from the front of the vehicle and the rearmost reflector must be no more than 1 metre from the rear of the vehicle.



**SIDE REFLECTORS FOR ADR 13/00 VEHICLES**

### Front reflectors on trailers

A front facing **white** or **yellow** reflector must be fitted towards each side of the front of -

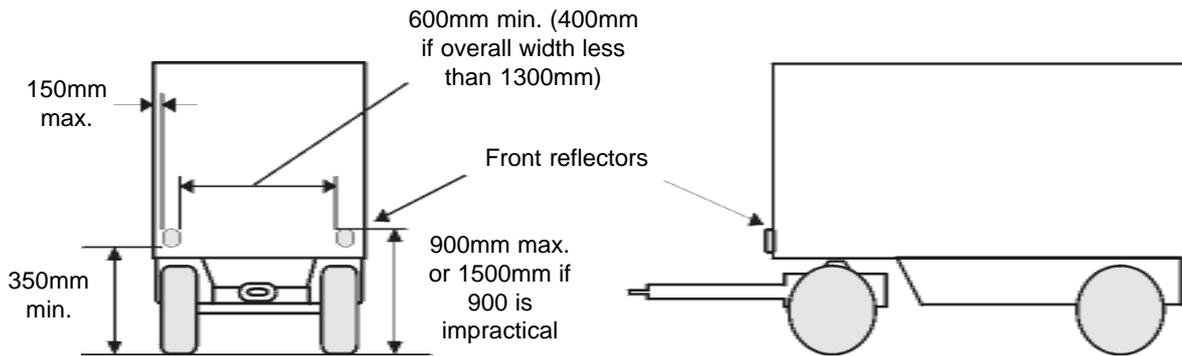
- a **semi-trailer**, other than a pole-type trailer, and
- the front cross-bar or bolster of a **pole-type trailer**, and
- a **trailer** that is at least 2.2 metres wide.

Each reflector must -

- have its centre at the same height above ground level, and
- have its centre not more than 1.5 metres above ground level, and
- be not more than 400mm from the side of the vehicle that is nearer the reflector.

*A front facing **white** reflector must be fitted towards each side of the front of all trailers and pole trailers built to comply with ADR 13/00 (from 1 October 1991).*

## Location of front reflectors on trailers

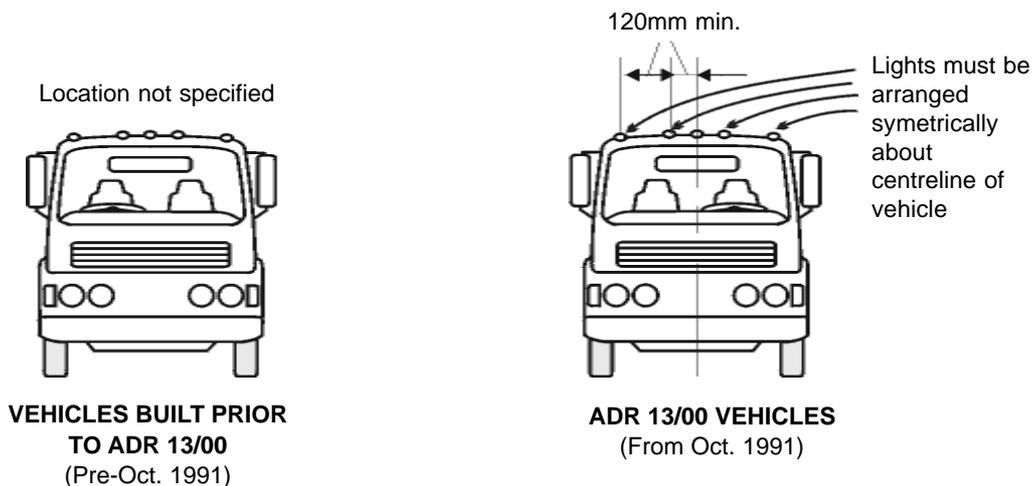


FRONT REFLECTORS FOR ADR 13/00 TRAILERS

## C. Optional lights

### 1. External cabin lights

A motor vehicle may also have external cabin lights fitted to, or above, the roof of its cabin. For vehicles built to comply with ADR 13/00, these lights may only be fitted if the vehicle is more than 2.1 metres wide and the external cabin lights are symmetrically spaced on each side of the longitudinal axis of the vehicle, with their centres at least 120 millimetres apart.



VEHICLES BUILT PRIOR  
TO ADR 13/00  
(Pre-Oct. 1991)

ADR 13/00 VEHICLES  
(From Oct. 1991)

When switched on, any external cabin light must -

- show a **yellow** or **white** (**amber** for ADR 13/00 vehicles) light, and
- not use more power than 7 watts.

## 2. Fog lights

### Front fog lights

Either one or two front fog lights **may** be fitted to a motor vehicle built prior to ADR 13/00 to project light in front of the vehicle. If fog lights are fitted to a vehicle built to comply with ADR 13/00 then a *pair* of fog lights must be fitted. A pair of fog lights on a vehicle built prior to ADR 13/00 must have their centres at least 600mm apart. The outside edge of the lens of fog lights on vehicles built to comply with ADR 13/00 must not be more than 400mm from the side of the vehicle and the bottom of the lens must be at least 250mm above ground level.

Any front fog light must not be higher than the low-beam headlight.

The front fog light must -

- a) show **white** or **yellow** light,
- b) be a low-beam light,
- c) be capable of being switched-on and “OFF” independently of any headlights,
- d) be fitted so that the light from it does not reflect off the vehicle into the driver’s eyes, and
- e) only be used in inclement weather.

### Rear fog lights

A vehicle **may** be fitted with -

- a) a pair of rear fog lights, or
- b) one rear fog light fitted on or to the right of the centre of the vehicle.

A rear fog light must -

- (a) be no more than 1500mm above ground level (1000mm measured to the top of the lens for vehicles built to comply with ADR 13),
- (b) be no less than 400mm above ground level (250mm measured to the bottom of the lens for vehicles built to comply with ADR 13), and be at least 100mm away from any stop light,
- (c) emit a beam of **red** light to the rear which projects downwards or downwards and to the left,
- (d) have a **tell-tale** light located in the driver’s view showing when the light is switched-on.
- (e) not use more power than 27 watts, and
- (f) only be used in inclement weather.

## 3. Interior lights

Any interior light fitted for the convenience of the driver or any passenger must not project any light other than that necessary for such purpose.

## 4. Search lights

A vehicle may be fitted with up to 2 search lights. Search lights must not be grouped or combined with another light.

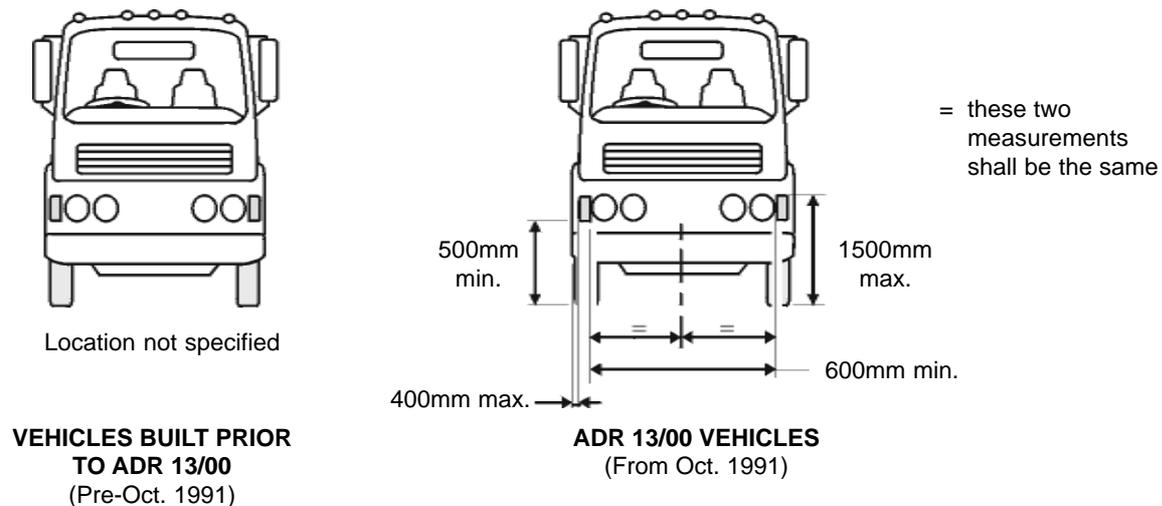
## 5. Optional daytime running lights

### Location of optional daytime running lights

When switched on, a daytime running light must -

- show a **white** light visible from the front of the vehicle,
- not use more power than 21 watts.

**Daytime running lights must be wired so that they go “OFF” when a headlight or parking light is switched-on.**



## D. Other lights

### 1. Flashing and rotating warning lights

Vehicle Standards Information Sheet No.8, “**Flashing Lights and Sirens**”, describes the requirements for the use of these lights.



For further enquiries:



RTA Technical Enquiries, PO Box 1120, Parramatta NSW 2124



1300 137 302



02 9843 3821



[www.rta.nsw.gov.au](http://www.rta.nsw.gov.au) / [tech-enq@rta.nsw.gov.au](mailto:tech-enq@rta.nsw.gov.au)