

Understanding Mechanical Connections Between Vehicles

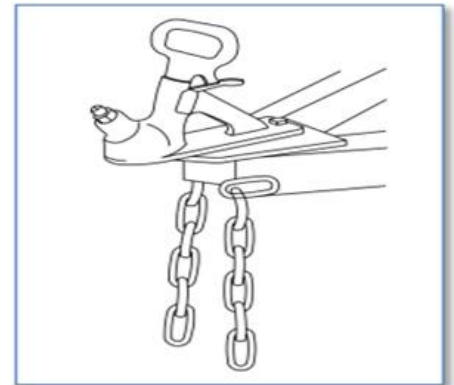
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For low ATM trailers, the three installations that this communication will be focusing on include:

- Couplings
- Drawbars and Drawbar Safety Chain Attachment Points
- Safety Chains



Couplings

All couplings must comply with the requirements of the [ADR 62/02](#) .

Couplings designed for use between towing vehicles and trailers with an Aggregate Trailer Mass (ATM) up to 3.5 tonnes must be quick release couplings.

Coupling Bodies for 50mm Ball couplings intended for trailers, or trailer ball couplings, with an ATM of up to 3.5 tonnes must comply with the requirements of Australian Standard AS 4177.3-2004. Marking on the trailer ball coupling shall be legibly and permanently marked with the following:

- Factory mark, trade name or manufacturer's name (if appropriate).
- The mark '50' to indicate the size of the towball for which it is intended.
- The manufacturer's approved maximum coupling body rating (e.g., '750 kg', or '2000 kg', or '3500 kg'), in kilograms.
- A code to indicate the serial number, batch, production date, or similar.
- The words 'DO NOT WELD' if the coupling is manufactured from non-weldable materials.
- The words 'WELD ONLY' if coupling body is specifically designed to be attached by welding only.



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An alternate specification is available within ADR 62/02 that requires trailer ball coupling rated to an ATM of 3.5 tonnes to be marked with the coupling manufacturer's name or trademark, the maximum allowable trailer ATM and its units of measurement ('kg' for an ATM up to 750kg and 'tonnes' otherwise), and the words "use with model (identified model)".

50mm Ball Couplings, or tow balls, intended for trailers with an ATM of up to 3.5 tonnes must comply with the requirements of Australian Standard AS 4177.2-2004. Marking on the tow ball shall be legibly and permanently marked with the following:

- Factory mark, trade name or manufacturer's name (if appropriate),
- The mark '3.5 t' to indicate the tow ball's capacity,
- The mark '50' to indicate the spherical working surface diameter, and
- A code to indicate the serial number, batch, production date or similar.

An alternate specification is available within ADR 62/02 that requires tow balls rated to an ATM up to 3.5 tonnes to be marked with the coupling manufacturer's name or trademark, the maximum allowable trailer ATM, and its units of measurement ('kg' for an ATM up to 750kg and 'tonnes' otherwise), and the words "use with model (identified model)".

Couplings other than specified above (i.e. off-road couplings) must also comply with the requirements outlined in ADR 62/02 and manufacturer's installation instructions when fitted to a towing or towed vehicle.

Couplings must incorporate a positive locking mechanism together with a separate means of retaining this mechanism in the locked position. Quick release couplings must incorporate a positive locking mechanism together with a separate means of automatically retaining this mechanism in the locked position. These must be readily verifiable by visual examination.

"All couplings must comply with the requirements of the [ADR 62/02](#) . Couplings designed for use between towing vehicles and trailers with an Aggregate Trailer Mass (ATM) up to 3.5 tonnes must be quick release couplings."



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Drawbars and Drawbar Safety Chain Attachment Points

Drawbars must be securely attached to a substantial structural member of the trailer.

The drawbar, including connections between the drawbar and the trailer, must withstand at least the relevant static or dynamic forces nominated in clauses 14.2.1 or 14.2.2 of ADR 62/02. Each safety chain attachment point must withstand the specified test and must not show any residual deformation that would interfere or degrade the function of the assembly, or any breaks, cracks, or separation of the components.

Any safety chain attachment point affixing a safety chain to a drawbar must be located as near as practicable to the coupling. Where two points of attachment are required, they must be mounted one on either side of the centreline of the drawbar.

Safety Chains

Trailers (including but not limited to Caravans, Camper Trailers etc.) up to 2.5 tonnes ATM must have at least 1 safety chain complying with Australian Standard AS 4177.4. Trailers over 2.5 tonnes and up to 3.5 tonnes ATM must have 2 safety chains rated to 3500kg and complying with Australian Standard AS 4177.4.

For Trailers over 3.5 tonnes ATM, the safety chain must be made from steel of a minimum 800 MPa breaking stress, conforming to the mechanical properties of Grade T chain as specified in Australian Standard AS 2321-2001 and must be of a size such that the minimum breaking load exceeds the ATM.

This Australian Standard AS 4177.4 sets out specific requirements for safety chains such as (but not limited to):

- Minimum strength requirements and ratings,
- Chain link dimensions and limitations, and
- Specific markings to be on the chain links.



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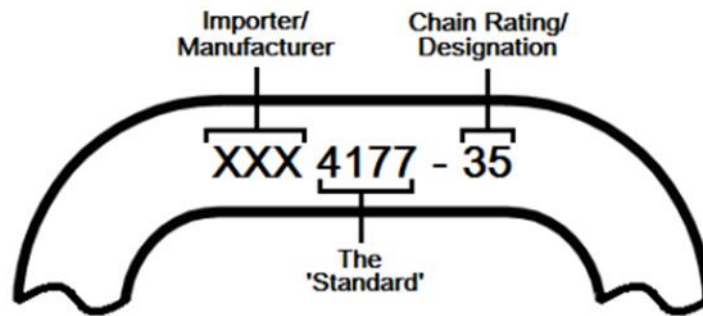


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According to the Standard, the chain needs to be permanently and legibly marked with the following information:

- The importer or manufacturers unique identification,
- The digits 4177 (i.e., the standard number), and
- The first two digits of the chain rating/designation (e.g., where the chain is rated to 3500kg- the digits '35' would be present)

Below is an example of how these markings may appear on an actual rated chain link:



These markings must be repeated at intervals not exceeding 4 links along the length of the chain. The Standard also require these markings to be of a certain height (in mm) depending on the size (designation) of the chain.

RVMAP Compliance Requirements

RVMAP businesses are reminded that they are required to retain proof of compliance with ADR 62/02 – Mechanical Connections Between Vehicles (RVMAP Code of Practice, section 2.10). This usually takes the form of a test certificate or report from the chassis manufacturer.



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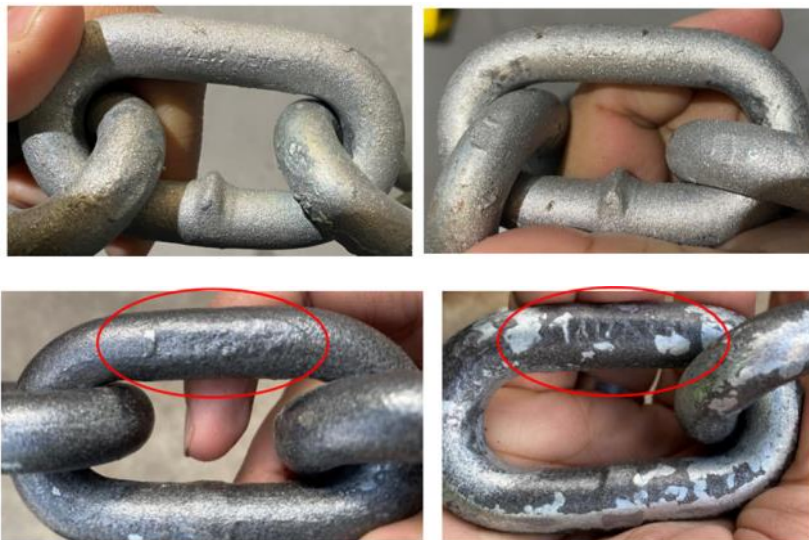


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Problem areas to look out for include:

- No markings
- Illegible markings (could be due to excessive galvanise or paint coating)
- Incomplete markings (missing importer/manufacture ID, 4177 marking or rating)
- Chains are not marked every 4th link
- Link dimensions do not match to chain rating
- Underrated chains and couplings
- Incorrect markings on a coupling— e.g. 4177.3 marking on an off-road (e.g. poly block) coupling
- Drawbar testing completed but not safety chain attachment points

Below are some examples of illegible markings on chains which do not comply with the Australian Standard:



Any questions in relation to this information can be emailed to rvm@caravanindustry.com.au.



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