

AIS INFORMATION SHEET No. 12(a)

SAFETY CHAINS FOR TRAILERS UP TO AND INCLUDING 3.5 TONNES ATM

Trailers up to 2.5 tonnes ATM must have at least one safety chain complying with AS 4177.4 - 1994 (Trailer and light trailer towing components – Safety chains up to 3.5 tonnes capacity), or as amended from time to time. This standard allows for steel safety chains in accordance with the following:

- up to 1.0 tonne, a chain size of 6.3 mm;
- up to 1.6 tonnes, a chain size of 8 mm;
- up to 2.5 tonnes, a chain size of 10 mm.

Trailers over 2.5 and up to 3.5 tonnes ATM must have two safety chains complying with AS 4177.4 - 1994 or as amended from time to time. This standard allows for steel safety chains in accordance with the following:

- up to 3.5 tonnes, a chain size of 13 mm.

The fitting of safety chains to trailers with a Gross Trailer Mass (GTM) greater than 2.0 tonnes and fitted with a brake system that automatically applies if the trailer becomes detached from the towing vehicle, is optional.

However, trailers of and in excess of 3.5 tonnes ATM, all medium and heavy category pig trailers with rigid drawbars, any other trailers without breakaway brakes and all fixed and rigid pig trailers with a GTM greater than 2.5 tonnes and fitted with automatic pin type couplings, must be fitted with safety chains in accordance with the information contained in AIS Information Sheet 12(b) – Safety Chain Requirements.

Draw Bar Safety Chain Attachments

The chain must be permanently attached to the trailer, shackles are not permitted.

For trailers up to 3.5 tonnes ATM, the safety chain attachment can be by welding. The weld must extend around 50% of the circumference of the link and the adjoining link must have free movement.

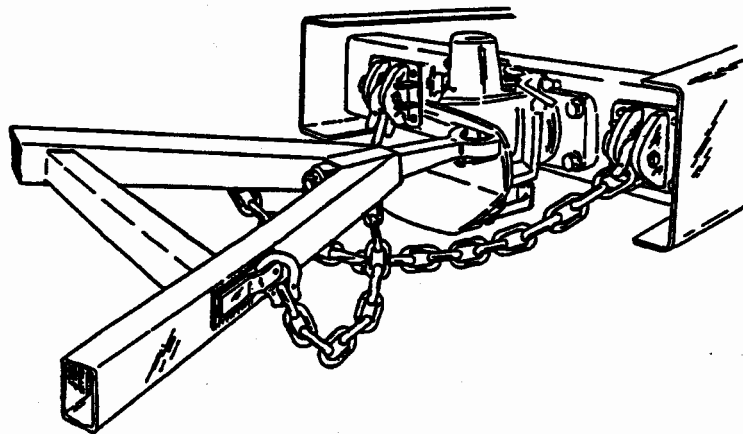
For trailers of and in excess of 3.5 tonnes ATM, safety chain attachment must not involve welding or deformation of the chain. Suitable pin lock couplings should be used.

The safety chain attachment must be located as near as practicable to the coupling and, where 2 points of attachment are required, they must be mounted one on either side of the centre-line of the draw bar.

AIS INFORMATION SHEET No. 12(b)

SAFETY CHAINS FOR:

- **TRAILERS IN EXCESS OF 3.5 TONNES ATM**
- **TRAILERS IN EXCESS OF 2.5 TONNES GTM**
WITH FIXED OR RIGID DRAWBARS AND
AUTOMATIC PIN TYPE COUPLINGS



All fixed or rigid pig trailers with a GTM greater than 2.5 tonnes and fitted with automatic pin couplings, all medium and heavy category pig trailers with rigid drawbars and any other trailers without breakaway brakes require safety chains.

It is strongly recommended that all other trailers be fitted with safety chains, especially vehicles used in severe conditions, e.g. quarry vehicles which are jackknifed regularly for unloading.

Safety chains complement the safety features of the trailer's "breakaway" braking system, allowing the driver to maintain control of the truck and trailer combination following a coupling failure or disconnection.

Safety chains **MUST** be supplied and fitted to comply with the following requirements:

Type of Chain

Chains must be manufactured from alloy steel of 800 MPa minimum breaking stress to conform with the mechanical properties of Grade T chain as specified in Australian Standard 2321-1979 [Short Link Chain for Lifting Purposes (non-calibrated)], commonly referred to as "Herc-Alloy" chain.

Required number and size of chains

Two separate chains must be used.

The size of each chain used on the trailer must correspond with the maximum gross mass of the trailer as indicated in the table on the following page. The use of chains larger than specified should be avoided to minimize the shock loading on attachment fittings in the event of coupling failure.

Gross Trailer Mass (tonnes)	Chain Nominal Size (mm)	Minimum Chain Braking Load (tonnes)
2.5 - 4.27	7.1	6.4
4.27 - 7.75	9.5	11.6
7.75 - 13.5	12.7	20.4
13.5 - 21.5	15.9	32.0

Arrangement of chains

Safety chains must be arranged so that:

- the chains are permanently attached to the trailer;
- the chains are crossed to support the draw bar and prevent it from dropping to the ground in the event of coupling failure or disconnection;
- the points of attachment to both the towing vehicle and the trailer must be as near as practicable to the coupling and arranged so as to maintain direction of the trailer in the event of coupling failure or disconnection.

Ensure that the attachment fittings do not foul on the rear of the towing vehicle or trailer drawbar under and possible operating conditions;

- the chains are as short as possible but long enough to permit proper turning of the vehicle;
- the brake hoses are of sufficient length to prevent them breaking in the event of a coupling failure or disconnection.

Attachment of chains

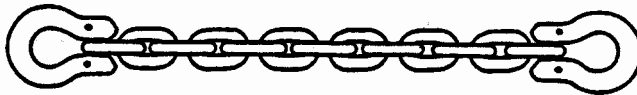
Safety chains must be attached so that:

- the attachments to the towing vehicle and the trailer are capable of withstanding the specified breaking load of each chain;
- the attachments of the towing vehicle and the trailer are separate from the coupling and its fasteners;
- chain coupling links ("Berglok" type BL Grade 8 or similar) are used to connect the chains to the trailer and towing vehicle.

Shackles are not permitted.

- The chain and coupling links are **NOT WELDED, DEFORMED OR ELECTROPLATED** subsequent to its manufacture.

TYPICAL SAFETY CHAIN ASSEMBLY



"Berglok" coupling link

"Berglok" coupling link

Note: The chain coupling attachment brackets and dimensional requirements appear on the last page of this attachment.

Chain attachment brackets

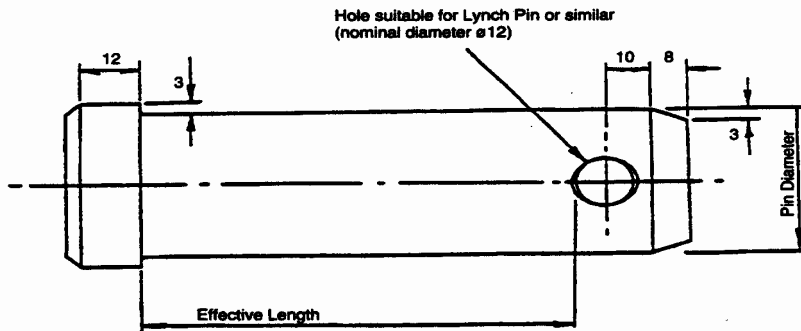
Preferred designs for safety chain attachment brackets and dimensional requirements appear on the last page of this information sheet.

"RAMSHORN' TYPE HOOKS ARE NOT PERMITTED.

Attachment pins

All pins used to connect safety chains to trailers and towing vehicles must be manufactured from steel bar with a minimum specification of 4140 or 4150 grade (Ultimate tensile strength – 1040 MPA) unless otherwise approved.

TYPICAL PIN DESIGN



Material - Steel 4140 (Alternative 4150)
(Metric Grade 10.9) - Ultimate Tensile Strength 1040 MPA)

Note: Standard agricultural 3-point linkage pins are **NOT** suitable because they are manufactured from a lower grade of steel and will not meet the load requirements.

It is acceptable to use a metric grade 10/9 bolt of the correct diameter providing that the threaded portion of the bolt is clear of the brackets.