

# **SIDEGUARD, REAR UNDER-RUN DEVICE AND BUMPER BARS**

## **APPLICATION**

### **SIDEGUARDS**

Goods Vehicles first used from 1 April 1984 with a maximum gross weight exceeding 3500 kg and where the distance between the centre of any two consecutive axles exceeds 3 m;

Trailers manufactured from 1 May 1983 with an unladen weight exceeding 1020 kg and where the distance between the centre of any two consecutive axles exceeds 3m; or in the case of a semi-trailer where the distance between the centre of the king pin position and the centre of the foremost axle exceeds 4.5m.

Semi-trailers manufactured before 1 May 1983 which have a maximum gross weight exceeding 26000 kg and which form part of an articulated vehicle with a gross train weight exceeding 32520 kg and where the distance between the centre of the kingpin and the centre of the foremost axle exceeds 4.5m. Where more than one king pin is fitted, it is the distance from the rearmost position which is taken into account.

Sideguards can be manufactured & tested to any of the following standards:  
The Road Vehicles (Construction and Use) Regulations (NI) 1999 as amended.  
Directive 89/297/EEC or  
The technical requirements of the Directive 89/297/EEC

### **EXEMPTED VEHICLES:-**

- A vehicle constructed so that it can be unloaded by part of the vehicle being tipped side-ways or rearwards.
- A vehicle designed solely for use in connection with street cleaning, the collection/disposal of refuse or the contents of gullies/cesspool. (skip carrying vehicles are classed as refuse vehicles and as such are exempt).
- A trailer specially designed and constructed, and not merely adapted, to carry round timber, beams or girders, being items of exceptional length.
- Tractor units.

- A vehicle specially designed and constructed, and not merely adapted, to carry other vehicles loaded onto it from the front or rear. **(Vehicles with a standard flat body fitted with a "beaver tail" are not exempt.)**
- A trailer with a load platform which is not more than 750 mm from the ground throughout that part of its length under which a sideguard would have to be fitted.
- A semi-trailer incorporating a sliding bogie.
- A **rigid motor vehicle** or **trailer** designed for and constructed for the special purpose of carrying long (but not exceptionally long) timbers from an off road location in a forest.

To fulfil this definition the vehicle must meet the following criteria:-

- It must be of skeletal construction.
- It must have a minimum of two upright side supports (sidebolsters) fitted to each side of the vehicle.
- It must not be fitted with a load platform, other than chassis rails, cross bearers and the minimum amount of flooring necessary to protect wiring or brake line components.

It is permissible for the vehicle to be fitted with the following:

- Loading equipment, i.e., a Hiab crane or similar device.
- Cross bearers that do not have upright side supports.

**Note:**

This list is not exhaustive but covers the vehicles likely to be encountered within the test hall.

**Note:**

Some vehicles equipped with cranes, it is not practicable to fit sideguards in the area of the crane and its controls. Before reaching a decision on its pass/fail criteria for vehicles/trailers you need to take account of the following;

Vehicles fitted with an extendible device or leg to provide stability during loading, and equipped with loading devices and controls, which makes it impracticable to fully comply with the sideguard legislation, will be deemed compliant provided sideguards are in place to the fullest extent practicable. All vehicles must be presented for statutory test with any such devices in the stowed position.

Vehicles with access and a working platform adjacent to, and necessary for the operation of, a loading device, shall be regarded as a load carrying platform for sideguard compliance forward of the extendible device or leg.

**Note:**

Acceptable circumstances are when other items on the vehicle such as fuel tanks, work boxes etc which by virtue of their shape and characteristics conform to the requirements of a sideguard.

## **REAR UNDER-RUN DEVICES**

Goods Vehicles with a maximum gross weight exceeding 3500 kg and first used from 1 April 1984; or

Trailers manufactured from 1 May 1983 with an unladen weight exceeding 1020 kg.

## **EXEMPTED VEHICLES:-**

- Tractor Units
- A vehicle fitted at the rear with apparatus specially designed for spreading material on a road.
- A vehicle so constructed that it can be unloaded by part of the vehicle being tipped rearwards.
- A vehicle specially designed and constructed, and not merely adapted, to carry other vehicles loaded onto it from the rear. (Vehicle with a standard flat body fitted with a "beaver tail" are not exempt).
- A trailer specially designed and constructed, and not merely adapted, to carry round timber, beams or girders, being items of exceptional length.
- A vehicle fitted with a tail lift so constructed that a lift platform, with a minimum length of 1 m, forms part of the floor of the vehicle.
- A vehicle specially designed, and not merely adapted, for the carriage and mixing of concrete.

### **Note:**

This list is not exhaustive but covers the vehicles likely to be encountered within the test hall.

## **BUMPER BARS**

This Inspection applies to all Vehicles and Trailers.

## **PROCEDURE AND STANDARDS**

### **SIDEGUARDS**

**Check Sideguards for:**

1. fitted to a vehicle required to have them.
2. Check a sideguard or bracket for:
  - a. security.
  - b. Condition
  - c. surfaces which are smooth
  - d. external edges that are radiused
  - e. correct dimensions visually.
  - f. being continuous along the vehicle length in other than accepted circumstances.  
(See note)
  - g. overall width.
  - h. the height from the ground to the lowest edge of the guard. (not applicable to semi trailers while attached to a tractor unit, there is no requirement to separate the trailer from the tractor).

**Notes:-**

Trailers manufactured before 1 May 1983 will not be failed if sideguards are not fitted, but the driver/operator notified that they may be required under certain circumstances.

Sideguards fitted to vehicles/trailers that do not require them will only be checked for items (a), (c) and (h) above.

**Note:**

The continuous vertical rail or turn in may not be required if the front edge of the sideguard is within 100mm of a permanent structure of the vehicle (vehicle cab/wheelarch).

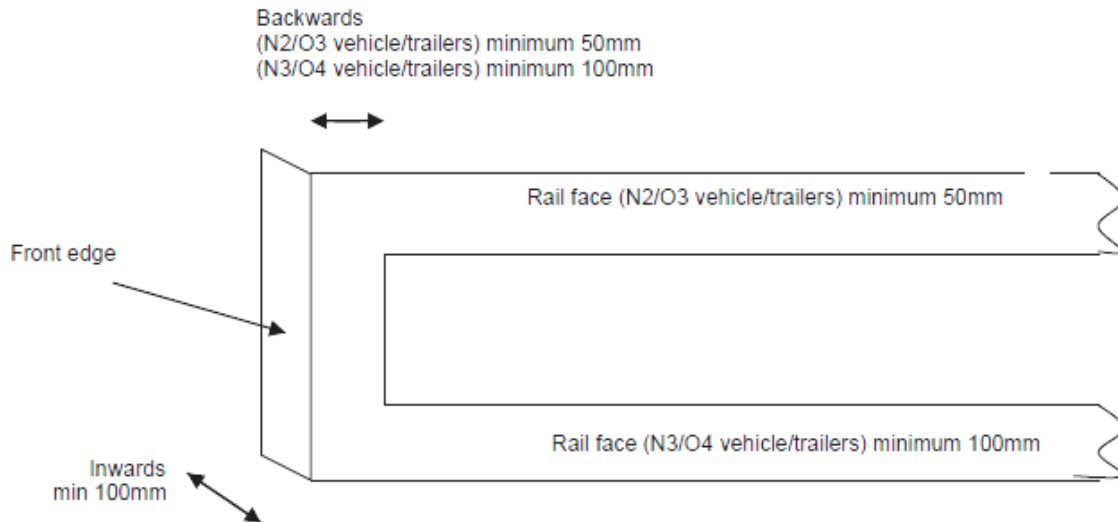
**CONSTRUCTION**

- The guard should be as continuous as possible and the outermost surface smooth, essentially rigid and either flat or horizontally corrugated, but can be split into rails. Rails must be flat faced on the outside, (N2/O3 vehicles/trailers) minimum 50mm, (N3/O4 vehicle/trailers) minimum 100mm (but can be wider), and the distance between them not more than 300mm. Parts of the guard may be detachable for access, but must be securely fixed when the vehicle is in use.
- The front edge of the guard must have a continuous surface extending back for (N2/O3 vehicles/trailers) minimum 50mm; (N3/O4 vehicle/trailers) minimum 100mm, for both ranges of vehicles the turning inwards is 100mm.
- On occasions a single rail may fulfil this requirement and it will be sufficient that the forward face only covers the depth of the rail.

N2 vehicles are vehicles over 3500kg but does not exceed 12000kg DGVV.  
 N3 vehicles are vehicles that exceed 12000kg DGVV.  
 O3 trailers are trailers over 3500kg but does not exceed 10,000kg TAW.  
 O4 trailer are trailers which exceed 10,000kg TAW.

DGVW = Design Gross Vehicle Weight

TAW = Total Axle Weight



### Distance of Guard from Front Wheels (or landing legs) and Rear Wheels

#### Motor Vehicles

The front edge of the guard must not be more than 300mm from the tyre on the front wheel (or second wheel if two front axles) and the guard must extend to within 300mm of the tyre on the first rear axle.

#### Draw-Bar Trailer

The front edge of the guard must not be more than 500mm from the tyre on the front wheel and the guard must extend to within 300mm of the tyre on the rear wheel.

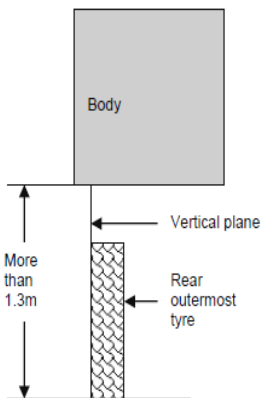
#### Semi-Trailer

The front edge of the guard can be up to 250mm behind the centre line of the landing legs, but never more than 3m behind the centre of the king pin (in its rearmost position) and the guard must extend to within 300mm of the tyre on the first rear axle.

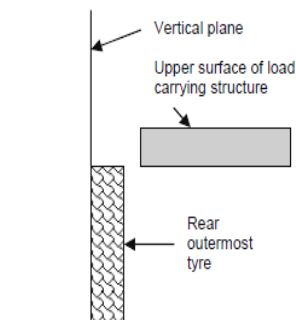
### MINIMUM HEIGHT TO TOP EDGE

To determine the height to the top edge it is necessary to imagine a vertical plane parallel to the vehicle centre line and just touching the outer edge of the outermost rear tyre (neglecting the bulge). The line where the vertical plane cuts the structure of the vehicle is taken as the datum and may not be straight, but will move up and down as the plane cuts through transverse floor members, etc.

The upper edge of a sideguard shall not be more than 350mm below that part of the structure of the vehicle, cut or contacted by a vertical plane tangential to the outer surface of the tyres, excluding any bulging close to the ground except in the following cases.



Where the tangential plane cuts the structure of the vehicle at more than 1.3m above the ground, then the upper edge of the sideguard shall not be less than 950mm above the ground.



Where the tangential plane does not cut the structure of the vehicle, the upper edge shall be level with the surface of the load carrying platform, or 950mm from the ground, whichever is the less.

Tangential plane should be taken as a line from the outermost edge of the rear tyre(s) excluding the bulge due to the weight of the vehicle.

## LATERAL PROJECTION

The guard must not project beyond the outside edge of the vehicle, and it must not be more than 120mm inside the outermost plane of the vehicle (Maximum width). The last 250mm of the sideguard, at the rear, must be no more than 30mm from the outer edge of the outermost rear tyre.

## COMPONENTS IN THE SIDEGUARD AREA

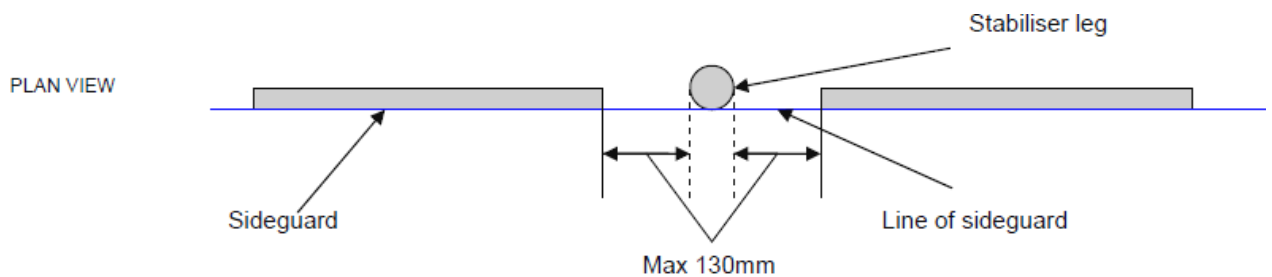
In general the regulations do not allow for the sideguard run to be broken if components such as fuel tanks and air reservoirs intrude. The components should be sited such that they do not interfere with the sideguard run. However, components may be incorporated if, by virtue of their shape and characteristics, they conform in all respects to the sideguard requirements. Where the guard is not continuous from front to rear; adjacent parts can overlap provided that the overlapping edge faces rearwards or downwards; or a gap of not more than 25 mm measured longitudinally may be left, provided that the rearward part does not protrude outboard of the forward part.

If the sides of the vehicle are so designed and/or equipped that by virtue of their shape and characteristics the component parts together meet the requirements, they may be regarded as replacing the sideguards.

## CHASSIS MOUNTED CRANES

Where cranes are fitted across the chassis the extendible legs are normally stowed and operate through the sideguard run. The sideguard rail or rails are required to come within a distance of 130mm of the leg at each side, thus allowing working room.

Before deciding on the pass/fail criteria, consideration must be given to the crane and platform explained on in notes under 'Application' section



The diagram is only to illustrate the dimensions allowed between the stabiliser leg and a sideguard; it is not the intention that the stabiliser leg should be stowed in this position.

## SIDEGUARD MATERIAL

There is no legislation regarding the materials used for sideguards although there are regulations covering strength and deflection of these components. None of these however are subject to test.

## PROTRUSIONS

Protrusions such as rivet or bolt heads are acceptable provided that they do not exceed 10 mm and are suitably domed.

External corners and edges must be rounded.

Orange reflective strips are acceptable if fitted to sideguards provided that the front edge is rounded and it does not protrude more than 10 mm.

## SHORT BODIED VEHICLES

Vehicles which have shortened bodies to facilitate the fitting of plant equipment usually have a large gap between the back of the cab and the body. There may therefore be a considerable length of sideguard area not covered by the body. In these cases the height of the guard covered by the body is the normal 350mm max below the structure, but the height of the guard in the area not covered by the body must be no lower than the body floor or 950mm whichever is the lowest and may require more than 1 rail.

## TYPE APPROVED SIDEGUARDS

If the presenter claims that the vehicle or trailer is fitted with type approved sideguards (this will most often be on an imported trailer) which comply with the requirements of the EC directive, the presenter should be asked to provide documentary evidence.

Although the standards are to accept sideguards made to the directive but not necessarily approved it may assist to identify those vehicles/trailers which are known to be approved, these are:

### Trailers

Make	Model
Hellbender	EUT, KIP, KIS, TSA, MUL, CONC.
Magyar	All models type approved.

### Vehicles

Make	Model
Mercedes-Benz	Atego

## TANKERS

It is recognised that there are practical problems in the fitting of sideguards to some tankers and there can be differing views over what constitutes "so far as is practicable".

### A. Tankers which Convey Dangerous Substances

- Vehicle Safety Division, the Society of Motor Manufacturers and Traders and the British Tank Manufacturers Technical Committee agreed on the design layout specification for sideguards on these vehicles. This agreement is summarised in the drawings that follow. In all other respects the guards must conform to the regulations

### B. Skeletal Trailers carrying Frameless Tanks

(i.e. a tank or container which does not have a lower side rail or rave).

- Sideguards fitted to skeletal trailers carrying frameless tanks must incorporate a top rail, the upper edge of which should be at least 950mm from the ground or to the height of the trailers upper tank carrying surface (e.g. twist locks) if this is less than 950mm

### C. Milk Tankers with External Cylindrical Tubes for Stowage of Hoses.

- An external cylindrical tube permanently fitted longitudinally to the side of a vehicle and intended for the stowage of a hose, can for the purpose of the sideguard positional requirements be considered part of the body.
- This only applies to that side of the vehicle fitted with the cylindrical tube and where the tube completely extends over the length of the vehicle required to be



fitted with sideguards. Any other type of hose support, e.g. rack or tray, should not be considered part of the bodywork.

#### **D. Hose Racks**

- With the exception stated at "C" above, a hose rack fitted to a vehicle or trailer should be disregarded when making an assessment as to whether the body cuts the vertical plane as in the section dealing with Maximum Height to Top Edge.
- It is however permissible for the hose rack to be taken as part of the sideguard if it meets the dimensional requirements.

### **REAR UNDER-RUN DEVICES**

1. fitted to a vehicle required to have one.
2. Check the rear under-run device for:-
  - a. security.
  - b. Condition.
  - c. jagged edges.
  - d. being no more than 550mm from the ground unladen.
  - e. not extending beyond the outer edge of the outermost rear tyre.
  - f. the outer end of the device being no more than 100mm inboard of the outer edge of the outermost rear tyre. (or not more than 300mm inboard where a demountable body is fitted).
  - g. not extending beyond the outermost width of the vehicle which is fitted with a tail lift.
  - h. complete.

**Note:**

If a vehicle has a rear tail lift where the rear uprights for the tail lift are separated from the rear under-run the uprights are not to be taken as part of the under-run device.

**Note:**

Vehicles equipped with rear tail lifts are allowed to have gaps between the rear under-run rails. Gaps are permitted up to 500mm between rear under-run rails.

**Note:**

Vehicle that have two rear axles where the rearmost one has a narrower track, The sideguard criteria needs to comply with the widest of the rear axles.

**Note:**

Vehicle not required to be fitted with a rear under-run device but have one fitted are only to be inspected as if it was a bumper bar.

**Note:**

Where a rear under-run extends outside the width of the outermost rear tyre but is joined to a sideguard positioned to the rear of the tyre, this is not a Reason for Failure.

**Note:**

Vehicles with tail lifts may be fitted with a guard up to 300mm wider than the outer edge of the outermost rear tyre provided it is no wider than the outer edge of the vehicle.

**Note:**

Vehicles with bodies that satisfy the dimensional requirements for rear underrun devices are considered acceptable.

**Note:**

It is acceptable for a rigid vehicle to be presented for annual test without a rear under-run device fitted when towing a trailer. However, the under-run device must be readily available for use when not towing a trailer.

## **BUMPER BARS**

Bumper bars and their mountings should be checked for:-

- a. Security,
- b. Jagged or projecting edges likely to cause injury.

**Note:**

Vehicles are not required to have separate bumper bars and these may be incorporated with the body in some cases.

Figure 1

Fitting Sideguards to N/S when Battery Box and Meter Equipment Fitted.

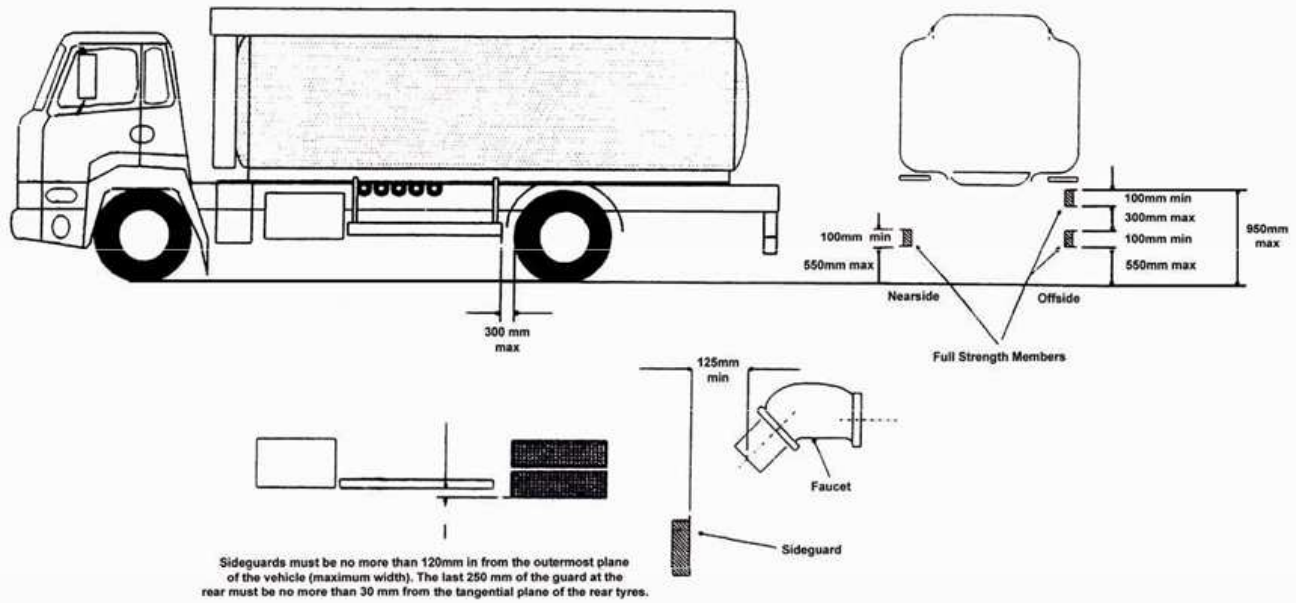
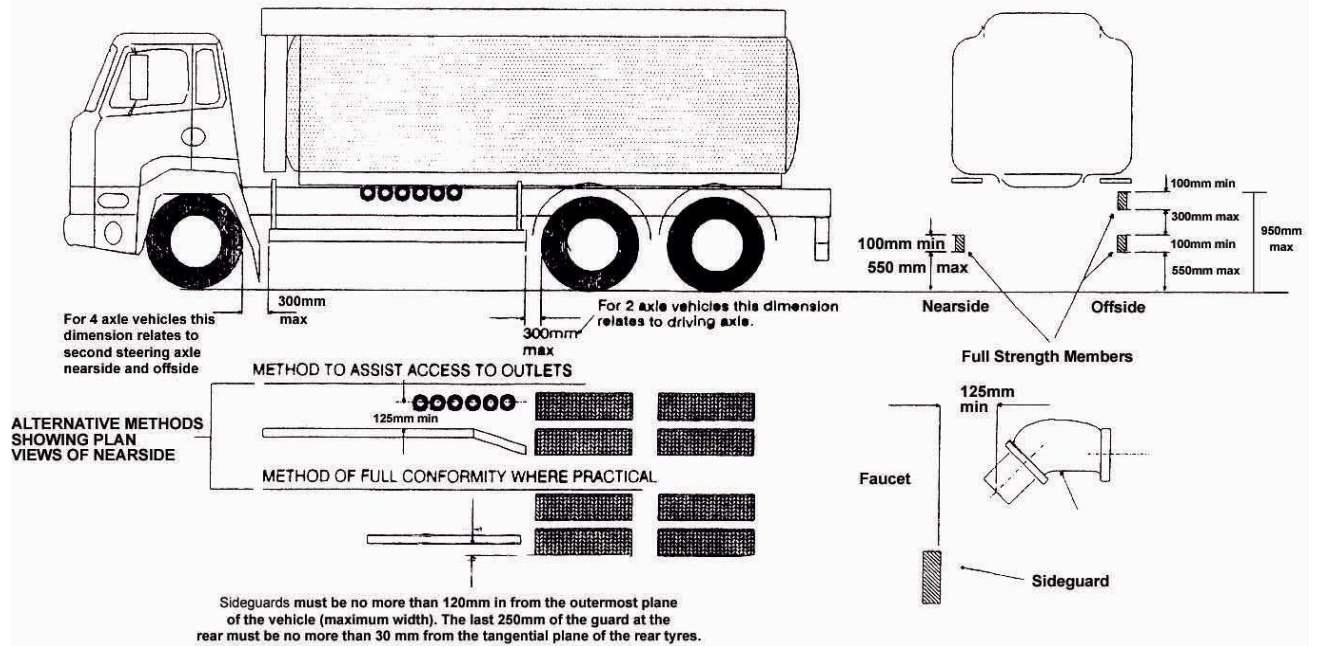


Figure 2

Fitting Sideguards - Maximum Section Tanks - Side Outlets

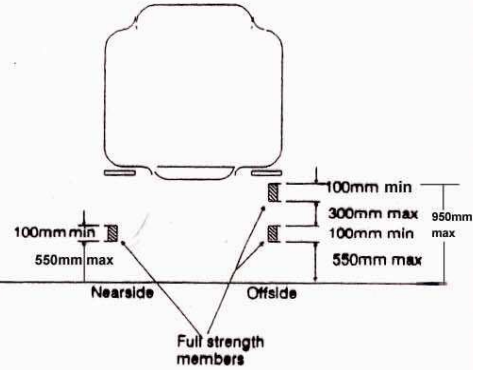
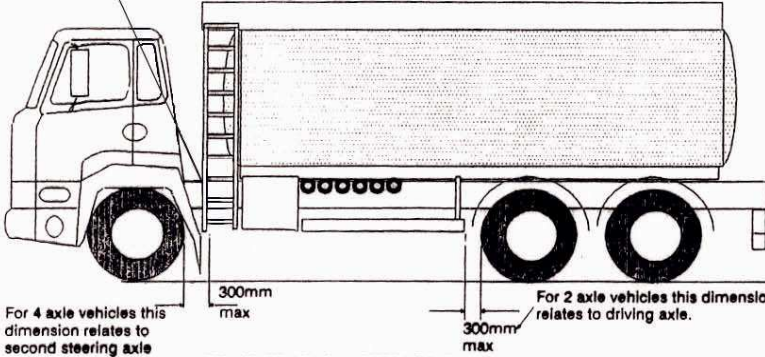
Typical spirit tanker shown rigid type 2,3 or 4 axle



**Figure 3**  
**Fitting Sideguards** — **Maximum Section Tanks** — **Side Outlets** — **Side Ladder**  
**Meter Box and Reel**

Where a ladder encroaches into the sideguard area, the ladder needs to comply with the sideguard regulations. (See fig 7 for details.)

Typical spirit tanker shown rigid type 2, 3 or 4 axle

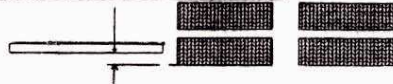


ALTERNATIVE METHODS SHOWING PLAN VIEWS OF NEARSIDE

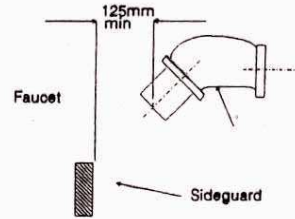
METHOD TO ASSIST ACCESS TO OUTLETS



METHOD OF FULL CONFORMITY WHERE PRACTICAL



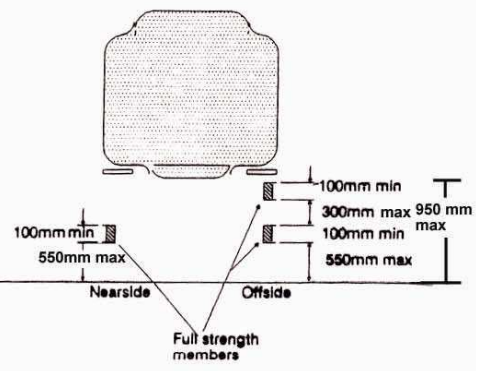
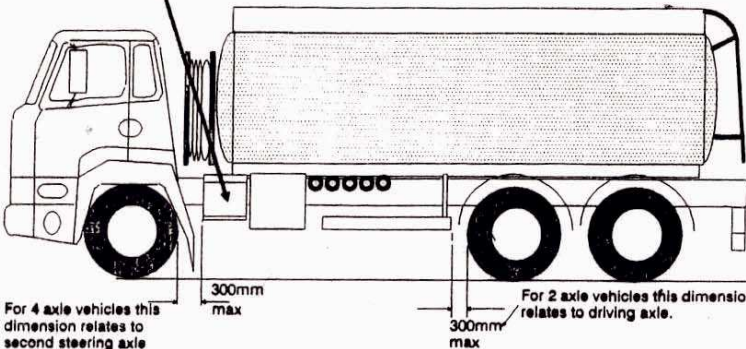
Sideguards must be no more than 120mm in from the outermost plane of the vehicle (maximum width). The last 250mm of the guard at the rear must be no more than 30mm from the tangential plane of the rear tyres.



**Figure 4**  
**Fitting Sideguards** — **Maximum Section Tanks** — **Side Outlets** — **Rear Ladder**  
**Meter Box and Reel**

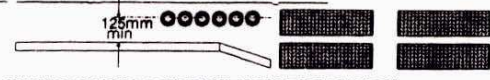
If battery box substantially fills the gap between the cab and the meter box sideguards can be omitted.

Typical spirit tanker shown rigid type 2, 3 or 4 axle

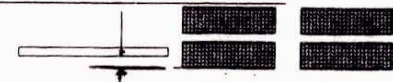


ALTERNATIVE METHODS SHOWING PLAN VIEWS OF NEARSIDE

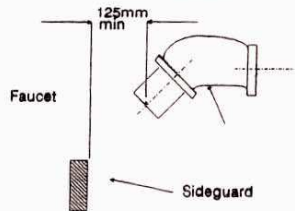
METHOD TO ASSIST ACCESS TO OUTLETS



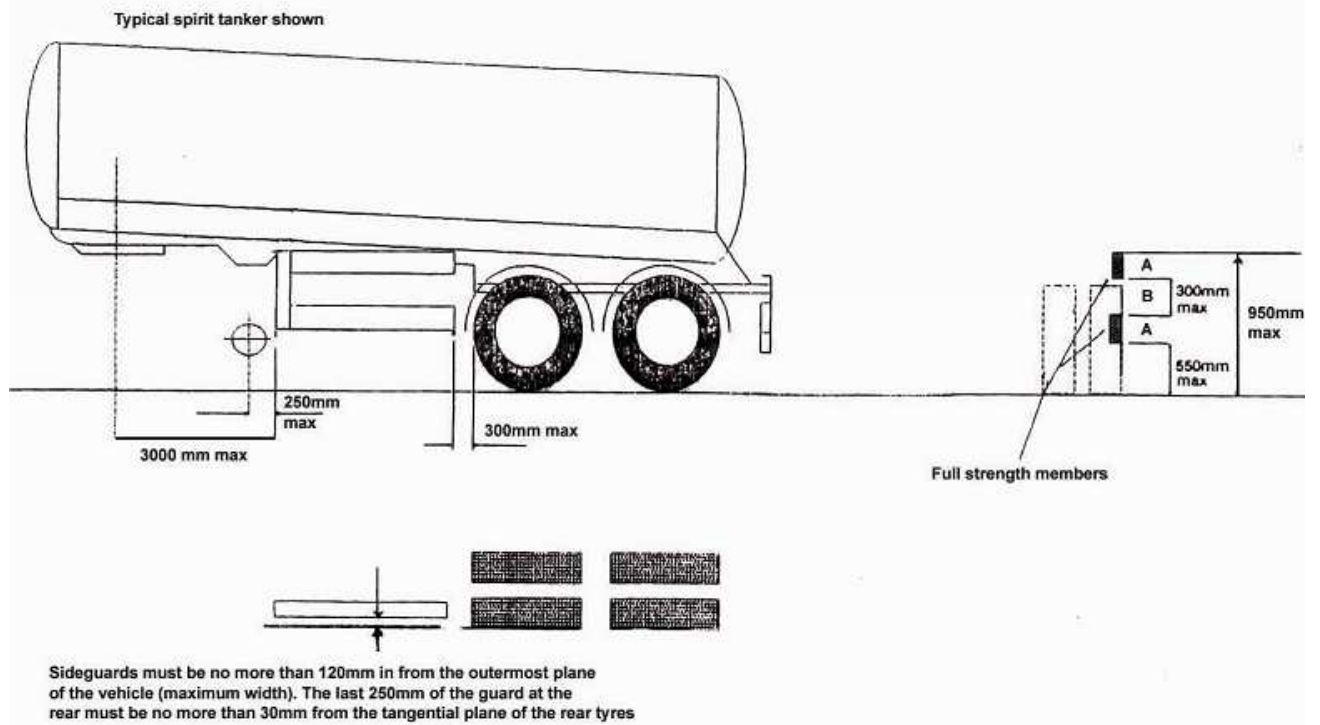
METHOD OF FULL CONFORMITY WHERE PRACTICAL



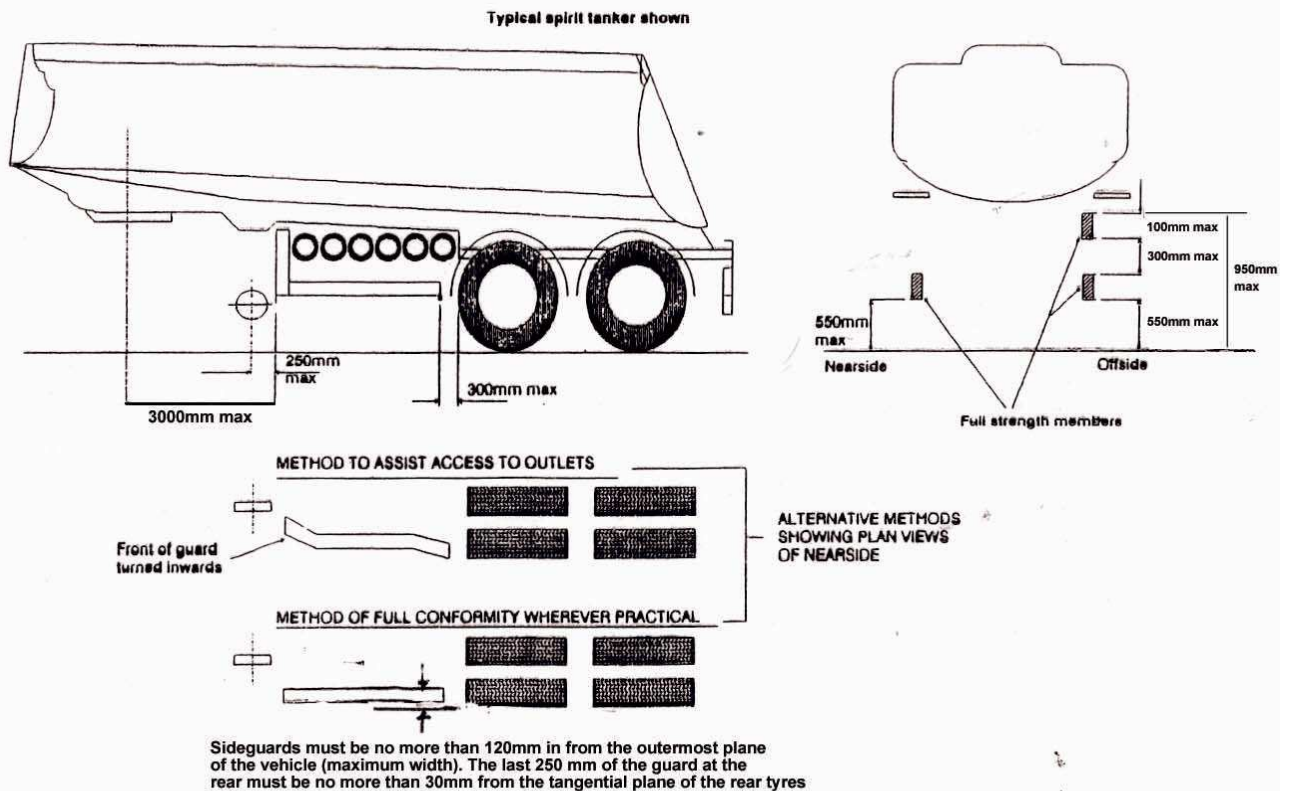
Sideguards must be no more than 120mm in from the outermost plane of the vehicle (maximum width). The last 250mm of the guard at the rear must be no more than 30mm from the tangential plane of the rear tyres.



**Figure 5**  
**Fitting Sideguards — Narrow Section Tanks — Semi-trailer**



**Figure 6**  
**Fitting Sideguards — Maximum Section Tanks — Side Outlet — Semi-trailer**



# REASONS FOR FAILURE

## SIDEGUARDS

1. Sideguards not fitted to a vehicle required to have them fitted.
2. A sideguard or bracket:
  - a. Insecure.
  - b. Cracked, fractured, corroded or damaged so that its effectiveness is reduced.
  - c. With exposed surfaces which are not smooth (e.g. projecting brackets, jagged edges, bolt heads that are not dome shaped).
  - d. With external edges that are not radiused.
  - e. With incorrect dimensions.
  - f. That is not continuous along the vehicle length in other than accepted circumstances.
  - g. That increases the overall width of the vehicle.
  - h. With more than 550 mm height from the ground to the lowest edge of the guard. (vehicle unladen or semi-trailer load platform horizontal).

## REAR UNDER-RUN DEVICES

3. A device not fitted to a vehicle required to have one fitted.
4. A Rear Under-Run device:
  - a. Insecure.
  - b. Cracked, fractured, corroded or damaged so that its effectiveness is reduced.
  - c. That has a jagged edge.
  - d. With more than 550 mm minimum ground clearance. (unladen).
  - e. Which extends beyond the outer edge of the outermost rear tyre. (see note in procedures).
  - f. With the outer end of the device more than 100mm inboard of the outer edge of the outermost rear tyre. (or more than 300mm inboard where a demountable body is fitted).
  - g. Extends beyond the outermost width of the vehicle which is fitted with a tail lift.

- h. Incomplete

## **BUMPER BARS**

- 5. A bumper bar or bracket which is:
  - a. Insecure.
  - b. Has a jagged or projecting edge likely to cause injury.