

INSTALLING PACKERS ON A CHASSIS WITH FLANGE RIVETS

The following document has been prepared by TCS to provide guidance to vehicle modifiers when installing a body onto a vehicle that has rivets and/or bolts protruding above the upper surface of the top chassis rail flanges.

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 should be read in conjunction with these guidelines:

1. VSB-6 Section J: National Code of Practice for Body Installations on heavy vehicles
(takes precedence over TCS guidelines)
2. VSB-6 Section H: National Code of Practice for Chassis Modifications on heavy vehicles
(takes precedence over TCS guidelines)
3. OEM Modification & Body Building Guidelines
(takes precedence over VSB-6 and TCS guidelines)

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.

Packers are often installed in the manner shown in Figure 1 below. Installing these small packers subjects the upper chassis rail flange to localised stresses and can lead to deformation of the flange. The engineers at TCS have witnessed the after-effects of such deformation and subsequent chassis failure and for this reason TCS **will not** issue a VASS certificate for vehicles that have packers installed in this manner. TCS **will only** issue a VASS certificate if the packers extend along the full length of the sub-frame, (if this is not practicable, TCS should be consulted prior to commencing the modification).

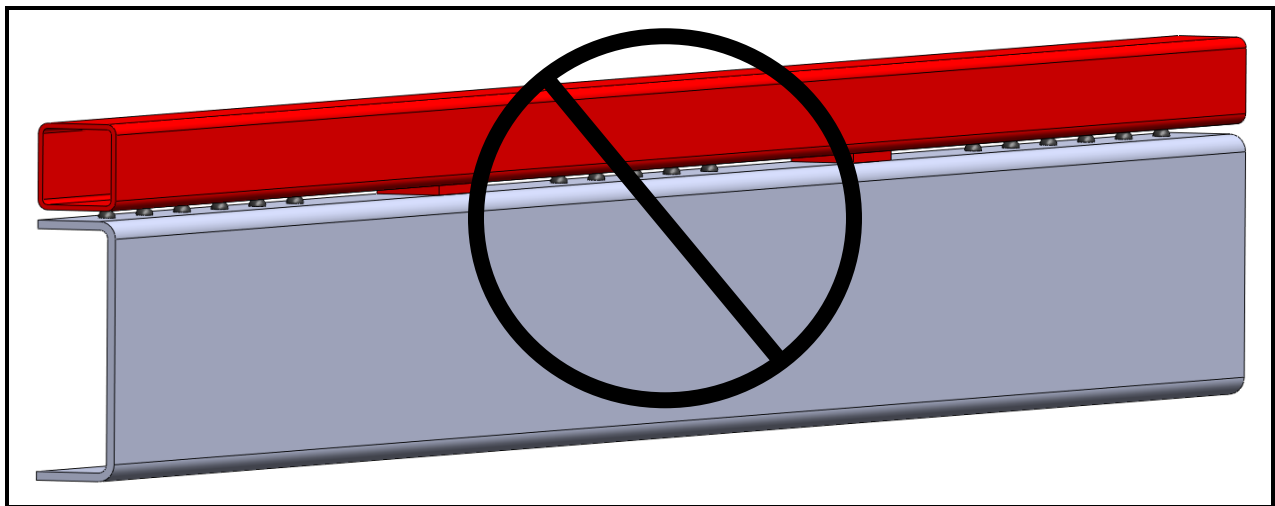


Figure 1: Unacceptable Packer Installation between Chassis and Sub-Frame

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Ideally, full length packers should be installed prior to installing the subframe and body. One method of achieving this is to measure the locations of the rivets then cut holes in the packers so they can sit flush on the upper surface of the top chassis rail flange. This method prevents the packers from falling out as they are held in place by the rivets. Once the packers have been installed, the subframe can rest on the packers and the body can be installed in accordance with Section J of VSB-6.

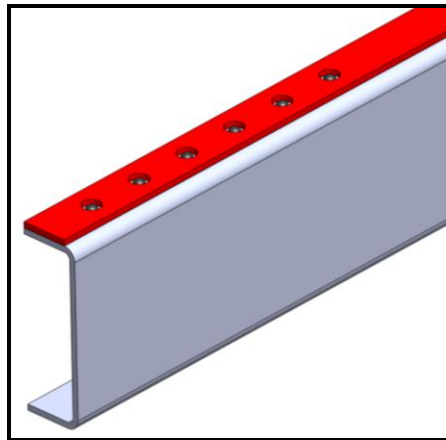


Figure 2: Preferred Packer Configuration (Sub-Frame not shown)

If the body has already been installed and the packers are not satisfactory, the problem can be rectified by installing full width packers in the regions where rivets/bolts are not present and installing narrower packers either side of the rivets, as shown in Figure 3 below:

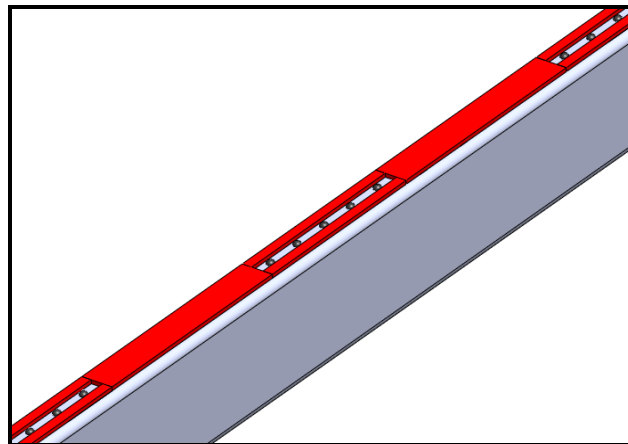


Figure 3: Possible Packer Configuration for pre-existing bodies (Sub-Frame not shown)

If this method is used, the packers must be adequately secured so that they do not fall out. If metal packers are used, it may be acceptable to weld them to the sub-frame in a manner which doesn't affect the structural integrity of the chassis. Care should be taken to ensure the chassis is not subjected to high temperatures. Packers and/or any other brackets/equipment must never be welded to the chassis.

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Revision 1:

Since the introduction of this information sheet on 14 June 2013, several vehicle modifiers have asked if the following packer configuration is acceptable:

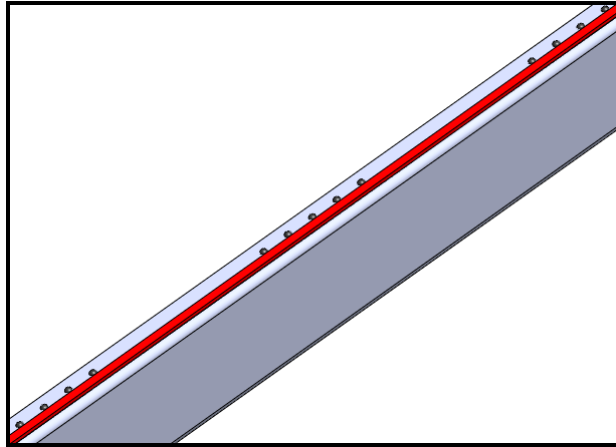


Figure 4: Alternative Packer Configuration to Figure 2

As long as the contact surface between the chassis and the packer is consistent along the length of the packer, this configuration is also acceptable.

Why follow these rules?

TCS is often engaged to provide repair advice when a structural failure has occurred on a vehicle. The photos below show the potential consequences for not following these guidelines.



Figures 5a, 5b and 5c: Alternative Packer Configuration to Figure 2

It is evident from the figures 5a to 5c that excessive vertical chassis vibration has occurred in the region where continuous packers are not present, which contributed to the cracks around the suspension hanger bolts. Inserting a continuous packer between the chassis and the sub-frame would have greatly reduced this chassis vibration.