

# Tow Hitch Mounting Bolts and Safety Chain Attachments

The following document has been prepared by TCS to provide guidance to vehicle modifiers when installing a tow hitch onto a vehicle.

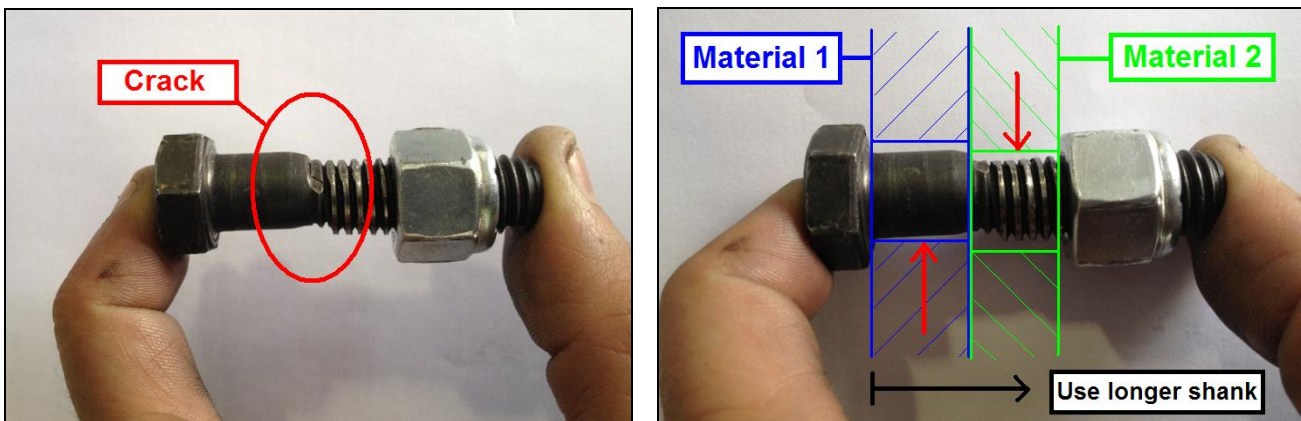
These guidelines are supplied without prejudice and TCS will not be held liable for any problems that arise from misinterpretation of these guidelines or from the introduction of new rules after the issue date of these guidelines. The following documents take precedence over this document and should be read in conjunction with the guidelines in this document:

1. Vehicle Standard (Australian Design Rule 62/xx – Mechanical Connections Between Vehicles)
2. VSB-6 Sections H & P: National Code of Practice for Chassis Modifications and Tow Coupling Installations on heavy vehicles

All modifications must be carried out by a suitably qualified tradesperson in accordance with the relevant Australian Design Rules, Australian Standards and National Codes of Practice. Any uncertainties should be discussed with TCS prior to commencing the modification.

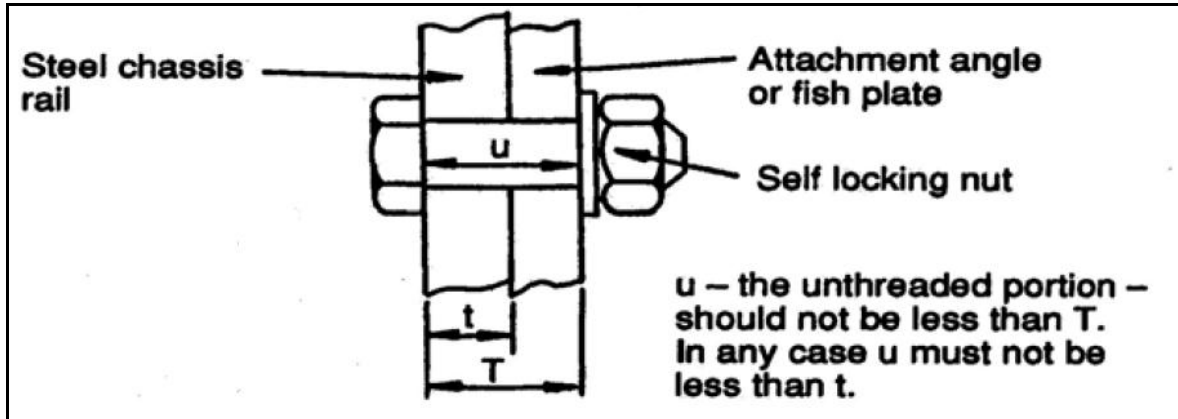
When installing a tow hitch cross member to a vehicle, the mounting bolts should be installed in accordance with the above mentioned rules and the manufacturer's instructions. Further to these rules and instructions, TCS recommends that the shank (unthreaded region) of all mounting bolts should extend past the interface of the vehicle chassis and the tow hitch cross member. Failure to adopt this method can increase the likelihood of the mounting bolts breaking if the tow hitch experiences a sudden jolt.

An example of this type of failure is shown in the figure below; the bolt is being held together for the photo, but it sheared in half during physical testing. The physical testing was being conducted on a component unrelated to a tow hitch, but the lessons learnt from the testing have been applied to all situations where this failure could potentially occur, including the installation of tow hitches. Material 1 represents the vehicle chassis and Material 2 represents the tow hitch cross member.



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This is also stated in Section P of VSB6 (see diagram below from page 17 of Section P). Obviously there must be sufficient thread available to properly engage the nut; additional washers should be used where necessary to prevent the nut engaging the shank.



There is a common misunderstanding by many people in the industry that safety chain attachment points are not required if an automatic pin coupling is installed on the tow hitch cross member. This is not always correct. Evidence for this is provided below:

## **ADR 62/00:**

6.2.

### Safety Chain Attachments

The 'Towbar' must be fitted with safety chain attachments to withstand the loads imposed. Vehicles having a towing capacity (i.e. the 'Aggregate Trailer Mass' for which the towing vehicle is designed) of 2.5 tonnes or more must be fitted with 2 safety chain attachments mounted one on either side of, and adjacent to, the tow 'Coupling'.

## **ADR 62/01:**

13.4.1.

For vehicles other than those designed for use in 'Road Trains', the 'Towbar' must be fitted with two safety chain attachments, of strength meeting the requirements of clause 13.4.2, mounted one on either side of, and adjacent to, the tow 'Coupling'.

## **ADR 62/02:**

13.4.1.

Except for vehicles designed for use in 'Road Trains', the 'Towbar' must be fitted with two safety chain attachments, mounted either side of and adjacent to, the tow 'Coupling'.

The conditions under which safety chains must actually be used are defined in the relevant ADRs.