

BARE KNUCKLE

TRAILER SAFETY CHAIN SYSTEMS



INSTALLATION INSTRUCTIONS

**Thank you for choosing
Bartlett Bare Knuckle®.**

- High strength, weld-on safety chain systems for trailers and trucks.
- Designed and manufactured by Bartlett, leading Australian transport engineers for over 70 years.
- Bare Knuckle® takes hold during accidental trailer separation to maintain the connection between truck and trailer and provide the best opportunity for a safe controlled stop.





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THE BARE KNUCKLE® RANGE

Australian Design Rule ADR62/02 specifies mandatory trailer safety chain grades, sizes and strength requirements.

The Bartlett Bare Knuckle® range consists of four kit sizes for trucks and trailers ranging from 2 tonnes up to 50 tonnes ATM.

Weld-on Bare Knuckle® safety chain attachments can be fitted to all types of trailers and towbars to enable compliance with all Australian heavy vehicle safety chain regulations.

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LEGAL REQUIREMENT

Australian Design Rule (ADR) 62/02 requires compliant safety chain attachments to be fitted to:

- Every towbar regardless of the intended type of trailer to be towed.
- Every Rigid Drawbar trailer

Vehicle Standards Bulletin 6 (VSB6) and the National Heavy Vehicle Inspection Manual **strongly recommends** safety chains be used on all trailer types (including hinged drawbar dog trailers).

Contact your preferred Authorised Vehicle Examiner (AVE) or State Roads Authority if clarification is required.

DISCLAIMER

Bartlett Equipment reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult Bartlett Equipment to determine whether any such changes have been made.

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THE RANGE

Table 1

Model & Rating	Grade Size	Attachment kits	Chain Sets*	Complete kits/ Truck & Trailer	CRN
BK10 Max ATM 10 t	10 mm	BK10-10T Towbar BK10-10D Trailer	BK10-L22 (680mm) BK10-L28 (860mm)	BK10-TDL22 BK10-TDL28	49479
BK13 Max ATM 21 t	13 mm	BK13-21T Towbar BK13-21D Trailer	BK13-L14 (570mm) BK13-L20 (800mm)	BK13-TDL14 BK13-TDL20	49480
BK16 Max ATM 32 t	16 mm	BK16-32T Towbar BK16-32D Trailer	BK16-L14 (700mm) BK16-L16 (800mm)	BK16-TDL14 BK16-TDL16	49481
BK20 Max ATM 50 t	20 mm	BK20-50T Towbar BK20-50D Trailer	BK20-L11 (700mm) BK20-L13 (820mm)	BK20-TDL11 BK20-TDL13	49482

* High tensile chain as specified in ADR 62/02



Patents and design registrations apply Aus, NZ, US

Trademarks apply

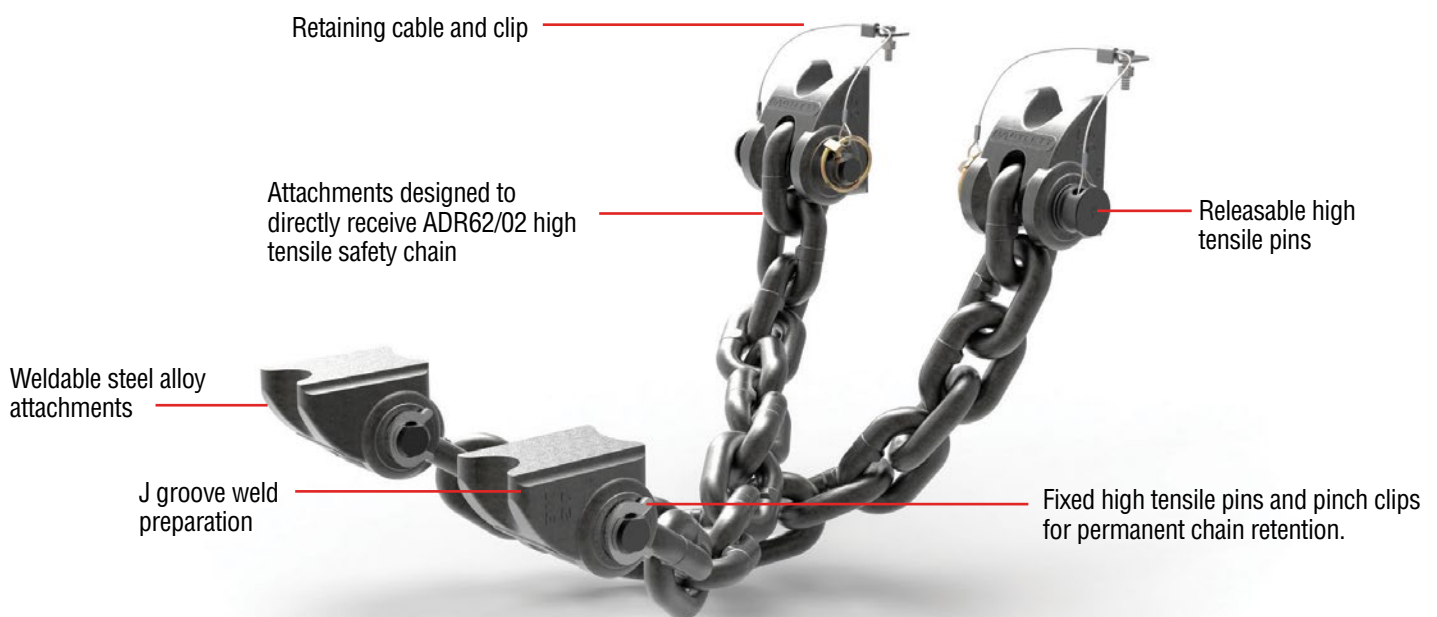


SYSTEM FEATURES

BARE KNUCKLE® (BK) TRAILER SAFETY CHAIN SYSTEM

Weld-on Safety Chain attachments designed to be as strong as the high tensile chain specified in ADR62/02

TOWBAR ATTACHMENTS



TRAILER ATTACHMENTS



INSTALLATION PREPARATION



IMPORTANT

PLEASE OBSERVE THE FOLLOWING PRIOR TO INSTALLATION

REGULATIONS

- All modifications must meet the requirements of Australian Design Rule ADR 62, Vehicle Standards Bulletin VSB6 and the vehicle manufacturer's specifications and all applicable standards.

INSTALLATION PERSONNEL

Fitment of a Bartlett Bare Knuckle® safety chain system must only be undertaken by qualified, competent and experienced personnel in a suitably equipped heavy vehicle workshop.

Where structural modification decisions are required, a suitably qualified person should be engaged to ensure the following:

- BK safety chain attachments are to be attached to structurally significant element of the towbar or drawbar.
- Modifications do not compromise the strength or structural integrity of the parent structure.
- All modifications satisfy the requirements of the relevant Australian Standards, Australian Design Rules or other relevant rules or regulations.

WORKSHOP

Works should be performed in suitably equipped heavy vehicle workshops with the following additional facilities:

- Fabrication facilities and qualified tradespeople to meet Australian Standard (AS)1554.
- Painting facilities
- Observe safe work systems, conduct risk assessments to ensure that so far as is reasonably practicable, that all operations are without risk to health and safety.

CONFIRM PRODUCT SELECTION AND CHECK KIT CONTENTS.

Confirm that the kit purchased is the correct rating for the towing application and matches the chain size required for the application.

Check the contents of your kit, refer to the specification sheet provided for towbar and trailer kit parts lists.



Kit - Correct rating and chain size checked



Kit contents - checked (refer to specification sheet provided)



VEHICLE SAFETY

Towing vehicles and trailers should be parked on flat dry surfaces, ensure vehicle handbrake is applied and trailer wheels are chocked.

Isolate vehicle electrical systems, computers and any component that could be damaged during modification and installation. (Refer to vehicle manufacturer's guidelines)

ELECTRICAL, PNEUMATIC AND HYDRAULIC SERVICES

Electrical, pneumatic and hydraulic service lines may require re-routing. Electrical work should only be performed by suitably qualified and competent tradespersons. Pneumatic and hydraulics system modifications should be carried out in accordance with the vehicle or ancillary equipment manufacturer's specifications and requirements.



DESIGN CONSIDERATIONS

TURNING CLEARANCES

Vehicle articulation and jack knife clearances in all directions of articulation and oscillation must be considered.

DRAWBAR / TOWBAR SUBSTRATE SECTION THICKNESS

Ensure that the minimum steel substrate thickness of the towbar or trailer drawbar meets the specifications as shown in Table 2.

Where the specifications shown in Table 2 can't be met, it is possible to increase the substrate thickness using a pad carefully designed by a suitably qualified competent person to meet the ADR requirements for the structure and in such a way that it does not degrade the integrity of the structure.

Table 2

System	Minimum base thickness
BK 10	6 mm
BK 13	6 mm
BK 16	8 mm
BK 20	8 mm

WELDING CONSUMABLES

Bare Knuckle Safety Chain Attachments are manufactured from high strength steel alloys. Please refer to Table 3 for suggested welding consumables.

Table 3

Welding process	Australian standard	Classification
MMAW	AS/NZS 4855	B-E49X6 U
GMAW	AS/NZS 14341	B-G49 0U



INSTALLATION

QUALIFICATIONS AND SKILLS OF INSTALLERS

Fabricators must be qualified and conduct all welding to the requirements of the current edition of AS/NZS 1554-1 Structural Steel Welding as recognised in the applicable jurisdiction.

RISK ASSESSMENT

Identify all hazards associated with installing the equipment, and put in place appropriate steps to eliminate or reduce risks to an acceptable level. Ensure that installation personnel wear appropriate Personal Protective Equipment (PPE) and that the work area is dry, safe, tidy and free from trip and slip hazards.

TOOLS AND EQUIPMENT

A typical installation will require a workshop equipped with the following equipment:

- MIG or manual arc welding machine
- Oxy Acetylene heating and cutting equipment
- Abrasive tools
- Lifting equipment adequately rated and fit for purpose
- Spanners and sockets, impact wrench and torque setting equipment
- A range of hand tools typically available in a well-equipped workshop
- A suitable painting system and painting equipment

PERSONAL PROTECTIVE EQUIPMENT

- Appropriate welding PPE
- Appropriate spray painting PPE
- Appropriate footwear
- Eye, ear and hand protection



1 POSITIONING – TOWBARS

PERMISSABLE MOUNTING ORIENTATIONS - TOWBAR

- Safety chain attachments must be placed as close as practicable to the coupling point and positioned to allow the chains to be crossed.

See Figures 1.1, 1.2, 1.3.

Fig 1.1 Front mount

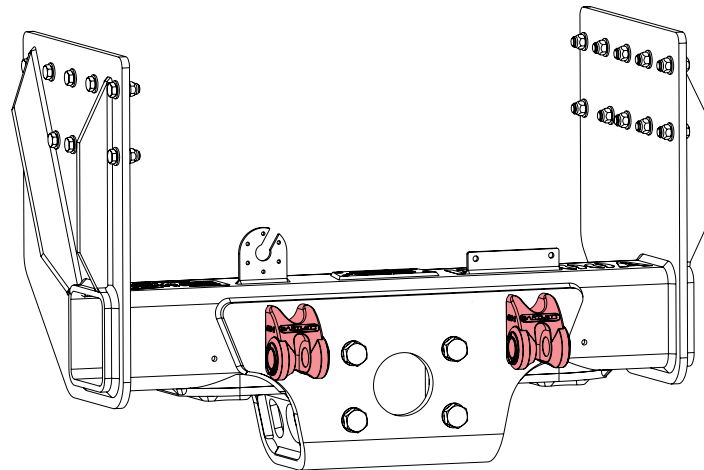


Fig 1.2 Undermount

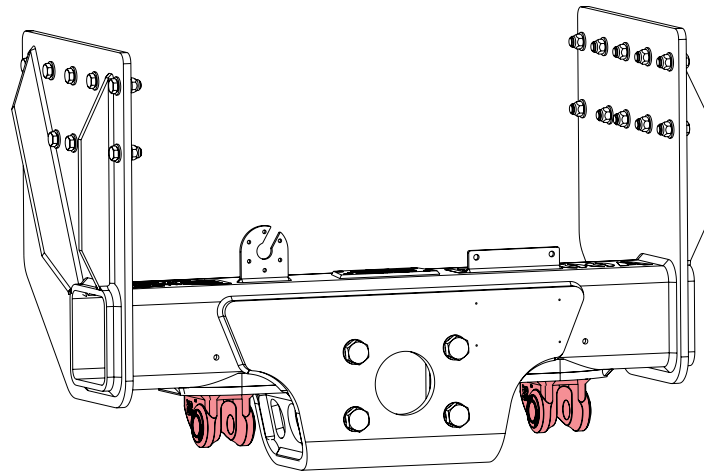
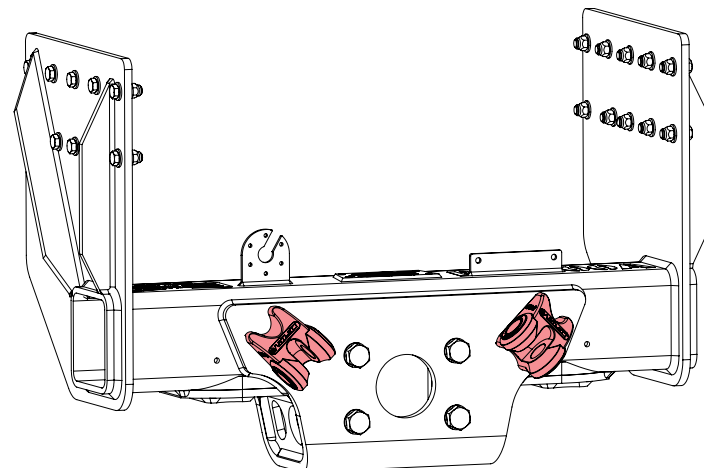


Fig 1.3 Angled mount (45 degree)



1 POSITIONING – DRAWBARS

PERMISSIBLE MOUNTING ORIENTATIONS

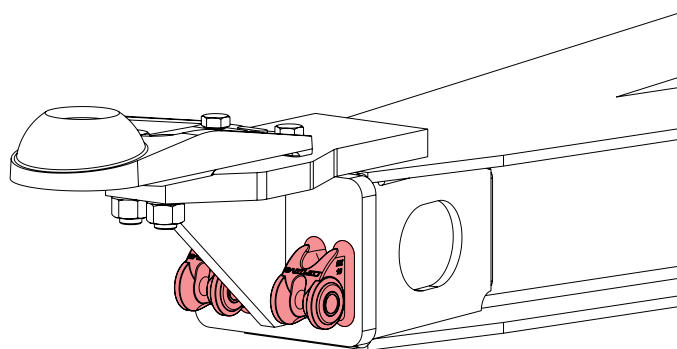
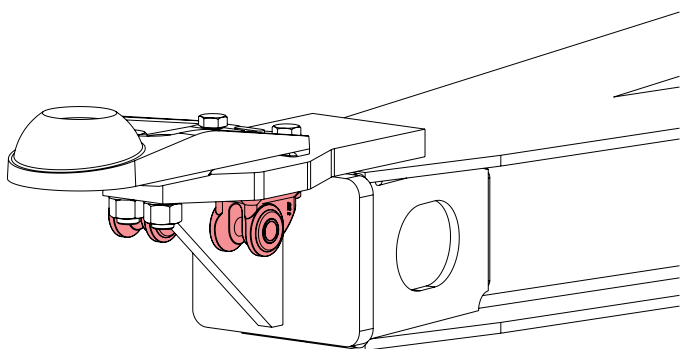
RIGID DRAWBARS

Rigid drawbar - PIG or TAG trailer Mount BK attachments flat under the drawbar or on vertical face. (see Figure 1.4)

Fig 1.4

(a) Under mount

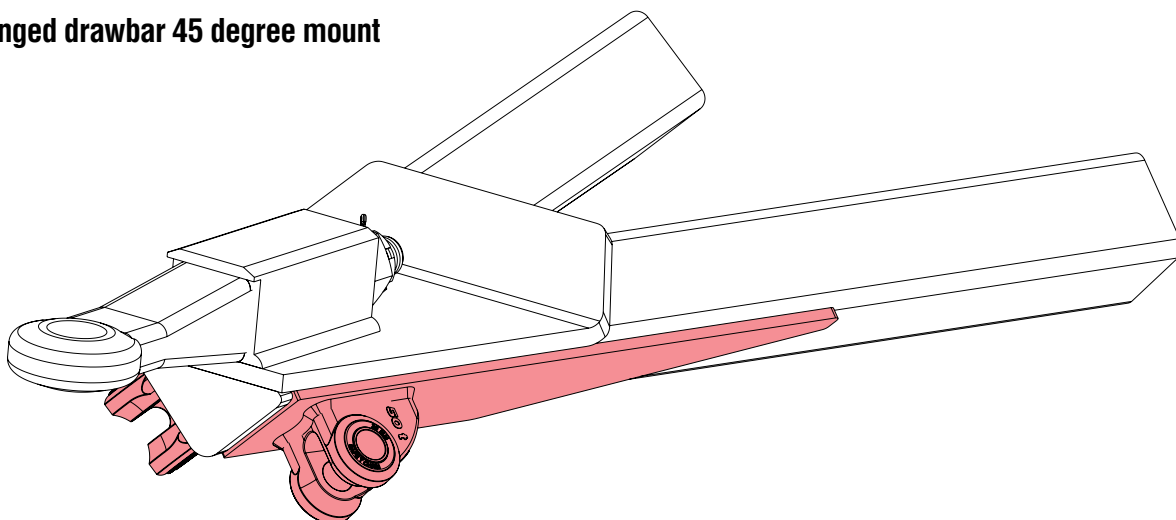
(b) Vertical face mount



HINGED DRAWBARS

BK attachments may be mounted at 45 degrees on Hinged drawbars. This may require considered reinforcement to mounting substrate. Metal plate pictured in Figure 1.5.

Fig 1.5 Hinged drawbar 45 degree mount



2 WELDING PROCESS

MOUNTING SURFACE PREPARATION

- Remove any dirt, grime, paint, scale and rust from all surfaces to reveal clean surface for welding.
- Wipe down area to be welded with solvent. Make sure all surfaces are dry before welding.

APPLICABLE AUSTRALIAN STANDARD

- All welds must be undertaken in accordance with the requirements of AS/NZS 1554 or equivalent welding standards in the applicable jurisdiction.

Step 1 J-Butt welds

BK safety chain attachments have a J-Preparation groove formed both sides on the base of each size BK attachment.
Weld both sides of attachments to substrate as described below.

Table 4

	BK 10	BK 13	BK 16	BK 20
Preheat condition	NO PREHEAT REQUIRED			
J-Butt weld, number of passes - typical	1	1	1	1

Fig 2.1 Single J-Butt weld both sides

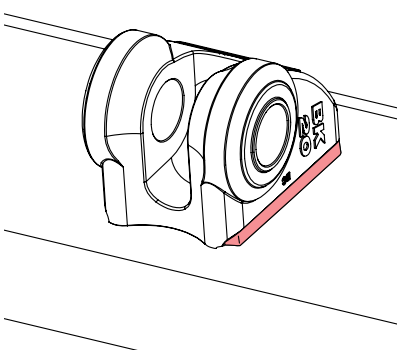
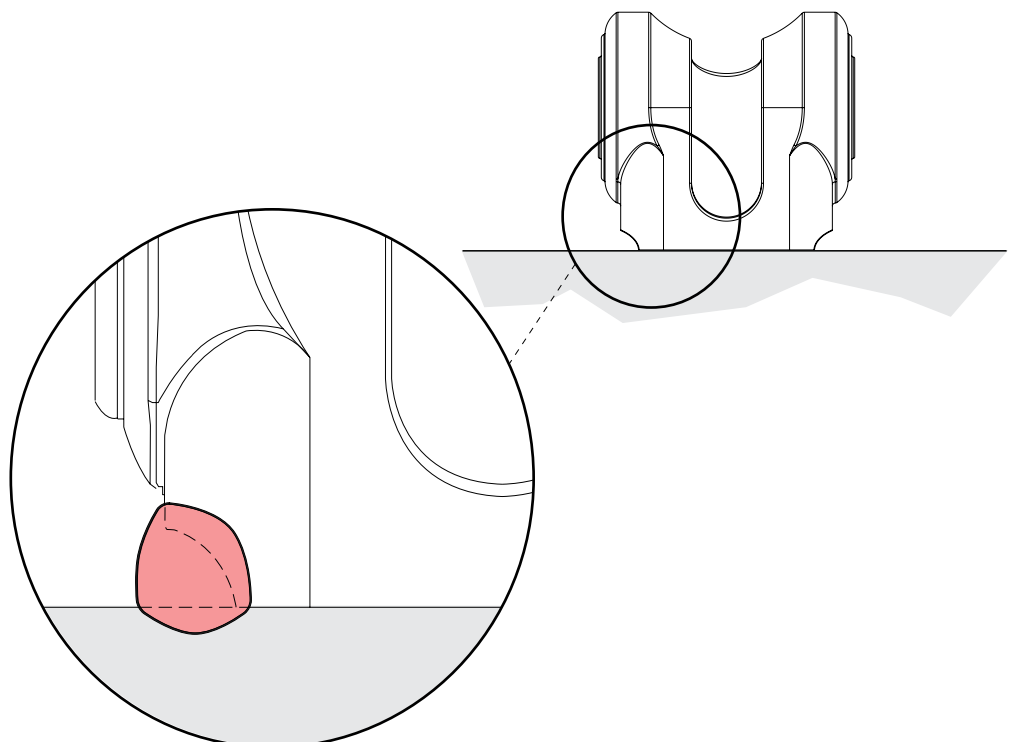


Fig 2.2 J-Butt weld cross-section



2 WELDING PROCESS *(Continued)*

Step 2 Fillet weld all around

Weld around complete perimeter of attachments to complete process. Ensure a watertight seal.

Table 5

	BK 10	BK 13	BK 16	BK 20
Weld fillet size	6	6	8	8
Minimum number of passes over fillet surfaces (All around see fig. 2.3)	1 or 3	1 or 3	1 or 3	1 or 3

Fig 2.3

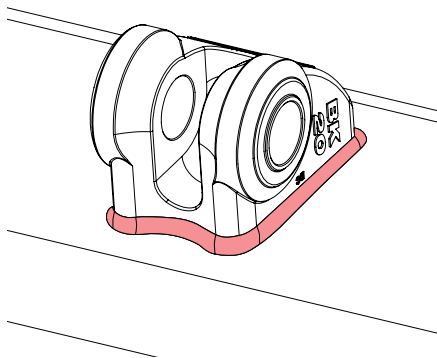
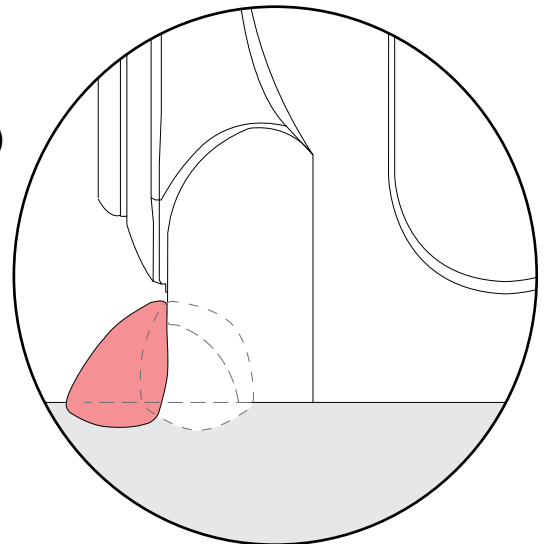


Fig 2.4

Fillet Weld all around

Single pass fillet weld (x1)
OR multi-pass fillet weld (x3)

See Table 5



3 FINISHING AND ASSEMBLY

- Wire brush to remove any weld residue.
- Paint with suitable primer and surface coating to prevent corrosion.
- **Trailer Attachments:** Fit end link of chain into trailer attachment and capture using fixed (grooved) pin*. Insert pinch clip into groove, clinch end tabs of pinch clip with multigrips or similar to close securely. **(Fig. 3.1)**
*Consider direction of pin before clinching pinch clip. Ensure length of chains is as short as practicable without restricting articulation or oscillation in all directions. Chains must not drag on the ground.
- **Towbar Attachments:** Drill hole Ø 6mm in Towbar for P-Clip. Insert Drawpin retaining cable into P-Clip, fix P-Clip to towbar using fasteners supplied **(Fig 3.2)**.
- **In Service:** Insert trailer chain into towbar attachment and secure using drawpin and locking Lynch Pin. **(Fig 3.2)** Chains must be crossed to better constrain trailer drawbar movement. **(Fig. 3.3)** Ensure electrical, pneumatic and hydraulic service lines are not tangled or restricted by the chains.

Trailer attachment

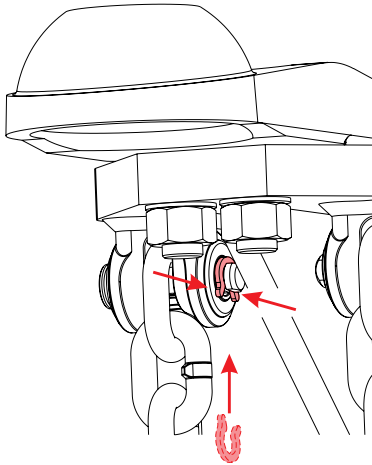


Fig 3.1 Trailer attachment, close pinch clip with multi-grips or similar to permanently retain safety chain.

Towbar attachment

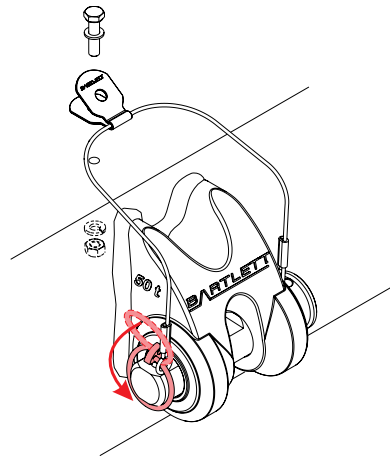


Fig 3.2 Towbar attachment assembly, secure lynch pin and lanyard with fasteners supplied.

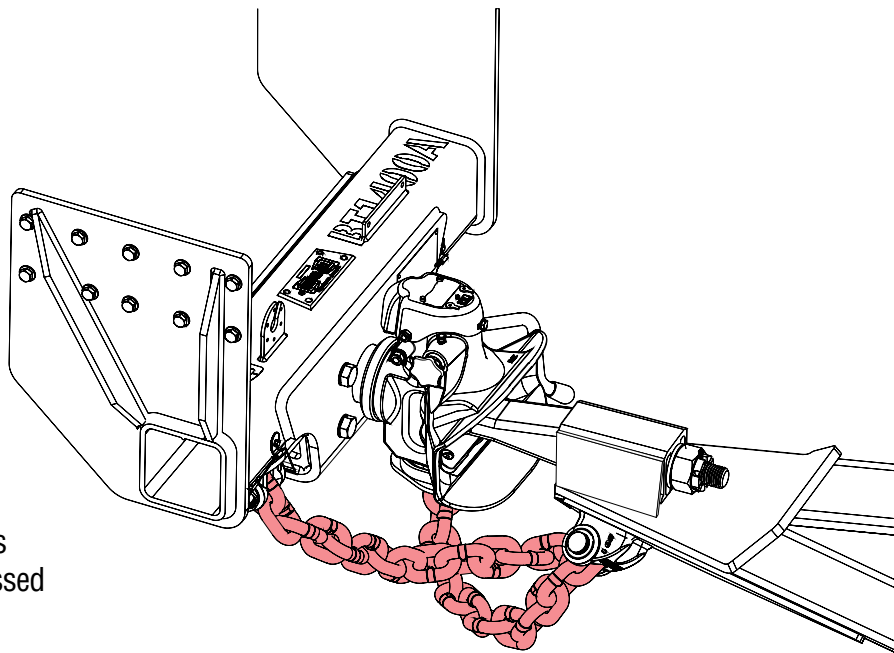


Fig 3.3 Safety chains must be crossed

4 OPERATIONAL WARNINGS

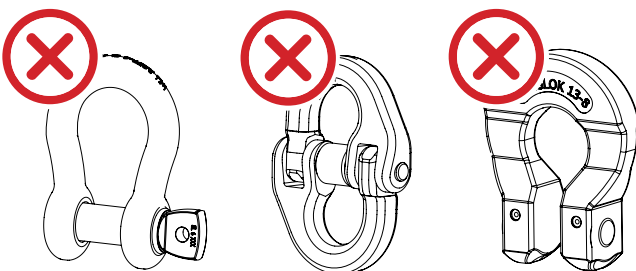


Fig 4.1

Bartlett Bare Knuckle® safety chain attachments are designed to directly accept the designated chain size. Chain connectors are not necessary. **(Fig. 4.1)**

- Shackles such as D-shackles are prohibited for use on heavy vehicles
- Heavy chain connectors, such as Hammerloks and Bergloks are not required with Bartlett safety chain attachments
- Trailer safety chains & BK attachments involved in an accident involving trailer separation should be replaced.

WARRANTY AND PRODUCT SUPPORT

WARRANTY STATEMENT

1. This warranty is given by Bartlett Transport Improvements Pty. Ltd. (BTI)

Address: 6-8 Abbott Road, Hallam, Victoria, Australia 3803
Phone: +61 3 9796 3222
Email: sales@bartlett-equip.com.au
2. All of our products and components (Goods) come with consumer guarantees that cannot be excluded under the Australian Consumer Law, as set out in Schedule 2 of the Competition and Consumer Act 2010 (ACL). You are entitled to a replacement or refund for a major failure and may also be entitled to compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the Goods repaired or replaced if the Goods fail to be of acceptable quality and the failure does not amount to a major failure.
3. The benefits of this Warranty are in addition to those consumer guarantees under the ACL, together with any other rights and remedies imposed by an Australian State and Federal legislation that cannot be excluded.
4. For safety and use instructions of the Goods, please refer to any instructions for installation and maintenance enclosed with the Goods that you have purchased. If you have any doubts about the safety or instructions of the goods, please discuss your concerns immediately with a BTI representative.
5. In all circumstances where BTI is permitted to do so by law, BTI's liability in respect of goods manufactured, imported, assembled or supplied by it (including but not limited to liability pursuant to the ACL) is limited to the replacement or repair of the goods, or the payment of the cost of replacing or repairing the goods, at BTI's option.
6. This Warranty applies to the original purchaser ("Purchaser") only of any product or component product that is purchased from an authorised BTI distributor or dealer.
7. Where the sale of Goods is made to the Purchaser as a consumer under the ACL:
 - (a) the Goods are supplied subject to the consumer guarantees under the ACL (Consumer Guarantee);
 - (b) BTI's liability under the ACL is limited to the maximum extent possible under the ACL;
 - (c) if the Goods fail to meet any Consumer Guarantee, the Purchaser will be entitled to such rights and remedies as are permitted or provided in the ACL for such failure, to the extent that such rights and remedies cannot be lawfully excluded. The Purchaser may only exercise any right or remedy for breach of a Consumer Guarantee strictly in accordance with its rights and responsibilities under the ACL; and
 - (d) Where the Goods are not ordinarily acquired for personal, domestic or household use or consumption, then, unless BTI is the manufacturer of the Goods under the ACL, BTI's liability for breach of a Consumer Guarantee is limited, at BTI's option, to repairing or replacing the Goods, supplying equivalent Goods or paying the cost of the repair or replacement of the Goods or of acquiring equivalent Goods.
8. Where the Purchaser resupplies the Goods to a consumer and the Goods are not ordinarily acquired for personal, domestic or household use or consumption, BTI's liability to the Purchaser in connection with any breach of a Consumer Guarantee in respect of the Goods is limited to paying the Purchaser an amount equal to the cost of replacing the Goods, supplying equivalent Goods, or having the Goods repaired, whichever is the lower amount.
9. Nothing in this Warranty will:
 - (a) limit or exclude the liability of a party for death or personal injury resulting from negligence;
 - (b) limit or exclude the liability of a party for fraud or fraudulent misrepresentation by that party;
 - (c) limit any liability of a party in any way that is not permitted under applicable law; or
 - (d) exclude any liability of a party that may not be excluded under applicable law,and any statutory rights that the Purchaser has where the Purchaser is a consumer and not a business, that cannot be limited or excluded, will not be limited or excluded by the Warranty.
10. The limitations and exclusions of liability set out in Clauses 7-9 and elsewhere in the Warranty:
 - (a) are subject to Clauses 7 and 8; and
 - (b) govern all liabilities arising under the Warranty or in relation to the subject matter of the Warranty, including liabilities arising in contract, in tort (including negligence) and for breach of statutory duty.
11. Subject to clauses 7 and 8:
 - (a) BTI shall under no circumstances whatsoever be liable to the Purchaser, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any loss of profit, or any indirect or consequential loss arising under or in connection with the Warranty; and
 - (b) BTI's total liability to the Purchaser in respect of all other losses arising under or in connection with the Warranty, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, shall in no circumstances exceed the price of the Goods.

WARRANTY CLAIMS

12. Subject to the exclusions and limitations outlined below, BTI warrants that all of its Goods will be free from defects in materials and workmanship within the first 12 months that the Goods are purchased (Warranty Period).
13. BTI reserves the right in its sole and absolute discretion to either:
 - (a) repair the Goods free of charge;
 - (b) replace the Goods; or
 - (c) refund the Goods to the original Purchaser, subject to and conditional of the following:

WARRANTY AND PRODUCT SUPPORT

WARRANTY STATEMENT

- (d) any defect in materials or workmanship appears in the Goods within the Warranty Period. The Warranty Period commences on the date of sale by the authorised BTI stockist to the Purchaser;
 - (e) any warranty claim with respect to a defect in the materials or workmanship of the Goods is to be made within thirty (30) days of the Purchaser becoming aware of the defect (Warranty Claim).;
 - (f) you provide proof of original ownership (such as a receipt that shows the date of the purchase) of the Goods, details of the alleged defect and any other information and assistance that BTI reasonably requires to investigate the cause of the defect;
 - (g) you provide a fully completed, signed and dated BTI Warranty Claim Form (which can be found at <http://integratedtowingolutions.com/>) that specifies:
 - (i) your name;
 - (ii) your company (if applicable);
 - (iii) your position (if applicable);
 - (iv) your postal address;
 - (v) your email address; and
 - (vi) your phone number.
 - (h) BTI has investigated the Warranty Claim and BTI finds the defect to be the sole and direct cause of damage to the Goods.
- 14.** You should sign and date the Warranty Claim Form and forward a copy to BTI at the address set out in paragraph 1.
- 15.** Upon receipt of your Warranty Claim Form, BTI will give authority for your Warranty Claim to be investigated and reported on by an approved BTI service centre or authorised agent.
- 16.** You should not dispose or destroy the defective Goods.
- 17.** BTI reserves the right to:
- (a) change the design, specifications or composition of the Goods without notice and without liability; and
 - (b) replace the Goods with Goods of a similar quality, grade and composition, where an identical Goods are not available.
- 18.** Goods presented for repair may be replaced by refurbished Goods of the same type rather than being repaired. Refurbished parts may be used to repair the Goods.
- 19.** The costs associated with a Warranty Claim made against this Warranty are to be borne solely by you.
- 20.** If you require BTI to remove a Product from your vehicle in order to replace it, any labour costs incurred will be charged to you at the reasonable cost of BTI or if it is necessary for BTI to engage a contractor, at the reasonable cost of the contractor.
- 21.** If BTI replaces a Product under this Warranty, you agree that ownership of the defective Product is transferred to BTI.

EXCLUSIONS

- 22.** This Warranty is limited to defects in the materials or workmanship of the Goods and does not cover accessories and expendable parts. Normal wear and tear, degradation or consumption does not constitute a defect of materials or workmanship, and is not covered by this Warranty.
- 23.** This Warranty does not apply to the Goods where:
- (a) the Goods have been on-sold or assigned by the original Purchaser. This Warranty applies only while the Goods are owned by the original Purchaser. This Warranty does not apply to Goods that are purchased second hand, whether purchased or installed on a vehicle or purchased separately;
 - (b) its instructions for installation and maintenance have not been complied with;
 - (c) the Product has been used outside the normal tolerances or capabilities specified by BTI;
 - (d) the Product has been repaired, modified, altered or overhauled by someone other than by BTI or an authorised BTI service centre;
 - (e) replacement parts which are not genuine BTI parts have been used;
 - (f) BTI cannot establish any fault in the Goods after testing undertaken by BTI;
 - (g) The Goods have been used other than for the purpose for which they were designed;
 - (h) The Goods have been subject to abnormal conditions, including temperature, water, humidity, pressure, stress, corrosion, works conducted at a port, coastal area or beach, dust suppression agents, or similar;
 - (i) The defect in the Goods has been subject to abuse, misuse, misapplication, neglect, corrosion, poor maintenance, improper service practices or accident on the part of the Purchaser;
 - (j) The defect in the Goods has arisen due to the unlawful or unusual operation of the vehicle to which it is fitted;
 - (k) The defect in the Goods has arisen due to the unlawful or unusual operation of the vehicle to which it is fitted;
 - (l) The defect in the Goods has arisen due to the Purchaser's failure to properly assemble, install, fit, maintain or use the Goods in accordance with the specifications and instructions provided by BTI or the manufacturer (as applicable); and
 - (m) The defect in the Goods has arisen due to the overloading of the Goods beyond their recommended or specified capabilities.



BARTLETT®
INTEGRATED TOWING SOLUTIONS

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