

# Vehicle standards information



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## Guidelines for A-frame towing

### Introduction

The Road Transport (Safety and Traffic Management) (Road Rules) Regulation 1999 allows the Roads and Traffic Authority (RTA) to authorise a motor vehicle to be flat-towed behind another motor vehicle without a competent person in charge of the towed vehicle.

This information sheet details the requirements for flat-towing a motor vehicle when using a device commonly known as an A-frame. An A-frame consists of a triangle-shaped frame which provides a means of towing a trailer or another motor vehicle. This towing mechanism is used to tow a vehicle without lifting the towed vehicle clear of the ground.

Vehicle owners must ensure that both the towing and towed vehicles are registered.

### Approval

Persons contemplating the use of an A-frame towing device must obtain an engineering certificate from an RTA recognised engineering signatory (see Vehicle standards information (VSI) No 15 *Engineering signatories* for a list of signatories).

Approval to A-frame tow a vehicle is granted provided the following conditions are met:

1. The engineer's certificate includes details of:
  - a) The towing and towed vehicles.
  - b) The critical components of the A-frame & braking system.
  - c) A copy of a completed check list found on page five of this information sheet.
  - d) A statement of compliance with the requirements of this information sheet VSI No 41.
2. The engineer's certificate and a copy of this VSI No 41, including a completed check list (see *A-frame towing check list* attached) must be kept with the vehicle combination at all times while A-frame towing, and must be presented to an authorised RTA officer or police on request.

For vehicle owners and operators in New South Wales

## Attachment mechanism

The attachment mechanism must be strong enough to secure the two vehicles together and be satisfactorily attached to the frame (not to suspension or steering components) of the towed vehicle.

The A-frame and its components must be certified to comply with the intent of Australian Design Rule (ADR) 62 *Mechanical connections between vehicles*. All couplings must be marked with the manufacturer's name or trademark and the rated capacity.

ADR 62 also requires certain vehicle combinations to be fitted with safety chains and/or emergency breakaway systems as follows:

| Towed vehicle<br>Gross Vehicle Mass (GVM) (kg) | Requirement  |
|--|--|
| Up to 2000                                     | Emergency breakaway system or safety chain/s or cable/s.                                 |
| Over 2000                                      | Emergency breakaway system, or emergency breakaway system and safety chain/s or cable/s. |
| Over 2500                                      | Emergency breakaway system and safety chains or cables.                                  |

Where required, towed vehicles are to be fitted with safety chain/s or cables as detailed below:

### Safety chains

| Towed vehicle<br>GVM (kg) | Safety chain          |                               |   |
|---------------------------|-----------------------|-------------------------------|---|
|                           | Min. no.<br>of chains | Material size<br>(dia.) in mm | Performance requirement   |
| 0 to 1000                 | 1                     | Nominal 6.3                   | Chain must comply with AS 4177.4-2004 <i>Caravan and light trailer towing components – Safety chains up to 3500kg capacity</i> .  |
| Up to 1600                | 1                     | Nominal 8.0                   |   |
| Up to 2500                | 1                     | Nominal 10.0                  |   |
| Up to 3500                | 2                     | Nominal 13.0                  |   |
| Over 3500 to 4300         | 2                     | Minimum 7.1                   | Chain made from steel of a minimum 800 MPa breaking stress and conforming to the mechanical properties of Grade T chain as specified in AS 2321-2006 <i>Short-Link chain for lifting purposes</i> . |
| Over 4300 to 7500         | 2                     | Minimum 9.5                   |   |

### Safety cables

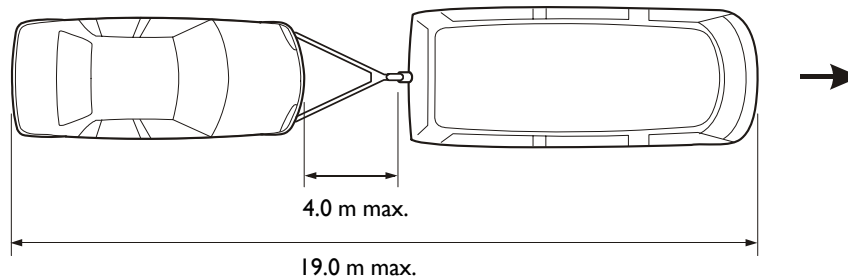
Safety cables fitted in lieu of safety chains must comply and be certified to AS 3569-1989 *Steel wire ropes* with nominal material size as specified below. The cable and any attachments (ie snap hooks and quick links) must have a rating for breaking load that is equal to, or greater than, the towed vehicle's GVM.

| GVM (kg)          | Nominal material size (mm) |
|-------------------|----------------------------|
| 0 to 4300         | 7.1                        |
| Over 4300 to 7500 | 9.5                        |

## Dimension requirements

Vehicle owners must ensure that:

- The space between the two vehicles is not to exceed four metres when towing.
- The overall length of the vehicle combination is not to exceed 19 metres.
- Other dimensional requirements as detailed in VSI No.5 *Vehicle dimension limits* are met.



## Towing ratio

As detailed in the Road Transport (Safety and Traffic Management) (Road Rules) Regulation 1999 and the Road Transport (Mass, Loading and Access) Regulation 2005, the following ratios apply when using an A-frame to tow a vehicle:

When the towing vehicle has a GVM under 4.5 tonnes the loaded mass of the towed vehicle must not exceed the lesser of:

- The maximum capacity of any towing attachment fitted to the towed or towing vehicle.
- The maximum towing mass specified for the towing vehicle by the vehicle manufacturer.

When the towing vehicle has a GVM or Gross Combination Mass (GCM) exceeding 4.5 tonnes, it may tow a loaded vehicle up to, but not exceeding the lesser of:

- The towing vehicle's GVM provided the GCM is not exceeded.
- The maximum capacity of any towing attachment fitted to the towed or towing vehicle.

## Braking

The brakes fitted to the vehicles must be capable of stopping the vehicle combination within the distances shown below. Refer to Clause 136 of Schedule 2 of the Road Transport (Vehicle Registration) Regulation 2007.

| Vehicle combination gross mass | Metres to stop when the service brake is applied at 35 km/h | Average deceleration rate in metres per second per second | Peak deceleration rate in metres per second per second |
|--------------------------------|---|---|--|
| Under 2.5 tonnes               | 12.5  | 3.8   | 5.8  |
| 2.5 tonnes or over             | 16.5  | 2.8   | 4.4  |

- If the towed vehicle's overall mass or its rated GVM is less than 750 kg, operating its brakes is not mandatory.
- If the towed vehicle's overall mass or its rated GVM is 750 kg or more, up to a maximum of 2 tonnes, operating the brakes on the towed vehicle is mandatory. The brakes must be operable from the driver's seat of the towing vehicle except for over-run brakes.
- If the towed vehicle's overall mass or its rated GVM is over 2 tonnes, the brakes must be operable from the driver's seat of the towing vehicle. Over-run brakes are not acceptable.

The parking brake of the towing vehicle must be able to hold the vehicle combination stationary on a 12 per cent gradient.

## Lights

The following lights must operate in unison on the towing and towed vehicle:

- Two turn indicator lamps showing amber light to the rear of the vehicle.
- Two stop lamps showing red light to the rear of the vehicle.
- Two reversing lamps showing white light to the rear of the vehicle.
- Two tail lamps showing red light to the rear of the vehicle and which operate effectively at night or in hazardous weather conditions.
- One registration plate lamp fitted to the rear of the vehicle so that the registration plate is illuminated.

These lights may be fitted on a portable light bar that is correctly fitted onto the rear of the towed vehicle.

## Signage

A removable sign must be displayed at the rear of the towed vehicle with the words **'VEHICLE UNDER TOW'** in characters at least 75 mm high on a contrasting background ie red on white, or black on yellow.

A special turning concession applies to vehicles or vehicle combinations over 7.5 metres long which display a prescribed sign at the rear with the words **'DO NOT OVERTAKE TURNING VEHICLE'**. This sign may be either a separate sign or can be combined with the marking plate on the left hand side.

## Steering

The vehicle combinations steering system is vital for safety. The A-frame towing mechanism should provide adequate steering for the towed vehicle.

In order to provide adequate steering for the towed vehicle, the stability of vehicle combination, the steer-ability of towed vehicle and tracking of vehicle combination must be satisfactorily addressed.

- Note:
1. The vehicle combination must be capable of turning either to the left or to the right within a circle not exceeding 25 metres in diameter.
  2. When travelling in a straight line on a level, smooth surface, the towed motor vehicle must track in the path of the towing vehicle without shifting or swerving more than 100 mm either side.

## Manufacturers' requirements

The vehicle manufacturers' recommendations must be complied with whilst using an A-frame to tow a motor vehicle.

Vehicle owners are advised to check with their manufacturer to determine whether the vehicle is suitable for flat towing and obtain the instruction that would be required to be complied with (for example some vehicles may require the transmission shift lever to be placed in a specific mode position).

## Interstate use

A-frame towing may not be acceptable in other states or territories. Owners should check directly with the relevant road authority of their state/territories requirement.

- Note: An accessory or component fitted to a vehicle must be attached in a manner that does not affect the continuing compliance of the vehicle with the intent of the applicable ADR's and Regulations.

## Attachment

RTA Form *A-frame towing check list*.



For further enquiries:



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# A-frame towing check list



A copy of Vehicle standards information (VSI) No. 41, the engineer's certificate, and this completed check list must be kept with the vehicle combination at all times while A-frame towing and must be presented to an authorised RTA officer or police on request.

## Towing vehicle

|                      |                      |                                     |                        |
|----------------------|----------------------|-------------------------------------|------------------------|
| Make                 | Model                | Vehicle Identification Number (VIN) | Registration plate no. |
| <input type="text"/> | <input type="text"/> | <input type="text"/>                | <input type="text"/>   |

## Towed vehicle

|                      |                      |                                     |                        |
|----------------------|----------------------|-------------------------------------|------------------------|
| Make                 | Model                | Vehicle Identification Number (VIN) | Registration plate no. |
| <input type="text"/> | <input type="text"/> | <input type="text"/>                | <input type="text"/>   |

- 
1. Does the A-frame & components comply with the intent of ADR 62? Yes
  2. Is the towed vehicle fitted with an appropriate emergency breakaway system and/or safety chains or cables? Yes
  3. Does the combination comply with the required dimension limits? Yes
  4. Does the combination comply with the required tow ratio? Yes
  5. Does the combination comply with the braking requirements? Yes
  6. Does the combination comply with the essential lights required to operate? Yes
  7. Is the towed vehicle fitted with appropriate signs? Yes
  8. Does the combination comply with the steering requirements of VSI No. 41? Yes
  9. Has the owner of the vehicle combination been advised of the manufacturers' requirements for flat towing? Yes  N/A
  10. Does the towed vehicle continue to comply with relevant ADR's when equipped with permanent attachment points and/or fittings? Yes  N/A
- 

## Declaration

I have reviewed the above checklist and certify that the vehicle combination described meets the requirements of this VSI No 41.

|                           |                      |                |                      |
|---------------------------|----------------------|----------------|----------------------|
| Signatory Name<br>(Print) | <input type="text"/> | Eng. Cert. No. | <input type="text"/> |
| Signature                 | <input type="text"/> | Date           | <input type="text"/> |