



How Loose Axle U-bolts cause Highway Havoc

Highway Disaster caused by a Humble U-Bolt

Loose U-bolts cause highway havoc for unsuspecting caravaners.

The reality of not checking your rig before heading on your family holiday can quickly become a nightmare.

An unsuspecting driver forgot to re-tighten u-bolts after the first 300 kilometres from new comes to grief.

The axle in the photo is a heavy-duty 50mm square, Australia made axle with 12" electric backing plates and Alko drums. All of the equipment is first class, no problems here.

The equipment on the trailer was nearing its total capacity of 4.5t, so this is quite a severe accident.

The cause of the accident was found to be loose u-bolts. Notice the u-bolt axle clamp still intact on the right-hand side of the trailer? The leaf spring has broken; however, some portion of the spring should be retained by u-bolt clamp.

The left side of this axle is severely damaged. The u-bolts have become so loose the axle has moved back, possible under shock loading and become detached from the u-bolt clamping system.

The axle had then rattled around inside the spring camber area until it had broken the spring and bent the axle when it exited the trailer undercarriage.

Question: I have read everything, is there anything to need to buy, what are you selling?

Answer: Nothing to buy, you only need to tighten your nuts :-)

U-bolts and Australian Standards for Caravans Currently, I am unaware of any Australian Standard for the u-bolts used in the caravan or trailer industry.

A problem is created when dealers and customers ask for torque settings. It also creates issues removing the hydrogen embrittlement that often causes u-bolts to bend or break easily.

The standard u-bolt used in the industry is SS400 grade steel coupled with a 1/2" BSW thread.

Although higher tensile steels are available, the industry is unmoved by demanding a better standard of clamping axle and spring to the caravan chassis.

Couplmate is currently investigating and testing higher grade steels for use within the caravan industry that does not require re-tightening at the 1st service.

It is essential chassis components are designed to be world-class. Couplmate will continue R&D on this issue.

Manufactures of note, including Al-ko and Couplmate, specify torque settings for caravan and trailer u-bolts.

Typical sizes of u-bolts and their ratings are: 1/2" BSW - up to 1500kg per axle 5/8" BSW - up to 2250kg per axle 5/8" UNF High Tensile - over 2250kg Cutting U-Bolts It is often the case that buyers of u-bolts do not measure or take a sample of a u-bolt to their trailer shop when purchasing new u-bolts.

This procedure sounds straight forward; however, the nylon inside the nylock will melt when given enough heat. The melted plastic inside nylock will cause the nut to unwind on the highway.

The fix is to measure the u-bolt and cut it before installation. An ounce of care is worth a tonne of cure.

Couplmate U-Bolt Testing 0We all agree this is a pretty scary event that has a simple solution.

Couplmate u-bolts have been tested to rupture at 23t, evidenced by the photo from our testing laboratory.

The test was undertaken with a 200t press utilising a 50mm square K1045 axle section.

We estimated the forces need to bend this axle when exiting the undercarriage were more than 23t.

Under close inspection and upon talking to the customer, it can be seen the axle has done a few kilometres on the road. However, the u-bolts were never tightened as is recommended on all trailer construction.

This is especially true when carrying heavy loads. Yes indeed, loose axle U-bolts cause highway havoc.

The image below was taken when I was checking my boat trailer for the first time in many years.

It surprised me the nuts on my boat trailer were re-tightened by 1/2 turn.

Retightened U-bolts gave me peace of mind for the entire trip. I encourage you to check the tightness of your u-bolts with a socket today before you forget.

Loose u-bolts are one of the most underrated issues in the Caravan and Camper industry.

Check yours and see if I am right? Did your mechanic check them on your last service? Did you ask him to check the u-bolts? Why U-bolts may be the Major Cause of Accidents Finally, if you found this article helpful, I invite you to leave a comment at the bottom of the page.

Retightening U-bolts gave me peace of mind for the entire trip.[/caption]Loose Axle U-bolts cause Highway Havoc

Contacts

Stephen Wotherspoon

+61733483822

mailto: steve.wotherspoon@couplemate.com.au