

Requirements for A - Frame Towing of Vehicles

For further information please write to the Manager, Vehicle Safety Branch
60 Denmark Street, Kew, 3101 or contact your local Registration Office.

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Scope

The following requirements apply to the towing, with an A-Frame, of an unbraked motor vehicle where the tare mass of the towing vehicle exceeds 3.5 times the laden mass of the towed vehicle.

Persons wishing to tow with a vehicle that has a tare mass that is less than 3.5 times the laden mass of the towed vehicle are required to have control of the brakes on the towed vehicle. Such persons must seek further advice from VicRoads or from a Vehicle Assessment Signatory Scheme (VASS) Signatory.

A list of VASS Signatories is available from any VicRoads Registration and Licensing Office, the VicRoads internet site or by phoning 1300 365 745.

Introduction

The Road Rules state:-

294 (1) The driver of a motor vehicle must not tow another motor vehicle unless:

- (a) Either:
- (i) the driver can control the movement of the towed vehicle; or
 - (ii) the brakes and steering of the towed vehicle are in working order and a person who is licensed to drive the towed vehicle is sitting in the driver's seat of the towed vehicle, and is in control of its brakes and steering; and
- (b) it is safe to tow the vehicle.

This information sheet is intended to assist persons that wish to undertake "A"-frame towing of a motor vehicle in a manner that satisfies the above Rule.

"A"-frame towing is the term used to refer to towing a motor vehicle, which has all its wheels on the road and is connected to the towbar of the towing vehicle by a triangular shaped frame commonly known as an "A"-frame.

Persons who tow a registered motor vehicle in accordance with this information sheet will be able to tow legally in all States and Territories.

(Please note that it may be an offence to tow an unregistered motor vehicle in some Jurisdictions (not Victoria). Please check with the registering authority concerned before doing so).

Persons wishing to undertake "A"-frame towing may need to seek advice from a VASS Signatory to ensure that the "A-frame" device that they intend to use meets the technical requirements of this information sheet. It is recommended that a copy of this information sheet, together with any reports, approvals or other documentation, are carried in the vehicle at all times.

Coupling Design

The "A"-frame coupling must:

- be designed and constructed with sufficient strength to hold the vehicles together in tow and must comply with the applicable requirements of Australian Design Rule 62 "Mechanical connections between vehicles" relevant to the laden mass of the towed vehicle; and
- permit an adequate amount of angular movement between the towing and towed vehicles to cater for road undulations and curves; and
- be secured to a substantial body member of the towed vehicle, such as a sub-frame or chassis member. Connection to the towed vehicle's bumper, suspension or steering components is not permitted, unless approved by the manufacturer of the towed vehicle.
- be marked with the manufacturer's name or trademark and the rated capacity. The "manufacturer" may include the owner in the case of a privately constructed device.
- Maintain a space between the combination not exceeding 2 metres.
- Be equipped with safety chains/cables as detailed below:-

Towed vehicles with a Gross Vehicle Mass (GVM) up to 2.5 tonnes shall be equipped with at least one safety chain (of size detailed in Table 1) complying with AS 4177.4-1994

Towed vehicles with a GVM over 2.5 tonnes shall be equipped with two safety chains (of size detailed in Table 1) complying with AS 4177.4-1994.

Table 1

Towed Vehicle Gross Vehicle Mass in Kg	Nominal Material Size in mm	Applicable Australian Standard
0 to 1000	6.3	AS 4177.4-1994
Up to 1600	8.0	AS 4177.4-1994
Up to 2500	10.0	AS 4177.4-1994
Up to 3500	13.0	AS 4177.4-1994

- Towed vehicles with a GVM between 3.5 and 4.3 tonnes require chains of at least 7.1mm in size. The chain must be steel of a minimum 800 MPa breaking stress and conforming to the mechanical properties of Grade T chain as specified in AS 2321-1979 'Short-Link chain for Lifting purposes (non-calibrated)'. (Refer Table 2).
- Towed vehicles with a GVM over 4.3 and up to 7.5 tonnes shall have chains of at least 9.5mm in size. The chain must be made from steel of a minimum 800 Mpa breaking stress and conforming to the mechanical properties of Grade T chain as specified in AS 2321-1979 'Short-Link chain for Lifting purposes (non-calibrated)'. (Refer Table 2).
- Safety cables (fitted in lieu of safety chains) must comply with and be certified to AS 3569-1989 'Steel wire ropes'. The cable fitted with attachments (ie. snap hooks and quick link) must be equal to or larger than that specified in Table 2.

Table 2

Towed Vehicle Gross Vehicle Mass in Kg	Nominal Material Size in mm	Applicable Australian Standard
0 to 4300	7.1	AS 4177.4-1994
Over 4300 & up to 7500	9.5	AS 4177.4-1994
Over 7500 & up to 13500	12.7	AS 4177.4-1994
Over 13500 & up to 21500	15.9	AS 4177.4-1994
Over 21500 & up to 30000	19.0	AS 4177.4-1994
Over 30000	22.0	AS 4177.4-1994

Towing Capacity of Towing Vehicle

- The towing limits specified by the vehicle manufacturer must not be exceeded. (Most manufacturers specify towing limits for their vehicles in the vehicle handbook.)
- The loaded mass of the towed vehicle must not exceed the towing capacity of any component in the combination, including the "A"-frame, towbar, coupling and towball.

Braking Requirements

- The requirement for a 1:3.5 towed mass ratio is designed to give a combination adequate braking without the need for the brakes of the towed vehicle to be operated by the driver seated in the towing vehicle.
- The vehicle combination must have braking of at least the performance in Table 3.

Table 3

	Stopping distance when brakes applied at 35km/h	Average deceleration rate from any legal speed	Peak deceleration rate from any legal speed
Vehicle combination gross mass under 2.5 tonnes	12.5m	3.8ms ⁻²	3.8ms ⁻²
Vehicle combination gross mass under 2.5 tonnes or over	16.5m	2.8ms ⁻²	4.4ms ⁻²

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

Lighting Requirements

The following lights must be fitted to the rear of the towed vehicle and be operational whilst under tow;

- Two amber turn signal lamps.
- Two red stop lamps.
- Two white reverse lamps.
- One registration plate lamp at the rear of the towed vehicle to illuminate the registration plate.
- Two red tail lamps.

These lamps may be the towed vehicles own lights or as an alternative be arranged on a portable light bar providing it is properly secured to the rear of the towed vehicle.

Steering Requirements

The safety of the vehicle combination's steering is vital. The "A"-frame towing system shall provide safe and adequate steering control for the towed vehicle, and the overall combination. The stability and tracking of the vehicle combination and the steer-ability of the towed vehicle and must be satisfactorily addressed.

- The vehicle combination must be capable of turning within a 25m diameter circle, measured at the outer wheel track.
- When travelling in a straight line on a level, smooth surface the towed vehicle must track (follow) in the path of the towing vehicle without deviating off-line by over 100mm.

Vehicle and Towing Components Manufacturer's Requirements

The vehicle manufacturer's recommendations must be complied with whilst carrying out "A"-frame towing.

Vehicle owners are advised to check with their manufacturer/dealer to determine whether their towed vehicle is suitable for "A"-frame towing. Advice given in the "Owner's Manual" for the towing of the vehicle should always be followed.

Loads in Towed Vehicle

Carrying a load in the towed vehicle is not forbidden. However, when carrying such a load it is important to consider the following points:

- The loaded mass of the towed vehicle must not exceed the capacity of any component in the combination.
- The tare mass of the towing vehicle must remain greater than 3.5 times the mass of the towed vehicle when the vehicle is loaded.
- Any load carried in the towed vehicle should be placed as low and as centrally as possible. Large, heavy items carried high up in the towed vehicle will adversely affect the handling of the combination and may render towing unsafe.

Other Requirements

- The overall length of the vehicle combination must not exceed 19.0 metres.
- The "A"-frame, and any attachment which would constitute a dangerous projection, must be removed from the towed vehicle before it is driven on public roads.
- If the towed vehicle is unregistered, the registration plate of the towing vehicle needs to be visible, but not attached where the registration plate would otherwise be on the towed vehicle.

Certification

Unless the A-Frame is a proprietary item that has been designed and is appropriately marked as being suitable for the make and model of the towed vehicle, the A-Frames and connecting hardware, including the connection of the A-frame and safety chains to the towed vehicle, must be certified by a VASS Signatory.

A list of VASS Signatories is available from VicRoads.